Litt's

DRUG ERUPTION & REACTION MANUAL

24th EDITION

Jerome Z. Litt
Neil H. Shear
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To Vel – my Muse

JZL
Editors' introductory notes

Any drug has the potential to cause an adverse reaction. An adverse drug reaction (ADR) is an unwanted, unpleasant, noxious, or harmful consequence associated with the use of a medication that has been administered in a standard dose by the proper route, for the purpose of prophylaxis, diagnosis, or treatment. Death is the ultimate adverse drug event. ADRs are a major problem in drug therapy. They are the most common of all iatrogenic illnesses that complicate up to 15% of therapeutic drug courses, and are a leading cause of morbidity and mortality in healthcare. ADRs should therefore be considered in the differential diagnosis of a wide variety of medical disorders. Many more people – particularly the elderly – are taking more and more prescription and over-the-counter medications. In addition, new drugs are appearing in the medical marketplace on an almost daily basis. It is unsurprising, then, that more and more drug reactions and cutaneous eruptions are emerging.

Prevention, diagnosis and treatment of adverse drug events are becoming increasingly complex, and it is to be expected that physicians in all specialties are often perplexed by the nature of ADRs. To this end, I now offer a new and improved edition that has evolved from the treasured Drug Eruption Reference Manual of previous editions. I hope that you will find this new edition informative and valuable.

Enjoy!

Jerome Z. Litt, M.D.

“Is it safe?”

I am frequently asked that big question from a patient: “Is it safe?” This text is meant to help all prescribers, dispensers and patients understand what the risk of harm might be; whether it is from a drug reaction or interaction, Litt’s is the go-to information source. How does this information help answer the unanswerable? Simply put, safety is a process, not a question. With the right information at hand a safe environment can thrive; the most up-to-date relevant data help peel away background noise from a seemingly infinite number of sources. This new edition adds additional support to a risk management environment, and we will continue to provide the most up-to-date and relevant information. I look forward to feedback and suggestions. I thank Jerry Litt for this great opportunity and the awesome work of the team at T&F to keep on top of all new medications that are making the landscape even more complex.

Neil H. Shear, M.D., F.R.C.P.C., F.A.C.P.

Litt’s Drug Eruption & Reaction Manual – at a glance

This 24th edition has been revised and updated throughout to present a quick clinical reference guide to adverse drug reactions (ADRs), side effects, drug interactions and other safety information for prescription and over-the-counter medications. There is also material on reactions caused by classes of drugs, enabling you to see at a glance whether a reaction is common to all the drugs in that particular class, or to a majority of them, or only to a significant few.

The aims of this edition remain:

1. To help medical practitioners make informed and safe decisions when diagnosing and prescribing, and also when generally seeking information.
2. To help healthcare professionals remain pharmacovigilant.
3. To provide all physicians, lecturers, educators and pharmacists with an easy-to-use and reliable quick reference tool.

The full and comprehensive picture for all drugs – from which our information derives – can be found at our website database (www.drugeruptiondata.com), which is updated continually. Space in the manual is, unfortunately, constrained, so full profiles for various generic drugs have been eliminated from this print manual because either they have been withdrawn from the marketplace or they are rarely, if ever, prescribed today; new to this edition are links to their basic profiles in the website database. Important new drugs added to this edition of the manual are noted with an asterisk.
A note on ADRs

The incidence and severity of ADRs are influenced by a number of factors:

1. **Patient-related factors:**
   - **Age** – geriatric, pediatric, adolescent... older patients are taking more medications—hence more of a possibility of developing reactions; pediatric patients have more delicate skins; hormonal changes occur in adolescents... All these factors play roles in the development of possible adverse reactions.
   - **Gender** – male or female – and if the latter, then pregnant/breast-feeding/menopausal...
   - **Disease** – not only the disease being treated, but also other pre-existing health conditions and comorbid diseases. For example, atopic patients are at increased risk for serious allergic reactions. Also, there would be an increased risk for hypersensitivity drug reactions if the patient has asthma or lupus erythematosus.
   - **Genetics** – a patient could have abnormal drug metabolism by cytochrome P450 due to inheriting abnormal alleles.
   - **Geography** – patients living in sunny climes could develop photoxicities from photosensitizing drugs more readily than those who inhabit cooler, less sunny climates.

2. **Drug-related factors:**
   - **Type/class of drug** – for example, there is a heightened risk of hypersensitivity with the use of beta-blockers (see further the tables on class reactions).
   - **Duration of therapy** – the longer a patient maintains the therapy, the greater the possibility that he/she could develop a reaction.
   - **Dosage** – the greater the dosage, the more likely an adverse side effect.
   - **Bioavailability** – the extent to and rate at which the drug enters systemic circulation, thereby accessing the site of action.
   - **Interactions with other drugs** – for example, synergistic QT prolongation can occur when two QT prolonging agents, such as erythromycin + ritonavir, are used together.
   - **Route of administration** – intramuscular, intravenous, subcutaneous, and topical administrations are more likely to cause hypersensitivity reactions; oral medications are less likely to result in drug hypersensitivity.

The terms “drug allergy,” “drug hypersensitivity,” and “drug reaction” are often used interchangeably. Drug allergy specifically refers to a reaction mediated by IgE; drug hypersensitivity is an immune-mediated response to a drug agent in a sensitized patient; and drug reactions comprise all adverse events related to drug administration, regardless of etiology.

Vigilance at point of care:

While the possibilities for adverse drug reactions seem endless, we must be on the lookout for any new medication(s) the patient might be taking. A thorough, detailed history of all medications must be made in order to elicit any remote possibility that the drug in question might be the culprit for the side effect. People do not often realize that the common over-the-counter analgesics – aspirin, Tylenol, Advil, Motrin, Naprosyn, and others – are actually medications. Herbs and supplements such as St. John’s wort, ginkgo biloba, and echinacea can be responsible for various hypersensitivity reactions. For example, St. John’s wort, in particular, interacts adversely with SSRIs and tricyclic antidepressants.

Contents of the book, and how to use them

1. **The A–Z**
   The major portion of the manual lists in alphabetical order the 900+ generic drugs, biologics, and supplements, and the adverse reactions that can arise from their use. An asterisk against the entry title indicates this drug is new to this edition. If you do not find a drug in the main A–Z listing under the name you know it by, you can turn to the concordance of synonyms and trade names to find the generic name it will be listed under. Occasionally a drug has been omitted from the listing but a cross-reference will link to the profile found in our website database (www.drugeruptiondata.com).
Trade (Brand) name(s) are then listed alphabetically. When there are many trade names, the ten (or so) most commonly recognized ones are listed.

Following the trade names is – in parentheses – the latest name of the pharmaceutical company that markets the drug. Many of the names of the companies have changed from earlier editions of this manual because of acquisitions, mergers, and other factors in the pharmaceutical industry.

Next appear the Indication(s), the Class in which the drug belongs, and the Half-life of each drug, where known.

Drug interactions: many severe, hazardous drug–drug interactions are recorded. Only clinically significant drug interactions that have been reported to trigger potential harm and that could be life threatening have been included here in the profile. These interactions are predictable and well documented in controlled studies; they should be avoided.

Pregnancy category: for new drugs approved on or after 30 June, 2015 this field gives (where available) a brief summary of the full statement reflecting the risk for pregnant women as given in the prescribing guidelines; health care providers are advised to check the individual label where necessary.

An explanation of the categories for older drugs (A, B, C, D and X) can be found on our website www.drugeruptiondata.com.

Adverse Drug Reactions: under each drug profile is a list of related ADRs. These adverse events have been classified under the following categories: Skin, Hair, Nails, Mucosal, Cardiovascular, Central Nervous System, Neuromuscular/Skeletal, Gastrointestinal/Hepatic, Respiratory, Endocrine/Metabolic, Genitourinary, Renal, Hematologic, Otic, Ocular, Local, Other.

Within each category, the reactions are listed alphabetically. Thus, the order of listing does not reflect severity or frequency in any way.

The terminology used to list reaction patterns has been simplified as far as possible by eliminating, for the most part, tags such as “like” (as in “-Psoriasis-like”), “-reactivation,” “-syndrome,” “-dissemination,” “-iform,” etc.

The number of reports is given for each reaction in square brackets. The incidence of the most important reactions is given in parentheses where indicated (usually from the full prescribing information for the relevant drug). For example, the profile for Amoxicillin begins:

Skin

AGEP [28]
Anaphylactoid reactions/Anaphylaxis [15]
Angioedema (<10%) [3]

This means that we have 28 journal articles referring to occurrence of AGEP (acute generalized exanthematous pustulosis); 15 articles mentioning the occurrence of anaphylaxis; and 5 articles discussing angioedema, as reactions to Amoxicillin within the Skin category. All these articles appear on the website www.drugeruptiondata.com together with links to the article abstracts on PubMed®. Additionally, the incidence of angioedema as a reaction has been reported as up to 10%.

On some occasions, there are very few adverse reactions to a specific drug. These drugs are still included in the manual as there is a positive significance in negative findings.

2. Important eruptions / reactions
i) This section of the manual includes a listing of descriptions of important eruption and reaction patterns. Over 40 eruptions/reactions are described here in alphabetical order, from Acanthosis nigricans to Xerostomia.

Following this section are lists of all drugs that have been found to cause these important eruptions/reactions. This section is a quick look-up tool for drugs that cause important reaction patterns.

 ii) (Descriptions of several other reactions, and lists of drugs associated with these reactions, can be found on our website – www.drugeruptiondata.com.)

 iii) We then have a list of the main classes of drugs, from 5-HT1 agonists to Xanthine alkaloids, as a quick reference guide.

 iv) There follow lists of the classes of drugs most likely to cause important interactions with other drugs, with the drugs in those classes.

 v) We then have an enlarged section of tables of class reactions, enabling you to see at a glance whether a reaction is common to all the drugs in that particular class, or to a majority of them, or only to a significant few.
3. The Concordance

The final part of the manual is a concordance to match synonyms (noted in italic) and trade names with the generic drug name. If you know only the synonym or trade name, you can use this list to find the corresponding generic name to look up in the main A–Z listing section of the book.
**ABACAVIR**

**Trade names:** Epzicom (ViiV), Triumeq (ViiV), Trizivir (ViiV), Ziden (ViiV)

**Indications:** HIV infections in combination with other antiretrovirals

**Class:** Nucleoside analog reverse transcriptase inhibitor

**Half-life:** 1.5 hours

**Clinically important, potentially hazardous interactions with:** alcohol, arbutamine, argebrotene, arsenic, darunavir, ganciclovir, lopinavir, methadone, phenobarbital, phenytoin, protease inhibitors, ribavirin, rilampin, tipranavir, valganciclovir

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

**Note:** Epzicom is abacavir and lamivudine; Triumeq is abacavir, dolutegravir and lamivudine; Trizivir is abacavir, lamivudine and zidovudine.

**Warning:** Abacavir is an HLA-B*5701 restrictive agent. Abacavir hypersensitivity may occur in patients with HLA-B*5701. Avoid use of abacavir in patients with HLA-B*5701.

**Important contra-indications noted in the prescribing guidelines for:**

- **Hypersensitivity** (8–9%)
- **Exanthems** (2%)
- **Anaphylactoid reactions**/Anaphylaxis (3%)
- **Acute interstitial nephritis** (2%)
- **Infections** (5%)
- **Myelosuppression** (5–10%)
- **Peripheral neuropathy** (2–3%)

**Indications:**

- **Renal**
  - Fanconi syndrome [2]
- **Hematologic**
  - Agranulocytosis [3]
  - Neutropenia (2–5%)
- **Other**
  - Adverse effects [4]
  - Infection (5%)

**ABALOPARATIDE**

**Trade name:** Tymlos (Radius Health)

**Indications:** Osteoporosis in postmenopausal women

**Class:** Parathyroid hormone analog

**Half-life:** <2 hours

**Important contra-indications noted in the prescribing guidelines for:**

- **Hypersensitivity (2%)
- **Exanthems (2%)
- **Anaphylactoid reactions/Anaphylaxis (3%)
- **Acute interstitial nephritis**
- **Infections** (5%)
- **Myelosuppression** (5–10%)
- **Peripheral neuropathy** (2–3%)

**Indications:**

- **Cardiovascular**
  - Orthostatic hypotension (<4%)
  - Palpitation (5%)
  - Tachycardia (2%)
- **Central Nervous System**
  - Headache (8%)
  - Vertigo (dizziness) (2–10%)
- **Neuromuscular/Skeletal**
  - Asthenia (fatigue) (3%)
- **Gastrointestinal/Hepatic**
  - Abdominal pain (5%)
  - Nausea (2%)
  - Vomiting (2%)
  - Diarrhea (5%)
  - Hypertriglyceridemia (2–6%)
- **Respiratory**
  - Cough (2%)
  - Pneumonia (4%)
- **Skin**
  - Basal cell carcinoma [3]
  - Malignancies [10]

**ABAREXIL**

**See:** www.drugeruptiondata.com/drug/id/1011

**ABATACEPT**

**Trade name:** Orenica (Bristol-Myers Squibb)

**Indications:** Rheumatoid arthritis, juvenile idiopathic arthritis in pediatric patients 6 years of age and older

**Class:** Disease-modifying antirheumatic drug (DMARD), T-cell co-stimulation modulator

**Half-life:** 1223 days

**Important contra-indications noted in the prescribing guidelines for:**

- **Skin**
  - Basal cell carcinoma [3]
  - Herpes zoster [3]
  - Hypersensitivity [2]
- **Cardiovascular**
  - Hypertension [7%]
  - Hypotension [2]
- **Central Nervous System**
  - Headache (5–18%) [6]
  - Vertigo (dizziness) (9%) [3]
  - Vertigo (dizziness) (2–10%)
- **Neuromuscular/Skeletal**
  - Asthenia (fatigue) [2]
  - Gastroenteritis [5]
  - Nausea (3%) [2]
  - Vomiting [2]
- **Gastrointestinal/Hepatic**
  - Abdominal pain (5%)
  - Nausea (2%)
  - Vomiting (2%)
- **Respiratory**
  - Cough (5%) [2]
  - Herpes zoster [3]
  - Hypersensitivity (8–9%)
- **Other**
  - Injection-site edema (10%)
  - Injection-site erythema (58%)
  - Injection-site pain (9%)
- **Mucosal**
  - Stomatitis (3%)
  - Gastroenteritis [5]
  - Nausea (3%) [2]
  - Vomiting (2%)
- **Skin**
  - Basal cell carcinoma [3]
  - Herpes zoster [3]
  - Hypersensitivity [2]
- **Cardiovascular**
  - Hypertension [7%]
  - Hypotension [2]
- **Central Nervous System**
  - Headache (5–18%) [6]
  - Vertigo (dizziness) (9%) [3]
  - Vertigo (dizziness) (2–10%)
- **Neuromuscular/Skeletal**
  - Asthenia (fatigue) [2]
  - Gastroenteritis [5]
  - Nausea (3%) [2]
  - Vomiting (2%)
- **Gastrointestinal/Hepatic**
  - Abdominal pain (5%)
  - Nausea (2%)
  - Vomiting (2%)
- **Respiratory**
  - Cough (5%) [2]
  - Herpes zoster [3]
  - Hypersensitivity (8–9%)
- **Other**
  - Injection-site edema (10%)
  - Injection-site erythema (58%)
  - Injection-site pain (9%)
  - Gastroenteritis [5]
  - Nausea (3%) [2]
  - Vomiting (2%)
**ABATACEPT**

Local
- Infusion-related reactions [4]
- Infusion-site reactions (9%) [5]
- Injection-site erythema [3]
- Injection-site hematoma [2]
- Injection-site pain [3]
- Injection-site pruritus [2]
- Injection-site reactions (3%) [8]

Other
- Adverse effects [24]
- Death [2]
- Infection (36–54%) [25]

**ABCIXIMAB**

See: www.drugeruptiondata.com/drug/id/2

**ABEMACICLIB**

Trade name: Verzenio (Lilly)
Indications: Hormone receptor-positive, human epidermal growth factor 2-negative advanced or metastatic breast cancer, either as monotherapy or in combination with fulvestrant
Class: Kinase inhibitor
Half-life: 18 hours
Clinically important, potentially hazardous interactions with: grapefruit juice, ketoconazole, strong CYP3A4 inducers and inhibitors
Pregnancy category: N/A (Can cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Hair
- Alopecia (12%)

Mucosal
- Stomatitis (14%)
- Xerostomia (17%)

Central Nervous System
- Anorexia [3]
- Dysgeusia (taste perversion) (12%)
- Fever (11%)
- Headache (20%)
- Vertigo (dizziness) (11%)

Neuromuscular/Skeletal
- Arthralgia (15%)
- Asthenia (fatigue) (65%) [7]

Gastrointestinal/Hepatic
- Abdominal pain (39%) [2]
- Constipation (17%)
- Diarrhea (90%) [7]
- Nausea (64%) [7]
- Vomiting (35%) [4]

Respiratory
- Cough (19%)

Endocrine/Metabolic
- ALT increased (31%)
- Appetite decreased (45%) [2]
- AST increased (30%)
- Dehydration (10%)
- Serum creatinine increased (13%) [3]
- Weight loss (14%) [2]

Hematologic
- Anemia (25%) [3]
- Leukopenia (17%) [4]
- Neutropenia (37%) [5]
- Thrombocytopenia (20%) [3]

Other
- Infection (31%)

**ABIRATERONE**

Trade name: Zytiga (Janssen Biotech)
Indications: Metastatic castration-resistant prostate cancer (in combination with prednisone)
Class: CYP17 inhibitor, Enzyme inhibitor
Half-life: 12 hours
Clinically important, potentially hazardous interactions with: azetanavir, carbamazepine, clarithromycin, CYP3A4 inhibitors or inducers, indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, phenobarbital, phenytoin, rifabutin, ritonavir, saquinavir, telithromycin, thioridazine, voriconazole
Pregnancy category: X

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in women who are or may become pregnant.

Skin
- Edema (27%) [19]
- Hot flashes (19%) [3]

Cardiovascular
- Arrhythmias (7%) [3]
- Cardiac failure (2%) [4]
- Chest pain (4%) [5]
- Edema (27%) [19]

Central Nervous System
- Headache [2]

Neuromuscular/Skeletal
- Arthralgia [5]
- Asthenia (fatigue) [11]
- Back pain [4]
- Bone or joint pain (30%) [8]
- Myalgia/myopathy (26%)
- Pain in extremities [2]
- Rhabdomyolysis [2]

Gastrointestinal/Hepatic
- Constipation [7]
- Diarrhea (18%) [5]
- Dyspepsia (6%) [5]
- Hepatotoxicity (2%) [12]
- Nausea [8]

Respiratory
- Cough (11%)
- Dyspnea [2]

Endocrine/Metabolic
- ALT increased (11%) [5]
- AST increased (31%) [3]
- Hypercholesterolemia [2]
- Hypertriglyceridemia (63%)
- Hypokalemia [21]

**ACAMPROSATE**

Trade name: Glucobay (Bayer), Precose (Bayer)
Indications: Non-insulin dependent diabetes Type II
Class: Alpha-glucosidase inhibitor, Antidiabetic
Half-life: 2 hours
Clinically important, potentially hazardous interactions with: alcohol, anabolic steroids, beta blockers, cholestyramine, corticosteroids, diazoxide, digoxin, diuretics, estrogens, hypoglycemic agents, MAO inhibitors, norepinephrine, olsalazine, pancreatin, pramlintide, progestogens, somatropin, testosterone

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with diabetic ketoacidosis or cirrhosis; also in patients with inflammatory bowel disease, colonic ulceration, partial intestinal obstruction or in patients predisposed to intestinal obstruction.

Skin
- AGEP [2]

Gastrointestinal/Hepatic
- Abdominal distension [2]
- Abdominal pain (19%) [2]
- Diarrhea (31%)
- Flatulence (74%) [3]
- Hepatitis [2]
- Hepatotoxicity [3]

Other
- Adverse effects [5]

**ACEBUTOLOL**

See: www.drugeruptiondata.com/drug/id/4

**ACECLOFENAC**

See: www.drugeruptiondata.com/drug/id/1261
N/A

**ACIPIMOX**

See: www.drugeruptiondata.com/drug/id/1343

**ACETAMINOPHEN**

**Synonyms:** APAP, paracetamol
**Trade names:** Anacin-3 (Wyeth), Darvocet-N (aapPharma), Excedrin (Bristol-Myers Squibb), Lor cet (Forest), Panadol (GSK), Percocet (Endo), Tylenol (Ortho-McNeill), Vicadin (AbbVie)
**Indications:** Pain, fever
**Class:** Analgesic, non-narcotic
**Half-life:** <3 hours
**Clinically important, potentially hazardous interactions with:** alcohol, anticonvulsants, barbiturates, busulfan, carbamazepine, cholestyramine, convivaptan, coumarins, didanosine, dorn quai, exenatide, imatinib, ionozid, liraglutide, melatonin, metoclopramide, metyparone, PEG-interferon, pramlintide, probenicid, St John's wort
**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers
**Note:** Acetaminophen is the active metabolite of phenacetin. [IV] = intravenous. As a general point most reactions listed are those that have developed following the normal prescribing doses for acetaminophen and the overdosing, poisoning, and other toxicities that have been reported have been excluded.

**Skin**
- AGEP [10]
- Anaphylactoid reactions/Anaphylaxis [19]
- Angioedema [8]
- Dermatitis [3]
- Erythema [3]
- Erythema multiforme [3]
- Exanthems [7]
- Esfoliative dermatitis [2]
- Fixed eruption [41]
- Hyperhidrosis [2]
- Hypersensitivity [12]
- Neutrophilic eccrine hidradenitis [2]
- Pemphigrus [2]
- Pruritus [5]
- Purpura [6]
- Rash [IV] [2]
- Stevens-Johnson syndrome [10]
- Toxic epidermal necrolysis [13]
- Urticaria [17]
- Vasculitis [4]

**Mucosal**
- Xerostomia [3]

**Cardiovascular**
- Hypertension [IV] [3]
- Hypotension [2]

**Central Nervous System**
- Agitation [IV] (>5%)
- Fever [IV] (5%)
- Headache [IV] (10%) [5]
- Insomnia [IV] (7%) [6]
- Somnolence (drowsiness) [8]
- Vertigo (dizziness) [15]

**Neuromuscular/Skeletal**
- Rhabdomyolysis [4]

**Gastrointestinal/Hepatic**
- Abdominal distension [2]
- Abdominal pain [IV] [3]
- Constipation [IV] (>5%) [7]
- Diarrhea [IV] [2]
- Hepatotoxicity [70]
- Nausea [IV] (34%) [18]
- Pancreatitis [6]
- Vomiting (15%) [16]

**Respiratory**
- Asthma [3]
- Pulmonary toxicity [IV] (>5%)

**Endocrine/Metabolic**
- Acidosis [3]

**Renal**
- Nephrotoxicity [9]
- Renal failure [3]

**Hematologic**
- Thrombocytopenia [2]

**Other**
- Adverse effects [16]
- Death [6]

**ACETAZOLAMIDE**

**Trade name:** Diamox (Duramed)
**Indications:** Epilepsy, glaucoma
**Class:** Carbonic anhydrase inhibitor, Diuretic
**Half-life:** 26 hours
**Clinically important, potentially hazardous interactions with:** arsenic, aspirin, ephedra, indacaterol, lisdometamifine, lithium, metformin, mivacurium, triamcinolone, vemurafen, PEG-interferon, pramlintide, probenicid, St John's wort
**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** the elderly: nursing mothers; pediatric patients
**Note:** Acetazolamide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

**Skin**
- AGEP [10]
- Anaphylactoid reactions/Anaphylaxis (8–18%) [13]
- Angioedema [6]
- Pruritus (<4%) [3]
- Rash (2–4%) [4]
- Urticaria (6–8%) [13]

**Central Nervous System**
- Seizures [2]

**Gastrointestinal/Hepatic**
- Diarrhea [2]
- Nausea (<6%) [3]
- Vomiting (2–10%) [2]

**Other**
- Adverse effects [2]
- Death [2]

**ACETOHEXAMIDE**

See: www.drugeruptiondata.com/drug/id/7

**ACETYLCYSTEINE**

**Synonyms:** N-acetylcysteine; L-Cysteine; NAC
**Indications:** Emphysema, bronchitis, tuberculosis, bronchiectasis, tracheostomy care, antidote for acetaminophen toxicity
**Class:** Antidote, Antioxidant
**Half-life:** N/A
**Clinically important, potentially hazardous interactions with:** carbamazepine, nitroglycerin
**Pregnancy category:** B
**Note:** As an antidote, it is difficult to differentiate side effects due to the drug from those due to the effects of the poison.

**Skin**
- Anaphylactoid reactions/Anaphylaxis (8–18%) [13]
- Angioedema [6]
- Pruritus (<4%) [3]
- Rash (2–4%) [4]

**Cardiovascular**
- Flushing (<8%) [2]

**Central Nervous System**
- Seizures [2]

**Gastrointestinal/Hepatic**
- Diarrhea [2]
- Nausea (<6%) [3]
- Vomiting (2–10%) [2]

**Other**
- Adverse effects [2]
- Death [2]

**ACEMETACIN**

See: www.drugeruptiondata.com/drug/id/1691

**ACENOCOUMAROL**

See: www.drugeruptiondata.com/drug/id/1276
### ACITRETIN

**Trade names:** Neotigason (Actavis), Soriatan (Stiefel)

**Indications:** Psoriasis

**Class:** Retinoid

**Half-life:** 49 hours

**Clinically important, potentially hazardous interactions with:** alcohol, bexarotene, chloroquine, chlorpromazine, corticosteroids, coumarins, danazol, demeclocycline, doxycycline, ethanamine, isotretinoin, lithium, lymecycline, medroxyprogesterone, medroxyprogesterone, minocycline, oxytetracycline, phenytoin, progestins, St John’s wort, tetracycline, tigecycline, vitamin A

**Pregnancy category:** X

### Important contra-indications noted in the prescribing guidelines for:

- Nursing mothers
- Pediatric patients

**Note:** Oral retinoids can cause birth defects, and women should avoid acitretin when pregnant or trying to conceive.

**Warning:** PREGNANCY

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### Skin

- Angloedema [2]
- Atrophy (1025%)
- BROMHIDROSIS (<10%)
- CLAMMY SKIN (<10%)
- Dermatitis (<10%)
- DIAPHORESIS (<10%)
- Edema (<10%)
- ERYTHEMA (18%)
- Erythroderma [3]
- EXanthems (10–25%) [2]
- Exfoliative dermatitis (2550%) [3]
- Fissures (<10%)
- Hot flashes (<10%)
- HYPERHIDROSIS (<10%) [2]
- Palmar-plantar desquamation (2080%) [7]
- Photosensitivity [3]
- Pigmentation [3]
- Puritus (1050%) [10]
- Psoriasis (aggravated) (<10%)
- Purpura (<10%)
- Rash (>10%)
- SEBORRHEA (<10%)
- STICKINESS (350%) [7]
- SUNburn (<10%)
- Toxicity [3]
- Ulcerations (<10%)
- Xerosis (2550%) [14]

### Hair

- Alopecia (1075%) [21]
- Curly hair [3]
- Hair changes (<10%)
- Hair pigmentation [2]

### Nails

- Brittle nails [3]
- Nail changes (2550%)
- Paronychia (1025%) [6]
- PYOGENIC GRANULOMA (<10%) [4]

### Mucosal

- Cheilitis (>75%) [14]
- Dry mucous membranes [4]
- Epistaxis (nosebleed) (10–25%) [2]
- Gingival bleeding (<10%)

### Gingivitis (<10%)

### Mucocutaneous reactions [3]

### Sialorrhea (<10%)

### Stomatitis (<10%) [2]

### Tongue disorder (<10%)

### Ulcerative stomatitis (<10%)

### Cardiovascular

- Capillary leak syndrome [2]

### Central Nervous System

- Anorexia (<10%)
- Depression (<10%) [4]
- Dysgeusia (taste perversion) (<10%)
- Headache (<10%) [2]
- Hypersomnia (1025%)
- Insomnia (<10%)
- Neurotoxicity [3]
- Pain (<10%)
- Paralysis (facial) (<10%)
- Paresthesias (1025%) [2]
- Pseudotumor cerebri [5]
- Rigor (<10–25%) [2]
- Somnolence (drowsiness) (<10%)
- Stroke [2]
- Suicidal ideation [2]

### Neurouromuscular/Skeletal

- Arthralgia (10–25%) [2]
- Asthenia (fatigue) (<10%) [3]
- Back pain (<10%)
- Bone or joint pain [2]
- Hyperostosis [10]
- Myalgia/Myopathy [4]
- Osteoporosis [2]

### Gastrointestinal/Hepatic

- Abdominal pain (<10%) [2]
- DIARRHEA (<10%) [2]
- Hepatitis [5]
- Hyperbilirubinemia [2]
- Hypercholesterolemia (25–50%) [3]
- Hyperlipidemia [5]
- Hyperlipidemia [5]
- Hypertriglyceridemia (50–75%) [4]
- Hyperuricemia (<10%)
- Xerostomia (10–60%) [7]
- Ulcerative stomatitis (<10%)
- Tongue disorder (<10%)
- Stomatitis (<10%) [2]
- Sialorrhea (<10%)
- Mucocutaneous reactions [3]
- Gingivitis (<10%)
- Epistaxis (nosebleed) (10–25%) [2]
- Gingival bleeding (<10%)

### Other

- Adverse effects [2]
- Dipsia (thirst) (<10%)
- Infection [2]
- Side effects [4]
- Teratogenicity [7]

### ACICLOVIR

**Synonyms:** aciclovir; ACV; acycloguanosine

**Trade names:** Sitavig (Cipher), Zovirax (GSK)

**Indications:** Herpes simplex, herpes zoster

**Class:** Antiviral, Antiviral, topical, Guanine nucleoside analog

**Half-life:** 3 hours (adults)

**Clinically important, potentially hazardous interactions with:** cobicistat/elvitegravir/emertricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, meperidine, tenofovir disoproxil

### Pregnancy category: B

### Important contra-indications noted in the prescribing guidelines for:

- Nursing mothers

### Skin

- Acneform eruption (<3%)
- Dermatitis [12]
- Exanthes (<3%) [5]
- Facial edema (3–5%)
- Peripheral edema [2]
- Pruritus (<10%)
- Radiation recall dermatitis [2]
- Rash (<3%) [3]
- Urticaria (<3%) [4]

### Hair

- Alopecia (<3%)

### Central Nervous System

- Headache (2%) [4]
- Neurotoxicity [8]

### Neuromuscular/Skeletal

- Asthenia (fatigue) (12%)

### Gastrointestinal/Hepatic

- DIARRHEA (2–3%)
- Nausea (2.5%) [3]

### Other

- Adverse effects [2]
ADALIMUMAB

Trade names: Amjevita (Amgen), Humira (AbbVie)

Indications: Rheumatoid arthritis, polyarticular juvenile idiopathic arthritis, psoriatic arthritis, ankylosing spondylitis, Crohn’s disease, ulcerative colitis, psoriasis

Class: Cytokine inhibitor, Disease-modifying anti-rheumatic drug (DMARD), Monoclonal antibody, TNF inhibitor

Half-life: 1020 days

Clinically important, potentially hazardous interactions with: abatacept, anakinra, live vaccines

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Note: TNF inhibitors should be used in patients with heart failure only after consideration of other treatment options. TNF inhibitors are contraindicated in patients with a personal or family history of multiple sclerosis or demyelinating disease. TNF inhibitors should not be administered to patients with moderate to severe heart failure (New York Heart Association Functional Class III/IV).

Warning: SERIOUS INFECTIONS AND MALIGNANCY

Skin
Acneform eruption [3]
Angioedema [3]
Carcinoma [2]
Cellulitis (<5%), [2]
Dermatomyositis [5]
Eczema [2]
Erysipelas (<5%)
Granulomatous reaction [5]
Henoch-Schönlein purpura [2]
Herpes zoster [10]
Hidradenitis [2]
Hypersensitivity [3]
Lesions [2]
Lichenoid eruption [5]
Lupus erythematosus [16]
Lupus syndrome [3]
Lymphoma [8]
Malignancies [4]
Melanoma [6]
Neoplasms [2]
Palmoilpant pustulosis [3]
Peripheral edema (<5%)
Pruritus [6]
Psoriasis [39]
Rash (12%) [4]
Sarcoidosis [8]
Squamous cell carcinoma [5]
Stevens-Johnson syndrome [2]
Urticaria [3]
Vasculitis [9]
Vitiligo [2]

Hair
Alopecia [5]
Alopecia areata [7]
Alopecia universalis [2]

Cardiovascular
Arrhythmias (<5%)
Cardiac arrest (<5%)

Chest pain (<5%)
Congestive heart failure (<5%)
Hypertension (1%) (<5%)
Myocardial infarction (<5%)
Palpitation [2]
Pericarditis (<5%)
Tachycardia (<5%)
Thromboembolism [2]

Central Nervous System
Aseptic meningitis [2]
Confusion (<5%)
Encephalitis [2]
Fever (<5%) [3]
Guillain-Barré syndrome [5]
Headache (12%) [6]
Leukocencephalopathy [3]
Multiple sclerosis (<5%) [3]
Neurotoxicity [3]
Paresthesias (<5%) [2]
Syncope (<5%)
Tremor (<5%)
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Arthralgia (<5%) [6]
Asthenia (fatigue) [2]
Back pain (6%) [3]
Tuberculous arthritis [2]

Gastrointestinal/ Hepatic
Abdominal pain (7%) [2]
Cholecystitis (<5%)
Colitis [2]
Esophagitis (<5%)
Gastroenteritis (<5%)
Hepatitis [7]
Hepatotoxicity [10]
Hypercholesterolemia (6%)
Creatine phosphokinase increased (<5%)

Endocrine/Metabolic
Creatine phosphokinase increased (<5%)
Hypercholesterolemia (6%)

Genitourinary
Cystitis (<5%)
Hematuria (5%)
Pelvic pain (<5%)
Urinary tract infection (8%)

Renal
Nephrototoxicity [2]

Hematologic
Agranulocytosis (<5%)
Eosinophilia [3]
Hemolytic anemia [2]
Leukopenia (<5%)
Pancytopenia [2]

Sepsis [2]

Ocular
Cataract (<5%)
Optic neuritis [5]
Uveitis [4]

Local
Injection-site edema (15%) [2]
Injection-site erythema (15%) [3]
Injection-site pain (12%)
Injection-site reactions [26]

Other
Adverse effects [45]
Death [8]
Infection (5%) [70]
Side effects [2]

ADAPALENE

Trade names: Differin (Galderma), Epiduo (Galderma)

Indications: Acne vulgaris

Class: Retinoid

Half-life: N/A

Clinically important, potentially hazardous interactions with: resorcinol, salicylates

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Epiduo is adapalene and benzoyl peroxide.

Skin
Burning (38%) [7]
Erythema (38%) [9]
Pruritus (>10%) [11]
Scaling (4%) [6]
Sweeping (38%) [3]
Xerosis (45%) [10]

Other
Adverse effects [3]

ADEFUVIR

Trade name: Hepsera (Gilead)

Indications: HIV infection, hepatitis B infection

Class: Antiretroviral, Nucleotide analog reverse transcriptase inhibitor

Half-life: 1618 hours

Clinically important, potentially hazardous interactions with: amitriptyline, amphetamine, B, cobicistat/elvitegravir/emeritab/tenofovir disoproxil, delavirdine, drugs causing kidney toxicity, fosfarnet, gentamicin, hydroxyurea, pentamidine, tenofovir disoproxil, tobramycin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: SEVERE ACUTE EXACERBATIONS OF HEPATITIS, NEPHROTOXICITY, HIV RESISTANCE, LACTIC ACIDOSIS AND SEVERE HEPATOMEGALY WITH STEATOSIS

Skin
Pruritus (<10%)
Rash (<10%)

Central Nervous System
- Headache (9%) [2]
- Pain [2]

Neuromuscular/Skeletal
- Asthenia (fatigue) (13%) [3]
- Back pain (<10%) [2]
- Osteomalacia [6]

Gastrointestinal/Hepatic
- Abdominal pain (9%)
- Diarrhea (3%)
- Dyspepsia (3%)
- Flatulence (4%)
- Hepatotoxicity (<25%)
- Nausea (5%)
- Vomiting (<10%)

Respiratory
- Cough (6–8%)
- Rhinitis (<5%)

Endocrine/Metabolic
- Hypophosphatemia [5]

Genitourinary
- Hematuria (11%)

Renal
- Nephrotoxicity [14]

Other
- Adverse effects [2]

ADENOSINE

Synonym: ATP

Trade names: Adenocard (Astellas), Adenocur (Sanofi-Aventis)

Indications: Paroxysmal supraventricular tachycardia, varicose vein complications with stasis dermatitis

Class: Antiarrhythmic class IV, Neurotransmitter

Half-life: <10 seconds

Clinically important, potentially hazardous interactions with: aminophylline, antarrhythymics, beta blockers, bupivacaine, carbamazepine, dipryidamole, levobupivacaine, nicotine, prilocaine, QT prolonging agents, ropivacaine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Cardiovascular
- Arrhythmias [2]
- Atrial fibrillation [6]
- Chest pain [5]
- Coronary vasospasm [2]
- Flush (18–44%)
- Torsades de pointes [2]

Central Nervous System
- Headache (2–18%) [2]
- Vertigo (dizziness) (2–12%) [2]

Neuromuscular/Skeletal
- Jaw pain (<15%)

Gastrointestinal/Hepatic
- Abdominal pain (13%)

Respiratory
- Cough (6–8%)
- Dyspnea [3]
- Respiratory distress (11%)

Skin
- Hypersensitivity (2%)
- Peripheral edema (7%)
- Pruritus (6%)
- Rash (12%)
- Telangiectasia [2]

Mucosal
- Epistaxis (nosebleed) (23%)
- Stomatitis (14%)
- Xerostomia (17%)

Cardiovascular
- Cardiotoxicity [2]
- Hypertension (5%)

Central Nervous System
- Chills (8%)
- Dysgeusia (taste perversion) (8%)
- Fever (19%) [2]
- Headache (28%) [4]
- Insomnia (12%)
- Peripheral neuropathy (21%)
- Vertigo (dizziness) (10%)

Neuromuscular/Skeletal
- Arthralgia (19%) [3]
- Asthenia (fatigue) (18–36%) [12]
- Bone or joint pain (36%)
- Myalgia/Myopathy (14%)

Gastrointestinal/Hepatic
- Abdominal pain (19%)
- Constipation (27%) [3]
- Diarrhea (24%) [5]
- Dyspepsia (9%)
- Hepatotoxicity [14]
- Nausea (40%) [9]
- Vomiting (19%)

Respiratory
- Cough (18%)
- Dyspnea (12%)
- Pneumonia [3]

Endocrine/Metabolic
- ALP increased (5%)
- ALT increased (82%) [3]
- AST increased (98%) [6]

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AFAMELANOTIDE

See: www.drugeruptiondata.com/drug/id/1315

AFATINIB

Trade name: Gilotrif (Boehringer Ingelheim)

Indications: Metastatic non-small cell lung cancer in patients whose tumors have epidermal growth factor receptor exon 19 deletions or exon 21 (L858R) substitution mutations, metastatic squamous non-small cell lung cancer progressing following platinum-based chemotherapy

Class: Tyrosine kinase inhibitor

Half-life: 37 hours

Clinically important, potentially hazardous interactions with: amiodarone, carbamazepine, cyclophosphamide, erythromycin, itraconazole, ketoconazole, nelfinavir, P-glycoprotein inhibitors, phenobarbital, phenytoin, quinidine, rifampin, ritonavir, saquinavir, St John’s wort, tacrolimus, verapamil

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Acneform eruption [25]
- Fissures [2]
- Hand-foot syndrome [2]
- Pruritus [2]
- Rash [49]
- Toxicity [3]
- Xerosis [6]

Nails
- Nail changes [2]
- Paronychia (58%) [10]

Mucosal
- Epistaxis (nosebleed) [3]
- Mucosal inflammation [7]
- Mucositis [10]
- Rhinorrhea (11%)
- Stomatitis (71%) [19]

Central Nervous System
- Anorexia [3]
- Fever (12%)
**Neuromuscular/Skeletal**
- Asthenia (fatigue) [17]

**Gastrointestinal/Hepatic**
- Diarrhea (96%) [65]
- Dysphagia [2]
- Hepatotoxicity (10%) [5]
- Nausea [15]
- Vomiting [10]

**Respiratory**
- Dyspnea [3]
- Pneumonitis [2]
- Pulmonary toxicity [5]
- Local
- Injection-site pain (3%) [10]
- Injection-site reactions (11%) [15]
- Injection-site hematoma (2%)
- Vomiting (4%) [15]
- Pancreatitis [4]
- Nausea (11%) [20]
- Constipation [2]
- Back pain (7%) [2]
- Arthralgia (7%)
- Vertigo (dizziness) [2]
- Headache [4]
- Fixed eruption (2%) [4]

**Skin**
- Fixed eruption [2]
- Pruritus [4]
- Urticaria [2]

**Hair**
- Alopecia (reversible) (<2%) [4]

**Central Nervous System**
- Headache (<11%) [5]
- Intracranial pressure increased (<2%) [2]
- Psychosis [2]
- Vertigo (dizziness) (<2%) [2]

**Gastrointestinal/Hepatic**
- Abdominal pain (<7%) [7]
- Hepatitis [4]
- Nausea (4–6%) [3]
- Vomiting (4–6%) [2]

**Other**
- Adverse effects [7]
- Death [4]

**ALBIGLUTIDE**

**Synonym:** ziv-albiglutide
**Trade name:** Tanzeum (DSM)

**Indications:** To improve glycemic control in adults with Type II diabetes mellitus

**Class:** Glucagon-like peptide-1 (GLP-1) receptor agonist
**Half-life:** 812 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with a personal or family history of medullary thyroid carcinoma or in patients with multiple endocrine neoplasia syndrome Type 2.

**Warning:** RISK OF THYROID C-CELL TUMORS
**ALBUTEROL**

Synonym: salbutamol  
**Trade names:** AccuNeb (Mylan Specialty), Combivent (Boehringer Ingelheim), Duoneb (Mylan Specialty), Proventil (Shering), Ventolin (GSK), Volmax (Muro)  
**Indications:** Bronchospasm associated with asthma  
**Class:** Beta-2 adrenergic agonist, Bronchodilator, IL-2; interleukin-2  
**Half-life:** 36 hours

**Clinical use:** Bronchodilator, used in the treatment of bronchospasm associated with asthma.

**Adverse effects:**
- Nervous system: Anxiety, nervousness, tremor, insomnia.
- Cardiovascular: Tachycardia, palpitations, hypertension.
- Respiratory: Cough, dyspnea, bronchospasm.
- Gastrointestinal: Nausea, vomiting, diarrhea.
- Skin: Xerosis, dysgeusia.
- Other: Arrhythmias, Capillary leak syndrome, Hypotension.

**Contraindications:** Contra-indicated in patients who are intolerant to, crizotinib.

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

**Note:** Combivent is albuterol and ipratropium.

**ALCAFADINE**

See: www.drugeruptiondata.com/drug/id/1851

**ALCLOMETASONE**

See: www.drugeruptiondata.com/drug/id/1082

**ALDESLEUKIN**

**Trade name:** Alecensa (Genentech)  
**Indications:** Anaplastic lymphoma kinase-positive, metastatic non-small cell lung cancer in patients who have progressed on, or are intolerant to, crizotinib  
**Class:** Kinase inhibitor  
**Half-life:** 33 hours  
**Clinical use:** Treatment of patients with metastatic non-small cell lung cancer who have progressed on, or are intolerant to, crizotinib.

**Adverse effects:**
- Hematologic: Thrombocytopenia, Sepsis, Neutropenia.
- Respiratory: Cough, Dyspnea.
- Cardiac: Bradycardia, Hypotension.
- Gastrointestinal: Diarrhea, Nausea.
- Skin: Rash, Urticaria.
- Other: Hypothyroidism.

**Contraindications:** Contra-indicated in patients who have progressed on, or are positive, metastatic non-small cell lung cancer in patients who have progressed on, or are intolerant to, crizotinib.
ALEMTUZUMAB

Trade names: Campath (Bayer), MabCampath (Schering)

Indications: B-cell chronic lymphocytic leukemia, non-Hodgkin’s lymphoma

Class: Biologic, Immunosuppressant, Monoclonal antibody

Half-life: 12 days

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Note: Prophylactic therapy against PCP pneumonia and herpes viral infections is recommended upon initiation of therapy and for at least 2 months following last dose.

Warning: CYTOPENIAS, INFUSION REACTIONS, and INFECTIONS

Skin

Carcinoma [2]
Erythema (4%) [2]
Herpes [2]
Herpes simplex [2]
Herpes zoster [3]
Lymphoma [2]
Lymphoproliferative disease (64–70%) [2]
Peripheral edema (13%) [2]
Pruritus (14–24%) [2]
Purpura (8%) [2]
Rash (13–40%) [5]
Thrombocytopenic purpura [10]
Urticaria (16–30%) [2]

Mucosal

Stomatitis (14%) [2]

Cardiovascular

Flushing [2]
Hypertension (11–15%) [2]
Hypotension (15–32%) [2]
Tachycardia (10%) [2]

Central Nervous System

Anorexia (20%) [2]
Anxiety (8%) [2]
Chills (53%) [2]
Depression (7%) [2]
Dysesthesia (15%) [2]
Fever (69–85%) [6]
Guillain-Barré syndrome [2]
Headache (13–24%) [3]
Insomnia (10%) [2]
Intracranial hemorrhage [2]
Leukoencephalopathy [5]
Rigors (87%) [2]
Tremor (3%) [2]
Vertigo (dizziness) (12%) [2]

Neuromuscular/Skeletal

Asthenia (fatigue) (22–34%) [2]
Bone or joint pain (24%) [2]
Myalgia/Myopathy (11%) [2]

Gastrointestinal/Hepatic

Abdominal pain (11%) [2]
Diarrhea (10–22%) [2]
Nausea (47–54%) [4]
Vomiting (33–41%) [2]

Respiratory

Dyspnea (14–26%) [2]
Flu-like syndrome [2]
Pharyngitis (12%) [2]

ALENDRONATE

Trade names: Binosto (Mission), Fosamax (Merck)

Indications: Osteoporosis in postmenopausal women, Paget’s disease

Class: Bisphosphonate

Half-life: >10 years

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Angioedema [2]
Erythema multiforme [2]
Hypersensitivity [3]
Rash [5]

Mucosal

Oral ulceration [9]

Central Nervous System

Headache [2]

Neuromuscular/Skeletal

Arthralgia [6]
Bone or joint pain (<6%) [5]
Fractures [20]
Osteonecrosis [12]

Gastrointestinal/Hepatic

Abdominal pain (<7%) [8]
Dyspepsia [8]
Dysphagia [4]
Esophageal perforation [2]
Esophagitis [12]
ALENDRONATE

- Hepatotoxicity [7]
- Nausea [7]
- Vomiting [4]

Endocrine/Metabolic
- Hypocalcemia (18%) [5]

Renal
- Nephrotoxicity [2]
- Renal failure [2]

Ocular
- Conjunctivitis [2]
- Ocular adverse effects [2]
- Ocular inflammation [2]
- Scleritis [3]
- Uveitis [5]

Other
- Adverse effects [5]

ALFENTANIL

Trade names: Uroxtal (Concordia), Xatral (Sanofi-Aventis)

Indications: Benign prostatic hyperplasia

Class: Adrenergic alpha-receptor antagonist

Half-life: 10 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, adrenergic neurone blockers, alcohol, aldesleukin, alprostadil, amitriptyline, angiotensin II receptor antagonists, antipsychotics, anxiolytics and hypnotics, arsenic, atazanavir, atenolol, baclofen, beta blockers, bosentan, calcium channel blockers, cimetidine, citalopram, clonidine, conivaptan, corticosteroids, CYP3A4 inhibitors or inducers, darunavir, dasabuvir/ombitasvir/paritaprevir/ritonavir, dasatinib, deferasirox, degarelix, delavirdine, diltiazem, diuretics, estrogens, food, general anesthetics, hydralazine, indinavir, iraconazole, ketoconazole, latanib, levodopa, levofloxacin, lopinavir, MAK inhibitors, methylxip, minoxidil, moxifloxacin, moxisylyte, mofetil, nelfinavir, nitropussides, NSAIDs, pazopanib, phosphodiesterase 5 inhibitors, protease inhibitors, QT prolonging agents, ritanavir, sildenafil, St John’s wort, taladafil, telaprevir, telavancin, telithromycin, tirapazavir, tizanidine, vardenafil, voriconazole, vorinostat, ziprasidone

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Cardiovascular
- Hypotension [2]
- Orthostatic hypotension [3]
- QT prolongation [2]

Central Nervous System
- Headache (3%)
- Pain (≤2%)
- Vertigo (dizziness) (6%) [19]

Neuromuscular/Skeletal
- Asthenia (fatigue) (3%)

Gastrointestinal/Hepatic
- Abdominal pain (≤2%)
- Hepatotoxicity [2]

Respiratory
- Bronchitis (≤2%)
- Pharyngitis (≤2%)
- Sinusitis (≤2%)
- Upper respiratory tract infection (3%)

Genitourinary
- Ejaculatory dysfunction [3]
- Erectile dysfunction [2]

Ocular
- Floppy iris syndrome [4]

Other
- Adverse effects [2]

ALGLUCERASE

See: www.drugeruptiondata.com/drug/id/1054

ALGLUCOSIDASE ALFA

See: www.drugeruptiondata.com/drug/id/1164

ALIROCUMAB

Trade name: Praluent (Regeneron)

Indications: Adjunct to diet and statin therapy in hypercholesterolemia or clinical atherosclerotic cardiovascular disease where additional lowering of low density lipoprotein cholesterol is required

Class: Monoclonal antibody, Proprotein convertase subtilisin kexin type 9 (PCSK9) inhibitor

Half-life: 17–20 days

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: N/A (No data available but likely to cross the placenta in second and third trimester)

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Skin
- Hematoma (2%)

Cardiovascular
- Cardiotoxicity [3]

Myocardial infarction [3]

Central Nervous System
- Cognitive impairment [2]

Headache [4]

Neurotoxicity [4]

Stroke [2]

Vertigo (dizziness) [6]

Neuromuscular/Skeletal
- Arthralgia [6]

Muscle spasm (3%)

Muscle weakness (2%)

Other
- Adverse effects [2]

Respiratory
- Bronchitis (4%)
- Cough (3%)
- Influenza (6%) [4]

Nasopharyngitis (11%) [8]

Sinusitis (3%) [2]

Upper respiratory tract infection [7]

Endocrine/Metabolic
- ALT increased [3]

Creatine phosphokinase increased [3]

Genitourinary
- Urinary tract infection (5%)

Ocular
- Ocular adverse effects [2]

Local
- Injection-site pain [2]

Injection-site reactions (7%) [16]

Other
- Adverse effects [4]

Allergic reactions (9%)

Death [2]

ALISKIREN

See: www.drugeruptiondata.com/drug/id/1225

ALITRETINOIN

Trade name: Panretin (Ligand) or Tretinoin (Roche)

Indications: Kaposis’s sarcoma cutaneous lesions

Class: Retinoid

Half-life: N/A

Clinically important, potentially hazardous interactions with: ketoconazole, simvastatin, vitamin A

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; pediatric patients

Note: Oral alitretinoin (Toctino) is not available in the USA.

Skin
- Edema (38%)
- Erythema [2]
- Exfoliative dermatitis (39%)
- Pigmentation (3%)
- Pruritus (81%)
- Rash (2577%)
- Ulcerations (2%)
- Xerosis (10%)

Hair
- Curly hair [2]

Mucosal
- Mucocutaneous reactions [2]

Cardiovascular
- Flushing [2]

Central Nervous System
- Depression [2]

Headache [7]

Paresthesias (322%)

Gastrointestinal/Hepatic
- Nausea [2]
Endocrine/Metabolic
Creatine phosphokinase increased [2]
Hypertriglyceridemia [2]

ALLOPURINOL

Trade names: Duzallo (AstraZeneca), Zyloprim (Prometheus)
Class: Purine analog, Xanthine oxidase inhibitor
Indications: Gouty arthritis
Half-life: <3 hours
Clinically important, potentially hazardous interactions: with: aminoglycosides, amlodipine, amoxicillin, ampicillin, ampicillin/sulbactam, azathioprine, benazapril, captopril, cilazapril, cyclosporine, dicumarol, enalapril, fosinopril, imidapril, lisinopril, mercaptopurine, pantoprazole, quinapril, ramipril, trandolapril, uracil/tegafur, vidarabine, zofenopril
Pregnancy category: C
Note: HLA-B*5801 confers a risk of allopurinol-induced serious skin reactions like SJS/TEN and DRESS.
Duzallo is allopurinol and lesinurad (see separate entry).

Skin
AGEP [6]
DRESS syndrome [45]
Eosinophilic pustular folliculitis [2]
Erythema multiforme [7]
Exanthems (≥10%) [20]
Exfoliative dermatitis (≥10%) [15]
Fixed eruption [11]
Granuloma annulare (disseminated) [2]
Hypersensitivity [49]
Lupus erythematosus [3]
Psoriasis [2]
Pruritus [7]
Purpura (>10%) [2]
Rash (>10%) [11]
Stevens-Johnson syndrome (≥10%) [53]
Toxic epidermal necrolysis [72]
Toxic pustuloderma [3]
Toxicity [2]
Urticaria (≥10%) [6]
Vasculitis [7]

Hair
Alopecia (≤10%) [2]

Mucosal
Oral ulceration [3]
Stomatitis [2]

Cardiovascular
Polyarteritis nodosa [3]

Central Nervous System
Chills (<10%) [2]
Fever [2]
Headache [3]
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Arthralgia [3]
Ataxia (fatigue) [2]
Back pain [2]
Bone or joint pain [2]
Joint disorder [2]
Myalgia/Myopathy [3]

Gastrointestinal/Hepatic
Diarrhea [5]
Hepatotoxicity [7]
Nausea [3]

Respiratory
Nasopharyngitis [2]
Upper respiratory tract infection [4]

Endocrine/Metabolic
ALT increased [2]
AST increased [3]
Nephrotoxicity [3]

Other
Adverse effects [13]
Allergic reactions (severe) [2]
Death [9]

ALMOTRIPTAN

Trade names: Almogran (Almirall), Axert (Ortho-McNeil)
Indications: Migraine headaches
Class: 5-HT1 agonist, Serotonin receptor agonist, Triptan
Half-life: 34 hours
Clinically important, potentially hazardous interactions: with: acenocoumarol, amoxicillin, ampicillin, ampicillin/sulbactam, azathioprine, benazepril, captopril, cilazapril, cyclosporine, dicumarol, enalapril, fosinopril, imidapril, lisinopril, mercaptopurine, pantoprazole, quinapril, ramipril, trandolapril, uracil/tegafur, vidarabine, zofenopril
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: pediatric patients

Cardiovascular
Chest pain [3]

Central Nervous System
Headache [2]
Neurotoxicity [2]
Paresthesias [4]
Somnolence (drowsiness) [5]
Vertigo (dizziness) [6]

Neuromuscular/Skeletal
Asthenia (fatigue) [4]

Gastrointestinal/Hepatic
Nausea [6]
Vomiting [3]

Respiratory
Flu-like syndrome (12%)
Upper respiratory tract infection (20%)

Other
Adverse effects [10]

ALOGLIPTIN

Trade name: Nesina (Takeda)
Indications: Type II diabetes mellitus
Class: Antidiabetic, Dipeptidyl peptidase-4 (DPP-4) inhibitor
Half-life: 21 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Hypersensitivity [2]
Pruritus [2]

Central Nervous System
Headache (4%) [8]
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Arthralgia [2]

Gastrointestinal/Hepatic
Constipation [2]
Diarrhea [2]
Pancreatitis [3]

Respiratory
Nasopharyngitis (4%) [8]
Upper respiratory tract infection (4%) [6]

Endocrine/Metabolic
Hypoglycemia [14]

Other
Adverse effects [6]
Infection [3]

ALOSETRON

See: www.drugeruptiondata.com/drug/id/18

ALPHA-LIPOIC ACID

See: www.drugeruptiondata.com/drug/id/1224

ALPRAZOLAM

Trade name: Xanax (Pfizer)
Indications: Anxiety, depression, panic attacks
Class: Benzodiazepine
Half-life: 116 hours
Clinically important, potentially hazardous interactions with: alcohol, amphetamines, aprepitant, boceprevir, clarithromycin, CNS depressants, darunavir, delavirdine, digoxin, efavirenz, fluorescein, gemcitabine, indinavir, iraconazole, itraconazole, lansoprazole, lercanidipine, nefazodone, nifedipine, nifedipine ER, nisoldipine, nefopam, morphine, nortriptyline, olanzapine, ondansetron, orphenadrine, pimozide, probenecid, propafenone, propranolol, quinidine, ranitidine, ritonavir, saquinavir, St John’s wort, telaprevir, tizanidine, ticlopidine, triazolam, trazodone, diazepam, valproic acid, verapamil, voriconazole
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
ALPROSTADIL

Synonyms: PGE; prostaglandin E1
Trade names: Caverject (Pfizer), Edex (Schwarz), Muse (Vivus), Prostin VR (Pfizer)
Indications: Impotence, to maintain patent ductus arteriosus
Class: Prostaglandin
Half-life: 510 minutes
Clinically important, potentially hazardous interactions with: acebutolol, alfuzosin, captopril, cilazapril, enalapril, fosinopril, irbesartan, lisinopril, olmesartan, quinapril, ramipril
Pregnancy category: D (not indicated for use in women)
Important contra-indications noted in the prescribing guidelines for: pediatric patients
Warning: APNEA (in neonates with congenital heart defects)

Skin
Edema (<10%)
Penile rash (<10%)
Mucosal
Nasal congestion (<10%)
Cardiovascular
Bradyarrhythmia (<10%)
Hypotension (<10%)
Tachycardia (<10%)

ALTEPLASE

Synonym: tPA
Trade name: Activase (Genentech)
Indications: Acute myocardial infarction, acute pulmonary embolism
Class: Fibrinolytic, Plasminogen activator
Half-life: 30-45 minutes
Clinically important, potentially hazardous interactions with: defibrotide, nitroglycerin, ticlopidine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Also contra-indicated in patients with idiopathic pulmonary fibrosis.
Warning: CONTRA-INDICATED IN PREGNANCY

Skin
Edema [3]
Nasal congestion (17%) [8]
Mucosal
Peripheral edema (17%) [8]
Cardiovascular
Flush (4%)
Pulalation (3%)

AMANTADINE

See: www.drugeruptiondata.com/drug/id/23

AMBRISENTAN

Trade names: Letairis (Gilead), Volibris (GSK)
Indications: Pulmonary arterial hypertension
Class: Antihypertensive, Endothelin receptor (ETR) antagonist, Vasodilator
Half-life: 9 hours
Clinically important, potentially hazardous interactions with: convivastat, cyclosporine, CYP3A4 inhibitors and inducers, dasatinib, deferasirox, grapefruit juice, St John's wort
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Also contra-indicated in patients with idiopathic pulmonary fibrosis.
Warning: CONTRA-INDICATED IN PREGNANCY

Skin
Edema (<10%)
Central Nervous System
Headache (<10%)
Pain (>10%)
Vertigo (dizziness) (>10%)
Neuromuscular/Skeletal
Back pain (<10%)
Gastrointestinal/Hepatic
Diarrhea (<10%)
Respiratory
Apnea (<10%)
Cough (<10%)
Urethral burning (>10%)
Neuromuscular/Skeletal
Back pain (<10%)
Gastrointestinal/Hepatic
Hemorrhagic colitis (5%)
Hematologic
Anemia [4]
Hematologic
Anemia [4]

AMCINONIDE

See: www.drugeruptiondata.com/drug/id/1096

AMIFOSTINE

See: www.drugeruptiondata.com/drug/id/24
AMIKACIN
Trade name: Amikacin sulfate (Bedford)
Indications: Short-term treatment of serious infections due to gram-negative bacteria
Class: Antibiotic, aminoglycoside
Half-life: 2.5 hours (adults)
Clinically important, potentially hazardous interactions with: adefovir, aldesleukin, amifostine, atracurium, bumetanide, cephalaxin, doxorubicin, edetate disodium, ethacrynic acid, furosemide, ketorolac, ticlopidine, teicoplanin, tosinepid
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Aminoglycosides may cause neurotoxicity and/or nephrotoxicity.

Skin
Dermatitis [2]
Exanthems [2]

Central Nervous System
Neurotoxicity (<10%)
Renal
Nephrotoxicity (<10%) [11]
Otic
Hearing loss [5]
Otoxicity (<10%) [8]
Tinnitus [3]
Ocular
Macular infarction [3]

AMILODIPINE
Trade names: Midamor (Merck), Moduretic (Merck)
Indications: Prevention of hypokalemia associated with nonrenal diuretics, management of edema in hypertension
Class: Diuretic, potassium-sparing
Half-life: 69 hours
Clinically important, potentially hazardous interactions with: ACE inhibitors, benazepril, captopril, cyclosporine, enalapril, fosinopril, lisinopril, magnesium, metformin, moexipril, potassium salts, quinapril, quinidine, ramipril, spironolactone, trandolapril, zofenopril
Pregnancy category: B
Note: Moduretic is amiloride and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin
Photosensitivity [4]

Central Nervous System
Headache (<10%)
Vertigo (dizziness) (<10%)
Neuromuscular/Skeletal
Asthenia (fatigue) (<10%)
Myalgia/Myopathy (<10%)

Respiratory
Cough (<10%)
Dyspnea (<10%)
Endocrine/Metabolic
Gynecomastia (<10%)
Hyperkalemia [2]
Genitourinary
Impotence (<10%)

AMINOCAPROIC ACID
See: www.drugerupitationdata.com/drug/id/27

AMINOGLUTETHIMIDE
See: www.drugerupitationdata.com/drug/id/28

AMINOLEVULINIC ACID
Trade names: Ameluz (Biofrontera), Levulan Kerastick (Dusa)
Indications: Non-hyperkeratotic actinic keratoses of face and scalp
Class: Photosensitizer; Protoporphyria IX (PpIX) (wakefulness promoting agent)
Half-life: 20–40 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: In photodynamic therapy: to be used in conjunction with the relevant illuminator as approved by the manufacturer.

Skin
Dermatitis [2]
Exanthems [2]

Central Nervous System
Neurotoxicity (<10%)

Respiratory
Cough (<10%)
Dyspnea (<10%)

Endocrine/Metabolic
Gynecomastia (<10%)

Genitourinary
Impotence (<10%)

AMINOPHYLLINE
Synonym: theophylline ethylenediamine
Trade names: Eliophyllin (Forest), Phyllocontin (Napp), Quibron (Monarch)
Indications: Prevention or treatment of reversible bronchospasm
Class: Xanthine alkaloid
Half-life: 201 hours (in adult nonsmokers)
Clinically important, potentially hazardous interactions with: adenosine, anagrelide, arformoterol, azithromycin, BCG vaccine, caffeine, capiscum, carbimazole, cimetidine, ciprofloxacin, clorzepate, cocoa, erythromycin, eucalyptus, febuxostat, fluvoxamine, halothane, indacaterol, influenza vaccine, levofloxacin, mebendazole, methylprednisolone, mexitil, nilutamide, norfloxacin, obeticholic acid, olfoxacin, oral contraceptives, prednisolone, prednisone, propranolol, rasagline, BCG vaccine, St John’s wort, torasemide, torsemide, triamcinolone, zafirlukast
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Skin
Dermatitis [7]
Exanthems [5]
Exfoliative dermatitis [6]
Hypersensitivity [6]
Pruritus [3]
Stevens-Johnson syndrome [3]
Urticaria [6]

Central Nervous System
Insomnia [2]
Seizures [1]
Tremor [2]

Neuromuscular/Skeletal
Rhabdomyolysis [5]
Gastrointestinal/Hepatic
Abdominal pain [2]
Nausea [5]
Vomiting [2]

Endocrine/Metabolic
SIADH [2]

Other
Adverse effects [3]
Allergic reactions [5]
Death [2]

AMINOSALICYLATE SODIUM
See: www.drugeruptiondata.com/drug/id/30

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**AMIODARONE**

**Trade names:** Cordarone (Wyeth), Pacerone (Upsher-Smith)

**Indications:** Ventricular fibrillation, ventricular tachycardia

**Class:** Antiarrhythmic, Antiarrhythmic class III, CYP1A2 inhibitor, CYP3A4 inhibitor

**Half-life:** 26107 days

**Clinically important, potentially hazardous interactions with:** abamix, acetylsalicylic acid, acenocoumarol, afatinib, amisulpride, antiarrhythmics, amitriptyline, ampicillin, anisidinone, anticoagulants, arsenic, Artemether/Lumefantrine, asenapine, atenolol, atorvastatin, azoles, betaxolol, boceprevir, bosentan, carbamazepine, celecoxib, cimetine, ciprofloxacin, clopidogrel, clonidine, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, colchicine, cyclosporine, dabigatran, daclatasvir, danazol, darunavir, degarelix, delavirdine, dexamethasone, dicumarol, digoxin, diltiazem, disopyramide, dronedarone, droperidol, eflornithine, enalapril, enantem/leumefantrine, aspirin, atenolol, atorvastatin, azathioprine, azithromycin, barbiturates, baton, bepridil, bepridil, bencyclomethoxin, belatuzumab, bendamustine, benzodiazepines, β-blockers, betaxolol, betaxolol, biphenyl, biphenyl, bradycardia, brimonidine, brotizolam, buprenorphine, butylamine, butylamine, butyraldehyde, caffeine, captopril, ceftriaxone, cetirizine, cetuximab, chloramphenicol, chloroquine, chlorpromazine, cholestyramine, chlorpropamide, cimetidine, clofazimine, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibrate, clofibr...
Pruritus [3]
Pseudolymphoma [2]
Purpura [2]

Mucosal
Xerostomia (> 10%) [16]

Cardiovascular
Brugada syndrome [4]
Myocardial infarction [2]
Postural hypotension [2]
QT prolongation [2]

Central Nervous System
Delirium [2]
Depression [2]

Hydrocephalus (taste perversion) (> 10%) [2]
Hallucinations [3]
Headache [2]
Restless legs syndrome [2]
Sedation [3]
Seizures [7]
Serotonin syndrome [4]
Somnolence (drowsiness) [6]
Vertigo (dizziness) [6]

Neuromuscular/Skeletal
Asthenia (fatigue) [3]

Rhabdomyolysis [2]

Gastrointestinal/Hepatic
Cholestatics [2]
Constipation [4]
Nausea [2]

Endocrine/Metabolic
SIADH [5]
Weight gain [7]

Otic
Tinnitus [3]

Ocular
Hallucinations, visual [2]
Vision blurred [2]

Other
Adverse effects [5]
Death [3]

AMLEXANOX
See: www.drugeruptionedata.com/drug/id/1200

AMLODIPINE

Trade names: Caduet (Pfizer), Exforge (Novartis), Istin (Pfizer), Lotrel (Novartis), Norvasc (Pfizer), Prestalia (Symplmed), Tekamlo (Novartis)

Indications: Antiarrhythmic class IV, Calcium channel blocker

Half-life: 3050 hours

Clinically important, potentially hazardous interactions with: amprenaivir, carbamazepine, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, conivaptan, delavirdine, eprosamide, imatinib, phenytoin, primidone, sildenafil, simvastatin, St John's wort, tadalafil, telaprevir

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Caduet is amlodipine and atorvastatin; Exforge is amlodipine and valsartan; Lotrel is amlodipine and benazepril; Prestalia is amiodipine and perindopril; Tekamlo is amiodipine and aliskiren.

Skin
Angioedema [6]
Dermatitis (< 10%)
Edema (514%) [20]
Erythema multiforme [2]
Perianal edema (> 10%) [44]
Pigmentation [2]
Pruritus (24%) [3]
Rash (< 10%)
Toxic epidermal necrolysis [2]

Vertigo (dizziness) [2]

Vasculitis [2]

Gingival hyperplasia/hypertrophy [29]

Flushing (< 10%) [5]

Hypotension [7]

Central Nervous System
Headache [12]
Parkinsonism [2]
Syncope [2]
Vertigo (dizziness) [13]

Neuromuscular/Skeletal
Asthenia (fatigue) [5]

Rhabdomyolysis [2]

Gastrointestinal/Hepatic
Diarrhea [3]
Gastritis [2]

Hepatotoxicity [3]
Nausea [5]
Vomiting [2]

Respiratory
Bronchitis [2]
Cough [2]
Upper respiratory tract infection [4]

Other
Adverse effects [8]

AMOBARBITAL

See: www.drugeruptionedata.com/drug/id/34

AMODIAQUINE

Trade names: Camoquin (Pfizer), Flavoxin (Sanofi-Aventis)

Indications: Malaria

Class: Anti-inflammatory, Antimalarial

Half-life: 15.7–19.5 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: N/A

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Skin
Pruritus [3]

Central Nervous System
Extrapyramidal symptoms [3]

Neuromuscular/Skeletal
Asthenia (fatigue) [4]

Gastrointestinal/Hepatic
Abdominal pain [3]

Hematologic
Neutropenia [2]

Other
Adverse effects [2]
Death [2]

AMOXAPINE

Trade name: Amoxapine (Watson)

Indications: Depression

Class: Antidepressant, tricyclic, Muscarinic antagonist

Half-life: 1130 hours

Clinically important, potentially hazardous interactions with: amprenaivir, artesunate/ lumezantrine, clonidine, dorchadore, epinephrine, fluoxetine, guanethidine, iobenguane, isocarboxazid, linezolid, MAO inhibitors, nilotinib, phenelzine, pimozide, quinidine, quinolones, sparfloxacin, tetrabenzine, thioridazine, toremifene, tranylcypromine, vandetanib, vemuafenib, ziprasidone

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
AGEP [3]

Diaphoresis (< 10%)

Edema (< 10%)

Exanthems [2]

Rash (< 10%)

Toxic epidermal necrolysis [2]

Mucosal
Xerostomia (14%)

Central Nervous System
Dysgeusia (taste perversion) (> 10%)

Headache (< 10%)

Insomnia (< 10%)

Neuroleptic malignant syndrome [2]

Somnolence (drowsiness) (14%)

Vertigo (dizziness) (< 10%)
### Amoxicillin

**Synonym:** amoxicillin  
**Trade names:** Amoxil (GSK), Augmentin (GSK), Prevpac (TAP), Trimox (Bristol-Myers Squibb)  
**Indications:** Infections of the respiratory tract, skin and urinary tract  
**Class:** Antibiotic, penicillin  
**Half-life:** Initial: 1548 hours; terminal: 15 days  
**Antifungal**  
**Pregnancy category:** B  
**Note:** Augmentin is amoxicillin and clavulanic acid.

<table>
<thead>
<tr>
<th>Side Effects</th>
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<tr>
<td><strong>Skin</strong></td>
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<td>Angioedema (&lt;10%)</td>
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<td>Baboon syndrome (SDRIFE) [11]</td>
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<td>Bullous pemphigoid [2]</td>
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<td>Dermatitis [4]</td>
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<tr>
<td>Edema [2]</td>
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<tr>
<td>Erythema multiforme [18]</td>
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<tr>
<td>Exanxthems (&gt;5%)</td>
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<td>Fixed eruption</td>
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<tr>
<td>Hypersensitivity [5]</td>
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<tr>
<td>Jarisch-Herxheimer reaction [2]</td>
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<td>Linear IgA bullous dermatosis [3]</td>
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<td>Pemphigus [4]</td>
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<td>Pruritus [7]</td>
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<tr>
<td>Pustules [8]</td>
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<tr>
<td>Rash (&lt;10%)</td>
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<tr>
<td>Serum sickness-like reaction (&lt;10%)</td>
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<td>Toxic epidermal necrolysis [13]</td>
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<td>Urticaria (&lt;5%)</td>
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<td><strong>Neuromuscular/Skeletal</strong></td>
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<td>Asthenia (fatigue) [3]</td>
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<td>Rhabdomyolysis [2]</td>
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<tr>
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<tr>
<td>Abdominal distension [2]</td>
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<tr>
<td>Abdominal pain [7]</td>
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<tr>
<td>Diarrhea [18]</td>
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<tr>
<td>Dyspepsia [2]</td>
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<tr>
<td>Hepatotoxicity [36]</td>
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<tr>
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<tr>
<td>Vomiting [9]</td>
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<td><strong>Genitourinary</strong></td>
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<tr>
<td><strong>Other</strong></td>
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<tr>
<td>Adverse effects [20]</td>
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<td>Kounis syndrome [6]</td>
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<tr>
<td>Side effects [4]</td>
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<tr>
<td>Tooth fluorosis [2]</td>
</tr>
</tbody>
</table>

### Ampicillin

**Trade name:** Totacillin (GSK)  
**Indications:** Susceptible strains of gram-negative and gram-positive bacterial infections  
**Class:** Antibiotic, penicillin  
**Half-life:** 11.5 hours  
**Clinically important, potentially hazardous interactions with:** allopurinol, anticoagulants, chloramphenicol, cyclosporine, demeclocycline, doxycycline, erythromycin, levodopa, methotrexate, minocycline, oxytetracycline, sulfonamides, tetracycline  
**Pregnancy category:** B  
**Important contra-indications noted in the prescribing guidelines for: nursing mothers**  
**Other**  
**Adverse effects [5]  
Death [4]  
Infection (11%)  

**Neuromuscular/Skeletal**  
- Asthenia (fatigue) (13%)  
- Back pain (12%)  

**Gastrointestinal/Hepatic**  
- Abdominal pain (20%)  
- Diarrhea (30%)  
- Gastrointestinal bleeding (10%)  
- Hepatotoxicity [5]  
- Nausea (40%)  
- Vomiting (32%)  

**Respiratory**  
- Bronchospasm [2]  
- Cough (18%)  
- Dyspnea (23%)  
- Hypoxia (8%)  
- Pleural effusion (13%)  
- Pulmonary toxicity (18%)  
- Rhinitis (1%)  
- Tachypnea (>10%)  

**Endocrine/Metabolic**  
- ALP increased (22%)  
- ALT increased (15%)  
- AST increased (13%)  
- Creatine phosphokinase increased (22%)  
- Hyperglycemia (23%)  
- Hypernatremia (4%)  
- Hypervolemia (12%)  
- Hypokalemia (18%)  
- Hypokalemia [2]  
- Hypomagnesemia (20%)  

**Genitourinary**  
- Hematuria (14%)  
- Urinary retention (<10%)  

**Renal**  
- Nephrotoxicity [50]  

**Hematologic**  
- Anemia (10%)  
- Leukocytosis (>10%)  
- Sepsis (14%)  

**Local**  
- Infusion-related reactions [5]  
- Injection-site pain (>10%)  
- Injection-site reactions [5]  

**Other**  
- Adverse effects [5]  
- Death [4]  
- Infection (11%)  

**Skin**  
- Anaphylactoid reactions/Anaphylaxis [4]  
- Diaphoresis (7%)  
- Exanxthems [4]  
- Peripheral edema (15%)  
- Purpura [3]  
- Rash (25%)  
- Toxicity [2]  
- Urticaria [2]  

**Mucosal**  
- Epistaxis (nosebleed) (15%)  

**Cardiovascular**  
- Chest pain (12%)  
- Flushing (<10%) [2]  
- Hypertension (8%) [4]  
- Hypotension (14%)  
- Tachycardia (13%)  
- Thrombophlebitis (<10%)  

**Central Nervous System**  
- Anorexia (>10%)  
- Anxiety (14%)  
- Chills (48%) [5]  
- Confusion (11%)  
- Delirium (>10%)  
- Fever (>10%) [5]  
- Headache (20%)  
- Insomnia (17%)  
- Leukoencephalopathy [4]  
- Pain (14%)  
- Paresthesias (<10%)  
- Parkinsonism [2]  

**Other**  
- Vision blurred (7%)  
- Galactorrhea [2]  
- Diarrhea [18]  
- Abdominal distension [2]
95% incidence of exanthematous eruptions in patients who are treated for infectious mononucleosis with ampicillin. The allergenicity of ampicillin appears to be enhanced by allopurinol or by hyperuricemia. Ampicillin is clearly the more allergenic of the two drugs when given alone.

### Skin
- **AGEP** [9]
- Anaphylactoid reactions/Anaphylaxis [10]
- Angioedema [2]
- Baboon syndrome (SDRIFE) [3]
- Dermatitis [8]
- Erythema multiforme [11]
- Exanthems (>10%) [84]
- Exfoliative dermatitis [3]
- Fixed eruption [10]
- Hypersensitivity [5]
- Linear IgA bullous dermatosis [4]
- Pemphigus [6]
- Pruritus (<5%) [5]
- Psoriasis [5]
- Purpura [6]
- Pustules [4]
- Rash (<10%)
- Stevens-Johnson syndrome [10]
- Toxic epidermal necrolysis [15]
- Urticaria [16]
- Vasculitis [4]
- **Hematologic**
  - Thrombocytopenia [2]
- **Local**
  - Injection-site pain (>10%)
- **Other**
  - Allergic reactions (<10%) [3]

### AMPICILLIN/SULBACTAM
**Trade name:** Unasyn (Pfizer)
**Indications:** Various infections caused by susceptible organisms
**Class:** Antibiotic, beta-lactam, Antibiotic, penicillin
**Half-life:** 1 hour
**Clinically important, potentially hazardous interactions with:** allopurinol, probenecid
**Pregnancy category:** B
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers
**Note:** Serious and occasionally fatal hypersensitivity (anaphylactic) reactions have been reported in patients on penicillin therapy. Contra-indicated in patients with a history of hypersensitivity reactions to any of the penicillins.

### Skin
- Anaphylactoid reactions/Anaphylaxis [2]
- Linear IgA bullous dermatosis [3]
- Rash (<10%)

### Gastrointestinal/Hepatic
- Diarrhea (<10%)

### Local
- Injection-site pain (16%)
**ANIDULAFUNGIN**

**Trade names:** Ecalta (Pfizer), Eraxis (Pfizer)

**Indications:** Candidemia, candidal esophagitis

**Class:** Antimycobacterial, echinocandin

**Half-life:** 4050 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

### Skin
- Angioedema (<2%)
- Erythema (<2%)
- Hot flashes (<2%)
- Hyperhidrosis (<2%)
- Pruritus (<2%)
- Ulcerations (5%)
- Urticaria (<2%)

### Mucosal
- Oral candidiasis (5%)

### Cardiovascular
- Atrial fibrillation (<2%)
- Bundle branch block (<2%)
- Chest pain (5%)
- Flushing (<2%)
- Hypertension (12%)
- Hypotension (15%)
- Phlebitis [2]
- Thrombophlebitis (<2%)
- Venous thromboembolism (10%)

### Central Nervous System
- Confusion (8%)
- Depression (6%)
- Fever (9–18%) [3]
- Headache (8%) [5]
- Insomnia (15%)
- Rigors (<2%)
- Seizures (<2%)
- Vertigo (dizziness) (<2%)

### Neuromuscular/Skeletal
- Back pain (5%)

### Gastrointestinal/Hepatic
- Abdominal pain (6%)
- Cholestasis (<2%)
- Constipation (8%)
- Diarrhea (9–18%)
- Dyspepsia (aggravated) (7%)
- Hepatotoxicity [4]
- Nausea (7–24%) [4]
- Vomiting (7–18%) [4]

### Respiratory
- Cough (7%)
- Dyspnea (12%)
- Pleural effusion (10%)
- Pneumonia (6%)
- Respiratory distress (6%)

### Endocrine/Metabolic
- ALP increased (12%)
- ALT increased (2%)
- Creatine phosphokinase increased (5%)
- Dehydration (6%)
- Hyperglycemia (6%)
- Hyperkalemia (6%)
- Hypoglycemia (7%)
- Hypokalemia (5–15%)
- Hypomagnesemia (12%)

### Genitourinary
- Urinary tract infection (15%)

### Hematologic
- Anemia (8–9%)
- Coagulopathy (<2%)
- Leukocytosis (5%)
- Sepsis (7%)
- Thrombocytopenia (6%)
- Thrombocytopenia (<2%)

### Ocular
- Ocular pain (<2%)
- Vision blurred (<2%)
- Visual disturbances (<2%)

### Local
- Infusion-related reactions [2]

### Other
- Adverse effects [3]
- Infection (63%)

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**ANISINDIONE**


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**ANTHRAX VACCINE**

**Trade name:** BioThrax (Emergent BioSolutions)

**Indications:** Anthrax prophylaxis

**Class:** Vaccine

**Half-life:** Requires 1 month to achieve immunity (92.5% efficient)

Clinically important, potentially hazardous interactions with: corticosteroids, immunosuppressive therapies, other vaccines

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

**Note:** Dr. Sue Bailey, Assistant Secretary for Health Affairs, released a statement on June 29, 1999 that 'almost one million shots given, the anthrax immunization is proving to be one of the safest vaccination programs on record.' The ADRs reported occurred for ‘50 service members at one installation alone.’ Note that no number of military personnel was mentioned at this installation, nor did it give any percentages for the reactions reported.

### Skin
- Diaphoresis [2]
- Edema (3%) [2]
- Hypersensitivity [5]
- Lupus erythematosus [2]
- Pruritus (<10%) [2]
- Rash [2]
- Stevens-Johnson syndrome [2]
- Urticaria [2]

### Central Nervous System
- Chills [2]
- Fever [3]
- Guillain-Barré syndrome [2]
- Headache (4–64%) [2]

### Neuromuscular/Skeletal
- Arthralgia [3]
- Asthenia (fatigue) (5–62%)
- Myalgia/Myopathy (2–72%) [3]

### Gastrointestinal/Hepatic
- Diarrhea (6–8%)
- Nausea (6%)

### Respiratory
- Flu-like syndrome [3]
- Nasopharyngitis (12–15%)

### Genitourinary
- Dysmenorrhea (7%)

### Local
- Injection-site edema [4]
- Injection-site nodules [2]
- Injection-site pain [4]
- Injection-site pruritus [2]
- Injection-site reactions [6]

### Other
- Allergic reactions [2]

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**ANTI-THYMOCYTE GLOBULIN (EQUINE)**

See: [www.drugeruptiondata.com/drug/id/2587](http://www.drugeruptiondata.com/drug/id/2587)

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**ANTI-THYMOCYTE IMMUNOGLOBULIN (RABBIT)**

See: [www.drugeruptiondata.com/drug/id/1415](http://www.drugeruptiondata.com/drug/id/1415)

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**ANTIHEMOPHILIC FACTOR**

**Synonym:** fV111Fc

**Trade names:** Afstyla (CSL Behring), Eloctate (Bogen Idee), Kovaltry (Bayer)

**Indications:** Control and prevention of bleeding episodes in Hemophilia A

**Class:** Antihemorrhagic, Recombinant fusion protein

**Half-life:** 20 hours (adults)

Clinically important, potentially hazardous interactions with: none known

### Skin
- Diaphoresis [2]
- Edema (3%) [2]
- Hypersensitivity [5]
- Lupus erythematosus [2]
- Pruritus (<10%) [2]
- Rash [2]
- Stevens-Johnson syndrome [2]
- Urticaria [2]
**APIXABAN**

**Trade name:** Eliquis (Bristol-Myers Squibb)

**Indications:** Reduce the risk of stroke and systemic embolism in patients with nonvalvular atrial fibrillation

**Class:** Anticoagulant, Direct factor Xa inhibitor

**Half-life:** 5–12 hours

**Clinically important, potentially hazardous interactions with:** carbamazepine, dalcumazine, valproic acid, rifampin, St John’s wort, tipranavir, voriconazole

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Warning:** DISCONTINUING ELIQUIS IN PATIENTS WITHOUT ADEQUATE CONTINUOUS ANTICOAGULATION INCREASES RISK OF STROKE

**Adverse effects [4]**

- Central Nervous System
  - Headache [5–6%] [24]

- Gastrointestinal/Hepatic
  - Abdominal pain (<2%) [3]
  - Diarrhea (8–9%) [28]
  - Dyspepsia [2]
  - Nausea (7–9%) [29]
  - Vomiting (<3%) [8]

- Respiratory
  - Nasopharyngitis (<3%) [17]
  - Upper respiratory tract infection (<4%) [14]

- Other
  - Adverse effects [4]

**APREMILAST**

**Trade name:** Otezla (Celgene)

**Indications:** Psoriatic arthritis, plaque psoriasis

**Class:** Phosphodiesterase type 4 (PDE4) inhibitor

**Half-life:** 6–9 hours

**Clinically important, potentially hazardous interactions with:** carbamazepine, phenobarbital, phenytoin, rifampin

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Adverse effects [4]**

- Upper respiratory tract infection (<4%)

- Other
  - Infection [2]

**APREPITANT**

**Trade name:** Emend (Merck)

**Indications:** Prevention of postoperative and chemotherapy induced nausea and vomiting

**Class:** Antiemetic, CYP3A4 inhibitor, Neurokinin 1 receptor antagonist

**Half-life:** 913 hours

**Clinically important, potentially hazardous interactions with:** alprazolam, antifungal agents, astemizole, avenaflox, betamethasone, carbamazepine, cisapride, clarithromycin, colchicine, conivaptan, corticosteroids, CYP2C9 substrates, CYP3A4 inhibitors or inducers, dazotinib, deferasirox, dexamethasone, diltiazem, docetaxel, eplerenone, estrogens, everolimus, fentanyl, grapefruit juice, halofantrine, ifosfamide, imatinib, irinotecan, itraconazole, ketoconazole, methylprednisolone, midazolam, miltefosine, naldemedine, nefazodone, neralarin, olaparib, oral contraceptives, paroxetine hydrochloride, phenobarbital, phenytoin, pimecrolimus, pimozide, progestins, ranolazine, rifampin, rifamycin derivatives, rifapentine, ritonavir, salmeterol, saxagliptin, St John’s wort, telithromycin, terfenadine, tolbutamide, tolvaptan, trabeclidin, triamcinolone, trogandolymcin, vinblastine, vincristine, voriconazole, warfarin

**Pregnancy category:** N/A (Insufficient evidence to inform drug-associated risk)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Fosaprepitant is a prodrug of aprepitant for injection. Aprepitant treatment is given along with a 5-HT3-receptor antagonist and dexamethasone.

**Adverse effects [4]**

- Dry mouth (29%)

- Other
  - Infection [2]
### APROBARBITAL

See: www.drugeruptiondata.com/drug/id/44

### APROTININ

See: www.drugeruptiondata.com/drug/id/45

### ARBUTAMINE

See: www.drugeruptiondata.com/drug/id/873

### ARFORMOTEROL

**Trade name:** Brovana (Sunovion)  
**Indications:** Chronic obstructive pulmonary disease including chronic bronchitis and emphysema  
**Class:** Beta-2 adrenergic agonist, Bronchodilator  
**Half-life:** 26 hours  
**Clinically important, potentially hazardous interactions with:** aminophylline, beta blockers, MAO inhibitors, tricyclic antidepressants  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  
**Note:** Studies in asthma patients showed that long-acting beta-2 adrenergic agonists may increase the risk of asthma-related death. Contra-indicated in patients with asthma without use of a long-term asthma control medication.  
**Warning:** ASTHMA-RELATED DEATH

### ARGATROBAN

See: www.drugeruptiondata.com/drug/id/811

### ARIPIPRAZOLE

**Trade names:** Abilify (Bristol-Myers Squibb), Aristada (Alkermes)  
**Indications:** Schizophrenia, bipolar I disorder, major depressive disorder, irritability associated with autistic disorder  
**Class:** Antipsychotic, Mood stabilizer  
**Half-life:** 7594 hours  
**Clinically important, potentially hazardous interactions with:** alcohol, atazanavir, carbamazepine, CYP3A4 inhibitors, efavirenz, itraconazole, ketoconazole, nelfinavir, paroxetine hydrochloride, quinidine  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; pediatric patients  
**Warning:** INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS  
**SUICIDALITY AND ANTIDEPRESSANT DRUGS**

### Neuromuscular/Skeletal

- Arthralgia (<2%)
- Back pain (6%)
- Leg cramps (4%)
- Neck rigidity (<2%)

### Gastrointestinal/Hepatic

- Nausea [2]

### Respiratory

- Bronchitis [3]
- COPD (exacerbation) [3]
- Dysphonia (<2%)
- Dyspnea (4%)
- Flu-like syndrome (3%)
- Nasopharyngitis [3]
- Sinusitis (4%) [2]

### Genitourinary

- Cystitis (<2%)
- Nocturia (<2%)

### Ocular

- Glaucoma (<2%)
- Visual disturbances (<2%)

### Cardiovascular

- Arteriosclerosis (<2%)
- Atrioventricular block (<2%)
- Chest pain (7%) [2]
- Digitalis intoxication (<2%)
- QT prolongation (<2%)
- Supraventricular tachycardia (<2%)

### Central Nervous System

- Agitation (19%) [4]
- Akathisia (8–13%) [31]
- Anxiety (17%) [11]
- Compulsions [2]
- Dystonia (<2%)
- Extrapyramidal symptoms [9]
- Fever (2%) [2]
- Headache (27%) [12]
- Hypersexuality [2]
- Impulse control disorder [4]
- Insomnia (18%) [16]
- Irritability [4]
- Mania [2]
- Neuroleptic malignant syndrome [14]
- Neurotoxicity [2]
- Parkinsonism [11]
- Psychosis [2]
- Restlessness [8]
- Schizophrenia (exacerbation) [2]
- Sedation [10]
- Somnolence (drowsiness) (5–11%) [11]
- Stroke [2]
- Suicidal ideation [6]
- Tardive dyskinesia [8]
- Tic disorder [2]
- Tremor (3%) [9]
- Vertigo (dizziness) [5]

### Skin

- Rash (<2%)
- Edema (<2%)
- Herpes simplex (<2%)
- Herpes zoster (<2%)
- Neoplasms (<2%)
- Peripheral edema (3%)
- Pigmentation (<2%)
- Rash (<2%)
- Xerosis (<2%)

### Mucosal

- Oral candidiasis (<2%)

### Cardiovascular

- Arteriosclerosis (<2%)
- Atroventricular block (<2%)
- Chest pain (7%) [2]
- Digitalis intoxication (<2%)
- QT prolongation (<2%)
- Supraventricular tachycardia (<2%)

### Central Nervous System

- Agitation (<2%)
- Fever (<2%)
- Headache [2]
- Hypokinesia (<2%)
- Insomnia [2]
- Nervousness [3]
- Pain (8%)
- Paresthesias (<2%)
- Somnolence (drowsiness) (<2%)
- Tremor (<2%)[3]
ARMODAFINIL

Trade name: Nuvigil (Cephalon)
Indications: Narcolepsy, obstructive sleep apnea, shift work sleep disorder
Class: Eugeroic
Half-life: 12–15 hours
Clinically important, potentially hazardous interactions with: cyclosporine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Central Nervous System
Anxiety [2]
Headache (14–23%) [10]
Insomnia (4–6%) [3]
Vertigo (dizziness) (5%) [2]
Gastrointestinal/Hepatic
Diarrhea [3]
Nausea [2]
Other
Adverse effects [2]

ARSENIC

See: www.drugeruptiondata.com/drug/id/46

ARTEMETHER/ LUMEFANTRINE

Trade name: Coartem (Novartis)
Indications: Acute, uncomplicated malaria infections due to Plasmodium falciparum in patients of 3kg bodyweight and above
Class: Antimalarial
Half-life: ~2 hours (artemether); 3–6 days (lumefantrine)
Clinically important, potentially hazardous interactions with: amiodarone, amitriptyline, amoxapine, antimalarials, antiretrovirals, arsenic, astemizole, atazanavir, atovaquone/proguanil, amoxapine, antimalarials, antiretrovirals, arsenic, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin, atorvastatin
Pregnancy category: 
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Artemether/Lumefantrine tablets should not be used to treat severe malaria or to prevent malaria.

Skin
Abscess (<3%)
Impetigo (<3%)
Inflammation [3]
Pruritus (4%) [2]
Rash (3%) [6]
Urticaria (<3%) [2]
Cardiovascular
Palpitation (18%) [2]
Central Nervous System
Agitation (<3%)
Anorexia (40%) [6]
Chills (23%)
Fever (25–29%) [6]
Gait instability (<3%)
Headache (56%) [8]
Hypoaesthesia (<3%)
Insomnia (5%) [2]
Mood changes (<3%)
Seizures [2]
Sleep disturbances (22%)
Sleep related disorder [2]
Tremor (<3%) Vertigo (dizziness) (39%) [8]
Neuromuscular/Skeletal
Arthralgia (34%)
Anemia (fatigue) (38%) [8]
Ataxia (<3%) Back pain (<3%)
Myalgia/Myopathy (32%)
Gastrointestinal/Hepatic
Abdominal pain (17%) [11]
Constipation (<3%)
Diarrhea (8%) [11]
Dyspepsia (<3%)
Dysphagia (<3%)
Gastroenteritis (<3%)
Hepatomegaly (6–9%)
Nausea [8]
Pepcid ulceration (<3%)
Vomiting [16]
Respiratory
Asthma (<3%)
Bronchitis (<3%)
Cough (6–23%) [2]
Influenza (<3%)
Nasopharyngitis (4%)
Pharyngolaryngeal pain (<3%)
Pneumonia (<3%)
Rhinitis (4%)
Upper respiratory tract infection (<3%)
Endocrine/Metabolic
ALT increased (<3%)
AST increased (<3%)
Hypokalemia (<3%)
Genitourinary
Hematuria (<3%)
Urinary tract infection (<3%)
Renal
Proteinuria (<3%)
Hematologic
Anemia (4–9%) [4]
Eosinophilia (<3%)
Neutropenia [2]
Platelets decreased (<3%)
Otic
Ear infection (<3%)

Hearing impairment [2]
Tinnitus (<3%)
Ocular
Conjunctivitis (<3%)
Nystagmus (<3%)
Other
Adverse effects [3]
Infection (<3%)

ARTESUNATE

Trade name: Rtsun (Wiscon)
Indications: Plasmodium falciparum malaria
Class: Antimalarial
Half-life: 0.5 hours
Clinically important, potentially hazardous interactions with: efavirenz
Pregnancy category: N/A (Use carefully in first three trimesters of pregnancy)
Note: Artesunate therapy should be combined with other antimalarials (e.g. mefloquine) if given for less than 5 days.

Skin
Pruritus [3]
Cardiovascular
QT prolongation [2]
Central Nervous System
Anorexia [3]
Extrapyramidal symptoms [3]
Fever [2]
Headache [8]
Insomnia (2) Vertigo (dizziness) [12]
Neuromuscular/Skeletal
Anesthesia (fatigue) [5]
Myalgia/Myopathy [2]
Gastrointestinal/Hepatic
Abdominal pain [4]
Diarrhea [5]
Nausea [6]
Vomiting [13]
Respiratory
Cough [3]
Hematologic
Anemia [4]
Hemolyis [3]
Hemolytic anemia [2]
Neutropenia [2]
Other
Adverse effects [2]

ARTICAINE

See: www.drugeruptiondata.com/drug/id/2435

ASCORBIC ACID

See: www.drugeruptiondata.com/drug/id/47
ASENAPINE

Trade name: Saphris (Merck)
Indications: Schizophrenia, bipolar disorder
Class: Antipsychotic
Half-life: 24 hours
Clinically important, potentially hazardous interactions with: alcohol, amiodarone, chlorpromazine, CYP2D6 substrates and inhibitors, fluvoxamine, gatifloxacin, moxifloxacin, paroxetine hydrochloride, procainamide, QT prolonging drugs, quinidine, sotalol, thioridazine, ziprasidone
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Warning: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

Skin
Peripheral edema (3%)
Mucosal
Oral numbness [4]
Salivary hypersecretion (2%)
Xerostomia (2–3%)
Cardiovascular
Hypertension (2–3%) [2]
Central Nervous System
Acathisia (4–6%) [10]
Anxiety (4%) [2]
Depression (2%) [3]
Dysgeusia (taste perversion) (3%) [4]
Extrapyramidal symptoms (6–10%) [11]
Headache (12%) [3]
Hypersomnia [2]
Hypoesthesia (oral) (<10%) [3]
Irritability (2%) [3]
Sedation [9]
Somnolence (drowsiness) (13–24%) [15]
Vertigo (dizziness) (4–11%) [5]
Neuromuscular/Skeletal
Arthralgia (3%)
Asthenia (fatigue) (3–4%)
Pain in extremities (2%)
Gastrointestinal/Hepatic
Abdominal pain [2]
Constipation (5%)
Dyspepsia (3–4%)
Vomiting (5%)
Endocrine/Metabolic
Appetite increased (2–4%)
Weight gain (3–5%) [12]
Other
Adverse effects [4]

ASFOTASE ALFA

Trade name: Strensiq (Alexion)
Indications: Perinatal/infantile-and juvenile-onset hypophosphatasia
Class: Enzyme replacement
Half-life: 5 days
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (No available data)
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Skin
Anaphylactoid reactions/Anaphylaxis (340%)
Calcification (4%) [4]
Erythema (<10%)
Cardiovascular
Flushing (<10%)
Central Nervous System
Chills (<10%)
Fever (<10%)
Hypoesthesia (oral) (<10%)
Irritability (<10%)
Rigors (<10%)
Gastrointestinal/Hepatic
Nausea (<10%)
Vomiting (5%)
Local
Injection-site bruising (8%)
Injection-site edema (13%)
Injection-site erythema (41%)
Injection-site hemorrhage (<17%)
Injection-site induration (13%)
Injection-site lipoatrophy/lipohypertrophy (5–8%)
Injection-site pain (14%)
Injection-site papules and nodules (3%)
Injection-site pigmentation (15%)
Injection-site pruritus (13%)
Injection-site reactions (9%)
Other
Adverse effects [2]
**ASPIRIN**

**Synonyms:** acetylsalicylic acid; ASA

**Trade names:** Aggrenox (Boehringer Ingelheim), Aspirin (Wyeth), Ascriptin (Novartis) (Wallace), Darvon Compound (AllPharma), Durlaza (New Haven), Ecorin (GSK), Equagesic (Women First), Excedrin (Bristol-Myers Squibb), Fiorinal (Watson), Norgesic (3M), Soma Compound (MedPointe), Talwin Compound (Sanofi-Aventis), Yospara (Aralez)

**Indications:** Pain, fever, inflammation

**Class:** Antiplatelet, Non-steroidal anti-inflammatory (NSAID), Salicylate

**Half-life:** 1520 minutes

**Clinically important, potentially hazardous interactions with:** acetaminophen, acenocoumarol, amitriptyline, anagrelide, anticoagulants, aspirin and omeprazole.

**Note:** Increased risk of adverse events, which can be fatal. This risk may increase with duration of use.

**Important contra-indications noted in the prescribing guidelines for:** pediatric patients

**Pregnancy category:** D

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Important contraindications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Evotaz is atazanavir and cobicistat.

**Skin**

Anaphylactic reactions/Anaphylaxis (<10%) [8]

Angioedema (<5%) [32]

Bullous dermatitis [4]

Erythema multiforme [9]

Erythema nodosum [9]

Erythroderma [2]

Exantheme [11]

Fixed eruption [22]

Hypersensitivity [5]

Lichenoid eruption [2]

Pityriasis rosea [3]

Pruritus [6]

Psoriasis [3]

Purpura [8]

Rash (<10%) [6]

Stevens-Johnson syndrome [6]

Toxic epidermal necrolysis [9]

Urticaria (<10%) [72]

Vasculitis [2]

**Mucosal**

Aphthous stomatitis [3]

**NASAL POLYP [4]**

**Oral mucosal erosion [3]**

**Oral ulceration [4]**

**Central Nervous System**

**Stroke [2]**

**Gastrointestinal/Hepatic**

**Black stools [3]**

**Gastritis [2]**

**Gastrointestinal bleeding [8]**

**Gastrointestinal ulceration [7]**

**Hepatotoxicity [4]**

**Pancreatitis [2]**

**Respiratory**

**Asthma [10]**

**Pulmonary toxicity [2]**

**Rhinitis [3]**

**Sinusitis [2]**

**Renal**

**Fanconi syndrome [2]**

**Hematologic**

**Bleeding [12]**

**Otic**

**Tinnitus [17]**

**Ocular**

**Periorbital edema [3]**

**Other**

**Adverse effects [9]**

**Allergic reactions [2]**

**ASTEMIZOLE**

**See:** www.drugeruptiondata.com/drug/id/1308

**ATAZANAVIR**

**Trade names:** Evotaz (Bristol-Myers Squibb), Reyataz (Bristol-Myers Squibb)

**Indications:** HIV infection

**Class:** Antiretroviral, HIV-1 protease inhibitor

**Half-life:** 7 hours

**Clinically important, potentially hazardous interactions with:** abiraterone, afluzosin, anidulafarnib, antacids, artemether/lumefantrine, atorvastatin, avanafil, bepridil, bosentan, buprenorphine, cabazitaxel, cabozantinib, calcidiol, cisapride, clarithromycin, colchicine, crizotinib, cyclosporine, dafarnac, dasatinib, delaprazole, diltiazem, dofetilide, efavirenz, elbasvir & grazoprevir, eluxadoline, ergot derivatives, erlotinib, estrogens, etravirine, everolimus, faldaprevir, famotidine, felodipine, fentanyl, fesoterodine, filbaserin, flucanazole propionate, garlic, glecaprevir & pivrentavir; indinavir; irinotecan, iraconazole, itraconazole, ibapeneline, ketoconazole, lapatinib, lidocaine, lopinavir, lovastatin, maraviroc, mirtazapine, mifepristone, naldemedine, nevirapine, nifedipine, nilotinib, nivolumab, olaparib, omeprazole, oral contraceptives, paclitaxel, pantoprazole, pazopanib, pimezide, posaconazole, proton-pump inhibitors, quetiapine, quinidine, quinoline, rabeprazole, raltegravir, ranolazine, rifabutin, rifampin, rilpivirine, ritonavir, riluzole, romidepsin, rosuvastatin, salmeterol, saquinavir, sildenafil, simprevir, simvastatin, sirolimus, sofosbuvir/velpatasvir/voxilaprevir, sotriflofen, sorafenib, St John’s wort, sumatriptan, tacrolimus, taladafil, telaprevir, telithromycin, temsirolimus, tenofovir disoproxil, ticagrelor, tipranavir, trazadone, trazolam, tricyclic antidepressants, vardenafil, vemurafenib, verapamil, voriconazole, warfarin

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Evotaz is atazanavir and cobicistat.

**Skin**

Jaundice (5–7%) [11]

Rash (3–20%) [7]

**Cardiovascular**

QT prolongation [2]

Torsades de pointes [2]

**Central Nervous System**

Depression (2%) [32]

Fever (2%) [2]

Headache (<6%) [3]

Insomnia (3%)

Neurotoxicity [2]

**Pain (3%)**

**Vertigo (dizziness) (3%)**

**Neuromuscular/Skeletal**

Asthenia (fatigue) (2%)

Back pain (2%)

Myalgia/Myopathy (4%)

**Gastrointestinal/Hepatic**

Abdominal pain (4%) [4]

Cholelithiasis (gallstones) [4]

Diarrhea (2%) [3]

**Hepatotoxicity [3]**

Nausea (6–14%) [4]

Vomiting (3–4%) [4]

**Respiratory**

Upper respiratory tract infection [2]

**Endocrine/Metabolic**

ALT increased (3%) [3]

AST increased (3%) [3]

Creatine phosphokinase increased (8%) [3]

Hyperbilirubinemia [6]

**Genitourinary**

Urolithiasis [4]

**Renal**

Nephrolithiasis (5%) [3]

**Hematologic**

Neutropenia [3]

**Other**

**Adverse effects [5]**

**Infection (~50%)** [32]
**ATENOLOL**

**Trade names:** Beta-Adalat (Bayer), Kalten (BPC), Tenelor (AstraZeneca), Tenoret (AstraZeneca), Teneroin (AstraZeneca)  

**Indications:** Angina, hypertension, acute myocardial infarction  

**Class:** Antiarrhythmic class II, Beta adrenergic blocker, Beta blocker  

**Half-life:** 67 hours (adults)  

**Clinically important, potentially hazardous interactions with:** alfuzosin, calcium channel blockers, cisplatin, clonidine, digitals glycosides, diltiazem, disopyramide, epinephrine, indomethacin, reserpine, verapamil  

**Pregnancy category:** D  

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients  

**Note:** Contra-indicated in patients with sinus bradycardia, heart block greater than first degree, cardiogenic shock, or overt cardiac failure. Beta-Adalat and Tenelor and Tenoret are atenolol and nifedipine. Kalten, Tenoret 50 and Tenoretic are atenolol and chlorthalidone. Chlorthalidone is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.  

**Warning:** CESSATION OF THERAPY  

**Skin**  

Anaphylactoid reactions/Anaphylaxis [2]  

Lupus erythematosus [2]  

Necrosis [3]  

Pruritus (<5%)  

Psoriasis [7]  

Raynaud’s phenomenon [2]  

Urticaria [2]  

**Cardiovascular**  

Atrial fibrillation (5%) [2]  

Atrial flutter (2%)  

Bradycardia (3–18%) [8]  

Cardiac arrest (2%)  

Cardiac failure (19%)  

Heart block (5%)  

Hypotension (25%) [2]  

Postural hypotension (12%)  

Supraventricular tachycardia (12%)  

Ventricular tachycardia (16%)  

**Central Nervous System**  

Depression (12%)  

Somnolence (drowsiness) (2%)  

Stroke [2]  

Syncope [2]  

Vertigo (dizziness) (15%)  

**Neuromuscular/Skeletal**  

Asthenia (fatigue) (26%)  

Leg pain (3%)  

**Gastrointestinal/Hepatic**  

Diarrhea (3%)  

Nausea (3%)  

**Respiratory**  

Dyspnea (6%)  

Wheezing (3%)  

**Other**  

Adverse effects [5]

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**ATEZOLIZUMAB**

**Trade name:** Tecentriq (Genentech)  

**Indications:** Locally advanced or metastatic urothelial carcinoma in patients having disease progression following platinum-containing chemotherapy  

**Class:** Monoclonal antibody, Programmed death-ligand (PD-L1) inhibitor  

**Half-life:** 27 days  

**Clinically important, potentially hazardous interactions with:** none known  

**Pregnancy category:** N/A (Can cause fetal harm)  

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  

**Skin**  

Peripheral edema (18%)  

Pruritus (13%) [2]  

Rash (15%) [3]  

**Cardiovascular**  

Venous thromboembolism (>2%)  

**Central Nervous System**  

Fever (2%)  

**Neuromuscular/Skeletal**  

Arthralgia (14%)  

Asthenia (fatigue) (52%) [3]  

Back pain (15%)  

Neck pain (15%)  

**Gastrointestinal/Hepatic**  

Abdominal pain (17%)  

Colitis [2]  

Constipation (2%)  

**Endocrine/Metabolic**  

ALP increased (2%)  

AST increased (2%) [3]  

Dehydration (>2%)  

Diabetes mellitus [2]  

**Other**  

Adverse effects [3]  

Infection (38%)  

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**ATOMOXETINE**

**Trade name:** Strattera (Lilly)  

**Indications:** Attention deficit hyperactivity disorder  

**Class:** Noradrenergic reuptake inhibitor  

**Half-life:** 5 hours  

**Clinically important, potentially hazardous interactions with:** albuterol, amitriptyline, citalopram, delavirdine, droperidol, duloxetine, levobuvoter, levomepromazine, linezolid, lisdexamfetamine, MAO inhibitors, moxifloxacin, paroxetine hydrochloride, sotalol, timolone, terbutaline, tipranavir, venlafaxine, zuclopenthixol  

**Pregnancy category:** C  

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  

**Warning:** SUICIDAL IDEATION IN CHILDREN AND ADOLESCENTS  

**Skin**  

Pruritus (>2%)  

**Mucosal**  

Xerostomia (>5%) [9]  

**Cardiovascular**  

Cardiotoxicity [2]  

**Central Nervous System**  

Agitation [3]  

Anorexia [5]  

Depression (>2%) [3]  

**Neuromuscular/Skeletal**  

Ashtenia (fatigue) [11]  

**Gastrointestinal/Hepatic**  

Abdominal pain [12]  

Constipation [2]  

**Endocrine/Metabolic**  

Appetite decreased [27]  

Weight loss [5]  

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### ATORVASTATIN

**Trade names:** Caduet (Pfizer), Lipitor (Pfizer), Liptruzet (Merck Sharpe & Dohme)

**Indications:** Hypercholesterolemia

**Class:** HMG-CoA reductase inhibitor, Statin

**Half-life:** 14 hours

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

**Pregnancy category:** X

**Note:** Caduet is atorvastatin and amlodipine; Liptruzet is atorvastatin and ezetimibe.

#### Adverse effects [10]

**Mucosal**
- Cheilitis (<2%)
- Glossitis (<2%)
- Oral ulceration (<2%)
- Stomatitis (<2%)

**Cardiovascular**
- Hypotension [2]

**Central Nervous System**
- Ageusia (taste loss) (<2%)
- Cognitive impairment [2]

**Neuromuscular/Skeletal**
- Arthralgia (4–12%)

**Other**
- Adverse effects [10]

#### ATROVAQUONE

**Trade name:** Malarone (GSK)

**Indications:** Malaria prophylaxis and treatment

**Class:** Antimalarial

**Half-life:** 24 hours

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

**Skin**
- Erythema multiforme [2]
- Pruritus (<10%)

**Mucosal**
- Oral ulceration (6%) [3]

**Central Nervous System**
- Abnormal dreams (7%)
- Anemia (5%) 
- Headache (10%) [4]
- Insomnia (3%) 
- Vertigo (dizziness) (5%) [3]

**Neuromuscular/Skeletal**
- Nausea (4–7%)
- Pancreatitis [8]

**Respiratory**
- Nasopharyngitis (4–13%)

**Endocrine/Metabolic**
- ALT increased [3]
- Creatine phosphokinase increased [5]

**Gastrointestinal/Hepatic**
- Hepatitis [2]
- Nausea (4–7%)
- Pancreatitis [8]

**Gastrointestinal/Hepatic**
- Diarrhea (8%)
- Dyspepsia (2%)

**Genitourinary**
- Urinary tract infection (4–8%)

**Renal**
- Nephrotoxicity [3]

**Other**
- Adverse effects [10]

**Aatropine Sulfate**

**Trade name:** Lomotil (Pfizer)

**Indications:** Salivation, sinus bradycardia, uveitis, pericarditis

**Class:** Muscarinic antagonist

**Half-life:** 23 hours

**Clinically important, potentially hazardous interactions with:** anticholinergics, azole antifungals, beta blockers, calcium channel blockers, chemotherapy agents, corticosteroids, endogenous thyroxine, lidocaine, local anesthetics, metoclopramide, methyldopa, phenothiazines, phenothiazine antipsychotics, phenytoin, propranolol, quinidine, ranitidine, salicylates, some antibiotics, vincristine, zidovudine

**Pregnancy category:** C

**Note:** Many of the trade name drugs for atropine sulfate contain phenobarbital, scopolamine, hyoscyanine, hydrocodone, methenamine, etc.
AVANAFIL

**Trade name:** Stendra (Vivus)

**Indications:** Erectile dysfunction

**Class:** Phosphodiesterase type 5 (PDE5) inhibitor

**Half-life:** 5 hours

**Clinically important, potentially hazardous interactions with:** alcohol, alpha blockers, amnenpravir, antihypertensives, aprepiant, atazaranavir, clarithromycin, diltiazem, erythromycin, fluconazole, fosamprenavir, indinavir, iraconazole, ketoconazole, nefazodone, nelfinavir; nitrates, ritonavir, saquinavir; strong CYP3A4 inhibitors, telithromycin, verapamil

**Pregnancy category:** C (Not indicated for use in women)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Facial flushing [2]
- Rash (<2%) [2]

**Mucosal**
- Nasal congestion (<3%) [7]

**Cardiovascular**
- Flushing (3–10%) [10]
- Hypertension (<2%)

**Central Nervous System**
- Headache (5–12%) [9]
- Vertigo (dizziness) (<2%) [2]

**Neuromuscular/Skeletal**
- Arthralgia (<2%)
- Asthenia (fatigue) [2]

**Gastrointestinal/Hepatic**
- Constipation (<2%)
- Diarrhea (<2%)
- Dyspepsia (<2%) [4]
- Nausea (<2%)

**Respiratory**
- Bronchitis (<2%)
- Influenza (<2%)
- Nasopharyngitis (<5%) [5]
- Sinusitis (<2%) [2]
- Upper respiratory tract infection (<3%)

**Other**
- Adverse effects [4]

**AVELUMAB**

**Trade name:** Bavencio (Merck Serono)

**Indications:** Metastatic Merkel cell carcinoma

**Class:** Monoclonal antibody, Programmed death-ligand (PD-L1) inhibitor

**Half-life:** 6 days

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Peripheral edema (20%)
- Pruritus (10%)
- Rash (22%)

**Cardiovascular**
- Hypertension (13%)

**Central Nervous System**
- Headache (10%)
- Vertigo (dizziness) (14%)

**Neuromuscular/Skeletal**
- Arthralgia (16%)
- Asthenia (fatigue) (50%) [3]
- Bone or joint pain (32%)

**Gastrointestinal/Hepatic**
- Abdominal pain (16%)
- Appetite decreased (20%)
- ALT increased (34%) [2]
- AST increased (20%)
- Constipation (17%) [2]
- Diarrhea (23%)
- Nausea (22%) [2]
- Vomiting (13%)

**Respiratory**
- Cough (18%)
- Dyspnea (11%) [1]

**Endocrine/Metabolic**
- ALT increased (20%)
- Appetite decreased (20%)
- AST increased (34%) [2]
- Creatine phosphokinase increased [3]
- Hyperamylasemia (8%) [6]
- Hyperbilirubinemia (6%)
- Hyperglycemia (>10%)
- Thyroid dysfunction (6%)
- Weight loss (15%)

**Hematologic**
- Anemia (35%)
- Hyperbilirubinemia (14%)
- Lymphopenia (49%)
- Neutropenia (6%)
- Thrombocytopenia (27%)

**Local**
- Infusion-related reactions (22%) [3]

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AZATHIOPRINE

Other
Adverse effects [4]

AZACITIDINE

Trade name: Vidaza (Celgene)
Indications: Myelodysplastic syndromes, refractory anemia
Class: Antimetabolite, Antineoplastic, Cytosine analog
Half-life: 40–56 minutes
Clinically important, potentially hazardous interactions with: BCG vaccine, denosumab, echinacea, leflunomide, natalizumab, pimecrolimus, sipuleucel-T, tacrolimus, trastuzumab, vaccines
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with advanced malignant hepatic tumors.

Skin
Anaphylactoid reactions/Anaphylaxis (<5%)
Cellulitis (8%)
Diaphoresis (11%)
Ecchymoses (31%)
Edema (14%)
Erythema (7–17%)
Hematoma (9%)
Herpes simplex (9%)
Hypersensitivity (<5%)
Induration (<5%)
Lymphoproliferative disease [2]
Neoplasms (<5%)
Nodular eruption (5%)
Palor (14%)
Peripheral edema (19%)
Petechiae (11–24%)
Pruritus (12%)
Pyoderma gangrenosum (<5%)
Rash (10–14%) [4]
Sweet’s syndrome [4]
Toxicity [2]
Urticaria (6%)
Xerosis (5%)

Mucosal
Gingival bleeding (10%)
Oral bleeding (5%)
Stomatitis (8%)
Tongue ulceration (5%)

Cardiovascular
Arrhythmias [2]
Atrial fibrillation (<5%)
Cardiac failure (<5%)
Cardiomyopathy (<5%)
Cardioxicity [3]
Chest pain (5–16%) [4]
Congestive heart failure (<5%)
Hypertension (9%)
Hypotonusion (<5%)
Orthostatic hypotension (<5%)
QT prolongation [2]
Tachycardia [3]

Central Nervous System
Anorexia (21%)
Anxiety (5–13%)

Cerebral hemorrhage (<5%)
Depression (12%)
Fever (30–52%) [4]
Headache (22%)
Insomnia (9–11%)
Intracranial hemorrhage (<5%)
Pain (11%)
Seizures (<5%)
Syncope [2]
Vertigo (dizziness) (19%)

Neuromuscular/Skeletal
Arthralgia (22%) [2]
Asthenia (fatigue) (7–36%) [4]
Back pain (19%)
Bone or joint pain (<5%)
Myalgia/Hypomophy (16%)
Neck pain (<5%)

Gastrointestinal/Hepatic
Abdominal pain (12–13%)
Black stools (<5%)
Cholecystitis (<5%)
Constipation (34–50%) [4]
Diarrhea (36%) [4]
Dyspepsia (6%)
Dysphagia (5%)
Gastrointestinal bleeding (<5%)
Loose stools (6%)
Nausea (48–71%) [6]
Vomiting (27–54%) [4]

Respiratory
Cough (30%)
Dyspnea (14–29%) [2]
Hemoptysis (<5%)
Nasopharyngitis (15%)
Pharyngolaryngeal pain (6%)
Pleurisy (11%) [2]
Pneumonia (<5%)
Pulmonary toxicity [2]
Respiratory distress (<5%)
Rhinitis (6%)
Upper respiratory tract infection (9–13%)

Endocrine/Metabolic
Dehydration (<5%)
Hypokalemia (6%)
Weight loss (8%)

Genitourinary
Hematuria (6%)
Urinary tract infection (9%)

Renal
Renal failure (<5%)

Hematologic
Agranulocytosis (<5%)
Anemia (51–70%) [4]
Bleeding [3]
Bone marrow suppression (<5%)
Cytopenia [4]
Febrile neutropenia (14–16%) [6]
Leukopenia (18–48%)
Myelosuppression [3]
Neutropenia (32–66%) [7]
Pancytopenia (<5%)
Splenomegaly (<5%)
Thrombocytopenia (66–70%) [4]

Ocular
Ocular hemorrhage (<5%)

Injection-site bruising (5–14%)
Injection-site edema (5%)

Injection-site erythema (35–43%)
Injection-site hematoma (6%)
Injection-site pain (19–23%)
Injection-site pigmentation (5%)
Injection-site pruritus (7%)
Injection-site purpura (14%) Injection-site reactions (14–29%) [7]

Other
Adverse effects [5]
Death [4]
Infection (<5%) [9]

AZATADINE

See: www.drugerupationdata.com/drug/id/59

AZATHIOPRINE

Trade names: Azasan (saiPharma), Imuran (Prometheus)
Indications: Lupus nephritis, psoriatic arthritis, rheumatoid arthritis, autoimmune diseases, as an adjunct for the prevention of rejection in kidney transplant patients
Class: Antimetabolite, Disease-modifying antirheumatic drug (DMARD), Immunosuppressant, Purine analog
Half-life: 12 minutes
Clinically important, potentially hazardous interactions with: allopurinol, aminosalicylates, balsalazine, benazepril, captopril, chlorambucil, co-trimoxazole, cyclophosphamide, cyclosporine, enalapril, febuxostat, fosinopril, Hemophilus B vaccine, imidapril, lisinopril, mesalamine, mycophenolate, natalizumab, olasalazine, quinapril, ramipril, ribavirin, sulfamethoxazole, tofacitinib, trimethoprim, typhoid vaccine, vaccines, warfarin, yellow fever vaccine
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Patients receiving immunosuppressants, including azathioprine, are at increased risk of developing lymphoma and other malignancies, particularly of the skin.

Warning: MALIGNANCY

Skin
Acanthosis nigricans [2]
Acneform eruption [2]
AGEP [2]
Angioedema [2]
Basil cell carcinoma [2]
Carcinoma [3]
Dermatitis [4]
Erythema gyratum repens [2]
Erythema multiforme [2]
Erythema nodosum [4]
Exanthema [10]
Herpes simplex [3]
Herpes zoster [8]
Hypersensitivity [28]
Kaposi’s sarcoma [14]
Lymphoproliferative disease [4]
Neoplasms [2]
Neutrophilic dermatosis [4]
Nevi [3]
Porokeratosis [4]
Rash (<10%) [10]
Scabies [5]
Squamous cell carcinoma [11]
Sweet's syndrome [12]
Tinea [3]
Toxicity [3]
Tumors [8]
Urticaria [5]
Verrucae [5]

Hair
Alopecia [9]

Nails
Onychomycosis [2]

Mucosal
Oral ulceration [2]

Cardiovascular
Atrial fibrillation [3]

Central Nervous System
Chills (>10%) [6]
Fever [7]
Headache [3]
Leukoencephalopathy [2]

Neuromuscular/Skeletal
Arthralgia [4]
Asthenia (fatigue) [7]

Gastrointestinal/Hepatic
Abdominal pain [2]
Hepatitis [5]
Hepatotoxicity [27]
Nausea [8]
Pancreatitis [44]
Vomiting [4]

Respiratory
Flu-like syndrome [2]
Pneumonitis [2]
Pulmonary toxicity [3]

Hematologic
Bone marrow suppression [5]
Leukopenia [12]
Myelosuppression [2]
Myelotoxicity [5]
Neutropenia [2]
Pancytopenia [4]
Thrombocytopenia [5]

Other
Adverse effects [7]

Allergic reactions [5]
Death [2]
Infection [9]

AZELASTINE
See: www.drugeruptiondata.com/drug/id/61

AZFICEL-T
See: www.drugeruptiondata.com/drug/id/2617

AZILSARTAN
See: www.drugeruptiondata.com/drug/id/2275

AZITHROMYCIN
Trade names: AzaSite (Merck), Zithromax (Pfizer)
Indications: Infections of the upper and lower respiratory tract, skin infections, sexually transmitted diseases, conjunctivitis (ophthalmic preparations only)
Class: Antibacterial, Antibiotic, macrolide
Half-life: 68 hours
Clinically important, potentially hazardous interactions with: aminophylline, antacids, artemether/lumefantrine, astemizole, atorvastatin, betrixaban, bromocriptine, cabergoline, colchicine, coumarins, cyclosporine, digoxin, droperidol, ergotamine, fluvastatin, lovastatin, methysergide, mizolastine, oral typhoid vaccine, pimoziode, pravastatin, quetiapine, reboxetine, rifabutin, ritonavir, simvastatin, venetoclax, warfarin
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: AzaSite is for topical ophthalmic use only (for reactions see [Ophth] below).

Skin
AGEP [3]
Anaphylactoid reactions/Anaphylaxis [2]
Churg-Strauss syndrome [2]
DRESS syndrome [4]
Erythema [2]
Exanthems [3]
Hypersensitivity [3]
Jarisch-Herxheimer reaction [2]
Pruritus [3]
Rash [Ophth] (2–10%) [6]
Stevens-Johnson syndrome [6]
Urticaria [Ophth] [2]

Cardiovascular
Bradycardia [2]
Cardiotoxicity [8]
QT prolongation [11]
Torsades de pointes [4]

Central Nervous System
Anorexia (2–10%)
Headache [3]
Vertigo (dizziness) [2]

Gastrointestinal/Hepatic
Abdominal pain (2–10%) [4]
Diarrhea (4–9%) [17]
Gastrointestinal disorder [2]
Hepatotoxicity [7]
Nausea (7%) [8]
Vanishing bile duct syndrome [2]
Vomiting (2–10%) [5]

Genitourinary
Vaginitis (2–10%)

Otic
Hearing loss [3]
Tinnitus [2]

Ocular
Keratitis [2]

Local
Injection-site erythema (2–10%)
Injection-site pain (2–10%) [3]

Other
Adverse effects [14]
Death [2]
Hiccups [2]
Side effects [2]

AZTREONAM
See: www.drugeruptiondata.com/drug/id/63

Over 100 updates per week on www.drugeruptiondata.com
**BACAMPICILLIN**
See: www.drugeruptiondata.com/drug/id/64

**BACITRACIN**
See: www.drugeruptiondata.com/drug/id/1199

**BACLOFEN**

**Trade names:** Baclofen (Watson), Gablofen (Mallinckrodt), Lioresal (Medtronic)

**Indications:** Spasticity resulting from multiple sclerosis

**Class:** GABA receptor agonist, Skeletal muscle relaxant

**Half-life:** 2.54 hours

**Clinically important, potentially hazardous interactions with:** acebutolol, alcohol, alfuzosin, amitriptyline, captopril, citalopram, diclofenac, enalapril, fosinopril, irbesartan, levodopa, lisinopril, meloxicam, olmesartan, quinapril, ramipril, trandolapril

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for: pediatric patients**

**Note:** Children appear to be at higher risk for complications than adults when using intrathecal baclofen (ITB). ITB therapy is a safe and effective treatment for severe spasticity in the pediatric population, but does have a 31% rate of complications requiring surgical management over a 3-year treatment period.

**Warning:** DO NOT DISCONTINUE ABRUPTLY

**Skin**

- Exanthems [2]
- Rash (<10%)
- Toxicity [2]

**Cardiovascular**

- Bradycardia [2]
- Hypertension [2]
- Hypotension [3]

**Central Nervous System**

- Coma [3]
- Confusion (<10%)
- Dyskinesia [2]
- Encephalopathy [2]
- Hallucinations [4]
- Headache (<10%)
- Insomnia (>10%)
- Seizures [9]
- Slurred speech (>10%)
- Somnolence (drowsiness) (>10%) [6]
- Vertigo (dizziness) (>10%) [5]

**Neuromuscular/Skeletal**

- Asthenia (fatigue) (>10%) [6]

**Gastrointestinal/Hepatic**

- Constipation (<10%)
- Nausea (<10%)

**Genitourinary**

- Polyuria (<10%)

**Other**

- Infection [2]
- Side effects (<2%)

**BALSALAZIDE**

**Trade names:** Colazal (Salix), Colazide (Almirall)

**Indications:** Mild to moderately active ulcerative colitis

**Class:** Aminosalicylate

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** azathioprine, cardiac glycosides, folic acid, heparin, low molecular weight heparins, mercaptopurine, thiopurine analogs, varicella virus-containing vaccines

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients**

**Skin**

- Hypersensitivity [2]

**Mucosal**

- Stomatitis (3%)

**Central Nervous System**

- Anorexia (2%)
- Fever (2–6%)
- Headache (15%)
- Insomnia (2%)

**Neuromuscular/Skeletal**

- Arthralgia (4%)
- Asthenia (fatigue) (2%)

**Gastrointestinal/Hepatic**

- Abdominal pain (6–13%)
- Colitis (ulcerative, exacerbation) (6%)
- Diarrhea (5–9%)
- Dyspepsia (2%)
- Flatulence (2%)
- Nausea (4%)
- Vomiting (10%)

**Respiratory**

- Cough (2–3%)
- Flu-like syndrome (>4%)
- Nasopharyngitis (6%)
- Pharyngitis (2%)
- Pharyngolaryngeal pain (3%)
- Rhinitis (2%)

**Genitourinary**

- Dysmenorrhea (3%)

**BASILIXIMAB**

**Trade name:** Simulect (Novartis)

**Indications:** Prophylaxis of organ rejection in renal transplantation

**Class:** Interleukin-2 receptor antagonist, Monoclonal antibody

**Half-life:** 7.2 days

**Clinically important, potentially hazardous interactions with:** cyclosporine, Hemophilus B vaccine, mycophenolate

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for: nursing mothers**

**Skin**

- Acneform eruption (>10%)
- Candidiasis (3–10%)
- Cystitis (310%)
- Edema (generalized) (310%)
- Facial edema (310%)
- Genital edema (310%)
- Herpangina (310%)
- Herpes simplex (310%)
- Herpes zoster (3–10%)
- Peripheral edema (>10%)
- Pruritus (310%)
- Rash (310%)
- Ulcerations (310%)
- Wound complications (>10%)

**Hair**

- Hypertrichosis (310%)

**Mucosal**

- Gingival hyperplasia/hypertrophy (310%)
- Stomatitis (310%)
- Ulcerative stomatitis (3–10%)

**Cardiovascular**

- Angina (3–10%)
- Arrhythmias (3–10%)
- Atrial fibrillation (3–10%)
- Cardiac failure (3–10%)
- Chest pain (3–10%)
- Hypertension (>10%)
- Hypotension (3–10%)
- Pulmonary edema (3–10%)
- Tachycardia (3–10%)

**Central Nervous System**

- Agitation (3–10%)
- Anxiety (3–10%)
- Depression (310%)
- Fever (>10%)
- Headache (>10%)
- Hypoesthesia (3–10%)
- Insomnia (>10%)
- Pain (>10%)
- Paresthesias (310%)
- Rigors (3–10%)
- Tremor (>10%)
- Vertigo (dizziness) (3–10%)

**Neuromuscular/Skeletal**

- Arthralgia (310%)
- Asthenia (fatigue) (3–10%)
- Back pain (3–10%)
- Cramps (3–10%)
- Fractures (3–10%)
- Leg pain (3–10%)
- Myalgia/Myopathy (310%)

**Gastrointestinal/Hepatic**

- Abdominal distension (3–10%)
- Black stools (3–10%)
- Black stooling (3–10%)
- Constipation (>10%)
- Diarrhea (>10%)
- Dyspepsia (>10%)
- Esophagitis (3–10%)
- Flatulence (3–10%)
- Gastroenteritis (3–10%)
- Gastrointestinal bleeding (3–10%)
- Gastrointestinal disorder (69%)
- Hernia (3–10%)
- Nausea (>10%)
- Vomiting (>10%)
Bacille Calmette-Guerin
5.5 months
Pulmonary multi-drug resistant
Allergic rhinitis, asthma
B
N/A
www.drugerupctiondata.com/drug/id/1325
2018 by Taylor & Francis Group, LLC
Immunization against tuberculosis
Antimycobacterial, Diarylquinoline
Vaccine
INCREASED RISK OF DEATH / QT
Corticosteroid, inhaled
N/A
30 Litt's Drug Eruption & Reaction Manual
gefitinib, gemifloxacin, leflunomide, levofloxacin,
docetaxel, doripenem, doxycycline, fingolimod,
geticin, gemifloxacin, leflunomide, levofloxacin,
monosodium glutamate, moxifloxacin, olfoxacin,
oxalplatin, pazopanib, sulfadiazine, telavancin,
telithromycin, tenofovir
Pregnancy category: C
Skin
Abscess [16]
Anaphylactoid reactions/Anaphylaxis [5]
Churg-Strauss syndrome [15]
Diabetes mellitus [20]
Dysrhythmias [2]
Rash [5]
Nasal discomfort (5%)
Oral candidiasis [4]
Central Nervous System
Headache (2%) [2]
Neuromuscular/Skeletal
Osteoporosis [5]
Respiratory
Upper respiratory tract infection [2]
Ocular
Cataract [4]
Glaucoma [3]
Other
Adverse effects [10]

BCG VACCINE

Synonym: Bacille Calmette-Guerin
Trade names: Mycobac (Sanofi-Aventis), TICE
BCG (Organon)
Indications: Immunization against tuberculosis
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: alefacept, aminophylline,
azacitidine, betamethasone, cabazitaxel, cefazolin,
cefixime, cefotaxine fosamid, cefotobiprole,
ciprofloxacin, demedocycline, denileukin,
docetaxel, doripenem, doxycycline, fingolimod,
gefitinib, gemifloxacin, leflunomide, levofloxacin,
monosodium glutamate, moxifloxacin, olfoxacin,
oxalplatin, pazopanib, sulfadiazine, telavancin,
telithromycin, tenofovir
Pregnancy category: C
Skin
Abscess [16]
Anaphylactoid reactions/Anaphylaxis [5]
Churg-Strauss syndrome [15]
Dermatitis [2]
Erythema [3]
Fixed eruption [2]
Hypersensitivity [2]
Keloid [4]
Lupus vulgaris [22]
Lymphadenopathy [8]
Lymphadenopathy [92]
Lymphocytoma [2]
Mucosal
Mucocutaneous lymph node syndrome (Kawasaki syndrome) [2]
Central Nervous System
Fever [6]
Neurotoxicity [2]
Neuromuscular/Skeletal
Arthralgia [7]
Hematoma [2]
Hematologic
Anemia (>10%)
Hemorrhage (3–10%) Leukopenia (3–10%)
Polycythemia (3–10%)
Sepsis (3–10%)
Thrombocytopenia (3–10%)
Thrombosis (3–10%)
Ocular
Abnormal vision (3–10%)
Cataract (3–10%)
Conjunctivitis (3–10%)
Other
Infection (viral) (>10%)

BEDAQUILINE

Trade name: Sirturo (Janssen)
Indications: Pulmonary multi-drug resistant tuberculosis
Class: Antimycobacterial, Diarylquinoline
Half-life: 5.5 months
Clinically important, potentially hazardous interactions with: ketoconazole, rifabutin,
rifampin, rifapentine, stong CYP3A4 inhibitors
and inducers
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers;
pediatric patients
Skin
Rash (8%)
Cardiovascular
Chest pain (11%) [2]
QT prolongation [2]
Central Nervous System
Anorexia (9%)
Headache (28%) [3]
Vertigo (dizziness) [2]
Neuromuscular/Skeletal
Arthralgia (33%) [2]
BENAZEPIL

Cardiovascular
- Hypotension (10%)
- Phlebitis (10%)
- QT prolongation (11%) [2]

Central Nervous System
- Anorexia [2]
- Chills (16%)
- Fever (35%) [2]
- Headache (15%) [3]
- Peripheral neuropathy [2]
- Vertigo (dizziness) (10%) [2]

Neuromuscular/Skeletal
- Astenia (fatigue) (37%) [11]
- Myalgia/Myopathy [2]

Gastrointestinal/Hepatic
- Abdominal pain (11%) [5]
- Constipation (23%) [5]
- Diarrhea (23%) [6]
- Nausea (42%) [10]
- Vomiting (29%) [10]

Respiratory
- Cough (19%) [9]
- Dyspnea (22%) [4]
- Pneumonia (>2%)
- Pneumonitis [2]

Endocrine/Metabolic
- Appetite decreased (15%)
- Creatine phosphokinase increased (>2%)
- Hypokalemia (12%)

Hematologic
- Anemia (32%) [5]
- Leukopenia [2]
- Lymphopenia [4]
- Neutropenia [4]
- Thrombocytopenia (16%) [3]
- Thrombosis [2]

Local
- Infusion-site pain (14%)
- Injection-site reactions [2]

Other
- Allergic reactions [2]
- Hiccups [2]
- Multiorgan failure (>2%)

BELACTECP

Trade name: Nulojix (Bristol-Myers Squibb)
Indications: Prophylaxis of organ rejection in kidney transplantation
Class: Immunosuppressant, T-cell co-stimulation blocker
Half-life: 7–10 days
Clinically important, potentially hazardous interactions with: live vaccines, mycophenolate
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients without immunity to Epstein-Barr virus.
Warning: POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER, OTHER MALIGNANCIES, AND SERIOUS INFECTIONS

Skin
- Acneform eruption (8%)
- Hematoma (<10%)
- Hyperhidrosis (<10%)
- Lymphoproliferative disease (post-transplant) [7]
- Malignancies [3]
- Peripheral edema (34%)

Hair
- Alopecia (<10%)

Mucosal
- Aphthous stomatitis (<10%)
- Stomatitis (<10%)

Cardiovascular
- Atrial fibrillation (<10%)
- Hypertension (32%)
- Hypotension (18%)

Central Nervous System
- Anxiety (10%)
- Fever (28%)
- Guillain–Barré syndrome (<10%)
- Headache (21%)
- Insomnia (15%)
- Tremor (8%)
- Vertigo (dizziness) (9%)

Neuromuscular/Skeletal
- Arthralgia (17%)
- Back pain (13%)
- Bone or joint pain (<10%)

BELIMUMAB

See: www.drugerupiondata.com/drug/id/2285

BELINOSTAT

Trade name: Beleodaq (Spectrum)
Indications: Peripheral T-cell lymphoma
Class: Histone deacetylase (HDAC) inhibitor
Half-life: 1 hour
Clinically important, potentially hazardous interactions with: strong UGT1A1 inhibitors
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Periferal edema (20%) [2]
- Pruritus (16%)
- Rash (20%)

Hair
- Alopecia [2]

BELAZEPIL

Cardiovascular
- Hypotension (10%)
- Phlebitis (10%)
- QT prolongation (11%) [2]

Central Nervous System
- Anorexia [2]
- Chills (16%)
- Fever (35%) [2]
- Headache (15%) [3]
- Peripheral neuropathy [2]
- Vertigo (dizziness) (10%) [2]

Neuromuscular/Skeletal
- Astenia (fatigue) (37%) [11]
- Myalgia/Myopathy [2]

Gastrointestinal/Hepatic
- Abdominal pain (11%) [5]
- Constipation (23%) [5]
- Diarrhea (23%) [6]
- Nausea (42%) [10]
- Vomiting (29%) [10]

Respiratory
- Cough (19%) [9]
- Dyspnea (22%) [4]
- Pneumonia (>2%)
- Pneumonitis [2]

Endocrine/Metabolic
- Appetite decreased (15%)
- Creatine phosphokinase increased (>2%)
- Hypokalemia (12%)

Hematologic
- Anemia (32%) [5]
- Leukopenia [2]
- Lymphopenia [4]
- Neutropenia [4]
- Thrombocytopenia (16%) [3]
- Thrombosis [2]

Local
- Infusion-site pain (14%)
- Injection-site reactions [2]

Other
- Allergic reactions [2]
- Hiccups [2]
- Multiorgan failure (>2%)

BENACTYZINE

See: www.drugerupiondata.com/drug/id/66

BENAZEPIL

Trade names: Lotensin (Novartis), Lotensin HCT (Novartis), Lotrel (Novartis)
Indications: Hypertension
Class: Angiotensin-converting enzyme (ACE) inhibitor, Antihypertensive, Vasodilator
Half-life: 10–11 hours
Clinically important, potentially hazardous interactions with: allopurinol, amifostine, amiloride, angiotensin II receptor blockers, antacids, anti-diabetics, antihypertensives, azathioprine, cyclosporine, diazoxide, diuretics, eplerenone, everolimus, gold & gold compounds, herbas, lithium, MAO inhibitors, methylphenidate, NSAIDs, pentoxifylline, phosphodiesterase 5 inhibitors, potassium salts,
prostacyclin analogues, rituximab, sirolimus, spironolactone, temsirolimus, tizanidine, tolvaptan, triamterene, trimethoprim, yohimbine

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Note: Lotrel is benazepril and amlodipine. Lotensin-HCT is benazepril and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Contra-indicated in patients with a history of angioedema with or without previous ACE inhibitor treatment.

Warning: FETAL TOXICITY

Skin

Angioedema [8]
Peripheral edema [3]

Central Nervous System

Headache (6%)
Vertigo (dizziness) (4%)

Respiratory

Cough [10]

BENDAMUSTINE

See: www.drugeruptiondata.com/drug/id/1282

BENDROFLUME-THIAZIDE

See: www.drugeruptiondata.com/drug/id/68

BENZALKONIUM

See: www.drugeruptiondata.com/drug/id/1041

BENZNIDAZOLE *

Indications: Chagas disease (trypanosomiasis) in pediatric patients aged 2–12 years

Class: Antibiotic, nitroimidazole

Half-life: 13 hours

Clinically important, potentially hazardous interactions with: disulfiram

Pregnancy category: N/A (Can cause fetal harm)

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Note: Has the potential for genotoxicity and carcinogenicity.

Skin

Edema [4]
Hyperreactivity [3]
Pigmentation [2]
Pruritus [5]
Rash [7]
Stevens-Johnson syndrome [2]
Urticaria [2]

BENZONATATE

See: www.drugeruptiondata.com/drug/id/917

BERACTANT

See: www.drugeruptiondata.com/drug/id/1166

BESIFLOXACIN

See: www.drugeruptiondata.com/drug/id/1422

BETA-CAROTENE

See: www.drugeruptiondata.com/drug/id/72

BETAMETHASONE

See: www.drugeruptiondata.com/drug/id/1101

BETAXOLOL

Trade names: Betoptic [Ophthalmic] (Alcon), Kerlone (Pfizer)

Indications: Open-angle glaucoma, hypertension

Class: Adrenergic beta-receptor antagonist

Half-life: 1422 hours

Clinically important, potentially hazardous interactions with: clonidine, verapamil

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Cutaneous side effects of beta-receptor blockers are clinically polymorphous. They apparently appear after several months of continuous therapy.

Skin

Cold extremities (2%)
Dermatitis [3]
Diaphoresis (<2%)
Eczema (<2%)
Edema (<2%)
Eczema (<2%)
Lymphadenopathy (<2%)
Pruritus (<2%)
Purpura (<2%)
Rash (<2%) [3]

Hair

Alopecia (<2%)
Hypertrichosis (<2%)

Mucosal

Epistaxis (nosebleed) (<2%)
Oral ulceration (<2%)
Salorrea (<2%)
Xerostomia (<2%)

Cardiovascular

Angina (<2%)
Arrhythmias (<2%)
Atrioventricular block (<2%)
Bradyarrhythmia (6–8%)
Cardiac failure (<2%)
Chest pain (2–7%)
Flushing (<2%)
Hypertension (<2%)
Hypotension (<2%)

BENZYL ALCOHOL

See: www.drugeruptiondata.com/drug/id/1721

BEPOTASTINE

See: www.drugeruptiondata.com/drug/id/1731

BEPRIDIL

See: www.drugeruptiondata.com/drug/id/71

Central Nervous System

Anorexia (<5%)
Fever [6]
Headache (<5%) [5]
Neurotoxicity [2]
Peripheral neuropathy (2%)
Tremor (2%)
Vertigo (dizziness) (4%)

Neuromuscular/Skeletal

Arthralgia (<5%) [4]
Asthenia (fatigue) [5]
Myalgia/Myopathy [3]

Gastrointestinal/Hepatic

Abdominal distension [2]
Abdominal pain (25%) [4]
Diarrhea [2]
Dyspepsia [2]
Hepatotoxicity (5%) [2]
Nausea [4]
Vomiting [2]

Hematologic

Eosinophilia [2]
Neutropenia [2]

Other

Adverse effects [7]
Allergic reactions [2]

Central Nervous System

Anorexia (<5%)
Fever [6]
Headache (<5%) [5]
Neurotoxicity [2]
Peripheral neuropathy (2%)
Tremor (2%)
Vertigo (dizziness) (4%)

Neuromuscular/Skeletal

Arthralgia (<5%) [4]
Asthenia (fatigue) [5]
Myalgia/Myopathy [3]

Gastrointestinal/Hepatic

Abdominal distension [2]
Abdominal pain (25%) [4]
Diarrhea [2]
Dyspepsia [2]
Hepatotoxicity (5%) [2]
Nausea [4]
Vomiting [2]

Hematologic

Eosinophilia [2]
Neutropenia [2]

Other

Adverse effects [7]
Allergic reactions [2]
Myocardial infarction (<2%)
Palpitation (2%)
Peripheral ischemia (<2%)

**Central Nervous System**
Ageusia (taste loss) (<2%)
Anemia (<2%)
Anorexia (<2%)
Confusion (<2%)
Dysgeusia (taste perversion) (<2%)
Emotional lability (<2%)
Fever (<2%)
Hallucinations (<2%)
Headache (7–15%)
Insomnia (<5%)
Pain (<2%)
Paresthesias (2%)
Rigor (<2%)
Stupor (<2%)
Syncope (<2%)
Tremor (<2%)
Twitching (<2%)
Vertigo (dizziness) (5–15%)

**Neuromuscular/Skeletal**
Arthralgia (3%)
Asthenia (fatigue) (3–10%)
Ataxia (<2%)
Bone or joint pain (5%)
Leg cramps (<2%)
Myalgia/Myopathy (3%)
Nack pain (<2%)
Tendinitis (<2%)

**Gastrointestinal/Hepatic**
Constipation (<2%)
Diarrhea (2%)
Dyspepsia (<2%)
Nausea (2–6%)
Vomiting (<2%)

**Respiratory**
Bronchitis (<2%)
Bronchospasm (<2%)
Cough (<2%)
Dysphonia (<2%)
Dyspnea (2%)
Influenza (<2%)
Pharyngitis (2%)
Pneumonia (<2%)
Sinusitis (<2%)
Upper respiratory tract infection (3%)

**Endocrine/Metabolic**
Acidosis (<2%)
ALT increased (<2%)
Appetite increased (<2%)
AST increased (<2%)
Diabetes mellitus (<2%)
Glycogenemia (<2%)
Hypercholesterolemia (<2%)
Hyperglycemia (<2%)
Hyperkalemia (<2%)
Hyperuricemia (<2%)
Hypokalemia (<2%)
Libido decreased (<2%)
Mastodynia (<2%)
Menstrual irregularities (<2%)
Weight gain (<2%)
Weight loss (<2%)

**Genitourinary**
Cystitis (<2%)
Dysuria (<2%)

**Hematologic**
Anemia (<2%)
Lymphocytosis (<2%)
Thrombocytopenia (<2%)
Thrombosis (<2%)

**Ocular**
Abnormal vision (<2%)
Blepharitis (<2%)
Cataract (<2%)
Conjunctivitis (<2%)
Iritis (<2%)
Lacrimation (<2%)
Ocular hemorrhage (<2%)
Scotoma (<2%)
Xerophthalmia (<2%)

**Other**
Allergic reactions (<2%)
Dipsia (thirst) (<2%)

**BETHANECHOL**

See: www.drugerupiondata.com/drug/id/74

**BETRIXABAN**

Trade name: Bevyxxa (Portola)

Indications: Prophylaxis of venous thromboembolism in adult patients hospitalized for an acute medical illness who are at risk for thromboembolic complications

Class: Direct factor Xa inhibitor

Half-life: 19–27 hours

Clinically important, potentially hazardous interactions with: amiodarone, anticogulants, antplatelet drugs and thrombolytics, azithromycin, clarithromycin, ketoconazole, verapamil

Pregnancy category: N/A (Likely to increase the risk of hemorrhage during pregnancy and delivery)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with active pathological bleeding

Warning: SPINAL/EPIDURAL HEMATOMA

**Mucosal**

Epistaxis (nosebleed) (2%)

**Cardiovascular**

Hypertension (2%)

**Central Nervous System**

Headache (2%)

**Gastrointestinal/Hepatic**

Constipation (3%)

**Diarrhea** (2%)

**Nausea** (2%)

**Endocrine/Metabolic**

Hypokalemia (3%)

**Genitourinary**

Hematuria (2%)

Urinary tract infection (3%)

**Hematologic**

Bleeding (<2%) [2]

**BEVACIZUMAB**

Trade name: Avastin (Genentech)

Indications: Colon cancer

Class: Biologic, Monoclonal antibody, Vascular endothelial growth factor antagonist

Half-life: 20 days

Clinically important, potentially hazardous interactions with: antineoplastics, irinotecan, sorafenib, sunitinib

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: GASTROINTESTINAL PERFORATIONS, SURGERY AND WOUND HEALING COMPLICATIONS, and HEMORRHAGE

**Skin**

Acneform eruption [6]

Hand-foot syndrome [12]

Necrosis [2]

Rash [16]

Toxicity [9]

Ulcerations [3]

Wound complications [8]

**Hair**

Alopecia [5]

**Mucosal**

Epistaxis (nosebleed) [5]

Mucosal inflammation [2]

Mucositis [11]

Oral ulceration [2]

Stomatitis [8]

**Cardiovascular**

Cardiac failure [2]

Cardiotoxicity [6]

Hypertension (23–67%) [79]

Hypotension (7–15%) [19]

Thromboembolism (<2%) [14]

Venous thromboembolism [5]

**Central Nervous System**

Anorexia [14]

Cerebral hemorrhage [5]

Headache [6]

Intracranial hemorrhage [2]

Leukoencephalopathy [19]

Neurotoxicity [13]

Peripheral neuropathy [9]

Seizures [2]

**Neuromuscular/Skeletal**

Arthralgia [2]

Asthma (fatigue) [35]

Osteonecrosis [5]
**BEXAROTENE**

**Trade name:** Targretin (Eisai)

**Indications:** Cutaneous T-cell lymphoma, mycosis fungoides

**Class:** Antineoplastic, Retinoid

**Half-life:** 7 hours

**Clinically important, potentially hazardous interactions with:** acitretin, atorvastatin, beta-carotene, carboplatin, conivaptan, dexamethasone, dong quai, gemfibrozil, grapefruit juice, isotretinoin, oral contraceptives, paclitaxel, saxagliptin, St John’s wort, tamoxifen, tetracyclines, tretinoin, vitamin A

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Retinoids can cause birth defects, and women should avoid bexarotene when pregnant or trying to conceive.

**Warning:** AVOID IN PREGNANCY

**Skin**
- Acneform eruption (<10%)
- Bacterial infection (<13%)
- Dermatitis [2]
- Exanthems (<10%)
- Exfoliative dermatitis (1028%)
- Neutropenia [6]
- Ulcerations (<10%)
- Vesiculobullous eruption (<10%)
- Xerosis (11%) [2]

**Hair**
- Alopecia (411%)

**Mucosal**
- Chills (<10%)
- Gingivitis (<10%)
- Mucositis [2]
- Xerostomia (<10%)

**Central Nervous System**
- Chills (10%)
- Hyperesthesia (<10%)

**Neuromuscular/Skeletal**
- Arthralgia [2]
- Asthenia (fatigue) [2]
- Myalgia/Myopathy (<10%) [2]

**Respiratory**
- Flu-like syndrome (413%)

**Endocrine/Metabolic**
- Hypercholesterolemia [4]
- Hyperlipidemia [4]
- Hypertriglyceridemia [6]
- Hypothyroidism [6]
- Mastodynia (<10%)

**Hematologic**
- Anemia [4]
- Leukopenia [4]
- Neutropenia [6]

**Other**
- Adverse effects [2]

**BEZAFIBRATE**

See: www.drugeruptiondata.com/drug/id/1318

**BEZLOTOXUMAB**

**Trade name:** Zinplava (Merck)

**Indications:** To reduce the recurrence of *Clostridium difficile* infection (CDI) in patients who are receiving antibacterial treatment of CDI and are at high risk for CDI recurrence

**Class:** C. difficile toxin inhibitor, Monoclonal antibody

**Half-life:** ~19 days

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (No data available)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Cardiovascular**
- Cardiac failure (2%)

**Central Nervous System**
- Fever (5%)
- Headache (4%)

**Gastrointestinal/Hepatic**
- Diarrhea [2]
- Nausea (7%) [2]

**Local**
- Infusion-related reactions (10%)
Local
Injection-site reactions (25%)

BIMATOPROST

Trade names: Latissé (Allergan), Lumigan (Allergan)
Indications: Reduction of elevated intraocular pressure in open-angle glaucoma or ocular hypertension, hypotrichosis of the eyelashes
Class: Prostaglandin analog
Half-life: 45 minutes
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: pediatric patients

Skin
Pigmentation [2]

Hair
Hirsutism (<5%)
Hypertrichosis [2]

Central Nervous System
Headache (<5%)

Neuromuscular/Skeletal
Asthenia (fatigue) (<5%)

Respiratory
Nasopharyngitis [2]
Upper respiratory tract infection (10%)

Ocular
Asthenoopia (<10%)
Blepharitis (<10%)
Cataract (<10%)
Choroidal detachment [2]
Conjunctival edema (<10%)
Conjunctival hemorrhage (<10%)
Conjunctival hyperemia (25–45%) [42]
Conjunctivitis (<10%)
Deepening of upper lid sulcus [9]
Eyelashes – hypotrichosis (>10%) [13]
Eyelashes – pigmentation (<10%) [3]
Eyelid erythema (310%) [2]
Eyelid irritation (310%)
Eyelid pigmentation (310%) [6]
Eyelid xerosis (310%)
Eyelid – adverse effects [2]
Foreign body sensation (<10%)
Iris pigmentation (<10%) [4]
Keratitis [2]
Lacrimation (<10%)
Macular edema [2]
Ocular adverse effects [10]
Ocular burning (<10%)
Ocular discharge (<10%)
Ocular hyperemia [4]
Ocular itching (<10%)
Ocular pain [2]
Ocular pigmentation (<3%) [5]
Ocular pruritus (>10%) [5]
Periorbital pigmentation (<10%) [3]
Photophobia (<10%)
Punctate keratits (1<10%) [2]
Uveitis [3]

BIPERIDEN

See: www.drugeruptiondata.com/drug/id/77

BISACODYL

See: www.drugeruptiondata.com/drug/id/78

BISMUTH

Trade names: Helidac (Prometheus), Pepto-Bismol (Procter & Gamble)
Indications: As part of ‘triple therapy’ (antibiotics + bismuth) for eradication of H. pylori. Bismuth subgallate initiates clotting via activation of factor XII, and is used for bleeding during tonsillectomy and adenoidectomy. BIAPP impregnated ribbon gauze is used for packing following ear surgery. Bismuth subsalicylate is in OTC products for gastrointestinal complaints and peptic ulcer disease
Class: Disinfectant, Heavy metal
Half-life: 2172 days
Clinically important, potentially hazardous interactions with: aspirin, ciprofloxacin, demeclocycline, doxycycline, lomefloxacin, lymecycline, methotrexate, minocycline, tetracycline, warfarin
Pregnancy category: D (category C in first and second trimesters; category D in third trimester)

Skin
Dermatitis [2]
Hypersensitivity [2]
Pruritus (triple therapy) [2]
Rash [4]

Mucosal
Oral pigmentation [3]
Stomatitis [4]
Tongue pigmentation (>10%) [3]
Xerostomia (triple therapy) (41%)

Central Nervous System
Dysgeusia (taste perversion) (triple therapy) (46%) [9]
Encephalopathy [4]
Peripheral sensory neuropathy (10%) [10]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Ashthenia (fatigue) [2]

Other
Adverse effects (triple therapy) [52]
Allergic reactions [2]
Death [10]

BISOPROLOL

Trade names: Cardicor (Merck Serono), Concor (Merck Serono), Emcor (Merck Serono), Zebeta (Barr), Ziac (Barr)
Indications: Hypertension
Class: Beta adrenergic blocker, Beta blocker
Half-life: 912 hours
Clinically important, potentially hazardous interactions with: diltiazem, disopyramide, guanethidine, reserpine, rifampin, verapamil
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Ziac is bisoprolol and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.
Contra-indicated in patients with cardiogenic shock, overt cardiac failure, second or third degree AV block, and marked sinus bradycardia.

Skin
Oedema (3%)
Peripheral edema (<10%)
Rash (<10%) 
Raynaud’s phenomenon (<10%)

Cardiovascular
Bradycardia [6]
Hypotension [3]

Central Nervous System
Headache [2]
Hyperesthesia (2%)
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Myalgia/Myopathy (<10%)

Other
Adverse effects [4]

BIVALIRUDIN

Trade name: Angiomax (The Medicines Company)
Indications: Angioplasty adjunct
Class: Thrombin inhibitor
Half-life: 25 minutes
Clinically important, potentially hazardous interactions with: aspirin, ciprofloxacin, diltiazem, disopyramide, guanethidine, reserpine, rifampin, verapamil
Pregnancy category: B

Central Nervous System
Nausea [4]
Vomiting [2]

Other
Adverse effects (triple therapy) [52]
Allergic reactions [2]
Death [10]

Neuromuscular/Skeletal
Back pain (42%)

Hematologic
Bleeding [5]
Thrombosis [3]

Local
Injection-site pain (8%)
BLEOMYCIN

Synonyms: bleo; BLM
Trade name: Blenoxane (Mead Johnson)
Indications: Melanomas, sarcomas, lymphomas, testicular carcinoma
Class: Antibiotic, anthracycline
Half-life: 1.39 hours
Clinically important, potentially hazardous interactions with: aldesleukin, brentuximab vedotin
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Acrulic erythema [2]
- Acrulic necrosis [2]
- Bullous dermatitis (<5%)
- Calcification [2]
- Erythema [6]
- Exanthema [3]
- Flagellate dermatitis [8]
- Flagellate erythema/pigmentation [44]
- Gangrene (digital) [3]
- Hyperkeratosis (palms and soles) [2]
- Hypersensitivity (<10%) [5]
- Linear streaking [4]
- Lipodystrophy [2]
- Neutrophilic eccrine hidradenitis [2]
- Pigmentation (~50%) [21]

Other
- Local

Hematologic

Respiratory

Central Nervous System

Mucosal
- Oral ulceration [2]
- Stomatitis (>10%) [8]

Neuromuscular/Skeletal
- Chills (>10%)

Respiratory
- Pneumonitis [3]
- Pulmonary fibrosis [3]
- Pulmonary toxicity [7]

Endocrine/Metabolic
- SIAH-2 [2]

Hematologic
- Hemolytic uremic syndrome [8]

Local
- Injection-site phlebitis (<10%)

Other
- Adverse effects [2]
- Allergic reactions [2]

BLEINATUMOMAB

Trade name: BlinCyto (Amgen)
Indications: Precursor B-cell acute lymphoblastic leukemia
Class: Bispecific CD19-directed CD3 T-cell engager; Monoclonal antibody
Half-life: 1.4 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Warning: CYTOKINE RELEASE SYNDROME and NEUROLOGICAL TOXICITIES

Skin
- Edema (5%) [4]
- Periocular edema (25%) [2]
- Rash (21%) [2]
- Tumor lysis syndrome (4%)  

Cardiovascular
- Chest pain (11%)
- Hypertension (8%)
- Hypotension (11%)
- Tachycardia (8%)

Central Nervous System
- Aphasia (4%) [9]
- Chills (15%)
- Confusion (7%) [4]
- Cytokine release syndrome (11%) [12]
- Disorientation (3%) [3]
- Encephalopathy (5%) [6]
- Fever (62%) [9]
- Headache (36%) [7]
- Insomnia (15%)
- Memory loss (2%)
- Neutropenia (11%) [11]
- Paresthesias (5%) [2]
- Seizures (2%) [4]
- Somnolence (drowsiness) [2]
- Speech disorder [3]
- Tremor (20%) [7]
- Vertigo (dizziness) (14%) [2]

Neuromuscular/Skeletal
- Arthralgia (10%)
- Ataxia (25%) [4]
- Back pain (14%) [2]
- Bone or joint pain (11%)
- Pain in extremities (12%)

Gastrointestinal/Hepatic
- Abdominal pain (15%)
- Constipation (20%) [2]
- Diarrhea (20%) [3]
- Hepatotoxicity [2]
- Nausea (25%) [4]
- Vomiting (13%)

Respiratory
- Cough (19%) [2]
- Dyspnea (15%)
- Pneumonia (9%) [4]

Endocrine/Metabolic
- ALT increased (12%) [2]
- Appetite decreased (10%)
- AST increased (11%)
- GGT increased (6%) [2]
- Hyperbilirubinemia (8%)

BOCEPREVIR

Trade name: Victrelis (Merck)
Indications: Chronic hepatitis C
Class: CYP3A4 inhibitor. Direct-acting antiviral, Hepatitis C virus NS3/4A protease inhibitor
Half-life: 3 hours
Clinically important, potentially hazardous interactions with: alfuzosin, alprazolam, amiodarone, atorvastatin, bepridil, bosentan, brigantinib, budesonide, buprenorphine, cabozantinib, carbamazepine, cisapride, clarithromycin, colchicine, copanlisib, cyclosporine, dasatinib, desipramine, dexamethasone, digoxin, dihydroergotamine, drospirenone, efavirenz, ergonovine, ergotamine, estradiol, felodipine, flecainide, flucanil, flucasil, fluticasone propionate, gefitinib, iraconazole, ketoconazole, lompatide, lovastatin, methadone, methylprednisolone, midazolam, midostaurin, mifepristone, naranix, nifedipine, noliprinib, olaparib, pazopanib, phenobarbital, phenytoin, piccloxizide, ponatinib, posaconazole, propafenone, quinidine, ribocillic, rifabutil, ritapamid, ritonavir, ruxolitinib, salmeterol, sildenafil, simvastatin, sirolimus, St John’s wort, tacrolimus, tadalafil, tamoxifen, terfenadine, theophylline, tiotrom, tobramycin, tadalafil, taladafil, trazodone, trimethoprim, vorapaxar, voriconazole, warfarin
Pregnancy category: X (boceprevir is pregnancy category B but must not be used in monotherapy)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Must be used in combination with PEG-interferon and ribavirin (see separate entries) Combination treatment is contra-indicated in pregnant women and men whose female partners are pregnant because of the risks for birth defects and fetal death associated with ribavirin, or in coadministration with drugs that are highly dependent on CYP3A4/5 for clearance, or with potent CYP3A4/5 inducers.

Skin
- Pruritus [3]
- Rash [3]

Central Nervous System
- Dysgeusia (taste perversion) [6]
Gastrointestinal/Hepatic
Hepatotoxicity [2]

Hematologic
Anemia [24]
Neutropenia [8]
Thrombocytopenia [8]

Other
Adverse effects [6]
Infection [2]

BORTEZOMIB

Trade name: Velcade (Millennium)

Indications: Multiple myeloma, mantle cell lymphoma

Class: Biologic, Proteasome inhibitor

Half-life: 9.5 hours

Clinically important, potentially hazardous interactions with: conivaptan, darunavir, delavirdine, efavirenz, indinavir, strong CYP3A4 inhibitors or inducers, telithromycin, thalidomide, voriconazole

Pregnancy category: D

Important contraindications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with hypersensitivity to boron or mannitol.

Skin
Edema (23%) [2]
Erythema [2]
Folliculitis [2]
Herpes zoster (12%) [13]
Peripheral edema [5]
Purpura [3]
Rash (18%) [9]
Sweet's syndrome [7]
Toxicity [4]
Tumor lysis syndrome [2]
Vasculitis [4]

Mucosal
Mucositis [2]

Cardiovascular
Arrhythmias [2]
Cardiac failure [3]
Cardiotoxicity [4]
Congestive heart failure [3]
Hypertension [3]
Hypotension (13%) [4]
QT prolongation [2]

Central Nervous System
Anxiety (10%)
Dysesthesia (23%)
Dysgeusia (taste perversion) (13%)
Encephalopathy [3]
Fever (34%) [7]
Guillain–Barre syndrome [2]
Headache [3]
Hypoaesthesia [2]
Insomnia (20%) [2]
Neurotoxicity [26]
Nausea [2]
Parasthesia (22%) [3]
Peripheral neuropathy (39%) [58]
Vertigo (dizziness) (17%)

Neuromuscular/Skeletal
Arthralgia (17%) [2]
Asthenia (fatigue) (64%) [35]
Back pain (13%)
Bone or joint pain (14%) [2]
Cranial (11%)
Myalgia/Myopathy (12%)

Gastrointestinal/Hepatic
Abdominal distension [2]
Abdominal pain [3]
Colitis [2]
Constipation (41%) [7]
Diarrhea (52%) [22]
Gastrointestinal disorder [2]
Hepatotoxicity [4]
Neonatal neutropenia [10]
Pancreatitis [2]
Vomiting (33%) [4]

Respiratory
Cough (20%) [2]
Dyspnea (21%) [6]
Nasopharyngitis (12%)
Pneumonia (12%) [8]
Pneumonitis [4]
Pulmonary toxicity [3]
Upper respiratory tract infection (12%) [3]

Endocrine/Metabolic
Appetite decreased (36%)
Dehydration (10%)
Hypocalcemia [2]
Hypokalemia [3]
Serum creatinine increased [2]
Weight loss [2]

Renal
Nephrotoxicity [2]

Hematologic
Anemia (29%) [16]
Febrile neutropenia [5]
Hemolytic anemia [5]
Leukopenia [8]
Lymphopenia [11]
Myelosuppression [2]
Neutropenia (17%) [35]
Sepsis [4]
Thrombocytopenia (36%) [51]

Local
Infusion-related reactions [2]
Injection-site irritation (5%)
Injection-site reactions [4]

Other
Adverse effects [13]
Death [6]
Infection [11]

BOSENTAN

Trade name: Tracleer (Actelion)

Indications: Pulmonary arterial hypertension

Class: Antihypertensive, Endothelin receptor (ETR) antagonist, Vasodilator

Half-life: ~5 hours

Clinically important, potentially hazardous interactions with: amiodarone, ampicillin, astemizole, atazanavir, atorvastatin, boceprevir, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, cyclosporine, diltiazem, elbasvir & grazoprevir, enalapril, enalaprilat, erythromycin, fluconazole, fluvalinate, glibenclamide, glyburide, indinavir, irtraconazole, ketoconazole,lovastatin, mirtazapine, olaparib, oral contraceptive, palbociclib, peginterferon, ritonavir, rilpivirine,sildenafil, simvastatin, St John’s wort, tacrolimus, tadalafil, telaprevir, tipranavir, ulipristal, vardenafil, venetoclax, voriconazole, warfarin

Pregnancy category: X

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: RISKS OF HEPATOTOXICITY and TERATOGENICITY

Skin
Edema (8%) [2]
Peripheral edema (8%) [5] Pruritus (4%)

Cardiovascular
Flushing (9%) [2]

Central Nervous System
Headache [2]
Syncope [2]

Gastrointestinal/Hepatic
Hepatotoxicity [17]

Respiratory
Bronchitis [2]

Endocrine/Metabolic
AST increased [2]

Hematologic
Anemia [4]

Other
Adverse effects [7]

BOSUTINIB

See: www.drugrupdatedata.com/drug/id/3037

BOTULINUM TOXIN (A & B)

Trade names: Azzalure (Galderma), Bocouture (Merz), Botox (Allergan), Dysport (Ipsen), Myobloc (Solstice), Neurobloc (Eisai), Vistabel (Allergan), Xeomin (Merz)

Indications: Blepharospasm, hemifacial spasm, spasmodic torticollis, sialorrhea, hyperhidrosis, strabismus, oromandibular dystonia, cervical dystonia, spasmodic dysphonia, chronic migraine, urinary incontinence in people with neurologic conditions such as spinal cord injury and multiple sclerosis who have overactivity of the bladder, cosmetic application for wrinkles

Class: Acetylcholine inhibitor, Neuromuscular blocker, Ophthamlic agent, toxin

Half-life: 36 months

Clinically important, potentially hazardous interactions with: aminoglycosides, anticholinergics, fesoterodine, tiotropium, tropium
**BOTULINUM TOXIN (A & B)**

**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  
**Note:** Distant spread of toxin effect - postmarketing reports indicate that all botulinum toxin products may spread from the area of injection to produce symptoms consistent with botulinum toxin effects. These may include asthenia, generalized muscle weakness, diplopia, ptosis, dysphagia, dysphonia, dysarthria, urinary incontinence and breathing difficulties. These symptoms have been reported hours to weeks after injection. An antitoxin is available in the event of overdose or misinjection.  
**Warning:** DISTANT SPREAD OF TOXIN EFFECT

**Skin**  
Anaphylactoid reactions/Anaphylaxis [4]  
Ecchymoses [4]  
Erythema [2]  
Granulomas [2]  
Hematoma [2]  
Peripheral edema (<10%)  
Pruritus (<10%)  
Purpura (<10%)

**Mucosal**  
Epistaxis (nosebleed) [2]  
Stomatitis (<10%)  
Xerostomia (33%) [13]

**Central Nervous System**  
Dysgeusia (taste perversion) (<10%)  
Gait instability [2]  
Headache [7]  
Hyperesthesia (<10%)  
Neurotoxicity [3]  
Pain (613%) [4]  
Seizures [2]  
Tremor (<10%)  
Vertigo (dizziness) [2]

**Neuromuscular/Skeletal**  
Arthralgia (<7%)  
Aspiration (fatigue) [16]  
Myasthenia gravis [2]  
Neck pain [2]

**Gastrointestinal/Hepatic**  
Constipation [2]  
Diarrhea [3]  
Dysphagia [16]

**Respiratory**  
Dysphonia [2]  
Dyspnea [2]  
Flu-like syndrome (210%) [8]  
Nasopharyngitis [2]  
Pulmonary toxicity [3]

**Genitourinary**  
Hematuria [4]  
Urinary incontinence [3]  
Urinary retention [12]  
Urinary tract infection [15]

**Otic**  
Tinnitus (<10%)

**Ocular**  
Blepharoptosis [2]  
Conjunctivitis [2]

**BRENTUXIMAB VEDOTIN**

**Trade name:** Adcetris (Seattle Genetics)  
**Indications:** Hodgkin’s lymphoma, systemic anaplastic large cell lymphoma  
**Class:** Antibody drug conjugate (ADC), CD30-directed antibody-drug conjugate, Monoclonal antibody  
**Half-life:** 4-6 days  
**Clinically important, potentially hazardous interactions with:** bleomycin, efavirenz, ketoconazole, rifampin, strong CYP3A4 inhibitors  
**Pregnancy category:** D  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients  
**Warning:** PROGRESSIVE MULTIFOCALEUROKINENPHALALOPATHY

**Skin**  
Diaphoresis (12%)  
Lymphadenopathy (11%)  
Peripheral edema (4-16%)  
Pruritus (19%)  
Rash (31%)  
Xerosis (10%)

**Hair**  
Alopecia (14%)

**Central Nervous System**  
Anxiety (11%)  
Chills (13%)  
Fever (29–38%) [3]  
Headache (19%)  
Insomnia (16%)  
Neurotoxicity [2]  
Pain (7–28%)  
Peripheral neuropathy (68%) [10]  
Vertigo (dizziness) (11–16%)

**Neuromuscular/Skeletal**  
Arthralgia (9–19%)  
Asthenia (fatigue) (41–49%) [4]  
Back pain (14%)  
Muscle spasm (10%)  
Myalgia/Myopathy (17%)  
Pain in extremities (10%)

**Stomach**  
Diplopia [10]  
Erythema edema [4]  
Ocular adverse effects [2]  
Pruritus (1420%) [24]  
Xerophthalmia (6%) [2]  
**Local**  
Injection-site bruising [4]  
Injection-site ecchymoses [2]  
Injection-site edema [8]  
Injection-site erythema [3]  
Injection-site pain (210%) [20]  
Injection-site paralysis [2]  
Injection-site reactions [6]

**Other**  
Adverse effects [18]  
Death [4]  
Infection (1319%)  
Side effects [3]

**Gastrointestinal/Hepatic**  
Abdominal pain (9–25%)  
Constipation (19%)  
Diarrhea (36%) [3]  
Nausea (42%) [4]  
Vomiting (22%)

**Respiratory**  
Cough (17–25%)  
Dyspn.png  
Weight loss (6–12%)

**Hematologic**  
Anemia (33–52%)  
Neutropenia (55%) [6]  
Thrombocytopenia (16–28%)

**Other**  
Adverse effects [2]

**BREXPIRAZOLE**

**Trade name:** Rexulti (Otsuka)  
**Indications:** Schizophrenia, major depressive disorder (with antidepressants)  
**Class:** Antipsychotic  
**Half-life:** 86-91 hours  
**Clinically important, potentially hazardous interactions with:** strong or moderate CYP2D6 inhibitors  
**Pregnancy category:** N/A (Neonatal risk in third trimester exposure)  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients  
**Warning:** INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS  
SUICIDAL THOUGHTS AND BEHAVIORS

**Central Nervous System**  
Agitation [3]  
Akathisia (6–9%) [12]  
Anxiety (3%) [2]  
Headache (7%) [6]  
Insomnia [4]  
Restlessness (3%)  
Sedation (2%) [2]  
Somnolence (drowsiness) (5%) [4]  
Tremor (3–4%)  
Vertigo (dizziness) (3%)

**Neuromuscular/Skeletal**  
Asthenia (fatigue) (3%) [2]

**Gastrointestinal/Hepatic**  
Constipation (2%)  
Diarrhea (3%) [2]  
Dyspepsia (3%)  
Nausea [4]
BRIGATINIB *

**Trade name:** Alunbrig (Ariad)
**Indications:** Anaplastic lymphoma kinase positive metastatic non-small cell lung cancer in patients who have progressed on, or are intolerant to, crizotinib
**Class:** Tyrosine kinase inhibitor
**Half-life:** 25 hours
**Clinically important, potentially hazardous interactions with:** boceprevir, carbamazepine, clarithromycin, cobicistat, conivaptan, COPD substrates and strong CYP3A inducers or inhibitors, grapefruit juice, hormonal contraceptives, indinavir, itraconazole, posaconazole, rifampin, ritonavir, saquinavir, St John’s wort, voriconazole
**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** pediatric patients

**Note:** [T] = Topical.

### BRONZOLAMIDE

**Trade names:** Alphagan P (Allergan), Mirvaso (Galderma)
**Indications:** Open-angle glaucoma, ocular hypertension, topical application for rosacea
**Class:** Adrenergic alpha2-receptor agonist
**Half-life:** 12 hours
**Clinically important, potentially hazardous interactions with:** amitriptyline, MAO inhibitors, tricyclic antidepressants
**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** [T] = Topical.

### Skin
- Rash (15–24%)
- Bradycardia (6–8%)
- Hypertension (11–21%)
- Fever (6–14%)
- Headache (27–28%)
- Insomnia (7–11%)
- Asthenia (fatigue) (29–36%)  
- Peripheral neuropathy (13%)
- Xerostomia (5–20%)  
- Rhinitis (<5%)
- Urticaria (<5%)
- Dermatitis (<5%)
- Rhinitis (<5%)
- Erythema (<5%)
- Dermatitis (<5%)
- Rhinitis (<5%)

### Respiratory
- Anaplastic lymphoma kinase (4%)
- Nasopharyngitis (4%)
- Cough (18–20%)
- Dyspnea (20–20%)
- Hypoxia (<3%)  
- Pneumonia (5–10%)
- Pneumonitis (4–9%)
- Pulmonary toxicity  
- Appétite increased (3–3%)
- Creatine phosphokinase increased (27–48%)
- Hypoglycemia (38–49%)
- Hypophosphatemia (15–23%)
- Anemia (23–40%)
- Hyperlipasemia (21–45%)
- Lymphopenia (19–27%)
- Prothrombin time increased (20–22%)
- Visual disturbances (7–10%)
- Visual disturbances (5–20%)
- Xerophthalmia (5–20%)

### Endocrine/Metabolic
- Appetite increased (15–22%)
- AST increased (38–65%)
- Creatine phosphokinase increased (27–48%)
- Hypoglycemia (38–49%)
- Hypophosphatemia (15–23%)
- Anemia (23–40%)
- Hyperlipasemia (21–45%)
- Lymphopenia (19–27%)
- Prothrombin time increased (20–22%)

### BRONZOLAMIDE

**Trade name:** Azopt (Alcon)
**Indications:** Open-angle glaucoma, ocular hypertension
**Class:** Carbonic anhydrase inhibitor, Diuretic
**Half-life:** 111 days
**Clinically important, potentially hazardous interactions with:** conivaptan, darunavir, delavirdine, indinavir, salicylates, telithromycin, voriconazole
**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

**Note:** Brinzolamide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.
BRIVARACETAM

Trade name: Brivaact (UCB)
Indications: Epilepsy adjunct therapy
Class: Anticonvulsant, Antiepileptic
Half-life: 9 hours
Clinically important, potentially hazardous interactions with: carbamazepine, phenytoin, rifampin
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Central Nervous System
Aggression [2]
Balance disorder (3%) [2]
Depression [2]
Dysgeusia (taste perversion) (<3%)
Euphoria (<3%)
Headache [11]
Impaired concentration [2]
Insomnia [2]
Irritability (3%) [7]
Neurotoxicity (13%)
Sedation (16%)
Seizures [3]
Somnolence (drowsiness) (16%) [22]
Vertigo (dizziness) (12%) [21]

Neuromuscular/Skeletal
Asthma (fatigue) (9%) [15]
Back pain [2]

Gastrointestinal/Hepatic
Constipation (2%)
Nausea (5%) [5]
Vomiting (5%) [3]

Respiratory
Nasopharyngitis [6]

Genitourinary
Urinary tract infection [2]

Hematologic
Leukopenia (2%)

Local
Infusion-site pain (<3%)

Other
Adverse effects [4]

BROMFENAC

See: www.drugeruptiondata.com/drug/id/1181

BROMOCRIPTINE

Trade name: Parlodel (Novartis)
Indications: Amenorrhea, Parkinsonism, infertility, acromegaly
Class: Dopamine receptor agonist
Half-life: Initial: 68 hours; terminal: 50 hours
Clinically important, potentially hazardous interactions with: alcohol, antipsychotics, azithromycin, domperidone, erythromycin, isomeprazole, lanreotide, levomepromazine, metoclopramide, ocreotide, pasireotide, pseudoephedrine, risperidone, sympathomimetics, zuclolentioxol
Pregnancy category: N/A (Contra-indicated in women who become pregnant or in the postpartum period)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Candidiasis [2]
Contact dermatitis [2]
Folliculitis [2]
Mucosal
Oral/mucosal pain (2%)
Central Nervous System
Headache (4%) [8]
Suicidal ideation [4]
Neuromuscular/Skeletal
Arthralgia (5%) [8]
Back pain [2]
Myalgia/Myopathy (2%)
Gastrointestinal/Hepatic
Diarrhea (2%) [4]
Nausea (2%) [2]
Respiratory
Nasopharyngitis [12]
Upper respiratory tract infection [14]
Hematologic
Neutropenia [4]
Local
Injection-site bleeding (<2%)
Injection-site bruising (<2%)
Injection-site erythema (<2%) [4]
Injection-site pain (<2%)
Injection-site pruritus (<2%)
Injection-site reactions (<2%)
Other
Infection (25%)

Hair
Alopecia [2]

Mucosal
Nasal congestion (3-4%)
Xerostomia (40%) [3]

Cardiovascular
Cardio toxicity [2]
Coronary spasm [2]
Erythromelalgia [4]
Flushing [2]
Orthostatic hypotension (6%)
Postural hypotension (6%)

Central Nervous System
Anorexia (4%)
Hallucinations [4]
Headache (<19%) [3]
Seizures (in postpartum patients) [3]
Somnolence (drowsiness) (3%)
Syncope (<2%)
Vertigo (dizziness) (17%)

Neuromuscular/Skeletal
Asthma (fatigue) (3-7%)

Gastrointestinal/Hepatic
Abdominal pain (4%)
Constipation (3–14%) [2]
Diarrhea (3%)
Dyspepsia (4%)
Gastrointestinal bleeding (<2%)
Nausea (18-49%) [7]
Vomiting (2–5%) [4]

Respiratory
Pleural effusion [2]
Pulmonary fibrosis [2]

Other
Adverse effects [2]

BROMPHENIRAMINE

See: www.drugeruptiondata.com/drug/id/84

BUCILLAMINE

See: www.drugeruptiondata.com/drug/id/1079

BUCLIZINE

See: www.drugeruptiondata.com/drug/id/85

BUDESONIDE

Trade names: Pulmicort Turbuhaler (AstraZeneca), Rhinocort (AstraZeneca), Symbicort (AstraZeneca)
Indications: Asthma, rhinitis
Class: Corticosteroid, inhaled
Half-life: N/A
Clinically important, potentially hazardous interactions with: boceprevir, etaviren, itraconazole, ketoconazole, live vaccines, oral contraceptives, telaprevir
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Symbicort is budesonide and formoterol.

Skin
Acneform eruption [2]
Dermatitis [8]
Exanthems [2]
Pruritus [2]
Rash [2]

Mucosal
Oral candidiasis [2]

Respiratory
Asthma (exacerbation) [4]
Cough [2]

Endocrine/Metabolic
Adrenal insufficiency [3]
Cushing’s syndrome [2]

Ocular
Cataract [2]

Other
Adverse effects [11]
Allergic reactions [3]
Infection [2]
Systemic reactions [2]

BUMETANIDE
See: www.drugeruptiondata.com/drug/id/86

BUPIVACAINE
See: www.drugeruptiondata.com/drug/id/1192

BUPRENORPHINE
Trade names: Probuphine (Braeburn), Suboxone (Reckitt Benckiser), Subutex (Reckitt Benckiser), Transtec (Napp)
Indications: Opioid dependence, moderate to severe pain
Class: Analgesic. Mixed opioid agonist/antagonist, Narcotic
Half-life: 37 hours
Clinically important, potentially hazardous interactions with: antihistamines, atazanavir, azole antifungals, benzodiazepines, boceprevir, carbamazepine, cimetidine, cobicistat/elvitegravir/emericitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, delavirdine, dalcZendep, efavirenz, erthyromycin, HIV protease inhibitors, hydrocortone, hydroxomorphine, ketocarazole, ketorolac, linezolid, macrolide antibiotics, morphine, neuroleptics, oxymorphone, phenobarbital, phenytoin, rifampin, ritonavir, tapentadol, tiropranin
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Suboxone contains naloxone; Probuphine is an implant for subdermal administration.

Warning: ABUSE POTENTIAL, LIFE-THREATENING RESPIRATORY DEPRESSION, and ACCIDENTAL EXPOSURE
Probuphine: IMPLANT MIGRATION, PROTRUSION, EXPULSION, and NERVE DAMAGE ASSOCIATED WITH INSERTION and REMOVAL

Skin
Abscess (2%)
Dermatitis [2]
Diabetes (12–14%)
Erythema [4]
Hyperhidrosis [4]
Pruritus [11]

Mucosal
Xerostomia [3]

Cardiovascular
Bradycardia [3]
Hypotension [4]
Pulmonary edema [2]
QT prolongation [2]
Vasodilation [9%]

Central Nervous System
Anxiety (12%)
Chills (6–8%)
Depression (11%)
Fever (3%)
Headache (30–36%) [6]
Insomnia (14–25%)
Nervousness (6%)
Neurotoxicity [2]
Pain (22–24%)
Seizures [3]
Somnolence (drowsiness) (5%) [4]
Vertigo (dizziness) (4%) [14]

Neuromuscular/Skeletal
Asthenia (fatigue) (7–14%) [4]
Back pain (4–14%) [15]
Myalgia/Myopathy [2]

Gastrointestinal/Hepatic
Abdominal pain (11%) [2]
Constipation (11–12%) [12]
Diabetes (1–12%) [12]
Diarehhea (4–5%) [2]
Diabetes (3%)
Dyspepsia (3%)
Hepatotoxicity [6]
Nausea (10–15%) [15]
Vomiting (5–8%) [12]
Respiratory
Cough (4%) [12]
Flu-like syndrome (6%)
Pharyngitis (4%) [2]
Respiratory depression [3]
Rhinitis (5–11%)

Ocular
Lacrimation (5%)

Local
Application-site reactions [3]

Other
Adverse effects [4]
Death [9]
Infection (6–20%)

BUPROPION
Trade names: Wellbutrin (GSK), Zyban (GSK)
Indications: Depression, aid to smoking cessation
Class: Antidepressant, Dopamine reuptake inhibitor
Half-life: 14 hours
Clinically important, potentially hazardous interactions with: amitriptyline, citalopram, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, cyclosporine, deltebrubenzamine, efavirenz, eluxadoline, erythromycin, escitalopram, isocarboxazid, levodopa, linezolid, lopinavir, lpracaserin, methylphenidate, mifepristone, phenelzine, ritalinav, tranylcypromine, trimipramine, vortioxetine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: NEUROPSYCHIATRIC REACTIONS; AND SUICIDAL THOUGHTS AND BEHAVIORS

Skin
Acneform eruption (<10%)
AGEP [3]
Anaphylactoid reactions/Anaphylaxis [2]
Angioedema [3]
Depression (5%) [4]
Erythema multiforme [4]
Exanthes [2]
Hyperkinesia [6]
Lupus erythematosus [2]
Peripheral edema [2]
Pruritus (4%) [3]
Psoriasis [2]
Rash (4%) [3]
Serum sickness [3]
Serum-sickness-like reaction [9]
Steppens-Johnson syndrome [2]
Thrombocytopenic purpura [2]
Urticaria [9]
Xerosis (<10%)

Hair
Hirsutism (<10%)

Mucosal
Acneform eruption (<1–10%)
AGEP [3]

Cardiovascular
Arrhythmias [2]
Flushing (4%)
Hypertension [2]
Myocardial ischemia [2]
Tachycardia [3]

Central Nervous System
Agitation [4]
Anxiety [4]
Delirium [2]
Depression [3]
Dysgeusia (taste perversion) (4%)
Hallucinations [6]
Headache [5]
Insomnia [7]
Nightmares [2]
Paresthesias (2%)
**BUSPIRONE**

**Trade name:** BuSpar (Bristol-Myers Squibb)  
**Indications:** Anxiety  
**Class:** Anxiolytic, Serotonin antagonist  
**Half-life:** 23 hours  
**Clinically important, potentially hazardous interactions with:** citalopram, cobicistat/elvitegravir/emeritcabine/tenofovir alafenamide, cobicistat/elvitegravir/emeritcabine/tenofovir disoproxil, grapefruit juice, itraconazole, linezolid, nefazodone, paclitaxel, rifapentine, ritonavir, St John’s wort, telithromycin, vilazodone, voriconazole  
**Pregnancy category:** B  
**Hair**  
- Alopecia [2]  
**Mucosal**  
- Xerostomia (3%)  
**Central Nervous System**  
- Serotonin syndrome [4]  
**Hair**  
- Alopecia (>10%) [7]  
**Mucosal**  
- Mucositis [4]  
**Central Nervous System**  
- Neurotoxicity [3]  
**Gastrointestinal/Hepatic**  
- Hepatotoxicity [4]  
**Respiratory**  
- Pulmonary toxicity [3]  
**Endocrine/Metabolic**  
- Gynecomastia [3]  
**Hematologic**  
- Febrile neutropenia [4]  
**Other**  
- Death [5]  
- Infection [3]

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**BUSULFAN**

**Trade name:** Myleran (GSK)  
**Indications:** Chronic myelogenous leukemia, bone marrow disorders  
**Class:** Alkylating agent  
**Half-life:** 3.4 hours (after first dose)  
**Clinically important, potentially hazardous interactions with:** acetaminophen, aldesleukin, itraconazole, metronidazole, voriconazole  
**Pregnancy category:** D  
**Warning:** LEUKEMOGENESIS and PANCYTOPENIA  
**Skin**  
- Erythema (macular) (>10%)  
- Erythema multiforme [5]  
- Erythema nodosum [3]  
- Exanthems [2]  
- Pigmentation (‘busulfan tan’) (<10%) [13]  
- Urticaria (>10%) [5]  
- Vasculitis [3]  
**Hair**  
- Alopecia (>10%) [7]  
**Mucosal**  
- Mucositis [4]  
- Oral mucositis [2]  
- Stomatitis [2]  
**Central Nervous System**  
- Neurotoxicity [3]  
- Seizures [3]  
**Gastrointestinal/Hepatic**  
- Hepatotoxicity [4]  
**Respiratory**  
- Pulmonary toxicity [3]  
**Endocrine/Metabolic**  
- Gynecomastia [3]  
- Porphyria cutanea tarda [2]  
**Hematologic**  
- Febrile neutropenia [4]  
**Other**  
- Death [5]  
- Infection [3]  

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**BUSERELIN**

See: www.drugeruptiondata.com/drug/id/1326

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CI-ESTERASE INHIBITOR

See: www.drugeruptiondata.com/drug/id/1352

CABAZITAXEL

See: www.drugeruptiondata.com/drug/id/1701

CABERGOLINE

Trade name: Dostinex (Pfizer)
Indications: Hyperprolactinemia, Parkinsonism
Class: Dopamine receptor agonist
Half-life: 6369 hours
Clinically important, potentially hazardous interactions with: azithromycin, levomepromazine, risperidone, zuclopenthixol
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

<table>
<thead>
<tr>
<th>Skin</th>
<th>Edema [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hot flashes (3%)</td>
</tr>
<tr>
<td>Mucosal</td>
<td>Xerostomia (2%)</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Cardiac failure [2]</td>
</tr>
<tr>
<td></td>
<td>Hypotension [5]</td>
</tr>
<tr>
<td></td>
<td>Myocardial toxicity [3]</td>
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<tr>
<td></td>
<td>Pericarditis [4]</td>
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<tr>
<td></td>
<td>Valve regurgitation [2]</td>
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<td></td>
<td>Valvulopathy [9]</td>
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<tr>
<td>Central Nervous System</td>
<td>Dyskinesia [2]</td>
</tr>
<tr>
<td></td>
<td>Mania [3]</td>
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<tr>
<td></td>
<td>Neurotoxicity [3]</td>
</tr>
<tr>
<td></td>
<td>Paresthesias (5%) [2]</td>
</tr>
<tr>
<td></td>
<td>Psychosis [3]</td>
</tr>
<tr>
<td>Neuromuscular/Skeletal</td>
<td>Somnolence (drowsiness) (&lt;5%)</td>
</tr>
<tr>
<td></td>
<td>Vertigo (dizziness) (15–17%) [6]</td>
</tr>
<tr>
<td>Gastrointestinal/Hepatic</td>
<td>Abdominal pain (5%)</td>
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<tr>
<td></td>
<td>Constipation (7–10%)</td>
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<tr>
<td></td>
<td>Nausea (28%) [3]</td>
</tr>
<tr>
<td>Endocrine/Metabolic</td>
<td>Mastodynia (2%)</td>
</tr>
</tbody>
</table>

CABOZANTINIB

Trade names: Carbometx (Exelixis), Cometriq (Exelixis)
Indications: Metastatic medullary thyroid cancer (Cometriq), advanced renal cell carcinoma (Cabometx)
Class: Tyrosine kinase inhibitor
Half-life: 55 hours (Cometriq); 99 hours (Cabometx)
Clinically important, potentially hazardous interactions with: atazanavir, boceprevir, carbamazepine, clarithromycin, conivaptan, grapefruit juice, indinavir, itraconazole, ketoconazole, lopinavir, nefazodone, nelfinavir, phenobarbital, phenytoin, posaconazole, rifabutin, rifampin, rifapentine, ritonavir, saquinavir, St John’s wort, telithromycin, voriconazole
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

| Respiratory | Cough (18%) |
|            | Dysphonia (20%) |
|            | Dyspnea (19%) |
|            | Pulmonary embolism [2] |
| Endocrine/Metabolic | ALP increased (52%) |
|                    | ALT increased (86%) [2] |
|                    | Appetite decreased (46%) [4] |
|                    | AST increased (86%) [2] |
|                    | Dehydration (7%) |
|                    | GGT increased (27%) |
|                    | Hypoalbuminemia (36%) |
|                    | Hypocalcemia (32%) |
|                    | Hypokalemia (18%) |
|                    | Hypomagnesemia (19%) |
|                    | Hyponatremia (10%) |
|                    | Hypophosphatemia (28%) |
|                    | Serum creatinine increased (58%) |
|                    | Weight loss (48%) [7] |
| Renal | Proteinuria (2%) |
| Hematologic | Anemia [2] |
|            | Lymphopenia (53%) |
|            | Neutropenia (35%) [2] |
|            | Thrombocytopenia (35%) [2] |
|            | Thrombosis [2] |
| Other | Adverse effects [4] |
|        | Death (6%) [5] |

CALCIFEDIOL

Synonym: calcidiol
Trade name: Rayaldee (Opko)
Indications: Hyperparathyroidism in stage 3 or 4 chronic kidney disease
Class: Vitamin D analog
Half-life: 11 days
Clinically important, potentially hazardous interactions with: anticonvulsants, azithromycin, cholestyramine, clarithromycin, indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, phenobarbital, ritonavir, saquinavir, telithromycin, thiazides, voriconazole
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

| Skin | Hematoma (2%) |
| Cardiovascular | Congestive heart failure (4%) |
| Neuromuscular/Skeletal | Arthralgia (2%) |
| Gastrointestinal/Hepatic | Constipation (3%) |
| Respiratory | Bronchitis (3%) |
|              | Cough (4%) |
|              | Dyspnea (4%) |
|              | Nasopharyngitis (5%) |
| Endocrine/Metabolic | Hyperkalemia (3%) |
CALCIPOTRIOL

**Synonym:** calciptorine
**Trade name:** Dovonex (Leo Pharma)
**Indications:** Psoriasis
**Class:** Antipsoriatic agent, Vitamin D analog
**Half-life:** ~30 minutes
**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with acute psoriatic eruptions, hypercalcemia or vitamin D toxicity.

**Skin**
- Burning (23%)
- Contact dermatitis [8]
- Erythema (<10%)
- Pigmentation [3]
- Pruritus (>10%) [6]
- Rash (119) [3]
- Xerosis (<5%)

**Respiratory**
- Nasopharyngitis [3]

**Endocrine/Metabolic**
- Hypercalcemia [3]

**Local**
- Application-site pain [3]
- Application-site pruritus [2]
- Application-site reactions [2]

**Other**
- Adverse effects [3]

CALCITONIN

**Trade names:** Calcimar (Sanofi-Aventis), Miacalcin (Novartis)
**Indications:** Paget’s disease of bone
**Class:** Parathyroid hormone antagonist
**Half-life:** 7090 minutes
**Clinically important, potentially hazardous interactions with:** none known
**Pregnancy category:** C

**Note:** Contra-indicated in patients with severe renal impairment, end stage renal disease, or on dialysis. Invokamet is canagliflozin and metformin.

**Cardiovascular**
- Flushing (>10%) [5]

**Gastrointestinal/Hepatic**
- Diarrhea [2]
- Nausea [2]

**Respiratory**
- Rhinitis (12%)

**Local**
- Injection-site edema (>10%) [2]
- Injection-site inflammation (>10%) [2]
- Injection-site reactions (10%)

CALCIFEDIOL

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**Hyperuricemia (2%)**
**Serum creatinine increased (5%)**

**Hematologic**
- Anemia (5%)

CALCIPOTRIOL

**Synonym:** calciptorine
**Trade name:** Dovonex (Leo Pharma)
**Indications:** Psoriasis
**Class:** Antipsoriatic agent, Vitamin D analog
**Half-life:** ~30 minutes
**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with acute psoriatic eruptions, hypercalcemia or vitamin D toxicity.

**Skin**
- Burning (23%)
- Contact dermatitis [8]
- Erythema (<10%)
- Pigmentation [3]
- Pruritus (>10%) [6]
- Rash (119) [3]
- Xerosis (<5%)

**Respiratory**
- Nasopharyngitis [3]

**Endocrine/Metabolic**
- Hypercalcemia [3]

**Local**
- Application-site pain [3]
- Application-site pruritus [2]
- Application-site reactions [2]

**Other**
- Adverse effects [3]

CALCITONIN

**Trade names:** Calcimar (Sanofi-Aventis), Miacalcin (Novartis)
**Indications:** Paget’s disease of bone
**Class:** Parathyroid hormone antagonist
**Half-life:** 7090 minutes
**Clinically important, potentially hazardous interactions with:** none known
**Pregnancy category:** C

**Note:** Contra-indicated in patients with severe renal impairment, end stage renal disease, or on dialysis. Invokamet is canagliflozin and metformin.

**Cardiovascular**
- Flushing (>10%) [5]

**Gastrointestinal/Hepatic**
- Diarrhea [2]
- Nausea [2]

**Respiratory**
- Rhinitis (12%)

**Local**
- Injection-site edema (>10%) [2]
- Injection-site inflammation (>10%) [2]
- Injection-site reactions (10%)

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- Pigmentation [3]
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- Rash (119) [3]
- Xerosis (<5%)

**Respiratory**
- Nasopharyngitis [3]

**Endocrine/Metabolic**
- Hypercalcemia [3]

**Local**
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- Application-site pruritus [2]
- Application-site reactions [2]

**Other**
- Adverse effects [3]

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**Cardiovascular**
- Flushing (>10%) [5]

**Gastrointestinal/Hepatic**
- Diarrhea [2]
- Nausea [2]

**Respiratory**
- Rhinitis (12%)

**Local**
- Injection-site edema (>10%) [2]
- Injection-site inflammation (>10%) [2]
- Injection-site reactions (10%)
**Hypertension and heart failure**
Contra-indicated in patients with metastatic breast or colorectal cancer.

**XELODA - WARFARIN**
Antimetabolite, Antineoplastic.
Adjunct to percutaneous coronary revascularization, preventing periprocedural myocardial infarction, repeat intervention for reducing the risk of coronary vasospasm, acute coronary syndrome, and/or bleeding, including death, have been reported during concomitant use. Aliskiren should have their anticoagulant response (INR or prothrombin time) monitored frequently in order to adjust the anticoagulant dose accordingly. Altered coagulation parameters and/or bleeding, including death, have been reported during concomitant use. Contra-indicated in patients with severe renal impairment or with known hypersensitivity to fluoroouracil.

**CAPECITABINE**
Trade name: Xeloda (Roche).
Indications: Metastatic breast or colorectal cancer, adjuvant colon cancer.
Class: Antimetabolite, Antineoplastic.
Half-life: 0.5–1 hour.
Clinically important, potentially hazardous interactions with: aliskiren.
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients.
Note: Patients receiving concomitant capecitabine and oral coumarin-derivative anticoagulants such as warfarin and phenprocoumon should have their anticoagulant response (INR or prothrombin time) monitored frequently in order to adjust the anticoagulant dose accordingly. Altered coagulation parameters and/or bleeding, including death, have been reported during concomitant use.

**CANGRELOR**
Trade name: Kengreal (Medicines Co).
Indications: Adjunct to percutaneous coronary intervention for reducing the risk of peri-procedural myocardial infarction, repeat coronary revascularization and stent thrombosis.
Class: Antiplatelet, Antiplalet, cyclopentyl triazolo-pyrimidine (CPTP).
Half-life: 3–6 minutes.
Clinically important, potentially hazardous interactions with: clopidogrel, prasugrel.
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients.
Note: Contra-indicated in patients with significant active bleeding.

**CAPREOMYCIN**
See: www.drugerupiondata.com/drug/id/1025
**CAPTOPRIL**

**Trade names:** Capoten (Par), Capozide (Par)

**Indications:** Hypertension, congestive heart failure, to improve survival following myocardial infarction in clinically stable patients with left ventricular dysfunction, diabetic nephropathy in patients with Type I insulin-dependent diabetes mellitus and retinopathy

**Class:** Angiotensin-converting enzyme (ACE) inhibitor, Antihypertensive, Vasodilator

**Half-life:** <3 hours

**Clinically important, potentially hazardous interactions with:** alcohol, aldesleukin, allopurinol, alpha blockers, alprostadil, amifostine, amiloride, angiotensin II receptor antagonists, antacids, antiadrenergics, antihypertensives, antipsychotics, anxiolytics and hypnotics, aprotinin, azathioprine, baclofen, beta blockers, calcium channel blockers, clonidine, cyclosporine, CYP2D6 inhibitors, darunavir, dazoxido, digoxin, diuretics, eplerenone, estrogens, everolimus, general anesthetics, gold & gold compounds, heparins, herbs, hyaluronic acid, hypnotics, insulin, interferon alpha, levodopa, lithium, MAO inhibitors, metformin, methyldopa, methylphenidate, minoxidil, modafinil, nitroprusside, NSAIDs, pentoxyfylline, phosphodiesterase 5 inhibitors, potassium salts, probenecid, propanolol, prostacyclin analogues, rituximab, salicylates, sirolimus, spironolactone, sulfonylureas, temsirolimus, tizanidine, tolcapone, triamterene, trimethaphan, venoconstrictor, yohimbine

**Pregnancy category:** D (category C in first trimester; category D in second and third trimesters)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Capozide is captopril and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

**Warning:** FETAL TOXICITY

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**CARBACHOL**

See: www.drugeruptiondata.com/drug/id/1042

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**CARBAMAZEPINE**

**Trade names:** Epitol (Teva), Tegretol (Novartis)

**Indications:** Epilepsy, pain or trigeminal neuralgia

**Class:** Anticonvulsant, Antipsychotic, CYP1A2 inducer, CYP3A4 inducer, Mood stabilizer

**Half-life:** 1855 hours

**Clinically important, potentially hazardous interactions with:** abiraterone, acetaminophen, abiraterone, acyclovir, alogliptin, amlodipine, amprenavir, apixaban, apremilast, aprotinin, azathioprine, baclofen, beta blockers, calcium channel blockers, clonidine, cyclosporine, CYP2D6 inhibitors, darunavir, dazoxido, digoxin, diuretics, eplerenone, estrogens, everolimus, general anesthetics, gold & gold compounds, heparins, herbs, hyaluronic acid, hypnotics, insulin, interferon alpha, levodopa, lithium, MAO inhibitors, metformin, methyldopa, methylphenidate, minoxidil, modafinil, nitroprusside, NSAIDs, pentoxyfylline, phosphodiesterase 5 inhibitors, potassium salts, probenecid, propanolol, prostacyclin analogues, rituximab, salicylates, sirolimus, spironolactone, sulfonylureas, temsirolimus, tizanidine, tolcapone, triamterene, trimethaphan, venoconstrictor, yohimbine

**Pregnancy category:** D

**Note:** Carbamazepine is the main cause of Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), and the hypersensitivity syndrome in Han Chinese, and in peoples of other Southeast Asian countries, as a result of a strong pharmacogenetic association that has been reported in these patients between the human leukocyte antigen (HLA)-B*1502 and carbamazepine.

**Warning:** SERIOUS DERMATOLOGIC REACTIONS AND HLA-B*1502 ALLELE; APLASTIC ANEMIA AND AGRANULOCYTOSIS

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**Gastrointestinal/Hepatic**

**Hepatotoxicity** [3]

**Gynecomastia** [3]

**Diabetes mellitus and retinopathy**

**Cardiovascular**

Flushing [2]

**Central Nervous System**

Ageusia (taste loss) [24%] [11]

Dysgeusia (taste perversion) (metallic or salty taste) [24%] [14]

Hallucinations [2]

**Respiratory**

Cough [19]

**Endocrine/Metabolic**

Gynecomastia [3]

**Renal**

Nephrotoxicity [2]

**Other**

Adverse effects [4]

Allergic reactions [2]

---

**Skin**

Angioedema (<15%) [45]

Bullous pemphigoid [2]

Dermatitis [3]

DRESS syndrome [2]

Erythrodema [2]

Exanthema (47%) [19]

Exfoliative dermatitis (<2%) [4]

Kaposi’s sarcoma [2]

Lichen planus [2]

Lichenoid eruption [12]

Linear IgA bullous dermatosis [5]

Lupus erythematosus [8]

Myositis [2]

Pemphigus (<2%) [23]

Pemphigus foliaceus [2]

Penile ulceration [2]

Photosensitivity [3]

Phototoxicity (<2%) [2]

Pigmentation [2]

Pityriasis rosea (<2%) [6]

Pruritus (<7%) [8]

Pruritus (<7%) [8]

Pityriasis rosea (<2%) [6]

Pigmentation [2]

Phototoxicity (<2%)

Photosensitivity [3]

Pemphigus (<2%) [23]

Mycosis fungoides [2]

Exfoliative dermatitis (<2%) [4]

Kaposi’s sarcoma [2]

Lichen planus pemphigoides [2]

Lichenoid eruption [12]

Linear IgA bullous dermatosis [5]

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Pigmentation [2]

Pityriasis rosea (<2%) [6]

Pruritus (<7%) [8]

Pruritus (<7%) [8]

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CARBENICILLIN

See: www.drugeruptiiondata.com/drug/id/100

CARBETOCIN

See: www.drugeruptiiondata.com/drug/id/1372

CARBIMAZOLE

See: www.drugeruptiiondata.com/drug/id/1277

CARBINOXAMINE

See: www.drugeruptiiondata.com/drug/id/1026

CARBOPLATIN

Trade name: Paraplatin (Bristol-Myers Squibb)
Indications: Various carcinomas and sarcomas
Class: Alkylating agent, Antineoplastic
Half-life: terminal: 2240 hours
Clinically important, potentially hazardous interactions with: aldesleukin, bexarotene
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis [5]
Erythema (2%) [2]
Exantheme [3]
Hand-foot syndrome [4]
Hypersensitivity (2%) [27]
Mucositis [4]
Stomatitis (≥10%) [2]
Scleroderma (progressive) [2]
Scleroderma (systemic) [2]
Toxicity [5]
Urticaria (2%) [4]

Hair
Alopecia (3%) [16]
Alopecia areata [2]

Mucosal
Epistaxis (nosebleed) [2]
Tablet irritation [2]
Toxicity [5]

Cardiovascular
Flush [3]
Hypertension [7]

Central Nervous System
Anorexia [7]
Headache [2]
Leukoencephalopathy [2]
Neurotoxicity [15]

Other
Adverse effects [8]
Allergic reactions [9]

Death [6]
Side effects [3]
Teratogenicity [12]

Paresthesias [2]
Peripheral neuropathy [8]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Asthenia (fatigue) [22]
Myalgia/Myopathy [2]

Gastrointestinal/Hepatic
Constipation [3]
Diarrhea [13]
Gastrointestinal perforation [2]
Hepatotoxicity [4]
Nausea [15]
Pancreatitis [2]
Vomiting [16]

Respiratory
Cough [2]
Hemoptysis [2]
Pneumonia [2]
Pulmonary toxicity [3]

Endocrine/Metabolic
ALT increased [3]
AST increased [2]
Hyperglycemia [5]
Hyponatremia [3]
SIADH [3]

Renal
Nephrotoxicity [9]

Hematologic
Anemia [25]
Febrile neutropenia [18]
Hemorrhage [2]
Hematotoxicity [8]
Leukopenia [11]
Lymphopenia [2]
Myelosuppression [2]
Myelotoxicity [2]
Neutropenia [48]
Pancreatitis [2]

CARFILZOMIB

Trade name: Kyprolis (Onyx)
Indications: Multiple myeloma
Class: Proteasome inhibitor
Half-life: ~1 hour
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Herpes zoster (reactivation) (2%) [2]
CARPRAZINE

**Trade name:** Vraylar (Forest)

**Indications:** Schizophrenia, manic or mixed episodes associated with bipolar I disorder

**Class:** Antipsychotic

**Half-life:** 2-4 days

**Clinically important, potentially hazardous interactions with:** CYP3A4 inducers

**Pregnancy category:** N/A (Neonatal risk in third trimester exposure)

**Adverse effects**

<table>
<thead>
<tr>
<th>System</th>
<th>Effect</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>Rash (&lt;2%)</td>
<td></td>
</tr>
<tr>
<td>Mucosal</td>
<td>Oropharyngeal pain (&lt;3%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Xerostomia (&lt;3%)</td>
<td></td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Hypertension (2-6%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tachycardia (&lt;3%)</td>
<td></td>
</tr>
<tr>
<td>Central Nervous System</td>
<td>Agitation (3-5%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Akathisia (20-21%)</td>
<td></td>
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<tr>
<td></td>
<td>Anxiety (3-6%)</td>
<td></td>
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<tr>
<td></td>
<td>Extrapyramidal symptoms (15-29%)</td>
<td></td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Fever (&lt;4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Headache (9-18%)</td>
<td></td>
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<tr>
<td></td>
<td>Insomnia (8-13%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mania (worsening)</td>
<td></td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Parkinsonism (13-26%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Restlessness (4-7%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schizophrenia (worsening)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sedation</td>
<td></td>
</tr>
<tr>
<td>Central Nervous System</td>
<td>Somnolence (drowsiness) (5-10%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tremor</td>
<td></td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Vertigo (dizziness) (3-7%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Adverse effects</td>
<td>[3]</td>
</tr>
</tbody>
</table>

CARISOPRODOL

**Trade name:** Soma (MedPointe)

**Indications:** Painful musculoskeletal disorders

**Class:** Central muscle relaxant

**Half-life:** 46 hours

**Adverse effects**

<table>
<thead>
<tr>
<th>System</th>
<th>Effect</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td></td>
<td>[3]</td>
</tr>
</tbody>
</table>

CARMUSTINE

**Trade names:** BiCNU (Bristol-Myers Squibb), Gliadel Wafer (Guilford)

**Indications:** Brain tumors, Hodgkin’s disease, multiple myeloma

**Class:** Alkylating agent, Nitrosourea

**Half-life:** initial: 1.4 minutes; secondary: 20 minutes

**Adverse effects**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Skin</td>
<td>Angioedema</td>
<td>(&lt;10%)</td>
</tr>
<tr>
<td></td>
<td>Fixed eruption</td>
<td>[2]</td>
</tr>
<tr>
<td></td>
<td>Urticaria</td>
<td>[2]</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Flushing</td>
<td>(&lt;10%)</td>
</tr>
<tr>
<td>Central Nervous System</td>
<td>Amnesia</td>
<td>[2]</td>
</tr>
<tr>
<td>Other</td>
<td>Death</td>
<td>[2]</td>
</tr>
</tbody>
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CARRILUMIC ACID

**Adverse effects**

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</tr>
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Other

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**Adverse effects**

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CARTIFZOMIB

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**CASPOFUNGIN**

**Trade name:** Cancidas (Merck)  
**Indications:** Invasive Aspergillus and Candida infections  
**Class:** Antifungal  
**Half-life:** beta phase: 9–11 hours; terminal: 40–50 hours  
**Clinically important, potentially hazardous interactions with:** carbamazepine, cyclosporine, dexamethasone, efavirenz, nevirapine, phenytoin, rifampin, tacrolimus  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  

**Sk n**  
Anaphylactoid reactions/anaphylaxis (<2%)  
Edema (~2%)  
Erythema (<4%)  
Facial edema (3%)  
Jaundice (<5%)  
Periarterial edema (11%)  
Petechiae (<5%)  
Pruritus (2–7%)  
Rash (4–16%)  
Septic-toxic shock (11–13%)  
Ulcerations (3%)  
Urticaria (<5%)  
Vascultis (2%)  

**Gastrointestinal/Hepatic**  
Black stools (<3%)  
Diarrhea (2–12%)  
Nausea (4–9%)  
Vomiting (<6%)  

**Neuromuscular/Skeletal**  
Arthralgia (<6%)  
Asthenia (fatigue) (7–24%)  
Muscle spasm (<3%)  
Myalgia/myopathy (3%)  

**Respiratory**  
Cough (5–8%)  
Dyspnea [4]  
Stridor [2]  

**Endocrine/Metabolic**  
ALP increased (<3%) [2]  
Creatine phosphokinase increased (<3%) [3]  
Diabetes mellitus (<3%)  
GGT increased (<3%)  
Hypercholesterolemia (<4%)  
Hyperglycemia (5–12%)  
Hyperkalemia (<3%) [2]  
Hyperuricemia (<3%)  
Hypoglycemia (<3%)  
Hypotension (9–14%) [8]  
Hypothyroidism (7–24%) [5]  
Mucosal  
Epistaxis (nosebleed) (<5%)  
Mucosal inflammation (6–10%)  

**Cardiovascular**  
Arrhythmias (<5%)  
Atrial fibrillation (<5%)  
Bradycardia (<5%)  
Cardiac arrest (<5%)  
Flushing (3%)  
Hypertension (5–10%)  
Hypotension (6–12%)  
Myocardial infarction (<5%)  
Phlebitis (18%) [3]  
Tachycardia (4–7%)  
Thrombophlebitis [2]  

**Central Nervous System**  
Anxiety (<5%)  
Chills (9–23%)  
Confusion (<5%)  
Depression (<5%)  
Fever (6–29%) [8]  
Headache (5–15%) [3]  
Insomnia (<5%)  
Pain (<5%)  
Paresthesias (<3%)  
Seizures (<5%)  
Tremor (<2%)  
Vertigo (dizziness) (<5%)  

**Neuromuscular/Skeletal**  
Arthralgia (<5%)  
Asthenia (fatigue) (<5%)  
Back pain (<5%)  
Myalgia/myopathy (~3%)  
Pain in extremities (<5%)  

**Gastrointestinal/Hepatic**  
Abdominal distension (<5%)  
Abdominal pain (7–9%)  
Constipation (<5%)  
Diarrhea (6–27%)  
Dyspepsia (<5%)  
Hepatic failure (<5%)  
Hepatotoxicity (<5%) [8]  
Nausea (5–15%) [2]  
Vomiting (9–17%) [2]  

**Respiratory**  
Cough (6–11%)  
Dyspnea (9%)  
Flu-like syndrome (9%)  
Pain in extremities (9%)  
Pneumonia (4–11%)  
Respiratory arrest (<5%)  
Respiratory failure (6–11%)  
Tachypnea (8%)  

**Endocrine/Metabolic**  
ALP increased (12–22%) [4]  
ALT increased (4–18%) [4]  
Appetite decreased (<5%)  
AST increased (6–16%) [5]  
Hypercalcemia (<5%)  
Hyperglycemia (<5%)  
Hypokalemia (6–8%) [3]  
Hypomagnesemia (<5%)  

**Genitourinary**  
Hematuria (<5%)  
Urinary tract infection (<5%)  

**Renal**  
Nephrotoxicity (<5%)
Various infections caused by susceptible organisms

**Cephalosporin, 3rd generation**

- **Penicillin** and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

**Skin**
- Urticaria [2]

**Gastrointestinal/Hepatic**
- Diarrhea [2]
- Nausea [2]

**Other**
- Adverse effects [3]

**CEFAMANDOLE**

**Trade name:** Cefaclor (Lilly)

- **Indications:** Various infections caused by susceptible organisms
- **Class:** Cephalosporin, 2nd generation
- **Half-life:** 0.6–0.9 hours

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:**
- For the elderly; nursing mothers; pediatric patients
- People allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

**Skin**
- AEGP [2]
- Anaphylactoid reactions/Anaphylaxis [4]
- Erythema multiforme [6]
- Exanthems [9]
- Fixed eruption [2]
- Pruritis [4]
- Purpura [2]
- Rash (<2%) [2]
- Serum sickness [7]
- Urticaria [5]

**Gastrointestinal/Hepatic**
- Diarrhea [2]

**Other**
- Adverse effects [3]

**CEFADROXIL**

**Trade name:** Cefadroxil (Warner Chilcott)

- **Indications:** Various infections caused by susceptible organisms
- **Class:** Cephalosporin, 1st generation
- **Half-life:** 1.2–1.5 hours

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:**
- For nursing mothers
- People allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

**Skin**
- Anaphylactoid reactions/Anaphylaxis (<2%)}
- Angioedema (<2%)
- Erythema multiforme (<2%)

**Central Nervous System**
- Encephalopathy [10]
- Status epilepticus [12]

**Neuromuscular/Skeletal**
- Myoclonus [2]

**Other**
- Adverse effects [2]

**CEFEPIME**

**Trade name:** Maxipime (Elan)

- **Indications:** Various infections caused by susceptible organisms
- **Class:** Cephalosporin, 4th generation
- **Half-life:** 22.3 hours

**Clinically important, potentially hazardous interactions with:**
- None known

**Skin**
- Exanthems (2%)}
- Hypersensitivity [2]
- Lupus erythematosus [2]
- Pruritis [3]
- Rash (5%) [10]

**Central Nervous System**
- Seizures [10]

**Neuromuscular/Skeletal**
- Myoclonus [2]

**Other**
- Adverse effects (3%) [2]
Facial edema (<2%)
Jaundice (<2%)
Pruritus (<2%)
Pruritus ani et vulvae (<2%)
Rash (<2%)
Serum sickness-like reaction (<2%)
Stevens-Johnson syndrome (<2%)
Toxic epidermal necrolysis (<2%)
Urticaria (<2%)

Central Nervous System
Fever (<2%)

Gastrointestinal/Hepatic
Abdominal pain (3%)
Diarrhea (16%)
Dyspepsia (3%)
Flatulence (4%)
Hepatitis (<2%)
Loose stools (6%)
Nausea (7%)
Pseudomembranous colitis (<2%)

Endocrine/Metabolic
ALP increased (<2%)
Creatine phosphokinase increased (<2%)

Genitourinary
Vaginitis (<2%)
Vulvovaginal candidiasis (<2%)

Renal
Renal failure (<2%)

CEFOMETAZOLE
See: www.drugeruptiondata.com/drug/id/114

CEFONICID
See: www.drugeruptiondata.com/drug/id/115

CEFOPERAZONE
See: www.drugeruptiondata.com/drug/id/116

CEFOTAXIME
Trade name: Clavofran (Sanofi-Aventis)
Indications: Various infections caused by susceptible organisms
Class: Cephalosporin, 3rd generation
Half-life: 1 hour (adults)
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

Skin
Anaphylactoid reactions/Anaphylaxis (2%) DRESS syndrome [4]
Erythema multiforme [2]
Exantheme [3]
Hypersensitivity [2]
Pruritus (2%) [3]
Rash (2%) [3]
Urticaria (2%)

Central Nervous System
Fever (<2%)

Gastrointestinal/Hepatic
Abdominal pain (3%)
Diarrhea (16%)
Dyspepsia (3%)
Flatulence (4%)
Hepatitis (<2%)
Loose stools (6%)
Nausea (7%)
Pseudomembranous colitis (<2%)

Endocrine/Metabolic
ALP increased (<2%)
Creatine phosphokinase increased (<2%)

Genitourinary
Vaginitis (<2%)
Vulvovaginal candidiasis (<2%)

Renal
Renal failure (<2%)

CEFOTETAN
Indications: Various infections caused by susceptible organisms
Class: Cephalosporin, 2nd generation
Half-life: 35 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

Skin
Anaphylactoid reactions/Anaphylaxis (<2%)
Rash (<2%)

Other
Adverse effects [2]

CEFOTETAN
Indications: Various infections caused by susceptible organisms
Class: Cephalosporin, 2nd generation
Half-life: 3 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Note: Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

Skin
Anaphylactoid reactions/Anaphylaxis (<2%)
Rash (<2%)

Hematologic
Hemolytic anemia [12]

Other
Death [5]

CEFOXITIN
See: www.drugeruptiondata.com/drug/id/119

CEFPODOXIME
See: www.drugeruptiondata.com/drug/id/120

CEFPROZIL
See: www.drugeruptiondata.com/drug/id/121

CEFTAROLINE FOSAMIL
Trade name: Teflaro (Forest)
Indications: Acute bacterial skin and skin structure infections, community-acquired bacterial pneumonia
Class: Antibacterial, Cephalosporin, 5th generation
Half-life: 3 hours
Clinically important, potentially hazardous interactions with: BCG vaccine, probenecid, typhoid vaccine
Pregnancy category: B

Skin
Anaphylactoid reactions/Anaphylaxis (<2%)
Hypersensitivity (<2%) [2]
Pruritus [7]
Rash (3%) [9]
Urticaria (<2%)

Cardiovascular
Bradycardia (<2%)
Hypertension (<2%)
Palpitation (<2%)
Phlebitis (2%) [3]

Central Nervous System
Fever (<2%)
Headache [9]
Insomnia [5]
Seizures (<2%)
Vertigo (dizziness) (<2%)

Gastrointestinal/Hepatic
Abdominal pain (<2%)
Colitis (<2%)
Constipation (2%)
Diarrhea (5%) [10]
Hepatotoxicity (<2%)
Nausea (4%) [9]
Vomiting (2%)

Respiratory
Eosinophilic pneumonia [3]

Endocrine/Metabolic
ALT increased (2%)
Hyperglycemia (<2%)
Hyperkalemia (<2%)
Hypokalemia (2%) [2]

Renal
Renal failure (<2%)

Hematologic
Anemia (<2%)
Eosinophilia (<2%)
Neutropenia (<2%) [3]
Thrombocytopenia (<2%)
Other
Adverse effects [4]
Infection [2]

CEFTAZIDIME

Trade names: Ceptaz (GSK), Fortaz (Concordia), Tazicef (Hospira)
Indications: Various infections caused by susceptible organisms
Class: Cephalosporin, 3rd generation
Half-life: 12 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers
Note: Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

Skin
Anaphylactoid reactions/Anaphylaxis (2%) [3]
Angioedema (2%) Erythema multiforme (2%)
Hypersensitivity (2%)
Pemphigus erythematosus [2]
Pruritus (2%) [3]
Rash (2%) [5]
Stevens-Johnson syndrome (2%)
Toxic epidermal necrolysis (2%)

Central Nervous System
Encephalopathy [2]
Seizures [3]

Local
Injection-site inflammation (2%)
Injection-site reactions [2] Injection-site thrombophlebitis (2%)

Other
Adverse effects [3]
Death [2]

CEFTAZIDIME & AVIBACTAM

Trade name: Avycaz (Cereixa)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, beta-lactam (avibactam), Cephalosporin, 3rd generation (ceftazidime)
Half-life: <3 hours

Clinically important, potentially hazardous interactions with: probenecid
Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: See also separate entry for ceftazidime.

Skin
Rash (<5%)

Central Nervous System
Anxiety (10%) [3]
Fever [4]
Headache [3]
Vertigo (dizziness) (6%)

Gastrointestinal/Hepatic
Abdominal pain (7%) [5]
Constipation (10%) [2]
Diarrhea [5]
Hepatotoxicity [4]
Nausea (2%) [5]
Vomiting [5]

Endocrine/Metabolic
ALP increased (3%)
ALT increased (3%) [3]
AST increased [3]
GGT increased (<5%)
Renal
Nephrotoxicity (<5%)
Renal failure (<5%)

Hematologic
Eosinophilia (<5%)
Prothrombin time increased (<5%)
Thrombocytopenia (<5%)

Local
Injection-site reactions [4]

Other
Adverse effects [2]

CEFTIBUTEN

See: www.drugeruptiondata.com/drug/id/123

CEFTIZOXIME

See: www.drugeruptiondata.com/drug/id/124

CEFTOBIPROLE

Trade names: BAL5788 (Basilea) (Cilag AG), Zeftera (Janssen)
Indications: Bacterial infections, MRSA
Class: Cephalosporin, 5th generation
Half-life: 3 hours

Clinically important, potentially hazardous interactions with: alcohol, anticoagulants, BCG vaccine, carbenicillin, dipyridamole, heparin, pentoxyfiline, plicamycin, sulfonylurea, ticarcillin, typhoid vaccine, valproic acid

Pregnancy category: N/A (not recommended in pregnancy)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

Skin
Erythema (9%)
Pruritus (9%)

Central Nervous System
Dysgeusia (taste perversion) (8%) [3]
Headache [2]

Gastrointestinal/Hepatic
Abdominal pain [2]
Diarrhea [4]
Nausea [6]
Vomiting [4]

Endocrine/Metabolic
Hyponatremia [2]

Local
Injection-site reactions [2]

Other
Adverse effects [3]

CEFTOLOZANE & TAZOBACTAM

Trade name: Zerbaxa (Cubist)
Indications: Various infections caused by susceptible organisms
Class: Antibacterial, Antibiotic, beta-lactam, Cephalosporin, 5th generation
Half-life: <3 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Cardiovascular
Hypertension [3]

Central Nervous System
Fever (2%) [5]
Headache (3%) [8]
Insomnia [2]
Somnolence (drowsiness) [2]

Neuromuscular/Skeletal
Myalgia/Myopathy [2]

Gastrointestinal/Skeletal
Constipation (4%) [10]
Nausea (3%) [11]
Vomiting [3]

Endocrine/Metabolic
ALT increased (2%)
AST increased (2%)

Hematologic
Anemia [2]

Local
Injection-site reactions [2]

Other
Adverse effects [3]
Various infections caused by
Antibiotic, Cephalosporin, 3rd generation
Half-life: 59 hours
Clinically important, potentially hazardous interactions with: aminoglycosides, coumarins, histamine H2 antagonists, oral typhoid vaccine, probenecid
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins)

Skin
AGEP [4]
Anaphylactoid reactions/Anaphylaxis [15]
Angioedema [3]
Candidiasis (5%) [3]
Dermatitis [3]
DRESS syndrome [2]
Erythroderma [2]
Exanthema [7]
Hypersensitivity [4]
Linear IgA bullous dermatosis [2]
Pruritus [2]
Rash (2%) [5]
Serum sickness-like reaction [2]
Urticaria [4]

Mucosal
Glossitis [2]

Cardiovascular
Flushing [2]
Hypotension [2]
Phlebitis [2]

Central Nervous System
Fever [2]

Gastrointestinal/Hepatic
Cholelithiasis (gallstones) [4]
Diarrhea [6]
Hepatotoxicity [7]
Nausea [4]
Vomiting [2]

Respiratory
Dyspnea [2]

Renal
Biliary pseudolithiasis [7]
Nephrolithiasis [2]
Nephrotoxicity [6]
Renal failure [3]

Hematologic
Essenophilia [2]
Hemolysis [9]
Hemolytic anemia [15]
Thrombocytopenia [4]

Local
Injection-site pain (<10%) [3]
Injection-site phlebitis [2]

Other
Adverse effects [7]
Death [9]
Side effects (3%) [2]

CEFTRIAXONE

Trade name: Rocephin (Roche)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, Cephalosporin, 3rd generation
Half-life: 59 hours
Clinically important, potentially hazardous interactions with: aminoglycosides, coumarins, histamine H2 antagonists, oral typhoid vaccine, probenecid
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins)

Skin
AGEP [4]
Anaphylactoid reactions/Anaphylaxis [15]
Angioedema [3]
Candidiasis (5%) [3]
Dermatitis [3]
DRESS syndrome [2]
Erythroderma [2]
Exanthema [7]
Hypersensitivity [4]
Linear IgA bullous dermatosis [2]
Pruritus [2]
Rash (2%) [5]
Serum sickness-like reaction [2]
Urticaria [4]

Mucosal
Glossitis [2]

Cardiovascular
Flushing [2]
Hypotension [2]
Phlebitis [2]

Central Nervous System
Fever [2]

Gastrointestinal/Hepatic
Cholelithiasis (gallstones) [4]
Diarrhea [6]
Hepatotoxicity [7]
Nausea [4]
Vomiting [2]

Respiratory
Dyspnea [2]

Renal
Biliary pseudolithiasis [7]
Nephrolithiasis [2]
Nephrotoxicity [6]
Renal failure [3]

Hematologic
Essenophilia [2]
Hemolysis [9]
Hemolytic anemia [15]
Thrombocytopenia [4]

Local
Injection-site pain (<10%) [3]
Injection-site phlebitis [2]

Other
Adverse effects [7]
Death [9]
Side effects (3%) [2]

CEFUROXIME

Trade names: Cefin (GSK), Zinacef (Concordia)
Indications: Various infections caused by susceptible organisms
Class: Cephalosporin, 2nd generation
Half-life: 12 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins)

Skin
AGEP [2]
Anaphylactoid reactions/Anaphylaxis [7]
Exanthema [2]
Hypersensitivity [4]
Serum sickness-like reaction [2]
Urticaria [2]

Cardiovascular
Thrombophlebitis (<10%)
Gastrointestinal/Hepatic
Nausea [2]
Ocular
Ocular toxicity [2]
Other
Kounis syndrome [3]

CELECOXIB

Trade name: Celebrex (Pfizer)
Indications: Osteoarthritis, rheumatoid arthritis (adults and juveniles aged 2 years and over), ankylosing spondylitis, acute pain, primary dysmenorrhea
Class: COX-2 inhibitor, Non-steroidal anti-inflammatory (NSAID), Sulfonamide
Half-life: 11 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, aliskiren, angiotensin II receptor antagonists, aspirin, dextrubuprofen, fluconazole, furosemide, lithium, NSAIDs, warfarin

Pregnancy category: D (pregnancy category C prior to 30 weeks gestation; category D starting at 30 weeks gestation)
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Note: Celecoxib is a sulfonamide and can be absorbed systemically. Sulfonamides can produce epidermal necrolysis and Stevens-Johnson syndrome. NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Contra-indicated in patients with known hypersensitivity to celecoxib, aspirin, or other NSAIDs; in patients who have demonstrated allergic-type reactions to sulfonamides; in patients who have experienced asthma, urticaria, or allergic-type reactions after taking aspirin or other NSAIDs; and for the treatment of peri-operative pain in the setting of coronary artery bypass graft surgery.

Warning: CARDIOVASCULAR AND GASTROINTESTINAL RISKS

Skin
AGEP [7]
Anaphylactoid reactions/Anaphylaxis [8]
Angioedema [9]
Bacterial infection (<2%)
Candidiasis (<2%)
Dermatitis (<2%) [2]
Diaphoresis (<2%)
Edema (<2%) [5]
Erythema [2]
Erythema multiforme [3]
Exanthems (<2%) [7]
Facial edema (<2%)
Fixed eruption [2]
Herpes simplex (<2%)
Herpes zoster (<2%)
Hot flashes (<2%)
Hypersensitivity [8]
Nodular eruption (<2%)
Peripheral edema (2%) [2]
Photosensitivity (<2%)
Pruritus (<2%) [6]
Rash (2%) [11]
Stevens-Johnson syndrome [2]
Sweet’s syndrome [3]
Toxic epidermal necrolysis [5]
Urticaria (<2%) [11]
Vasculitis [4]
Xerosis (<2%)

Hair
Alopecia (<2%) [3]

Nails
Nail changes (<2%)

Mucosal
Stomatitis (<2%) [4]
Xerostomia (<2%)

Cardiovascular
Cardiotoxicity [2]
Hypertension [2]
Myocardial infarction [4]

Central Nervous System
Anorexia [3]
Depression [2]
Dysgeusia (taste perversion) (<2%)
Headache [3]
Paresthesias (<2%)
Stroke [3]
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Asthenia (fatigue) [6]
Myalgia/Myopathy (<2%)

other:

Adverse effects [7]
Death [9]
Side effects (3%) [2]

Other
Adverse effects [7]
Death [9]
Side effects (3%) [2]
### CELIPROLOL

**Trade names:** Celectol (Winthrop), Celol (Pacific), Selectol (Sanofi-Aventis)

**Indications:** Hypertension, angina pectoris

**Class:** Beta blocker

**Half-life:** 56 hours

**Clinically important, potentially hazardous interactions with:** amiodarone, bepridil, diltiazem, disopyramide, flecainide, quinidine, theophylline, verapamil

**Pregnancy category:** N/A

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

- **Central Nervous System**
  - Headache [2]
  - Vertigo (dizziness) [2]

- **Neuromuscular/Skeletal**
  - Asthenia (fatigue) [3]

### CEPHALEXIN

**Synonym:** cefalexin

**Trade names:** Keflex (Advancis), Keftab (Biovail)

**Indications:** Various infections caused by susceptible organisms

**Class:** Cephalosporin, 1st generation

**Half-life:** 0.91–2 hours

**Clinically important, potentially hazardous interactions with:** amikacin, gentamicin, metformin

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

- **Note:** Penicillin and cephalosporins share a common beta-lactam structure. People who are allergic to penicillin are approximately 4 times more likely to develop an allergic reaction to a cephalosporin than those people who have no penicillin allergy (from 5–16% of patients allergic to penicillin develop reactions to cephalosporins).

### CEPHALOTHIN

See: [www.drugeruptiondata.com/drug/id/129](http://www.drugeruptiondata.com/drug/id/129)

### CEPHAPIRIN

See: [www.drugeruptiondata.com/drug/id/130](http://www.drugeruptiondata.com/drug/id/130)

### CEPHRADINE

See: [www.drugeruptiondata.com/drug/id/131](http://www.drugeruptiondata.com/drug/id/131)

### CERITINIB

See: [www.drugeruptiondata.com/drug/id/3527](http://www.drugeruptiondata.com/drug/id/3527)
### CETIRIZINE

**Trade name**: Zyrtec (Pfizer)

**Indications**: Allergic rhinitis, urticaria

**Class**: Histamine H1 receptor antagonist

**Half-life**: 818 hours

**Pregnancy category**: B

**Important contra-indications noted in the prescribing guidelines for**: nursing mothers

#### Skin
- Acneform eruption (<2%)
- Anaphylactoid reactions/anaphylaxis (<2%) [2]
- Angioedema (<2%)
- Bullous dermatitis (<2%)
- Dermatitis (<2%)
- Diaphoresis (<2%)
- Exanthems (<2%)
- Fixed eruption [6]
- Furunculosis (<2%)
- Hyperkeratosis (<2%)
- Photosensitivity (<2%)
- Phototoxicity (<2%)
- Puritus (<2%)
- Purpura (<2%)
- Rash (<2%)
- Seborrhea (<2%)
- Urticaria (<2%) [9]
- Xerosis (<2%)

#### Hair
- Alopecia (<2%)
- Hypertrichosis (<2%)

#### Mucosal
- Salorrhrea (<2%)
- Stomatitis (<2%)
- Tongue edema (<2%)
- Tongue pigmentation (<2%)
- Xerostomia (6%) [2]

#### Cardiovascular
- Flushing (<2%)
- QT prolongation [2]

#### Central Nervous System
- Ageusia (taste loss) (<2%)
- Dysgeusia (taste perversion) (<2%)
- Headache [2]
- Hyperesthesia (<2%)
- Paresthesias (<2%)
- Parosmia (<2%)
- Somnolence (drowsiness) [5]

#### Neuromuscular/Skeletal
- Asthenia (fatigue) [3]
- Dystonia [6]
- Myalgia/Myopathy (<2%)

#### Endocrine/Metabolic
- Mastodynia (<2%)

#### Genitourinary
- Vaginitis (<2%)

#### Other
- Adverse effects [4]

### CETRORELIX

**Trade name**: Cetrotide (Merck)

**Indications**: Inhibition of premature luteinizing hormone surges in women undergoing controlled ovarian stimulation

**Class**: Gonadotropin-releasing hormone (GnRH) antagonist

**Half-life**: 5 hours

**Pregnancy category**: X

**Important contra-indications noted in the prescribing guidelines for**: nursing mothers

**Central Nervous System**
- Headache [2]

### CETUXIMAB

**Trade name**: Erbitux (Bristol-Myers Squibb)

**Indications**: Metastatic colorectal cancer, squamous cell carcinoma of the head and neck

**Class**: Antineoplastic, Biologic, Epidermal growth factor receptor (EGFR) inhibitor, Monoclonal antibody

**Half-life**: 75188 hours

**Pregnancy category**: C

**Important contra-indications noted in the prescribing guidelines for**: nursing mothers

#### Skin
- Acneform eruption (88%) [62]
- Anaphylactoid reactions/anaphylaxis [5]
- Dermatitis [4]
- Desquamation (89%) [3]
- Erythema [3]
- Exanthems [5]
- Fissures [4]
- Folliculitis [13]
- Hand-foot syndrome [5]
- Hypersensitivity [8]
- Papulopustular eruption [7]
- Peripheral edema (10%) [9]
- Pruritus (40%) [9]
- Radiation recall dermatitis [2]
- Rash (89%) [47]
- Toxic epidermal necrolysis [2]
- Toxicity [18]
- Xerosis (49%) [14]

#### Hair
- Abnormal hair growth [2]
- Alopecia (5%)
- Hair changes [3]
- Hypertrichosis [3]

#### Nails
- Nail changes (21%)
- Nail disorder [2]
- Paronychia [15]

#### Other
- Adverse effects [8]
- Allergic reactions [3]
CEVIMELINE

Trade name: Evocax (Daichi Sankyo)
Indications: Sicca syndrome in patients with Sjogren’s syndrome
Class: Mucinacar, cholinergic agonist
Half-life: 34 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with uncontrolled asthma, acute iritis or narrow-angle glaucoma.

Skin
Abscess (<3%)
Candidiasis (<3%)
Diaphoresis (20%)
Edema (<3%)
Erythema (<3%)
Fungal dermatitis (<10%)
Hot flashes (2%)
Hyperhidrosis (19%)
Peripheral edema (<3%)
Pruritus (<3%)
Rash (4%)

Mucosal
Epistaxis (nosebleed) (<3%)
Sialadenitis (<3%)
Salorrhrea (2%)
Ulcereative stomatitis (<3%)

Cardiovascular
Chest pain (<3%)
Palpitation (<3%)

Central Nervous System
Anorexia (<3%)
Depression (<3%)
Fever (<3%)
Headache (14%)
Hypotension (<3%)
Insomnia (2%)
Migraine (<3%)
Nausea (<3%)
Tremor (<3%)
Vertigo (dizziness) (4%)  

Neuromuscular/Skeletal
Arthralgia (4%)
Back pain (5%)
Bone or joint pain (3%)
Hypertonia (<3%)
Leg cramps (<3%)
Myalgia/Myalgopathy (<3%)

Gastrointestinal/Hepatic
Abdominal pain (8%)
Constipation (<3%)
Diarrhea (10%)
Dyspepsia (8%)
Eruation (belching) (<3%)

Gastroesophageal reflux (<3%)
Nausea (14%) [3]
Vomiting (5%)

Respiratory
Bronchitis (4%)
Cough (6%)
Flu-like syndrome (<3%)
Pharyngitis (5%)
Pneumonia (<3%)
Rhinitis (11%)
Sinusitis (12%)
Upper respiratory tract infection (11%)

Genitourinary
Urinary tract infection (6%)
Vaginitis (<3%)

Hematologic
Anemia (<3%)

Otic
Ear pain (<3%)
Otis media (<3%)

Other
Allergic reactions (<3%)
Infection (<3%)
Tooth disorder (<3%)

CHARCOAL

See: [www.drugeruptiondata.com](http://www.drugeruptiondata.com)

CHLORAL HYDRATE

Indications: Insomnia, sedation
Class: Anesthetic, general, Hypnotic
Half-life: 811 hours
Clinically important, potentially hazardous interactions with: anhistamines, azatadine, chlorpheniramine, clemastine, dexchlorpheniramine, diphenhydramine, meclazine, triplelenamine

Skin
Acneform eruption [2]
Angioedema [2]
Dermatitis [2]
Erythema multiforme [2]
Exanthes [3]
Fixed eruption [5]
Pruritus [2]
Rash (<10%) [2]
Urticaria (<10%) [2]

Mucosal
Oral lesions [2]

Cardiovascular
Hypotension [2]

Central Nervous System
Agitation [2]

Sedation (prolonged) [2]

CHLORAMPHENICOL

Indications: Various infections caused by susceptible organisms
Class: Antibiotic, CYP3A4 inhibitor
Half-life: 1.53 to 5.5 hours
Clinically important, potentially hazardous interactions with: amoxicillin, ampicillin, clindamist, cloxacillin, ethotoin, foscarnet, gliadin, levodopa, mefenoxamine, pethytoxin, propylhynocaine, voriconazole

Skin
AGEP [2]
Dermatosis [18]
Erythema multiforme [6]
Exanthes (<5%) [5]
Hypersensitivity [2]
Purpura [2]
Pustules [2]
Sensitization [2]
Toxic epidermal necrolysis [2]
Urticaria [3]

Nails
Photo-onycholysis [2]

CHLORDIAZEPOXIDE

Trade names: Libritabs (Valeant), Librium (Valeant), Limbitrol (Valeant)
Indications: Anxiety
Class: Benzozaidine
Half-life: 625 hours
Clinically important, potentially hazardous interactions with: chlorpheniramine, clarithromycin, efavirenz, esomeprazole, imatinib, indinavir, ketoconazole, neflinavir, nitramide, ritonavir
Pregnancy category: D

Skin
Angioedema [3]
Dermatitis (<10%)
Diaphoresis (>10%)
Edema (<10%)
Erythema multiforme [5]
Erythema nodosum [2]
Exantheme [3]
Fixed eruption [7]
Lupus erythematous [3]
Photosensitivity [6]
Purpura [5]
Rash (>10%)
Urticaria [4]
Vasculitis [2]

CHLOROQUINE

Trade name: Aralen (Sanofi-Aventis)
Indications: Malaria, rheumatoid arthritis, lupus erythematosus
Class: Antimalarial, Antiprotozoal, Disease-modifying antirheumatic drug (DMARD)
Half-life: 35 days
Clinically important, potentially hazardous interactions with: acitretin, antacids, arsenic, cholora vaccine, cholestyramine, citalopram, dapsone, daxitab, degrelax, droperidol, ethosuximide, furazolidone, halofantrine, hydroxychloroquine, lacosamide, lanthanum, lapiatin, levofloxacin, methotrexate, methoxsalen, mivacurium, moxifloxacin, neostigmime, nitrotigeline, oxcarbazepine, pazopanib, penicillamine, ribociclib, sulfonamides, telavancin, telithromycin, tiagabine, typhoid vaccine, penicillamine, ribociclib, sulfonamides, telavancin, telithromycin, tiagabine, typhoid vaccine, vandetanib, vigabatrin, voriconazole, vorinostat, ziprasidone

Skin
Dermatitis [2]
Erythema annulare centrifugum [2]
Erythroderma [3]
Exanthes (<5%) [3]
Exfoliative dermatitis [4]
Lichenoid eruption [6]
Photosensitivity [8]
Pigmentation [15]
Pruritus [36]
Psoriasis [18]
Stevens-Johnson syndrome [4]
Urticaria [4]
Vitiligo [7]

Hair
Hair pigmentation [10]
Poliosis [3]

Nails
Nail pigmentation [2]

Mucosal
Mucosal membrane pigmentation [2]
Oral pigmentation [12]

Cardiovascular
Atrial fibrillation [2]
Cardiac failure [2]
Cardiomyopathy [8]
Cardiotoxicity [3]
Congestive heart failure [2]
Myocardial toxicity [2]
QT prolongation [3]
Torsades de pointes [2]

Central Nervous System
Headache [4]
Psychosis [4]
Seizures [2]
Vertigo (dizziness) [4]

Neuromuscular/Skeletal
Myalgia/Myopathy [8]
Myasthenia gravis [7]

Gastrointestinal/Hepatic
Diarrhea [2]
Nausea [3]
Vomiting [5]

Endocrine/Metabolic
Porphyria [7]

Ocular
Corneal deposits [2]
Keratopathy [2]
Maculopathy [3]
Ocular adverse effects [2]
Ocular toxicity [4]
Retinopathy [10]
Vision blurred [2]

Other
Adverse effects [2]
Death [3]

CHLOROTHIAZIDE

See: www.drugeruptiondata.com/drug/id/142

CHLOROTHIAZINE

See: www.drugeruptiondata.com/drug/id/143

CHLORPHENIRAMINE

Synonym: chlorphenamine
Trade names: Chlor-Trimeton (Schering), Triaminic (Novartis)
Indications: Allergic rhinitis, urticaria
Class: Histamine H1 receptor antagonist, Muscarinic antagonist
Half-life: 2040 hours
Clinically important, potentially hazardous interactions with: alcohol, anticholinergics, barbiturates, benzodiazepines, butabarbital, chloral hydrate, chloridiazepoxide, chlorpromazine, clonazepam, clorazepate, diazepam, etcholvoynol, fluphenazine, fluazepam, hypnotics, loperamide, lorazepam, MAO inhibitors, meprobartabital, mesoridazine, midazolam, narcotics, oxazepam, pentobarbital, phenobarbital, phenothiazines, phenylbutazone, primidone, prochlorperazone, promethazine, quazepam, secolbarbital, sedatives, temazepam, thioridazine, tranquilizers, trifluoperazin, zolpidem

Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Angioedema (<10%)
Dermatitis (<10%) [4]
Photosensitivity (<10%)

Mucosal
Xerostomia (<10%)

Central Nervous System
Seizures [2]

See: www.drugeruptiondata.com/drug/id/140
**CHLORPROMAZINE**

**Trade name:** Thorazine (GSK)

**Indications:** Psychosis, manic-depressive disorders

**Class:** Antiemetic, Antipsychotic, Muscarinic antagonist, Phenothiazine

**Half-life:** Initial: 2 hours; terminal: 30 hours

**Clinically important, potentially hazardous interactions with:** alcohol, antihistamines, arsenic, asenapine, chlorpheniramine, doxil, epinephrine, evening primrose, guanethidine, lisinopril, metformin, minocycline, nortriptyline, omeprazole, phenobarbital, pimozide, propranolol, quinolones, sodium picosulfate, sparfloxacin, tetrabenazine, zolpidem

**Pregnancy category:** N/A

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** The prolonged use of chlorpromazine can produce a gray-blue or purplish pigmentation over light-exposed areas. This is a result of either dermal deposits of melanin, a chlorpromazine metabolite, or to a combination of both. Chlorpromazine melanosis is seen more often in women.

**Warning:** INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

**Skin**
- Exanthems (>5%) [8]
- Lupus erythematosus [12]
- Photosensitivity (<10%) [22]
- Phototoxicity [6]
- Pigmentation [16]
- Pruritus (<10%) [2]
- Purpura [6]
- Rash (<10%)
- Seborrheic dermatitis [4]
- Toxic epidermal necrolysis [2]
- Urticaria [4]
- Vascularitis [3]

**Nails**
- Nail pigmentation [4]

**Mucosal**
- Xerostomia (<10%)

**Cardiovascular**
- Hypotension [4]
- QT prolongation [4]
- Tachycardia [2]
- Torsades de pointes [2]

**Central Nervous System**
- Neuroleptic malignant syndrome [7]
- Sedation [3]
- Seizures [2]

**Endocrine/Metabolic**
- Galactorrhea (<10%)
- Gynecomastia (<10%)
- Mastodynia (<10%)
- Weight gain [2]

**Genitourinary**
- Priapism [7]

**Otic**
- Tinnitus [2]

**Ocular**
- Cataract [2]

**Related Psychosis**
- Ocular
- Otic
- Genitourinary
- Endocrine/Metabolic
- Central Nervous System
- Cardiovascular
- Mucosal
- Skin
- Nails

**Other**
- Adverse effects [3]

**CHLORPROPAMIDE**

See: www.drugerupiiondata.com/drug/id/146

**CHLORTETRACYCLINE**

See: www.drugerupiiondata.com/drug/id/147

**CHLORZOXAZONE**

See: www.drugerupiiondata.com/drug/id/148

**CHOLESTYRAMINE**

See: www.drugerupiiondata.com/drug/id/149

**CHOLERA VACCINE**

**Trade name:** Vaxchora (PaxVax)

**Indications:** Immunization against cholera for adults traveling to cholera-affected areas

**Class:** Vaccine

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** antibiotics, chloroquine

**Pregnancy category:** N/A (Not expected to cause fetal risk)

**Important contra-indications noted in the prescribing guidelines for:** the elderly; pediatric patients

**Skin**
- Pruritus [2]

**Neuromuscular/Skeletal**
- Osteomalacia [2]

**Hematologic**
- Hemorrhage [2]

**Gastrointestinal/Hepatic**
- Diarrhea (2%)

**CHOLIC ACID**

**Trade name:** Cholbam (Asklepion Pharmaceuticals)

**Indications:** Bile acid synthesis disorders, adjunctive treatment of peroxisomal disorders

**Class:** Bile acid

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** cyclosporine

**Pregnancy category:** N/A

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

**Gastrointestinal/Hepatic**
- Diarrhea (2%)

**CHOLINE**

See: www.drugerupiiondata.com/drug/id/3057

**CHOLINE FENOPIRIBRATE**

See: www.drugerupiiondata.com/drug/id/2095

**CICLESONIDE**

See: www.drugerupiiondata.com/drug/id/1263

**CICLOPIROX**

See: www.drugerupiiondata.com/drug/id/2335
### Cidofovir

**Trade name:** Vistide (Gilead)  
**Indications:** Cytomegalovirus (CMV) retinitis in patients with acquired immunodeficiency syndrome (AIDS)  
**Class:** Antiviral, nucleotide analog  
**Half-life:** ~2.6 hours  
**Clinically important, potentially hazardous interactions with:** amphotericin B, cobicistat/elvitegravir/emeritartabine/tenofovir alafenamide, cobicistat/elvitegravir/emeritartabine/tenofovir disoproxil, tenofovir disoproxil  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients  
**Warning:** RENAL TOXICITY and NEUTROPENIA

| Skin | Acneiform eruption (>10%)  
Diaphoresis (<10%)  
DRESS syndrome [2]  
Pallor (<10%)  
Mucosal | Stomatitis (<10%)  
Hair | Alopecia (22%) [2]  
Mucosal | Stomatitis (<10%)  
Central Nervous System | Chills (24%)  
Dysgeusia (taste perversion) (<10%)  
Headache [4]  
Paresthesias (>10%)  
Neuromuscular/Skeletal | Asthenia (fatigue) [2]  
Myalgia/Myalgia [2]  
Renal | Fanconi syndrome [2]  
Nephrotoxicity [3]  
Ocular | Intraocular inflammation [2]  
Iritis [6]  
Ocular hypotension [2]  
Retinal detachment [3]  
Uveitis [18]  
Vision impaired [3]  
Vision loss [3]  
Local | Application-site reactions (39%) [3]  
Other | Allergic reactions (<10%)  

### Cilostazol

**Trade name:** Pletal (Otsuka)  
**Indications:** Peripheral vascular disease, intermittent claudication  
**Class:** Antplatelet, Phosphodiester inhibitor, Vasodilator, peripheral  
**Half-life:** 1113 hours  
**Clinically important, potentially hazardous interactions with:** anagrelide, anticoagulants, antifungals, antplatelet agents, clarithromycin, collagenase, conivaptan, CYP2C19 inhibitors, CYP3A4 inhibitors and inducers, dasatinib, deferasirox, diltiazem, drotrecogin alfa, erythromycin, esomeprazole, fondaparinux, glucosamine, grapefruit juice, high-fat foods, ibritumomab, ticlopidine, tirofiban, clopidogrel, sunitinib, telithromycin, thrombolytic agents, tositumomab & iodine¹, voriconazole  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  
**Note:** Contra-indicated in patients with congestive heart failure or active pathological bleeding  
**Warning:** CONTRA-INDICATED IN HEART FAILURE PATIENTS

| Skin | Ecchymoses (<2%)  
Edema (<2%)  
Facial edema (<2%)  
Furunculosis (<2%)  
Hypertrophy (<2%)  
Peripheral edema (<2%)  
Peripheral edema (79%)  
Rash (2%) [2]  
Urticaria (<2%)  
Varicities (<2%)  
Xerosis (<2%)  
Mucosal | Epistaxis (nosebleed) (<2%)  
Gingival bleeding (<2%)  
Hemorrhage (<2%)  
Tongue edema (<2%)  
Cardiovascular | Arrhythmias (<2%)  
Atrial fibrillation (<2%)  
Ischemia (<2%)  
Myocardial infarction (<2%)  
Myocardial ischemia (<2%)  
Palpitation (5–10%) [7]  
Postural hypotension (<2%)  
Supraventricular tachycardia (<2%)  
Tachycardia (4%) [4]  
Vasodilation (<2%)  
Ventricular tachycardia (<2%)  
Central Nervous System | Anorexia (<2%)  
Anxiety (<2%)  
Cerebral ischemia (<2%)  
Chills (<2%)  
Headache (27–34%) [19]  
Hyperesthesia (2%)  
Insomnia (<2%)  
Neurotoxicity (<2%)  
Paresthesias (2%)  
Vertigo (10%) [2]  
Vertigo (dizziness) (<10%) [4]  
Neuromuscular/Skeletal | Arthralgia (<2%)  
Asthenia (fatigue) (<2%)  
Back pain (6–7%)  
Bone or joint pain (<2%)  
Gouty tophi (<2%)  
Myalgia/Myalgia (23%)  
Gastrointestinal/Hepatic | Abdominal pain (4–5%)  
Black stools (<2%)  
Cholelithiasis (gallstones) (<2%)  
Colitis (<2%)  
Diarrhea (1–2%) [7]  
Dyspepsia (6%)  
Esophagitis (<2%)  
Flatulence (2–3%)  
Gastritis (<2%)  
Gastroenteritis (<2%)  
Gastrointestinal ulceration (<2%)  
Hematemesis (<2%)  
Nausea (6–7%) [4]  
Peptic ulceration (<2%)  
Vomiting (<2%)  
Respiratory | Asthma (<2%)  
Cough (3–4%) [2]  
Hemoptysis (<2%)  
Pharyngitis (7–10%)  
Pneumonia (<2%)  
Rhinitis (7–12%)  
Sinusitis (<2%)  
Endocrine/Metabolic | Creatine phosphokinase increased (<2%)  
Diabetes mellitus (<2%)  
GGT increased (<2%)  
Hyperlipidemia (<2%)  
Hyperuricemia (<2%)  
Genitourinary | Albuminuria (<2%)  
Cystitis (<2%)  
Urinary frequency (<2%)  
Vaginal bleeding (<2%)  
Vaginitis (<2%)  
Renal | Retroperitoneal bleeding (<2%)  
Hematologic | Anemia (<2%)  
Hemorrhage (<2%)  
Polycthenemia (<2%)  
Thrombosis [3]  
Otic | Ear pain (<2%)  
Tinnitus (<2%)  
Ocular | Amblyopia (<2%)  
Blindness (<2%)  
Conjunctivitis (<2%)  
Diplopia (<2%)  

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¹ Alcoholic or alcoholic beverages should be avoided.
Duodenal ulcer

Fluoroquinolones are associated with an increased risk of tendinitis and tendon rupture in all ages. This risk is further increased in older patients usually over 60 years of age, in patients taking corticosteroids and, in patients with kidney, heart or lung transplants.

Fluoroquinolones may exacerbate muscle weakness in persons with myasthenia gravis.

Ciprofloxacin is chemically related to nalidixic acid.

**Warning:** SERIOUS ADVERSE REACTIONS INCLUDING TENDINITIS, TENDON RUPTURE, PERIPHERAL NEUROPATHY, CENTRAL NERVOUS SYSTEM EFFECTS and EXACERBATION OF MYASTHENIA GRAVIS

### Cimetidine

#### Trade name: Tagamet (GSK)

**Indications:** Duodenal ulcer

**Class:** CYP1A2 inhibitor, CYP3A4 inhibitor, Histamine H2 receptor antagonist

**Half-life:** 2 hours

**Clinically important, potentially hazardous interactions with:** acenocoumarol, alfuzosin, amiodarone, amitriptyline, anisindione, anticoagulants, buprenorphine, butorphanol, caffeine, carbamazepine, carbamazepine, clozapine, cyclophosphamide, dexamethasone, diltiazem, dopamine, doxycycline, doxorubicin, drotaverine, drotaverine, drotaverine, doxepin, ducal, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, fenofibrate, 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Carcinomas, lymphomas
alpha phase: 25–49 minutes; beta phase: CDDP ~35 hours
Depression, obsessive-compulsive
Alkylating agent, Antineoplastic
Antidepressant, Selective serotonin
SUICIDALITY AND
Skin
mothers
prescribing guidelines for:
Important contra-indications noted in the
Pregnancy category:
thalidomide, zinc
paclitaxel, pentamidine, rituximab, selenium,
chlorothiazide, gadobenate, methotrexate,
interactions with:
Clinically important, potentially hazardous 58–73 hours
Half-life:
Class:
Indications:
Trade name:
Synonym:
CISPLATIN

see: www.drugeruptiondata.com/drug/id/897

CISATRACURIUM

Hepatotoxicity [7]
Nausea (3%) [4]
Pancreatitis [2]
Vomiting [2]
Genitourinary
Vaginitis [2]
Renal
Nephrotoxicity [9]
Renal failure [3]
Hematologic
Bone marrow suppression [2]
Hemolytic anemia [2]
Thrombocytopenia [4]
Otic
Hearing loss [2]
Ocular
Hallucinations, visual [6]
Vision blurred [2]
Local
Injection-site pain [2]
Other
Adverse effects [8]
Death [4]

Hair
Alopecia (>10%) [24]

Mucosal
Epistaxis (nosebleed) [3]
Mucositis [16]
Oral lesions [2]
Stomatitis [16]

Cardiovascular
Cardiotoxicity [2]
Flushing [5]
Hypertension [7]
Thromboembolism [6]
Venous thromboembolism [4]

Central Nervous System
Anorexia [23]
Dysgeusia (taste perversion) [3]
Fever [5]
Headache [4]
Insomnia [4]
Leukenoencephalopathy [10]
Neurotoxicity [14]
Pain [3]
Peripheral neuropathy [8]
Seizures [4]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Asthenia (fatigue) [34]
Ataxia [2]
Myalgia/Myopathy [3]

Gastrointestinal/Hepatic
Abdominal pain [4]
Constipation [4]
Diarrhea [34]
Esophagitis [2]
Gastrointestinal bleeding [2]
Hepatotoxicity [6]
Nausea [48]
Pancreatitis [2]
Vomiting [35]

Respiratory
Cough [4]
Dysphonia [4]
Dyspnea [4]
Pneumonia [4]
Pneumonitis [3]
Pulmonary toxicity [5]

Endocrine/Metabolic
ALP increased [2]
ALT increased [5]
Appetite decreased [7]
AST increased [5]
Dehydration [3]
Hyperglycemia [3]
Hyperkalemia [2]
Hypocalcemia [2]
Hypokalemia [5]
Hypomagnesemia [13]
Hypotension [18]
Serum creatinine increased [8]
SIADH [18]
Weight loss [4]

Renal
Nephrotoxicity [65]
Proteinuria [2]
Renal failure [3]
Renal function abnormal [2]

Hematologic
Anemia [48]

Hair
Alopecia (>10%) [24]

Mucosal
Epistaxis (nosebleed) [3]
Mucositis [16]
Oral lesions [2]
Stomatitis [16]

Cardiovascular
Cardiotoxicity [2]
Flushing [5]
Hypertension [7]
Thromboembolism [6]
Venous thromboembolism [4]

Central Nervous System
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Fever [5]
Headache [4]
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Leukenoencephalopathy [10]
Neurotoxicity [14]
Pain [3]
Peripheral neuropathy [8]
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Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Asthenia (fatigue) [34]
Ataxia [2]
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Gastrointestinal/Hepatic
Abdominal pain [4]
Constipation [4]
Diarrhea [34]
Esophagitis [2]
Gastrointestinal bleeding [2]
Hepatotoxicity [6]
Nausea [48]
Pancreatitis [2]
Vomiting [35]

Respiratory
Cough [4]
Dysphonia [4]
Dyspnea [4]
Pneumonia [4]
Pneumonitis [3]
Pulmonary toxicity [5]

Endocrine/Metabolic
ALP increased [2]
ALT increased [5]
Appetite decreased [7]
AST increased [5]
Dehydration [3]
Hyperglycemia [3]
Hyperkalemia [2]
Hypocalcemia [2]
Hypokalemia [5]
Hypomagnesemia [13]
Hypotension [18]
Serum creatinine increased [8]
SIADH [18]
Weight loss [4]

Renal
Nephrotoxicity [65]
Proteinuria [2]
Renal failure [3]
Renal function abnormal [2]

Hematologic
Anemia [48]

Skin
Acneform eruption [6]
Anaphylactoid reactions/Anaphylaxis [10]
Angioedema [4]
Edema [3]
Erythema [3]
Exanthema [4]
Hand-foot syndrome [9]
Hypersensitivity [5]
Necrosis [2]
Peripheral edema [2]
Pigmentation [5]
Pruritus [7]
Rash [21]
Raynaud’s phenomenon [14]
Thrombocytopenic purpura [2]
Toxic epidermal necrolysis [2]
Toxicity [7]
Urticaria [7]
Leukemias

Various infections caused by

57 hours

Antibiotic, macrolide, CYP3A4 inhibitor

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Antimetabolite, Antineoplastic

alpha phase: 25 minutes; beta phase: 7

91x57

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Hallucinations, visual [3]

Hallucinations, auditory [2]

Urinary frequency [2]

Sexual dysfunction [4]

Priapism [4]

Impotence (3%) (2)

Ejaculatory dysfunction (6%) [2]

Dysmenorrhea (3%)

Weight gain [2]

SIADH [18]

Libido decreased (2%)

Vomiting (4%) [2]

Respiratory

Rhinitis (3%)

Sinusitis (3%)

Upper respiratory tract infection (5%)

Endocrine/Metabolic

Galactorrhea [4]

Hyponatremia [2]

Lidbo decreased (2%)

SIADH [18]

Weight gain [2]

Genitourinary

Dysmenorrhea (3%)

Ejaculatory dysfunction (6%) [2]

Impotence (3%)

Priapism [4]

Sexual dysfunction [4]

Urinary frequency [2]

Otic

Hallucinations, auditory [2]

Ocular

Diplopia [2]

Glaucoma [2]

Hallucinations, visual [3]
Ocular
Hallucinations, visual [4]
Local
Injection-site pain [2]
Other
Adverse effects [11]

CLEMASTINE
See: www.drugeruptiondata.com/drug/id/161

CLEVIDIPINE
See: www.drugeruptiondata.com/drug/id/1295

CLIDINIUM
See: www.drugeruptiondata.com/drug/id/162

CLINDAMYCIN
Trade names: Benzacin (Dermik), Cleocin (Pfizer), Cleocin-T (Pfizer), Clindagel (Galderma), Clindets (Stiefel)
Indications: Various serious infections caused by susceptible organisms
Class: Antibiotic, lincosamide
Half-life: 23 hours
Clinically important, potentially hazardous interactions with: cisatracurium, erythromycin, kaolin, mivacurium, neostigmine, pyridostigmine, rocuronium, saquinavir
Pregnancy category: B
Note: See also separate entry for the combination product clindamycin/tretinoin.

Skin
AGEP [8]
Anaphylactoid reactions/Anaphylaxis [5]
Dermatitis (from topical preparations) [7]
DRESS syndrome [2]
Erythema multiforme [2]
Erythroderma [2]
Exanthems [5]
Hypersensitivity [4]
Rash (<10%) [3]
Stevens-Johnson syndrome [3]
Sweet's syndrome [2]
Toxic epidermal necrolysis [3]
Urticaria [3]
Vasculitis [2]

Mucosal
Burning mouth syndrome [2]
Xerostomia [2]

Central Nervous System
Ageusia (taste loss) [2]

Gastrointestinal/Hepatic
Colitis [2]
Diarrhea [4]
Esophagitis [2]
Hepatotoxicity [3]
Pseudomembranous colitis [5]

Hematologic
Neutropenia [2]

Otic
Tinnitus [2]

Local
Application-site erythema [3]

Other
Adverse effects [6]
Death [3]

CLINDAMYCIN/TRETINOIN
See: www.drugeruptiondata.com/drug/id/1841

CLIOQUINOL
See: www.drugeruptiondata.com/drug/id/1250

CLOBAZAM
Trade name: Anafranil (Mallinckrodt)
Indications: Obsessive-compulsive disorder
Class: Antidepressant, tricyclic, Muscarinic antagonist
Half-life: 2131 hours
Clinically important, potentially hazardous interactions with: amprenavir, clarithromycin, clarithromycin, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, efavirenz, esomeprazole, imatinib, indinavir, nelfinavir, nevirapine, oxytocin, piracetam
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
Acneform eruption (2%)
Cellulitis (2%)
Dermatitis (2%)
Diaphoresis (29%) [2]
Edema (2%)
Hypersensitivity [2]
Photosensitivity [3]
Pruritus (6%)
Purpura (3%)
Rash (8%)
Xerosis (2%)

Mucosal
Xerostomia (84%) [6]

Cardiovascular
Flushing (8%)
QT prolongation [4]

Central Nervous System
Dysgeusia (taste perversion) (8%)
Seizures [4]
Serotonin syndrome [3]

Endocrine/Metabolic
Gynecomastia (2%)
SIADH [3]

Genitourinary
Vaginitis (2%)

Other
Adverse effects [3]
Allergic reactions (<3%)

CLONAZEPAM
Trade name: Klonopin (Roche)
Indications: Petit mal and myoclonic seizures
Class: Benzodiazepine
Half-life: 1850 hours
Clinically important, potentially hazardous interactions with: ampropiravir, chlorpheniramine, clarithromycin, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, efavirenz, esomeprazole, imatinib, indinavir, nelfinavir, nevirapine, oxytocin, piracetam
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Bullous dermatitis [2]
Dermatitis (<10%)
Diaphoresis (>10%)
Pseudolymphoma [2]

Hair
Alopecia [2]

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Mucosal
Sirolactenia (>10%)  
Sirolacthea (<10%)  
Xerostrasia (>10%)
Central Nervous System
Psychosis [2]  
Seizures [2]
Other
Adverse effects [2]  
Allergic reactions (<10%)

CLONIDINE
Trade name: Catapres (Boehringer Ingelheim)
Indications: Hypertension
Class: Adrenergic alpha-receptor agonist
Half-life: 642 hours
Clinically important, potentially hazardous interactions with: acetobutol, alfuzosin, amitriptyline, amoxapine, atenolol, beta-xolol, captopril, carteolol, cilazapril, clomipramine, desipramine, doxepin, dexamfetamine, dicyclofenac, diltiazem, enalapril, esmolol, fesoterodine, imipramine, insulin aspart, insulin glargine, insulin glulisine, insulin detemir, insulin glargine, insulin glulisine, irbesartan, levodopa, levomepromazine, lisisnorpl, meloxicam, metoprolol, mlnacipran, nadolol, nebivolol, noratropine, omeprazole, penbutolol, perycycazine, pindolol, propranolol, protriptyline, quinapril, ramipril, ritonavir, saquinavir, simvastatin, sulindac, sulfasalazine, ticagrelor, tofacitinib, verapamil, zwave.

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Depigmentation [2]  
Dermatitis (from patch) (20%) [23]  
Eczema [2]  
Erythema [2]  
Lupus erythematosus [5]  
Penetration [2]
Pityriasis rosea [2]  
Pruritus (>5%) [6]  
Psoriasis [2]  
Rash (<10%) [4]  
Ulcereations (<10%)

Mucosal
Xerostrasia (40%) [13]
Cardiovascular
Bradycardia [8]  
Hypotension [18]
Central Nervous System
Fever [2]  
Hallucinations [3]  
Headache [4]  
Hyperesthesia (<10%)  
Sedation [2]  
Seizures [2]  
Somnolence (drowsiness) [4]  
Vertigo (dizziness) [4]

Neuromuscular/Skeletal
Asthenia (fatigue) [2]
Gastrointestinal/Hepatic
Nausea [2]

Other
Adverse effects [2]

CLOPIDOGREL
Trade name: Plavix (Bristol-Myers Squibb) (Sanofi-Aventis)
Indications: Acute coronary syndrome, recent myocardial infarction, recent stroke, or established peripheral arterial disease
Class: Antplatelet, Antiplatelet, thienopyridine
Half-life: 6 hours
Clinically important, potentially hazardous interactions with: amiodarone, anticoagulants, atorvastatin, calcium channel blockers, cangrelor, carbachol, cimetidine, ciprofloxacin, collagenase, dabigatran, dasatinib, delavirdine, dexamfetamine, diltiazem, diclofenac, doxepin, enalapril, esmolol, fesoterodine, imipramine, insulin aspart, insulin glargine, insulin glulisine, irbesartan, levodopa, levomepromazine, lisinopril, midazolam, moclobemide, MAO inhibitors, midazolam, moclobemide, MAO inhibitors, midazolam, moclobemide, naliflovir, phenytoin, sulpiride, warfarin.

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
AGEP [2]  
Angioedema [4]  
Bullous dermatitis (<3%)  
Eczaema (<3%)  
Edema (35%)  
Exanthems (<3%) [2]  
Hypersensitivity [9]  
Pruritus (3%) [2]  
Psoriasis [2]  
Purpura [18]  
Rash (<10%) [4]  
Ulcereations (<10%)

Mucosal
Xerostrasia (40%) [13]
Cardiovascular
Bradycardia [8]  
Hypotension [18]
Central Nervous System
Fever [2]  
Hallucinations [3]  
Headache [4]  
Hyperesthesia (<10%)  
Sedation [2]  
Seizures [2]  
Somnolence (drowsiness) [4]  
Vertigo (dizziness) [4]

Neuromuscular/Skeletal
Asthenia (fatigue) [2]
Gastrointestinal/Hepatic
Nausea [2]

Other
Adverse effects [2]

CLOXACILLIN
See: www.drugerruptiondata.com/drug/id/172

CLOXACILLINE
See: www.drugerruptiondata.com/drug/id/172
Treatment-resistant schizophrenia

Co-trimoxazole is a sulfonamide and can

antibiotic, sulfonamide

AGRANULOCYTOSIS / SEIZURES /

610 hours

contra-indicated in patients with

Various infections caused by

Antipsychotic

Cardiovascular

Mucosal

Psychosis

Patients with dementia-related

effects

Cardiovascular and respiratory

effects

Increased mortality in elderly

Patients with dementia-related

Psychosis

Skin

Angioedema [2]

Diaphoresis (6%) [4]

Exanthems [2]

Lupus erythematosus [4]

Pityriasis rosea [2]

Rash (2%) [2]

Toxicity [5]

Mucosal

Parotitis [3]

Sialorrhea (31%) [75]

Xerostomia [3]

Cardiovascular

Atrial fibrillation [2]

Cardiomyopathy [13]

Cardioxicity [2]

Hypertension (4%) [4]

Hypotension (9%) [4]

Myocarditis [38]

Orthostatic hypotension [3]

Pericardial effusion [3]

Pericarditis [8]

QT prolongation [5]

Tachycardia (25%) [11]

Venous thromboembolism [5]

Central Nervous System

Akathisia [3]

Anxiety [2]

Compulsions [9]

Fever [8]

Headache (7%) [11]

Neuroleptic malignant syndrome [30]

Neurotoxicity [2]

Pain [2]

Restless legs syndrome [2]

Sedation (39%) [11]

Seizures [25]

Somnolence (drowsiness) [10]

Syncope [2]

Tardive dyskinesia [6]

 Tic disorder [2]

Tremor (<10%) [2]

Vertigo (dizziness) (19%) [2]

Neuromuscular/Skeletal

Myoclonus [2]

Gastrointestinal/Hepatic

Colitis [2]

Constipation (14%) [6]

Gastric obstruction [3]

Gastrointestinal hypomotility [4]

Hepatotoxicity [6]

Ileus [6]

Pancreatitis [6]

Respiratory

Pleural effusion [4]

Pneumonia [3]

Pulmonary embolism [2]

Endocrine/Metabolic

Diabetes mellitus [7]

Diabetic ketoacidosis [2]

Galactorrhea [2]

Hyperglycemia [6]

Hyperlipidemia [3]

Metabolic syndrome [13]

Weight gain [28]

Genitourinary

Priapism [14]

Renal

Enuresis [4]

Hematologic

Agranulocytosis [31]

Dyslipidemia [3]

Eosinophilia [9]

Granulocytopenia [2]

Hemotoxicity [2]

Leukopenia [10]

Neutropenia [16]

Pancytopenia [2]

Thrombosis [2]

Ocular

Maculopathy [2]

Other

Adverse effects [10]

Death [15]

Serositis [6]

Co-trimoxazole is sulfamethoxazole and trimethoprim.

CO-TRIMOXAZOLE

Trade names: Bactrim (GSK), Septra (Monarch)

Indications: Various infections caused by susceptible organisms

Class: Antimicrobial, sulfonamide

Half-life: 610 hours

Clinically important, potentially hazardous interactions with: sulphamethoxazole, trimethoprim, trimethoprim-sulfamethoxazole

Note: Co-trimoxazole is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

CO-trimoxazole is sulfamethoxazole and trimethoprim.
Rhabdomyolysis [7]  
Gastrointestinal/Hepatic  
Hepatotoxicity [7]  
Nausea [2]  
Pancreatitis [4]  
Vomiting [4]  
Endocrine/Metabolic  
ALT increased [2]  
Hyperkalemia [4]  
Hypoglycemia [5]  
Hypotension [2]  
Serum creatinine increased [4]  
Hematologic  
Agranulocytosis [2]  
Anemia [3]  
Methemoglobinemia [2]  
Neutropenia [5]  
Thrombocytopenia [9]  
Ocular  
Glaucoma [2]  
Myopia [2]  
Other  
Adverse effects [14]  
Allergic reactions [2]  
Death [4]  
Side effects [2]  

See: www.drugeruptiondata.com/drug/id/1366

COAGULATION FACTOR IX (RECOMBINANT)

See: www.drugeruptiondata.com/drug/id/1366

COBICISTAT/ELVITEGRAVIR/EMTRICITABINE/TENOFOVIR ALAFENAMIDE

Trade name: Genvoya (Gilead)  
Indications: HIV-1 infection  
Class: Antiretroviral, CYP3A inhibitor (cobicistat), Hepatitis B virus nucleoside analog reverse transcriptase inhibitor (tenofovir alafenamide), Integrase strand transfer inhibitor (elvitegravir), Nucleoside analog reverse transcriptase inhibitor (emtricitabine)  
Half-life: 3.5 hours (cobicistat); 13 hours (elvitegravir); 10 hours (emtricitabine); < 1 hour (tenofovir alafenamide)  
Clinically important, potentially hazardous interactions with: acyclovir, adefovir, amiodarone, amitriptyline, amiodipine, antacids, antiarrhythmic, atorvastatin, azithromycin, bezafibrate, bepridil, beta blockers, bosentan, buprenorphine, buspirone, bupropion, buspirone, calcium channel blockers, cefuroxime, clarithromycin, colchicine, dasigianime, dexamethasone, dexamethasone, digoxin, diltiazem, disopyramide, drugs affecting renal function, estazolam, ethosuximide, felodipine, flecainide, flurazepam, fluticasone furoate, fluticasone propionate, ganciclovir, gentamicin, hormonal contraceptives, imipramine, lamivudine, ledipasvir & sofosbuvir, lidocaine, metoprolol, meloxicam, midazolam, naloxone, nefopam, nefopam, non-nucleoside reverse transcriptase inhibitors, nortriptyline, oxcarbazepine, paroxetine hydrochloride, perphenazine, phenobarbital, phenytin, propafenone, protease inhibitors, quinidine, rifabutin, rifapentine, risperidone, salmeterol, sildenafil, SSRIs, taladafil, telithromycin, thioridazine, timolol, trazodone, tricyclic antidepressants, valproic acid, valproic acid, valproic acid, vardenafil, verapamil, voriconazole, warfarin, zolpidem  
Note: See also separate profiles for emtricitabine and tenofovir alafenamide.  
Warning: LACTIC ACIDOSIS/SEVERE HEPATITIS B  
Pregnancy category: B  
Important contra-indications noted in the prescribing guidelines for: nursing mothers  
Note: See also separate profiles for emtricitabine and tenofovir alafenamide.  
Warning: LACTIC ACIDOSIS/SEVERE HEPATITIS B  

Central Nervous System  
Headache (6%)  
Neuromuscular/Skeletal  
Asthenia (fatigue) (5%)  
Gastrointestinal/Hepatic  
Diarrhea (7%)  
Nausea (5%) [2]  
Other  
Adverse effects [2]  

COBICISTAT/ELVITEGRAVIR/EMTRICITABINE/TENOFOVIR DISOPROXIL

Trade name: Stribild (Gilead)  
Indications: HIV-1 infection  
Class: Antiretroviral, CYP3A inhibitor (cobicistat), Integrase strand transfer inhibitor (elvitegravir), Nucleoside analog reverse transcriptase inhibitor (emtricitabine and tenofovir disoproxil)  
Half-life: 3.5 hours (cobicistat); 13 hours (elvitegravir); 10 hours (emtricitabine); 12–18 hours (tenofovir disoproxil)  
Clinically important, potentially hazardous interactions with: acyclovir, adefovir, amiodarone, amitriptyline, amiodipine, antacids, antiarrhythmic, atorvastatin, azithromycin, bezafibrate, bepridil, beta blockers, bosentan, buprenorphine, buspirone, calcium channel blockers, cefuroxime, clarithromycin, colchicine, dasigianime, dexamethasone, dexamethasone, digoxin, diltiazem, disopyramide, drugs affecting renal function, estazolam, ethosuximide, felodipine, flecainide, flurazepam, fluticasone furoate, fluticasone propionate, ganciclovir, gentamicin, hormonal contraceptives, imipramine, lamivudine, ledipasvir & sofosbuvir, lidocaine, metoprolol, meloxicam, midazolam, naloxone, nefopam, nefopam, non-nucleoside reverse transcriptase inhibitors, nortriptyline, oxcarbazepine, paroxetine hydrochloride, perphenazine, phenobarbital, phenytin, propafenone, protease inhibitors, quinidine, rifabutin, rifapentine, risperidone, salmeterol, sildenafil, SSRIs, taladafil, telithromycin, thioridazine, timolol, trazodone, tricyclic antidepressants, valproic acid, valproic acid, valproic acid, vardenafil, verapamil, voriconazole, warfarin, zolpidem  
Note: See also separate profiles for emtricitabine and tenofovir disoproxil.  
Warning: LACTIC ACIDOSIS/SEVERE HEPATITIS B  
Pregnancy category: B  
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients  
Note: See also separate profiles for emtricitabine and tenofovir disoproxil.  
Warning: LACTIC ACIDOSIS/SEVERE HEPATITIS B  

Skin  
Rash (3%) [3]  
Central Nervous System  
Abnormal dreams (9%) [3]  
Headache (7%) [5]  
Insomnia (3%) [2]  
Vertigo (dizziness) (3%) [3]  
Neuromuscular/Skeletal  
Asthenia (fatigue) (5%) [2]  
Gastrointestinal/Hepatic  
Diarrhea (12%) [6]  
Flatulence (2%)  
Gastrointestinal disorder (2%)  
Hepatotoxicity (2%)  
Nausea (16%) [8]  
Respiratory  
Upper respiratory tract infection (2%)  
Endocrine/Metabolic  
AST increased (2%)  
Serum creatinine increased [2]  
Genitourinary  
Hematuria (3%)  
Renal  
Nephrotoxicity (2%)  
Proteinuria (39%)  
Other  
Adverse effects [5]  

COBIMETINIB

Trade name: Cotellic (Genentech)  
Indications: Melanoma (unresectable or metastatic) in patients with BRAF V600E or V600K mutations, in combination with vemurafenib  
Class: MEK inhibitor  
Half-life: 23–70 hours  
Clinically important, potentially hazardous interactions with: carbamazepine, efavirenz, irinotecan, phenytoin, rifampin, St John's wort, strong or moderate CYP3A inhibitors or inducers

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**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Acneform eruption (16%) [3]
- Basal cell carcinoma (5%)
- Erythema (10%) [2]
- Hyperkeratosis (11%) [3]
- Keratoacanthoma [3]
- Photosensitivity (46%) [8]
- Rash [7]
- Squamous cell carcinoma (6%) [6]

**Hair**
- Alopecia (15%) [3]

**Mucosal**
- Stomatitis (14%) [3]

**Cardiovascular**
- Hypertension (15%)
- Central Nervous System
  - Chills (10%)
  - Fever (28%) [3]

**Neuromuscular/Skeletal**
- Arthralgia [3]
- Asthenia (fatigue) [6]
- Myalgia/Myopathy [2]

**Gastrointestinal/Hepatic**
- Diarrhea (60%) [7]
- Gastrointestinal bleeding (4%)
- Hepatotoxicity [5]
- Nausea (41%) [6]
- Vomiting (24%) [3]

**Respiratory**
- Pneumonitis (<10%)

**Endocrine/Metabolic**
- ALT increased (68%) [3]
- AST increased (73%) [3]
- Creatine phosphokinase increased (79%) [4]
- GGT increased (65%)
- Hyperkalemia (26%)
- Hypoalbuminemia (42%)
- Hypocalcemia (24%)
- Hypokalemia (25%)
- Hyponatremia (38%)
- Hypophosphatemia (68%)
- Serum creatinine increased (100%)

**Genitourinary**
- Hematuria (2%)

**Hematologic**
- Anemia (69%) [3]
- Hemorrhage (13%)
- Lymphopenia (73%)
- Thrombocytopenia (18%)

**Ocular**
- Chorioretinopathy (13%) [3]
- Retinal detachment (12%) [2]
- Vision impaired (15%)

**COCAINEx**

**Indications:**
- Topical anesthesia

**Class:**
- Anesthetic, local, CNS stimulant

**Half-life:**
- 75 minutes

**Clinically important, potentially hazardous interactions with:**
- epinephrine, isobutamol

**Pregnancy category:**
- C (the pregnancy category is X for non-medicinal use)

**Skin**
- Angioedema [3]
- Diaphoresis [3]
- Hyperkeratosis (fingers and palms) [2]
- Necrosis [6]
- Purpura [4]
- Raynaud’s phenomenon [2]
- Scleroderma (reversible) [3]
- Vasculitis [14]

**Mucosal**
- Nasal septal perforation [4]
- Palatal perforation [7]

**Cardiovascular**
- Angina [2]
- Brugada syndrome [3]
- Chest pain [5]
- Myocardial infarction [6]
- Myocardial ischemia [2]

**Central Nervous System**
- Ageusia (taste loss) (>10%)
- Anosmia (>10%)
- Ageusia (taste loss) (>10%)
- Compulsions [2]
- Hallucinations [4]
- Leukoencephalopathy [3]
- Psychosis [2]
- Seizures [6]
- Suicidal ideation [2]
- Tic disorder [2]
- Tremor (<10%)

**Neuromuscular/Skeletal**
- Arthralgia [2]
- Asthenia (fatigue) [6]
- Myalgia/Myopathy [2]

**Genitourinary**
- Priapism [5]
- Renal
- Gleromerulonephritis [2]
- Nephrotoxicity [2]

**Hematologic**
- Agranulocytosis [2]
- Hemolytic uremic syndrome [2]
- Neutropenia [6]

**Otic**
- Hallucinations, auditory [2]

**Ocular**
- Hallucinations, visual [3]

**Other**
- Death [3]

**CODEINE**

**Synonym:** methylmorphine

**Trade names:**
- Halotussin (Watson), Nucofed (Monarch), Robitussin AC (Wyeth), Tussi-Organidin (MedPointe)

**Indications:**
- Pain, cough suppressant

**Class:**
- Opiate agonist

**Half-life:**
- 2.54 hours

**Clinically important, potentially hazardous interactions with:**
- alcohol, cinacalcet, CNS depressants, delavirdine, MAO inhibitors, mianserin, terbinafine, tizanidine

**Pregnancy category:**
- C

**Important contra-indications noted in the prescribing guidelines for:**
- the elderly; nursing mothers; pediatric patients

**Warning:** DEATH RELATED TO ULTRA-RAPID METABOLISM OF CODEINE TO MORPHINE

**Skin**
- Angioedema [2]
- Dermatitis [5]
- Erythema multiforme [4]
- Exanths [6]
- Fixed eruption [6]
- Pruritus [3]
- Rash (<10%)
- Toxic epidermal necrolysis [2]
- Urticaria (<10%) [9]

**Mucosal**
- Xerostomia (<10%)

**Central Nervous System**
- Somnolence (drowsiness) [2]
- Vertigo (dizziness) [2]

**Gastrointestinal/Hepatic**
- Constipation [3]
- Nausea [2]
- Pancreatitis [5]
- Vomiting [2]

**Respiratory**
- Respiratory depression [3]

**Local**
- Injection-site pain (<10%)

**Other**
- Death [5]

**COLCHICINE**

**Indications:**
- Gouty arthritis (in adults), gout, familial Mediterranean fever

**Class:**
- Alkaloid, Anti-inflammatory

**Half-life:**
- 27-31 hours (following multiple doses)

**Clinically important, potentially hazardous interactions with:**
- amiodarone, aripiprazole, atazanavir, atorvastatin, azithromycin, boceprevir, clarithromycin, cobicistat/elvitegravir/ emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, conivaptan, cyanocobalamin, cyclosporine, darunavir, dasatinib, delavirdine, digoxin, diltiazem, efavirenz, erythromycin, fexofenadine, fribates, fluvasatin, gemfibrozil, grapefruit juice, HMG-CoA reductase inhibitors, indinavir, itraconazole, ketoconazole, lapatinib, lopinavir, ombralex/paritaprevir/ritonavir, Pglycoprotein

**Synonym:** melphalan

**Trade names:**
- melphalan

**Indications:**
- Gout, familial Mediterranean fever

**Class:**
- Opiate agonist

**Half-life:**
- 2.54 hours

**Clinically important, potentially hazardous interactions with:**
- alcohol, cinacalcet, CNS depressants, delavirdine, MAO inhibitors, mianserin, terbinafine, tizanidine

**Pregnancy category:**
- C

**Important contra-indications noted in the prescribing guidelines for:**
- the elderly; nursing mothers; pediatric patients

**Warning:** DEATH RELATED TO ULTRA-RAPID METABOLISM OF CODEINE TO MORPHINE

**Skin**
- Angioedema [2]
- Dermatitis [5]
- Erythema multiforme [4]
- Exanths [6]
- Fixed eruption [6]
- Pruritus [3]
- Rash (<10%)
- Toxic epidermal necrolysis [2]
- Urticaria (<10%) [9]

**Mucosal**
- Xerostomia (<10%)

**Central Nervous System**
- Somnolence (drowsiness) [2]
- Vertigo (dizziness) [2]

**Gastrointestinal/Hepatic**
- Constipation [3]
- Nausea [2]
- Pancreatitis [5]
- Vomiting [2]

**Respiratory**
- Respiratory depression [3]

**Local**
- Injection-site pain (<10%)

**Other**
- Death [5]
inhibitors or inducers, pravastatin, protease inhibitors, ritonavir, rosuvastatin, saxagliptin, simvastatin, strong CYP3A4 inhibitors, telithromycin, troateomycin, verapamil, voriconazole

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly

Note: Contra-indicated in patients with renal or hepatic impairment where P-glycoprotein or strong CYP3A4 inhibitors are also prescribed.

Skin
Pruritus [2]
Staphylococcal scalded skin syndrome [2]
Toxic epidermal necrolysis [3]
Vasculitis [2]

Hair
Alopecia (<10%) [6]

Central Nervous System
Headache (2%)
Neurotoxicity [3]

Neuromuscular/Skeletal
Asthenia (fatigue) (<4%)
Gouty tophi (4%)
Myalgia/Myopathy [20]
Rhabdomyolysis [18]

Gastrointestinal/Hepatic
Abdominal pain (<20%) [2]
Diarrhea (23%) [6]
Gastrointestinal disorder [2]
Nausea (<20%) [3]
Vomiting (<20%) [4]

Respiratory
Pharyngolaryngeal pain (3%)

Other
Adverse effects [6]
Death [3]
Side effects (14%)

COLESEVELAM

Trade names: Cholestagel (Genzyme), Welchol (Sanyko)
Indications: Hypercholesterolemia, hyperlipidemia, Type II diabetes mellitus
Class: Bile acid sequestrant
Half-life: N/A
Clinically important, potentially hazardous interactions with: cyclosporine, deferasirox, estradiol, glyburide, lovastatin, niacin, phenytoin, warfarin
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: pediatric patients
Note: Contra-indicated in patients with a history of bowel obstruction, with serum triglyceride concentrations >500 mg/dL or with a history of hypertriglyceridemia-induced pancreatitis.

Cardiovascular
Hypertension (3%)

Central Nervous System
Headache [2]

CONIVAPTAN

Trade name: Vaprisol (Astellas)
Indications: Hyponatremia, SIADH
Class: CYP3A4 inhibitor, Vasopressin receptor antagonist
Half-life: 5 hours
Clinically important, potentially hazardous interactions with: acetaminophen, alendazole, afluzosin, almotriptan, alprazolam, amipiptidine, amiodarone, antifungals, aprepitant, artemether/lumefantrine, astorvastatin, bexarotene, bortezomib, brivatein, brinzolamide, bupivacaine, cabazitaxel, cabozantinib, ciclesonide, ciprofloxacin, citalopram, cyclosporine, CYP3A4 inhibitors or substrates, darunavir, dasatinib, deferasirox, delavirdine, dexamethasone, docetaxel, dronedarone, dutasteride, efavirenz, enalapril, eplerenone, estradiol, eszopiclone, everolimus, fentanyl, fesoterodine, fingolimod, filgrastim, gefitinib, gefitinib, glucagon, halofantrine, haloperidol, irinotecan, itraconazole, ibuprofen, ketonozole, lapatinib, lomitapide, maraviroc, meloxicam, metolazone, methylprednisolone, micafungin, midazolam, midostaurin, milrinone, mometasone, narmatadine, nitrofurantoin, olmesartan, pantoprazole, paricalcitol, pazopanib, pimecrolimus, pioglitazone, ponatinib, prasugrel, ramelteon, ranolazine, ribociclib, ritonavir, rivaroxaban, roxidine, rosuvastatin, ruxolitinib, simvastatin, sorafenib, St John’s wort, talassal, tamsulosin, telithromycin, tensirolimus, terbinafine, tiagabine, ticamim, tobramycin, tolbutamide, tolvaptan, trifluridine, trimethoprim, ulipristal, vardenafil, venetoclax, vorapaxar, voriconazole, zopiclone
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Erythema (3%)
Peripheral edema (3–8%)
Pruritus (<5%)

Mucosal
Oral candidiasis (2%)
Xerostomia (4%)

Cardiovascular
Atrial fibrillation (2–5%)
Hypertension (6–8%)
Hypotension (5–8%) [4]
Orthostatic hypotension (6–14%)
Phlebitis (32–51%)

Central Nervous System
Confusion (<5%)
Fever (5–11%) [2]
Headache (8–10%)
Insomnia (4–5%)

Gastrointestinal/Hepatic
Constipation (6–8%)
Diarrea (<7%)
Nausea (3–5%)
Vomiting (5–7%)

Respiratory
Pharyngolaryngeal pain (<5%)

COLESTIPOL

See: www.drugeruptiondata.com/dlug/id/179

COLISTIN

See: www.drugeruptiondata.com/drug/id/1144

COLLAGEN (BOVINE)

Trade names: Bellafil (Suneva), Zyderm (Inamed), Zyplast (Inamed)
Indications: Cataract surgery (collagen shields), depressed cutaneous scars, facial lines, wrinkles, glaucoma, histologic insufficiency, hyaluronidase, urinary incontinence
Class: Protein
Half-life: Several months to years
Clinically important, potentially hazardous interactions with: argenze, averten
Pregnancy category: N/A
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: A reaction to the anesthetic, lidocaine, in liquid collagen injections may occur. Artecoll and Bellafil contain polymethyl-methacrylate microspheres.

Skin
Abscess [2]
Chung-strauss syndrome [7]
Dermatomyositis [3]
Edema [2]
Erythema [3]
Graft-versus-host reaction [2]
Hypersensitivity [10]
Induration [3]
Panniculitis [2]
Neuromuscular/Skeletal
Arthralgia [2]
Polyneuropathy [3]
Other
Adverse effects [12]
Allergic reactions [7]
CRIZOTINIB

Hematologic
- Hemoglobin decreased (78%)
- Hyperlipasemia (21%)
- Leukopenia (36%)
- Lymphocytopenia (78%)
- Neutropenia (32%)
- Thrombocytopenia (22%)

Other
- Infection (21%)

CORTISONE

Trade name: Cortone (Merck)

Indications: Arthralgia, dermatoses

Class: Corticosteroid

Half-life: N/A

Clinically important, potentially hazardous interactions with: chlorpropamide, diuretics, ethambutol, live vaccines, pancuronium, rifampin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Neuromuscular/Skeletal
- Osteonecrosis [15]
- Osteoporosis [10]

Local
- Tendinopathy/Tendon rupture [2]

Ocular
- Cataract [5]
- Glaucoma [8]

Other
- Adverse effects [2]

CRISABOROLE *

Trade name: Eucrisa (Pfizer)

Indications: Atopic dermatitis

Class: Phosphodiesterase type 4 (PDE4) inhibitor

Half-life: N/A

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: N/A (No available data)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Rash (15%)

Mucosal
- Mucosal inflammation (8%)
- Stomatitis (14%)

Cardiovascular
- Hypertension (26%) [2]

Central Nervous System
- Dysesthesia (7%)
- Paresthesias (7%)

Neuromuscular/Skeletal
- Asthenia (fatigue) (36%)

Gastrointestinal/Hepatic
- Diarrhea (36%)
- Nausea (26%)
- Vomiting (13%)

Respiratory
- Pneumonitis (9%)

Endocrine/Metabolic
- Hyperglycemia (54%) [3]
- Hypertriglyceridemia (58%)
- Hyperuricemia (25%)
- Hypophosphatemia (44%)

Hematologic
- Hemoglobin decreased (78%)
- Hyperlipasemia (21%)
- Leukopenia (36%)
- Lymphocytopenia (78%)
- Neutropenia (32%)
- Thrombocytopenia (22%)

Other
- Infection (21%)

COPANLISIB *

Trade name: Alitoppa (Bayer)

Indications: Relapsed follicular lymphoma in adult patients who have received at least two prior systemic therapies

Class: Kinase inhibitor

Half-life: 39 hours

Clinically important, potentially hazardous interactions with: boceprevir, carbamazepine, clarithromycin, cobicistat, conivaptan, danoprevir, dasabuvir/ombitasvir/paritaprevir/ritonavir, diltiazem, elvitegravir, efavirenz, ergotamine, fentanyl, grapefruit juice, idelalisib, indinavir, irtraconazole, ketoconazole, lopinavir, mitotane, nefazodone, nelfinavir, phenytoin, posaconazole, rifampin, ritonavir, saquinavir, St John’s wort, strong CYP3A inhibitors and inducers, tipranavir, troleandomycin, voriconazole

Pregnancy category: N/A (Can cause fetal harm)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Rash (15%)

Mucosal
- Mucosal inflammation (8%)

Cardiovascular
- Hypertension (26%) [2]

Central Nervous System
- Dysesthesia (7%)

Neuromuscular/Skeletal
- Osteonecrosis [15]
- Osteoporosis [10]

Local
- Tendinopathy/Tendon rupture [2]

Ocular
- Cataract [5]
- Glaucoma [8]

Other
- Adverse effects [2]

Eucrisa (Pfizer)

Trade name: Xalkori (Pfizer)

Indications: Advanced or metastatic non-small cell lung cancer in ALK-positive patients

Class: Tyrosine kinase inhibitor

Half-life: 42 hours

Clinically important, potentially hazardous interactions with: alanotin, atazanavir, carbamazepine, clarithromycin, cyclosporine, CYP3A inhibitors or inducers, CYP3A substrates, dihydroergotamine, efavirenz, ergotamine, fentanyl, grapefruit juice, indinavir, irtraconazole, ketoconazole, neazofedone, nefazodone, nelfinavir, nelatibin, olaparib, phenobarbital, phenytoin, pimozide, quinidine, rifabutin, ritonavir, saquinavir, sirolimus, St John’s wort, tacrolimus, telithromycin, troleandomycin, voriconazole

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Edema (30%) [11]
- Peripheral edema [6]
- Photosensitivity [2]
- Rash (16%) [4]

Mucosal
- Stomatitis (11%)

Cardiovascular
- Bradycardia (5%) [6]
- Chest pain (12%)
- QT prolongation [6]

Central Nervous System
- Dysesthesia (taste perversion) (13%) [5]
- Fever (12%)
- Headache (13%)
- Insomnia (12%)
- Neurotoxicity (23%)
- Vertigo (dizziness) (24%) [5]

Neuromuscular/Skeletal
- Arthralgia (11%)
- Asthenia (fatigue) (31%) [8]
- Back pain (11%) Bono or joint pain [2]

Gastrointestinal/Hepatic
- Abdominal pain (16%)
- Constipation (38%) [13]
- Diarrhea (49%) [23]
- Dyspepsia [3]
- Dysphagia [3]
- Esophagitis [8]
- Gastroesophageal reflux [2]
- Hepatitis [2]
- Nausea (57%) [22]
- Vomiting (45%) [22]

Respiratory
- Cough (21%)
- Dyspnea (22%)
- Pneumonitis [6]
- Pulmonary toxicity [9]
- Upper respiratory tract infection (20%)

Endocrine/Metabolic
- ALT increased (15%) [11]
- Appetite decreased (27%) [4]
- AST increased (11%) [9]
- Dehydration [2]
- Hypocalcemia [2]
- Hypogonadism [6]
- Hypophosphatemia [5]

Renal
- Nephrotoxicity [8]

Hematologic
- Anemia [3]
- Lymphopenia (11%) [5]
- Neutropenia (5%) [9]

Ocular
- Diplopia [2]
- Ocular adverse effects (64%) [13]
- Photophobia [2]
**CRIZOTINIB**

Photopsia [3]  
Reduced visual acuity [2]  
Vision blurred [4]  
Vision impaired [3]  
Visual disturbances [15]  
Vitreous floaters [2]  

**Other**  
Adverse effects [5]  
Death [2]

**CROMOLYN**

*Synonym:* Vitamin B₁₂  
*Trade name:* NascoBol (Nastech)  
*Indications:* Vitamin B₁₂ deficiency, pernicious anemia  
*Class:* Vitamin  
*Half-life:* 6 days  
*Clinical importance:* Potentially hazardous interactions with: colchicine  
*Pregnancy category:* C  

**Skin**  
Acneform eruption [8]  
Anaphylactoid reactions/Anaphylaxis [6]  
Dermatitis [2]  
Exanthems [3]  
Hypersensitivity [2]  
Mucosal edema [2]  
Nausea (<3%)  
Other reactions [3]

**CYANOCOBALAMIN**

*Trade name:* Fulyzaq (Salix)  
*Indications:* Non-infectious diarrhea in adult patients with HIV/AIDS on anti-retroviral therapy  
*Class:* Proanthocyanidin oligomer  
*Half-life:* N/A  
*Clinical importance:* Derived from the red latex of Croton lechleri which is also known as Sangre de Drago or dragon’s blood.

**Other**  
Infection (giardiasis) (2%)  

**CROFELEMER**

*Trade name:* Fulyzaq (Salix)  
*Indications:* Non-infectious diarrhea in adult patients with HIV/AIDS on anti-retroviral therapy  
*Class:* Proanthocyanidin oligomer  
*Half-life:* N/A  
*Clinical importance:* Potentially hazardous interactions with: none known  
*Pregnancy category:* C  

**Important contra-indications noted in the prescribing guidelines for:**  
the elderly; nursing mothers; pediatric patients  

**Note:** Derived from the red latex of Croton lechleri which is also known as Sangre de Drago or dragon’s blood.

**Skin**  
Acneform eruption (≤2%)  
Herpes zoster (≤2%)  
Mucosal edema (≤2%)  

central nervous system (≤2%)  

ergvocid form (≤2%)  

**Other**  
Adverse effects [5]

**CYCLAMATE**

*Synonym:* CPM; CTX; CYT  
*Trade names:* Cytoxan (Mead Johnson), Neosar (Gensia)  
*Indications:* Lymphomas, minimal change nephrotic syndrome in pediatric patients  
*Class:* Alkylating agent  
*Half-life:* 3–12 hours  
*Clinical importance:* Potentially hazardous interactions with: aldesleukin, azathioprine, belimumab, clozapine, cyclophosphamide, cyclosporine, dexamethasone, etanercept, belimumab, cyclopenthiazide, iraconazole, mycophenolate, pentostatin, prednisone, vaccines  
*Pregnancy category:* B  

**Important contra-indications noted in the prescribing guidelines for:**  
the elderly; nursing mothers  

**Note:** Contra-indicated in patients with urinary outflow obstruction.

**Skin**  
Acral erythema [3]  
Anaphylactoid reactions/Anaphylaxis [3]  
Dermatitis [2]  
Edema [5]  
Exanthems [4]  
Graft-versus-host reaction [2]  
Hand-foot syndrome [10]  
Hypersensitivity [6]  
Kaposi’s sarcoma [2]  
Lupus erythematosus [2]  
Lymphoma [4]  
Malignancies [2]  
Mycophenolate [2]  
Pigmentation [16]  
Radiation recall dermatitis [6]  
Rash (<10%) [6]  
Scleroderma [2]  
Squamous cell carcinoma [2]  
Stevens-Johnson syndrome [2]  
Toxicity [6]  
Urticaria [8]  
Vasculitis [2]

**Other**  
Hair  
Alopecia [28]  

**CYCLOBENZAPRINE**

*Trade name:* Flexeril (McNeil)  
*Indications:* Muscle spasms  
*Class:* Central muscle relaxant  
*Half-life:* 8–37 hours  
*Clinical importance:* Potentially hazardous interactions with: acetylcholinesterase inhibitors, anticholinergics, barbiturates, cisapride, CNS depressants, conivaptan, CYP1A2 inhibitors, droperidol, levomepromazine, linezolid, MAO inhibitors, phenindermazine, pramlintide, safinamide  

**Pregnancy category:** B  

**Important contra-indications noted in the prescribing guidelines for:**  
the elderly; nursing mothers; pediatric patients  

**Skin**  
Acneform eruption [8]  
Anaphylactoid reactions/Anaphylaxis [6]  
Dermatitis [2]  
Exanthems [3]  
Hypersensitivity [2]  
Mucosal edema [2]  
Nausea (<3%)  
Other [3]

**CYCLOPENTHIAZIDE**

*Synonyms:* CPM; CTX; CYT  
*Trade names:* Cytoxan (Mead Johnson), Neosar (Gensia)  
*Indications:* Lymphomas, minimal change nephrotic syndrome in pediatric patients  
*Class:* Alkylating agent  
*Half-life:* 3–12 hours  
*Clinical importance:* Potentially hazardous interactions with: aldesleukin, azathioprine, belimumab, clozapine, cyclophosphamide, cyclosporine, dexamethasone, etanercept, belimumab, cyclopenthiazide, iraconazole, mycophenolate, pentostatin, prednisone, vaccines  
*Pregnancy category:* B  

**Important contra-indications noted in the prescribing guidelines for:**  
the elderly; nursing mothers  

**Note:** Contra-indicated in patients with urinary outflow obstruction.

**Skin**  
Acral erythema [3]  
Anaphylactoid reactions/Anaphylaxis [3]  
Dermatitis [2]  
Edema [5]  
Exanthems [4]  
Graft-versus-host reaction [2]  
Hand-foot syndrome [10]  
Hypersensitivity [6]  
Kaposi’s sarcoma [2]  
Lupus erythematosus [2]  
Lymphoma [4]  
Malignancies [2]  
Mycophenolate [2]  
Pigmentation [16]  
Radiation recall dermatitis [6]  
Rash (<10%) [6]  
Scleroderma [2]  
Squamous cell carcinoma [2]  
Stevens-Johnson syndrome [2]  
Toxicity [6]  
Urticaria [8]  
Vasculitis [2]  

**Hair**  
Alopecia [28]
Cyclosporine

**Trade name:** Seromycin (Lilly)  
**Indications:** Tuberculosis  
**Class:** Antibiotic  
**Half-life:** 10 hours

Clinically important, potentially hazardous interactions with: none known

**Pregnancy category:** C

**Clinical contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**  
- Dermatitis [2]  
- Exanthems [4]  
- Lichenoid eruption [2]

**Mucosal**  
- Gingival hyperplasia/hypertrophy [3]

**Central Nervous System**  
- Depression [2]  
- Seizures [4]  
- Psychosis [2]

**Respiratory**  
- Rhinitis [4]

**Gastrointestinal/Hepatic**  
- Diarrhea [8]  
- Nausea [10]  
- Vomiting [11]  

**Central Nervous System**  
- Migraine [3]

**Cardiovascular**  
- Cardiotoxicity [6]

**Neuromuscular/Skeletal**  
- Myalgia/Myopathy [7]

**Skin**  
- Acne keloid [2]  
- Acneform eruption [7]  
- Malignancies [2]

**Other**  
- Adverse effects [4]

**Cyclosperine**

**Synonyms:** CSA, CyA

**Trade names:** Neoral (Novartis), Retais [Allergan], Sandimmune (Novartis)  
**Indications:** Rheumatoid arthritis, prophylaxis of organ rejection in transplants, psoriasis, Restasis is indicated for patients with moderate-to-severe dry eye syndrome  
**Class:** Calcineurin inhibitor, Disease-modifying antirheumatic drug (DMARD), Immunosuppressant  
**Half-life:** 1027 hours (adults)

Clinically important, potentially hazardous interactions with: aflatoxin, aminadione, amiodarone, amphotericin B, ampicillin, ampicillin, amnion, anoglycosides, amnion, anticoagulants, ammodafinil, ativan, atorvastatin, azathioprine, azithromycin, bacampicillin, basiliximab, benazepiril, bezafibrate, boceprevir, bosentan, bupropion, cephalosporin, ceritinib, cholestyramine, cholic acid, choline fendofibrate, citalopram, ciprofloxacin, clarithromycin, clocloxacin, co-trimoxazole, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, colchicine, colsevelam, corticosteroid, corticosteroid, crotizotinib, cyclophosphamide, dabigatran, daluzumab, danazol, daptomycin, darolin, darunavir, dasatinib, delavirdine, dichlorphenamide, diclofenac, dicloxacillin, dicumarol, digoxin, diltiazem, disulfiram, docetaxel, doxycycline, dronedarone, echinacea, efavirenz, ebavirin & grazeqrephep, eudoxalmine, enalapril, enalapril, enalaprilat, erythromycin, ethothin, etoside, etoricoxib, everolimus, ezetimibe, flumisal, floxymesterone, fluvastatin, fosarnet, fosinopril, fosphenytoin, gemfibrozil, gleciprevir & pibrentasvir, grapefruit juice, Hemophilus B vaccine, HMG-CoA reductase inhibitors, imatinib, imipenem/cilastatin, indinavir, influenza vaccine, irbesartan, iraconazole, ketoconazole, lanreotide, levofloxacin, lisinopril, lopinavir, lovastatin, meloxicam, mephenytoin, methicillin, methoxsalen, methylprednisolone, methyltestosterone, mezlocillin, micafungin, mifepristone, mizolastine, moxifloxacin, myocophenolate, nafillin, naldemedine, natalizumab, neflinavir, neronatin, nevirapine, nifedipine, nisoldipine, norfloxacin, NSAIDs, olofloxacin, olmesartan, omeprazole, orlistat, osimertinib, oxacillin, oxcarbazepine, paclitaxel, penicillin, phenytoin, pitavastatin, posaconazole, pravastatin, prednisolone, prednisone, pristimycin, quinapril, rabeprazole, ramipril, ranolazine, ribociclib, rifabutin, rifampicin, rilpam, ritonavir, rosuvastatin, sevelamer, silodis, simvastatin, sirolimus, sofosbuvir/velpatasvir/voxilaprevir, spirinolactone, St John's wort, sulfacetamide, sulfadiazine, sulfmethoxazole, sulfisoxazole, sulfonamides, tacrolimus, telithromycin, temsirolimus, tenexcam, terbinafine, testosterone, ticarcillin, tinidazole, tipaprin, tofacinib, tolvaptan, trabectedin, trandolapril, triamterene, trimethoprim, troleandomycin, ursodiol, vaccines, vecuronium, venoctax, voriconazole, warfarin, zofenopil

**Pregnancy category:** C

**Clinical contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Restasis is an ophthalmic emulsion.
Androgen antagonist, Progesterone agonist

DepoCyt is a liposomal formulation.

MCNOSAL

Aphthous stomatitis [2]

Gingival hyperplasia/hyper trophy (2-6%) [157]

Gingivitis (3-4%)

Oral ulceration [2]

Rectal hemorrhage (<3%) [2]

Stomatitis (5-7%) [33]

Cardiovascular

Arrhythmias (2-5%)

Capillary leak syndrome [2]

Chest pain (4-6%)

Flushing (2-5%) [5]

Hypertension (8-28%) [26]

CENTRAL NERVOUS SYSTEM

Anorexia (3%)

Depression (<6%)

Dysesthesia [2]

Epilepsy [4]

Fever (3-6%)

Headache (14-25%) [4]

Insomnia (<4%)

Dyspnea (4-6%)

Central Nervous System

DepoCyt is a liposomal formulation.

Thrombophlebitis (>10%)

Stomatitis (>10%)

Oral lesions [5]

Mucositis [3]

Hepatotoxicity [9]

Nausea (6-23%)

Vomiting (6-9%)

Respiratory

Bronchitis (<3%)

Bronchospasm (5%)

Cough (3-5%)

Dyspnea (<5%)

Influenza (<10%)

Pharyngitis (3-4%)

Pneumonia (<4%)

Rhinitis (<5%)

Sinusitis (3-4%)

Upper respiratory tract infection (8-15%)

Endocrine/Metabolic

Diabetes mellitus [2]

Gynecomastia (>3%) [3]

Hypertension/Cerebrovascular [2]

Hypogammaglobulinemia (4-6%)

Menstrual irregularities (<3%)

 Serum creatinine increased (16-43%) [4]

Genitourinary

Urinary frequency (2-4%)

Urinary tract infection (3%)

Renal

Nephrotic syndrome [94]

Renal function abnormal [2]

Hemolytic uremic syndrome [17]

Leukopenia [2]

Neutropenia [2]

Ocular

Hallucinations, visual [2]

Ocular burning (Restasis) (17%)

Papilledema [2]

Other

Adverse effects [19]

Infection [6]

CYCLOSPORINE

Over 100 updates per week on www.drugeruptiondata.com

See: www.drugeruptiondata.com/drug/id/188

Respiratory

Dyspnea [4]

CYSTEAMINE

See: www.drugeruptiondata.com/drug/id/2637

CYTARABINE

Synonym: ara-C

Trade names: Cytosar-U (Sicor), DepoCyt (Pacira)

Indications: Leukemias

Class: Antimetabolite, Antineoplastic, Antiviral

Half-life: initial: 1015 minutes

Clinically important, potentially hazardous interactions with: aldesleukin

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: DepoCyt is a liposomal formulation.

Vasculitis, a part of the cytarabine syndrome, consists of fever, malaise, myalgia, conjunctivitis, arthralgia and a diffuse erythematous maculopapular eruption that occurs from 6-12 hours following the administration of the drug.

Warning: DepoCyt: CHEMICAL ARACHNOIDITIS ADVERSE REACTIONS

Skin

Acral erythema [16]

Anaphylactoid reactions/Anaphylaxis [3]

Ephedrines (<10%)

Erythema [5]

Exanthems [7]

Hand-foot syndrome [21]

Herpes zoster [3]

Hypersensitivity [2]

Neutrophilic eccrine hidradenitis [11]

Pruritus (<10%)

Rash (>10%) [4]

Seborrheic keratoses (inflammation of)

(Toxoid-Cervical syndrome) [2]

Toxic epidermal necrolysis [2]

Toxicity [5]

Vasculitis [3]

Hair

Alopecia (<10%) [5]

Nails

Leukonychia (Meese’s lines) [2]

Mucosal

X (not indicated for use in women)

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Skin

Tumors [3]

Cardiovascular

Venous thromboembolism [2]

Neuromuscular/Skeletal

Osteoporosis [2]

Gastrointestinal/Hepatic

Hepatotoxicity [24]

Respiratory

Dyspnea [4]
Neuromuscular/Skeletal
- Myalgia/Myopathy (<10%)
- Rhabdomyolysis [3]

Gastrointestinal/Hepatic
- Diarrhea [5]
- Hepatotoxicity [5]
- Nausea [4]
- Pancreatitis [5]
- Vomiting [4]

Respiratory
- Pneumonia [3]

Endocrine/Metabolic
- Hypokalemia [2]

Hematologic
- Anemia [2]
- Bleeding [2]
- Febrile neutropenia [8]
- Hemotoxicity [3]
- Leukopenia [2]
- Myelosuppression [3]
- Neutropenia [7]
- Sepsis [2]

Other
- Thrombocytopenia [5]
- Ocular adverse effects [2]
- Injection-site cellulitis (<10%)
- Adverse effects [5]
- Death [4]
- Infection [6]
# DABIGATRAN

**Trade name:** Pradaxa (Boehringer Ingelheim)  
**Indications:** Prevention of venous thromboembolic events, reduce stroke risk  
**Class:** Anticoagulant, Thrombin inhibitor  
**Half-life:** 2.5 days  
**Clinically important, potentially hazardous interactions with:** amiodarone, antacids, anticoagulants, atorvastatin, carbamazepine, clarithromycin, clopidogrel, collagenase, cyclosporine, darunavir, dasatinib, deferasirox, desirudin, dextran, diclofenac, dronedarone, fondaparinux, heparin, ibritumomab, iraconazole, ketoconazole, ketorolac, lapatinib, meloxicam, nandrolone, neratinib, NSAIDs, P-glycoprotein inhibitors and inhibitors, pantoprazole, pentosan, phenytoin, polysulfate sodium, prostacyclins analogues, proton pump inhibitors, quinidine, rifampin, rivaroxaban, sodium, prostacyclin analogues, proton pump inhibitors, ticlopidine, tipranavir, tositumomab & iodine

**Pregnancy category:** D  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Warning:** DISCONTINUING PRADAXA IN PATIENTS WITHOUT ADEQUATE CONTINUOUS ANTICOAGULATION INCREASES RISK OF STROKE

### Skin
- Bruising (<10%)
- Exanthems [2]
- Rash [2]

### Mucosal
- Epistaxis (nosebleed) [2]

### Cardiovascular
- Myocardial infarction [5]

### Central Nervous System
- Headache [2]
- Intracranial hemorrhage [4]
- Subarachnoid hemorrhage [2]

### Gastrointestinal/Hepatic
- Abdominal pain [2]
- Dyspepsia (11%) [7]
- Esophagitis [3]
- Gastritis [2]
- Gastrointestinal bleeding (6%) [10]

### Renal
- Renal failure [4]

### Hematologic
- Anemia (<4%) [2]
- Anticoagulation [2]
- Hemorrhage [9]
- Thrombosis [3]

### Other
- Adverse effects [6]
- Death [6]

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# DABRAFENIB

**Trade name:** Tafinlar (Novartis)  
**Indications:** Melanoma (unresectable or metastatic) in patients with BRAF V600E mutation  
**Class:** BRAF inhibitor, Kinase inhibitor  
**Half-life:** 8 hours  
**Clinically important, potentially hazardous interactions with:** strong CYP3A4 or CYP2C8 inducers or inhibitors

**Pregnancy category:** D  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### Skin
- Acneform eruption [4]
- Actinic keratoses [3]
- Basal cell carcinoma [4]
- Bullae (<10%)
- Erythema [2]
- Exanthems [2]
- Grover’s disease [4]
- Hand-foot syndrome (20%) [6]
- Hyperkeratosis (37%) [12]
- Hypersensitivity (<10%)
- Keratoacanthoma (7%) [7]
- Keratitis [4]
- Lesions [2]
- Malignant melanoma (2%)  
- Panniculitis [6]
- Papillomas (27%) [4]
- Papillomas [27%] [4]
- Peripheral edema [2]
- Photosensitivity [7]
- Pruritus [3]
- Rash (17%) [5]
- Seborrheic keratoses [2]
- Squamous cell carcinoma (7%) [17]
- Toxicity [4]
- Xerosis [4]

### Hair
- Alopecia (22%) [7]
- Hair changes [2]

### Cardiovascular
- Chest pain [2]
- Hypertension [3]

### Central Nervous System
- Chills [4]
- Fever (28%) [20]
- Headache (32%) [7]
- Intracranial hemorrhage [3]

### Neuromuscular/Skeletal
- Arthralgia (27%) [9]
- Asthenia (fatigue) [12]
- Back pain (12%)
- Myalgia/Myalgia/Myopathy (11%) [2]

### Gastrointestinal/Hepatic
- Abdominal pain [2]
- Constipation (11%) [2]
- Diarrhea [3]
- Nausea [8]
- Pancreatitis (10%)
- Vomiting [6]

### Respiratory
- Cough (12%) [2]
- Nasopharyngitis (10%)

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# DACARBAZINE

**Synonym:** DIC  
**Trade name:** DTIC-Dome (Bayer)  
**Indications:** Malignant melanoma, carcinomas  
**Class:** Alkylating agent, Antineoplastic  
**Half-life:** 5 hours  
**Clinically important, potentially hazardous interactions with:** aldesleukin

**Pregnancy category:** D  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

### Skin
- Anaphylactoid reactions/Anaphylaxis (<10%)
- Hypersensitivity [2]
- Photosensitivity [10]
- Rash (<10%) [2]
- Urticaria [2]

### Hair
- Alopecia (<10%) [3]

### Mucosal
- Stomatitis (48%)

### Cardiovascular
- Flushing (<10%) [2]

### Central Nervous System
- Dysgeusia (taste perversion) (<10%)

### Neuromuscular/Skeletal
- Asthenia (fatigue) (75%) [4]
- Myalgia/Myalgia/Myopathy (<10%)

### Gastrointestinal/Hepatic
- Hepatotoxicity [3]
- Nausea [3]
- Vomiting [2]

### Respiratory
- Flu-like syndrome [2]

### Endocrine/Metabolic
- ALP increased (19%) [2]
- ALT increased [3]
- Appetite decreased [3]
- AST increased [3]
- Hyperglycemia (50%)
- Hyponatremia (8%) [2]
- Hypophosphatemia (37%)

### Renal
- Nephrotoxicity (<10%) [2]

### Hematologic
- Anemia [5]
- Leukopenia [2]
- Neutropenia [4]

### Other
- Adverse effects [7]
Other

Adverse effects [7]

**DACLATASVIR**

Trade name: Daklinza (Bristol-Myers Squibb)
Indications: Hepatitis C (in combination with sofosbuvir)
Class: Direct-acting antiviral, Hepatitis C virus NS5A inhibitor
Half-life: 12–15 hours
Clinically important, potentially hazardous interactions with: amiodarone, carbamazepine, dabigatran, phenytoin, rifampin, St John's wort
Pregnancy category: N/A (No data available)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: See also separate entry for sofosbuvir.

**Skin**
- Pruritus [3]
- Rash [2]

**Central Nervous System**
- Fever [4]
- Headache (14%) [17]
- Insomnia [4]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (14%) [14]

**Gastrointestinal/Hepatic**
- Abdominal pain [2]
- Diarrhea (3%) [10]
- Nausea (8%) [12]

**Respiratory**
- Nasopharyngitis [2]

**Endocrine/Metabolic**
- ALT increased [10]
- AST increased [4]

**Hematologic**
- Anemia [6]
- Lymphopenia [2]
- Neutropenia [3]
- Thrombocytopenia [2]

**Other**
- Adverse effects [8]

**DACLIZUMAB**

Trade names: Zenapax (Roche), Zinbryta (Biogen)
Indications: Transplant rejection (Zenapax), relapsing forms of multiple sclerosis (Zinbryta)
Class: Immunosuppressant, Monoclonal antibody
Half-life: 11–38 days
Clinically important, potentially hazardous interactions with: corticosteroids, cyclosporine, Hemophilus B vaccine, methylprednisolone, mycophenolate, prednisolone

**Endocrine/Metabolic**
- ALT increased [2]
- AST increased [2]
- Dehydration (2–5%)
- Diabetes mellitus (2–5%)

**Genitourinary**
- Urinary retention (2–5%)
- Urinary tract infection [2]

**Renal**
- Nephrotoxicity (2–5%)

**Hematologic**
- Hemorrhage (2–5%)
- Thrombosis (2–5%)

**Ocular**
- Vision blurred (2–5%)

**Local**
- Application-site reactions (2–5%)

**Other**
- Adverse effects [4]
- Infection [7]

**DACTINOMYCIN**

Synonyms: ACT; actinomycin-D
Trade name: Cosmegen (Merck)
Indications: Melanomas, sarcomas
Class: Antibiotic, anthracycline
Half-life: 36 hours
Clinically important, potentially hazardous interactions with: aldesleukin
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Note: Contra-indicated in patients with chickenpox or herpes zoster infection.

**Skin**
- Acneform eruption (>10%) [6]
- Erythema [2]
- Folliculitis [2]
- Pigmentation [4]
- Pruritus [2]
- Pustules [2]
- Radiation recall dermatitis (>10%) [4]

**Hair**
- Alopecia (>10%)

**Mucosal**
- Oral lesions [3]

**Hematologic**
- Febrile neutropenia [2]
- Neutropenia [2]
- Thrombocytopenia [2]

**Other**
- Injection-site extravasation (>10%)
- Injection-site necrosis (>10%)
- Injection-site phlebitis (>10%)

**DALBAVANCIN**

See: www.drugeruptiondata.com/drug/id/1323
DALFAMPRIDINE

Synonym: 4-aminopyridine
Trade name: Ampyra (Acorda)
Indications: Multiple sclerosis (to improve walking)
Class: Potassium channel blocker
Half-life: 5–6.5 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with a history of seizure, or with moderate or severe renal impairment.

Central Nervous System
Neuromuscular/Skeletal  Asthenia (fatigue) (7%) [3]  Back pain (5%)  Gastrointestinal/Hepatic  Constipation (3%)  Dyspepsia (2%)  Nausea (7%) [4]
Respiratory  Nasopharyngitis (4%)  Pharyngolaryngeal pain (2%)
Genitourinary  Urinary tract infection (12%) [2]
Other  Adverse effects [4]

DALTEPARIN

Trade name: Fragmin (Pfizer)
Indications: Prophylaxis of deep vein thrombosis
Class: Heparin, low molecular weight
Half-life: 48 hours
Clinically important, potentially hazardous interactions with: butabarbital, danaparoid
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: SPINAL/EPIDURAL HEMATOMA

Skin
Anaphylactoid reactions/Anaphylaxis (<10%) [2]  Bullous dermatis ( <10%)  Pruritus (<10%)  Rash (<10%)
Hair  Alopecia [2]
Local  Injection-site hematoma (<10%)

DANAPAROID

See: www.drugeruptiondata.com/drug/id/835

DANAZOL

Indications: Endometriosis, fibrocystic breast disease
Class: Pituitary hormone inhibitor
Half-life: ~4.5 hours
Clinically important, potentially hazardous interactions with: acenocoumarol, acetretin, atorvastatin, cyclosporine, insulin aspart, insulin glargine, insulin degludec, insulin detemir, insulin glulisine, oral contraceptive, paricalcitol, simvastatin, tacrolimus, warfarin
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Hair  Alopecia [3]  Hirsutism (<1%) [5]
Respiratory  Flushing [3]
Neuromuscular/Skeletal  Rhabdomyolysis [5]
Gastrointestinal/Hepatic  Pneumonitis [4]

DAPAGLIFLOZIN

Trade name: Farxiga (AstraZeneca), Qtern (AstraZeneca), Xigduo XR (AstraZeneca)
Indications: Type II diabetes mellitus
Class: Sodium-glucose co-transporter 2 (SGLT2) inhibitor
Half-life: 13 hours
Clinically important, potentially hazardous interactions with: pioglitazone
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Note: Contra-indicated in patients with severe renal impairment, end-stage renal disease, or undergoing dialysis. Qtern is dapagliflozin and saxagliptin; Xigduo XR is dapagliflozin and metformin.

Skin
Eczema [2]
Central Nervous System  Headache [3]
Genitourinary
- Genital mycotic infections (particularly in women) (3-8%) [32]
- Pollakiuria [2]
- Urinary frequency (3-4%)
- Urinary tract infection (4-6%) [34]

Renal
- Nephrotoxicity [2]

Hematologic
- Dyslipidemia (2-3%)

Other
- Adverse effects [9]
- Dipsa (thirst) [2]
- Infection (<10%)

**DAPSONE**

**Trade name:** Aczone (Allergan)

**Indications:** Leprosy, dermatitis herpetiformis, acne

**Class:** Antibiotic, Antimycobacterial

**Half-life:** 1050 hours

**Clinical**

**Clincally important, potentially hazardous interactions with:** atovaquone/propionil, chloroquine, didanosine, furazolidone, ganciclovir, hydroxychloroquine, methotrexate, pyrimethamine, rifabutin, rifampin, rifapentine, hydroxychloroquine, methotrexate, pyrimethamine, rifabutin, rifampin, rifapentine, sulfonamides, trimethoprim, quinolones

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

**Note:** A hypersensitivity reaction – termed the ‘sulfone syndrome’ or ‘dapsone syndrome’ – may infrequently develop during the first six weeks of treatment. This syndrome consists of exfoliative dermatitis, fever, malaise, nausea, anorexia, hepatitis, jaundice, lymphadenopathy and hemolytic anemia.

**Skin**
- AGEP [2]
- Bullous dermatitis [2]
- Cyanosis [2]
- Dapsone syndrome [41]
- Dress syndrome [14]
- Erythema multiforme [9]
- Erythema nodosum [5]
- Exanthems (<5%) [12]
- Exfoliative dermatitis [10]
- Fixed eruption [4]
- Hypersensitivity [21]
- Lupus erythematosus [6]
- Photosensitivity [9]
- Pigmentation [6]
- Rash [6]
- Stevens-Johnson syndrome [5]
- Toxic epidermal necrolysis [9]
- Urticaria [2]

**Nails**
- Beau’s lines (transverse nail bands) [3]

**Central Nervous System**
- Headache (4%) [2]
- Insomnia [2]
- Peripheral neuropathy [2]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) [2]

**Gastrointestinal/Hepatic**
- Hepatitis [3]
- Hepatotoxicity [2]

**Respiratory**
- Cough (2%)
- Eosinophilic pneumonia [2]
- Nasopharyngitis (5%)
- Pharyngitis [2]
- Sinusitis [2]
- Upper respiratory tract infection (3%)

**Hematologic**
- Agranulocytosis [7]
- Anemia [5]
- Hemolyis [6]
- Lymphopenia [6]
- Methemoglobinemia [20]

**Local**
- Application-site erythema (13%) [2]
- Application-site reactions (18%)

**Other**
- Adverse effects [4]
- Death [5]

**DAPTOMYCIN**

**Trade name:** Cubicin (Cubicnt)

**Indications:** Complicated skin and skin structure infections, Staphylococcus aureus bloodstream infections

**Class:** Antibiotic, glycopeptide

**Half-life:** 8 hours

**Clinical**

**Clinically important, potentially hazardous interactions with:** atorvastatin, cyclosporine, fibrates, HMG-CoA reductase inhibitors, rosuvastatin, statins, tobramycin, typhoid vaccine

**Interactions with:** Clinically important, potentially hazardous

**Half-life:**

**Class:**

**Indications:**

**Trade name:** Cubicin (Cubicnt)

**Indications:** Complicated skin and skin structure infections, Staphylococcus aureus bloodstream infections

**Class:** Antibiotic, glycopeptide

**Half-life:** 8 hours

**Clinical**

**Clinically important, potentially hazardous interactions with:** atorvastatin, cyclosporine, fibrates, HMG-CoA reductase inhibitors, rosuvastatin, statins, tobramycin, typhoid vaccine

**Interactions with:** Clinically important, potentially hazardous

**Half-life:**

**Class:**

**Indications:**

**Trade name:** Cubicin (Cubicnt)

**Indications:** Complicated skin and skin structure infections, Staphylococcus aureus bloodstream infections

**Class:** Antibiotic, glycopeptide

**Half-life:** 8 hours

**Clinical**

**Clinically important, potentially hazardous interactions with:** atorvastatin, cyclosporine, fibrates, HMG-CoA reductase inhibitors, rosuvastatin, statins, tobramycin, typhoid vaccine

**Interactions with:** Clinically important, potentially hazardous

**Half-life:**

**Class:**

**Indications:**

**Trade name:** Cubicin (Cubicnt)

**Indications:** Complicated skin and skin structure infections, Staphylococcus aureus bloodstream infections

**Class:** Antibiotic, glycopeptide

**Half-life:** 8 hours

**Clinical**

**Clinically important, potentially hazardous interactions with:** atorvastatin, cyclosporine, fibrates, HMG-CoA reductase inhibitors, rosuvastatin, statins, tobramycin, typhoid vaccine

**Interactions with:** Clinically important, potentially hazardous

**Half-life:**

**Class:**

**Indications:**

**Trade name:** DARATUMUMAB

**Indications:**

**Class:** Monoclonal antibody

**Half-life:** 18 days

**Clinical**

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (No data available)

**Important contra-indications noted in the prescribing guidelines for:** pediatric patients

**Skin**
- Herpes zoster (3%)

**Mucosal**
- Nasal congestion (17%)

**Cardiovascular**
- Chest pain (12%)
- Hypertension (10%)

**Central Nervous System**
- Chills (10%)
- Cytokine release syndrome [2]
- Fever (21%) [3]
- Headache (12%)

**Neuromuscular/Skeletal**
- Arthralgia (17%)
- Asthenia (fatigue) (39%) [4]
- Back pain (23%)
- Pain in extremities (15%)

**Gastrointestinal/Hepatic**
- Constipation (15%)
- Diarrhea (16%)
- Nausea (27%)
- Vomiting (14%)
DARATUMUMAB

**Respiratory**
- Bronchospasm (<2%) [3]
- Cough (2%) [3]
- Dyspnea (15%) [2]
- Hypoxia (<2%) [2]
- Nasopharyngitis (15%) [2]
- Pneumonia (11%) [2]
- Rhinitis (>5%) [2]
- Upper respiratory tract infection (20%) [2]

**Endocrine/Metabolic**
- Appetite decreased (15%) [2]

**Hematologic**
- Anemia (45%) [7]
- Lymphopenia (72%) [2]
- Neutropenia (60%) [4]
- Thrombocytopenia (48%) [7]

**Local**
- Infusion-related reactions (48%) [9]

**DARBEPOETIN ALFA**

**Synonym:** erythropoiesis stimulating protein

**Trade name:** Aranesp (Amgen)

**Indications:** Anemia associated with renal failure and chemotherapy

**Class:** Colony stimulating factor, Erythropoiesis-stimulating agent (ESA)

**Half-life:** 21 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** There is an increased risk of death for patients suffering from chronic renal failure with this drug (6%).

**Warning:** ERYTHROPOIESIS-STIMULATING AGENTS (ESAs) INCREASE THE RISK OF DEATH, MYOCARDIAL INFARCTION, STROKE, VENOUS THROMBOEMBOLISM, THROMBOSIS OF VASCULAR ACCESS AND TUMOR PROGRESSION OR RECURRENCE

**Skin**
- Edema (21%)
- Peripheral edema (11%)
- Pruritus (8%) [2]
- Rash (7%) [2]

**Central Nervous System**
- Fever (91%) [9]
- Vertigo (dizziness) (814%)

**Neuromuscular/Skeletal**
- Arthralgia (1113%)
- Asthenia (fatigue) (933%)
- Back pain (8%)
- Myalgia/Mypathy (21%)

**Gastrointestinal/Hepatic**
- Abdominal pain (2%) [2]

**Respiratory**
- Cough (10%)
- Flu-like syndrome (6%)
- Upper respiratory tract infection (14%)

**Hematologic**
- Thrombosis (2)

**Local**
- Injection-site pain (7%) [9]

**Other**
- Adverse effects [3]

**DARIFENACIN**

**Trade names:** Emselex (Novartis), Enablex (Novartis)

**Indications:** Overactive bladder

**Class:** Anticholinergic, Antimuscarinic, Muscarinic antagonist

**Half-life:** 1319 hours

**Clinically important, potentially hazardous interactions with:**
- Anticholinergics, antihistamines, atazanavir, clozapine, cyclosporine, doxazosin, domperidone, erythromycin, flexaneide, fosamprenavir, hydroxyridone, inhaled corticosteroids, ipilimumab, irinotecan, irinotecan, ketocanazole, levodopa, loxapine, MAO inhibitors, memantine, metoclopramide, nefopam, nefpurin, niteonates, onapristone, omeprazole, olanzapine, omeprazole, palonosetide, pimozide, propranolol, quetiapine, quinidine, quinine, ritonavir, saquinavir, thioridazine, tipranavir, tricyclic antidepressants, verapamil

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:**
- Nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with, or at risk for, urinary retention, gastric retention or uncontrolled narrow-angle glaucoma.

**Mucosal**
- Xerostomia (20%) [12]

**Central Nervous System**
- Headache [2]

**Gastrointestinal/Hepatic**
- Abdominal pain (2%) [2]
- Constipation [3]

**DARUNAVIR**

**Trade names:** Prezocib (Janssen), Prezista (Janssen)

**Indications:** HIV infection (must be co-administered with ritonavir and other antiretroviral agents)

**Class:** Antiretroviral, HIV-1 protease inhibitor

**Half-life:** 15 hours

**Clinically important, potentially hazardous interactions with:**
DASABUVIR/OMBITASVIR/PARITAPREVIR/RITONAVIR

Trade name: Viekira XR (AbbVie)

Indications: Genotype 1a chronic hepatitis C virus with or without cirrhosis, genotype 1b chronic hepatitis C virus with or without cirrhosis in combination with ribavirin

Class: CYP3A4 inhibitor (ritonavir), Direct-acting antiviral, Hepatitis C virus non-nucleoside NS5B palm polymericase inhibitor (dasabuvir), Hepatitis C virus NS5A protease inhibitor (paritaprevir), Hepatitis C virus NS3A inhibitor (ombitasvir)

Half-life: 6 hours (dasabuvir); 21–25 hours (ombitasvir); 6 hours (paritaprevir); 4 hours (ritonavir)

Clinically important, potentially hazardous interactions with: afluzoxin, carbamazepine, cisapride, copanlisib, dihydroergotamine, efavirenz, erogotamine, ethyl estradiol-containing medications, gemfibrozil, lovastatin, lurasidone, methylergonovine, morphine, oxcarbazepine, pentoxyfylline, phenytoin, pimozide, ranolazine, rifampin, sildenafil, simvastatin, St John's wort, triazolam

DASATINIB

Trade name: Sprycel (Bristol-Myers Squibb)

Indications: Leukemia (chronic myeloid), acute lymphoblastic leukemia

Class: Antineoplastic, Biologic, Tyrosine kinase inhibitor

Half-life: 3–5 hours

Clinically important, potentially hazardous interactions with: abxoximab, allentanil, afluzoxin, ambrisentan, antacids, anticoagulants, antipatelet agents, apropitant, argrethran, artemether/lumeferantrine, astemizole, atazanavir, atorvastatin, boceprevir, cabazitaxel, carbamazepine, chloroquine, ciclesonide, clostatol, cinacalcet, ciprofloxacin, cisapride, clarithromycin, clopidogrel, clozapine, colchicine, conivaptan, cyclosporine, CYP3A4 inhibitors, inducers and substrates, dabigatran, darunavir, deferasirax, dexamethasone, dilydroergotamine, dociatexel, dunedarone, efavirenz, ergotamine, ethyl estradiol-containing medications, gemfibrozil, lovastatin, lurasidone, methylgeronovine, midazolam, midostaurin, neratinib, phenobarbital, phenytoin, pimozide, ranolazine, rifampin, sildenafil, simvastatin, sirolimus, St John's wort, tacrolimus, tadalafil, temsirolimus, terfenadine, tetrabenazine, thioridazine, tiagabine, tinzaparin, vardenaf, ziprasidone

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with moderate to severe hepatic impairment. See also separate entries for Ombitasvir/Paritaprevir/ Ritonavir (co-packaged with Dasabuvir as Viekira Pak) and Ribavirin.
**DAUROTACIN**

### Synonyms:
daunomycin; DNR; rubidomycin

### Trade name:
DaunoXome (Gilead)

### Indications:
Acute leukemias

### Class:
Antibiotic, anthracycline

### Half-life:
14-20 hours; 4 hours (intramuscular)

### Clinically important, potentially hazardous interactions with:
aldesleukin, gadobenate

### Pregnancy category:
D

### Important contra-indications noted in the prescribing guidelines for:
the elderly; nursing mothers; pediatric patients

### Warning:
**MYOCARDIAL TOXICITY / MYELOSUPPRESSION**

### Skin
Angioedema [4]
Dermatitis [2]
Edema (11%)
Exanthems [2]
Folliculitis (<5%)
Hot flashes (<5%)
Hyperhidrosis (14%)
Lymphadenopathy (<5%)
Neutrophilic eccrine hidradenitis [2]
Pigmentation [3]
Pruritus (7%)
Seborrhea (<5%)
Urticaria [3]
Xerosis (<5%)

### Hair
Alopecia (8%) [4]

### Nails
Nail pigmentation [5]

### Mucosal
Gingival bleeding (<5%)
Oral lesions [2]
Seborrhea (<5%)
Stomatitis (12%)

### Cardiovascular
Chest pain (9–14%)
Flushing (14%)
Hypertension (<5%)
Myocardial toxicity [5]
Palpitation (<5%)
Tachycardia (<5%)

### Central Nervous System
Amnesia (<5%)
Anorexia (23%)
Anxiety (<5%)
Cognitive impairment (<5%)
Depression (10%)
Dysgeusia (taste perversion) (<5%)
Gait instability (<5%)
Hallucinations (<5%)
Headache (25%)
Insomnia (6%)
Meningococcal infection (<5%)
Neurotoxicity (13%)
Rigors (19%)
Seizures (<5%)
Somnolence (drowsiness) (<5%)
Syncope (<5%)
Tremor (<5%)
Vertigo (dizziness) (8%)

### Neuroromuscular/Skeletal
Arthralgia (7%)
Asthenia (fatigue) (10%)
Ataxia (<5%)
Back pain (16%)
Hypertension (<5%)
Hypokinesia (4%)
Myalgia/Myalgia (7%)
Chronic iron overload due to blood transfusions and in non-transfusional iron overload due to thalassemia syndromes

**Indications:**
- Hemochromatosis, acute iron overload
- Treatment of patients with transfusional iron overload due to thalassemia syndromes when current chelation therapy is inadequate

**Class:** Chelator, iron

**Half-life:** 1.9 hours

**Clinically important, potentially hazardous interactions with:** antacids containing iron, aluminum, zinc, diclofenac, mineral supplements, probenecid

**Pregnancy category:** D

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

**Warning:** RENAL FAILURE, HEPATIC FAILURE, AND GASTROINTESTINAL HEMORRHAGE

**Skin**
- Rash (2–11%) [24]
- Urticaria (4%)

**Central Nervous System**
- Headache (16%) [2]

**Neuromuscular/Skeletal**
- Arthralgia (7%)
- Asthenia (fatigue) [3]
- Back pain (6%)

**Gastrointestinal/Hepatic**
- Abdominal pain (21–28%) [12]
- Diarrhea (5–20%) [18]
- Gastrointestinal bleeding [3]
- Gastrointestinal disorder [3]
- Hepatotoxicity [8]
- Nausea (2–6%) [20]
- Vomiting (10–21%) [7]

**Respiratory**
- Cough (14%)
- Flu-like syndrome (11%)
- Upper respiratory tract infection (9%)

**Endocrine/Metabolic**
- ALP increased [8]
- Appetite decreased [2]
- AST increased [3]
- Serum creatinine increased [21]

**Renal**
- Fanconi syndrome [10]
- Nephrotoxicity [7]
- Proteinuria [4]
- Renal failure [3]
- Renal function abnormal [2]

**Other**
- Adverse effects [15]

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**DEFERASIROX**

**Trade names:** Exjade (Novartis), Jadenu (Novartis)

**Indications:** Chronic iron overload due to transfusions and in non-transfusional iron overload due to thalassemia syndromes

**Class:** Chelator, iron

**Half-life:** 8.1 hours

**Clinically important, potentially hazardous interactions with:** antacids containing iron, aluminum, diclofenac, mineral supplements, probenecid

**Pregnancy category:** D

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

**Warning:** ANAGRAFECTICOSIS / NEUTROPENIA

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**DEFERIPRONE**

**Trade name:** Ferriprox (ApoPharma)

**Indications:** Treatment of patients with transfusional iron overload due to thalassemia syndromes when current chelation therapy is inadequate

**Class:** Chelator, iron

**Half-life:** 6.1 hours

**Clinically important, potentially hazardous interactions with:** antacids containing iron, aluminum, zinc, diclofenac, mineral supplements, probenecid

**Pregnancy category:** D

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Warning:** ANAGRAFECTICOSIS / NEUTROPENIA

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**Central Nervous System**
- Headache (3%)

**Neuromuscular/Skeletal**
- Arthralgia (10%) [8]
- Arthropathy [5]
- Back pain (2%)
- Bone or joint pain [2]
- Pain in extremities (2%)

**Gastrointestinal/Hepatic**
- Abdominal pain (10%) [2]
- Diarrhea (3%) [2]
- Dyspepsia (2%)
- Gastrointestinal disorder [5]
- Hepatotoxicity [3]
- Nausea (13%) [4]
- Vomiting (10%)

**Endocrine/Metabolic**
- ALT increased (8%) [5]
- Appetite increased (4%)
- AST increased [2]
- Weight gain (2%)

**Renal**
- Chromaturia (15%)

**Hematologic**
- Anagraftosis (2%) [15]
- Neutropenia [12]
- Thrombocytopenia [2]

**Other**
- Adverse effects [2]
- Death [2]

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**DEFEROXAMINE**

**Trade name:** Desferal (Novartis)

**Indications:** Hemochromatosis, acute iron overload

**Class:** Chelator, iron

**Half-life:** 6.1 hours

**Clinically important, potentially hazardous interactions with:** ascorbic acid, ferrous sulfate, zinc

**Pregnancy category:** C

**Skin**
- Anaphylactoid reactions/Anaphylaxis [3]
- Hypersensitivity [2]

**Central Nervous System**
- Neurotoxicity [2]

**Neuromuscular/Skeletal**
- Arthralgia [6]

**Endocrine/Metabolic**
- Serum creatinine increased [2]

**Otic**
- Hearing loss [2]

**Ocular**
- Night blindness [2]

**Local**
- Injection-site inflammation (<10%)
- Injection-site pain (<10%)

**Other**
- Death [3]
DEFIBROTIDE

Trade name: Defitelio (Jazz)
Indications: Hepatic veno-occlusive disease in patients with renal or pulmonary-cell dysfunction following hematopoietic stem-cell transplantation
Class: Oligonucleotide
Half-life: <2 hours
Clinically important, potentially hazardous interactions with: alteplase, heparin
Pregnancy category: N/A (No data available)
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Note: Contra-indicated for concomitant administration with systemic anticoagulant or fibrinolytic therapy.

Skin
- Graft-versus-host reaction (6%)

Mucosal
- Epistaxis (nosebleed) (14%)

Cardiovascular
- Hypotension (37%) [3]

Central Nervous System
- Cerebral hemorrhage (2%)
- Intracranial hemorrhage (3%)

Gastrointestinal/Hepatic
- Diarrhea (24%)
- Gastrointestinal bleeding (9%) [3]
- Nausea (16%)
- Vomiting (18%)

Respiratory
- Alveolar hemorrhage (pulmonary) (9%)
- Pneumonia (5%)
- Pulmonary hemorrhage (4%)
- Pulmonary toxicity (6%)

Endocrine/Metabolic
- Hyperuricemia (2%)

Hematologic
- Hemorrhage [2]
- Sepsis (7%)

Other
- Adverse effects [3]
- Infection (3%)

DEGARELIX

See: www.drugeruptiondata.com/drug/id/1362

DELAFLOXACIN *

Trade name: Baxdela (Melinta)
Indications: Acute bacterial skin and skin structure infections caused by designated susceptible bacteria
Class: Antibiotic, fluoroquinolone
Half-life: 4-9 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Insufficient evidence to inform drug-associated risk)

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Fluoroquinolones are associated with an increased risk of tendinitis and tendon rupture in all ages. This risk is further increased in older patients usually over 60 years of age, in patients taking corticosteroid drugs, and in patients with kidney, heart or lung transplants. Fluoroquinolones may exacerbate muscle weakness in persons with myasthenia gravis.

Warning: SERIOUS ADVERSE REACTIONS INCLUDING TENDINITIS, TENDON RUPTURE, PERIPHERAL NEUROPATHY, CENTRAL NERVOUS SYSTEM EFFECTS, and EXACERBATION OF MYASTHENIA GRAVIS

Skin
- Dermatitis (<2%)
- Edema (<2%)
- Erythema (<2%)
- Hypersensitivity (<2%)

Irritation (<2%)
- Pruritus (<2%)
- Rash (<2%) 
- Urticaria (<2%)

Mucosal
- Oral candidiasis (<2%)

Cardiovascular
- Bradycardia (<2%)
- Hypertension (<2%)

Gastrointestinal/Skeletal
- Myalgia/Myopathy (<2%)

Neuromuscular/Skeletal
- Myasthenia gravis (<2%)

Genitourinary
- Increased urination (<2%)

Endocrine/Metabolic
- Hyperglycemia (<2%)
- Hyperphosphatemia (<2%)
- Hypoglycemia (<2%)

Other
- Infection (<2%)

DELAVIDINE

See: www.drugeruptiondata.com/drug/id/199
DEMECLOCYCLINE

See: www.drugeruptiondata.com/drug/id/200

DENILEUKIN

See: www.drugeruptiondata.com/drug/id/201

DENOSUMAB

Trade names: Prolia (Amgen), Xgeva (Amgen)
Indications: Osteoporosis (postmenopausal women), prevention of skeletal-related events in patients with bone metastases from solid tumors
Class: Bone resorption inhibitor, Monoclonal antibody, RANK ligand (RANKL) inhibitor
Half-life: 25–28 days
Clinically important, potentially hazardous interactions with: abacetaxet, alcohol, azacitidine, betamethasone, cabazitaxel, denileukin, docetaxel, fingolimod, gefitinib, immuno suppressants, leflunomide, lenalidomide, oxaliplatin, pazopanib, temsirolimus, tricainolone
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with hypocalcemia.

Skin
Cellulitis [9]
Dermatitis [2]
Eczema [10]
Herpes zoster (2%) [2]
Hypersensitivity [2]
Peripheral edema (5%) [2]
Pruritis (2%) [2]
Rash (3%) [4]

Cardiovascular
Angina (3%)
Atrial fibrillation (2%)
Cardiotoxicity [2]

Central Nervous System
Headache [3]
Insomnia (3%)

Cardiovascular
Headache [8]
Sincope (<2%)

Neuromuscular/Skeletal
Asthenia (3%)

Central Nervous System
Headache [7]

Gastrointestinal/Hepatic
Dysphagia (2%) [2]

Local
Injection-site bruising (72%) [2]
Injection-site edema [2]
Injection-site erythema (27%) [2]
Injection-site hemorrhage (<2%)
Injection-site induration (23%) [2]
Injection-site nodules (13%) [2]
Injection-site numbness (66%) [2]
Injection-site pain (70%) [2]
Injection-site pigmentation (<2%)
Injection-site pruritus (12%)
Injection-site urticaria (<2%)

Other
Adverse effects [2]

DESMOPRESSIN

See: www.drugeruptiondata.com/drug/id/920

DESI PRAMINE

See: www.drugeruptiondata.com/drug/id/202

DESLO RATADINE

Trade name: Clarinex (Schering)
Indications: Allergic rhinitis, urticaria
Class: Histamine H1 receptor antagonist
Half-life: 27 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Skin
Urticaria [2]
Mucosal
Xerostomia [5]
Central Nervous System
Headache [7]
Somnia (drowsiness) [6]
Neuromuscular/Skeletal
Asthenia (fatigue) [7]
Gastrointestinal/Hepatic
Diarrhea [2]
Nausea [2]
Other
Adverse effects [6]

DESMOPRESSIN

Trade names: DDAVP (Sanofi-Aventis), Minirin (Ferring), Nocitva (Serenity), Stimate (CSL Behring)
Indications: Primary nocturnal enuresis, nocturia due to nocturnal polyuria (Noctiva)
Class: Antidiuretic hormone analog
Half-life: 75 minutes
Clinically important, potentially hazardous interactions with: amitriptyline, citalopram, demeclocycline, hydromorphone, meloxicam, tapentadol
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Warning: Nocitva: HYponatremia

Cardiovascular
Flushing (<10%)
Myocardial infarction [2]
Central Nervous System
Headache [6]
Seizures [5]
Endocrine/Metabolic
Hyponatremia [11]
SIADH [2]
Local
Injection-site pain (<10%)

DEFLURANE

See: www.drugeruptiondata.com/drug/id/920
DESIGNIDE

See: www.drugeruptiondata.com/drug/id/1084

DESOMETHASONE

Trade name: Topicort (Taro)
Indications: Dermatoses
Class: Corticosteroid, topical
Half-life: N/A
 Clinically important, potentially hazardous interactions with: live vaccines
 Pregnancy category: C
 Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Local
Application-site irritation (3%)
Application-site pruritus (2%) [2]

Other
Adverse effects [3]

DESVENLAFAXINE

Trade name: Pristiq (Wyeth)
Indications: Major depressive disorder
Class: Antidepressant, Serotonin-norepinephrine reuptake inhibitor
Half-life: 11 hours
 Clinically important, potentially hazardous interactions with: alcohol, aspirin, CNS-active agents, heparin, ketoconazole, linezolid, lithium, MAO inhibitors, NSAIDs, sibutramine, tramadol, venlafaxine, warfarin
 Pregnancy category: C
 Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
 Warning: SUICIDAL THOUGHTS AND BEHAVIORS

Skin
Hot flashes (<2%)
Hyperhidrosis (10–21%)
Hypersensitivity (2%) Rash (<2%)

Mucosal
Epistaxis (nosebleed) (<2%)
Xerostomia (11–25%) [3]

Cardiovascular
Hypertension (<2%)
Hypotension (<2%)
Orthostatic hypotension (<2%)
Palpitation (<3%)
Tachycardia (<2%)

Central Nervous System
Abnormal dreams (2–4%)
Anorexia (58%) [2]
Anorgasmia (3–6%)
Anxiety (35%)
Chills (<4%)
Dysgeusia (taste perversion) (<2%)
Extrapyramidal symptoms (<2%)
Headache (20–29%) [3]

DEUTEROTABENAZINE *

Trade name: Austedo (Teva)
Indications: Chorea associated with Huntington’s disease
Class: Vesicular monoamine transporter 2 inhibitor
Half-life: 9–10 hours
 Clinically important, potentially hazardous interactions with: alcohol or other sedating drugs, bupropion, dopamine antagonists or antipsychotics, flutamide, MAO inhibitors, paroxetine hydrochloride, quinidine, strong CYP2D6 inhibitors, tetrabenzine
 Pregnancy category: N/A (Based on animal data, may cause fetal harm)
 Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
 Note: Contra-indicated in suicidal or untreated/ inadequately treated depression, in hepatic impairment, or in patients taking MAO inhibitors, reserpine or tetrabenzine.
 Warning: DEPRESSION AND SUICIDALITY

Skin
Acneform eruption [6]
AGEP [2]
Anaphylactic reactions/Anaphylaxis [3]
Dermatitis [5]
Edema [4]
Erythema multiforme [3]
Exanthems [4]
Herpes zoster [2]
Hypersensitivity [5]
Peripheral edema [8]
Pigmentation [2]
Pruritus [7]
Pruritus ani et vulvae [2]
Rash [10]
Striae [4]
Toxicity [5]
Tumor lysis syndrome [3]
Xerosis [2]

Mucosal
Oropharyngeal (mouth) [6]

Central Nervous System
Anxiety (4%) [2]
Depression [3]
Insomnia (7%) [2]
Somnia (drowsiness) (11%) [4]
Vertigo (dizziness) (4%)

Neuromuscular/Skeletal
Ataxia (fatigue) [9%] [3]

Gastrointestinal/Hepatic
Constipation [4%]
Diarrhea [9%] [2]

Genitourinary
Urine tract infection (7%)

DEXAMETHASONE

Trade names: Decadron (Merck), Dexone (Solvay), Ozurdex (Allergan)
Indications: Antiinflammatory, arthralgias, dermatoses, diagnostic aid, macular edema following branch retinal vein occlusion (BRVO) or central retinal vein occlusion (CRVO), non-infectious uveitis affecting the posterior segment of the eye
Class: Antiinflammatory, Corticosteroid, systemic, Corticosteroid, topical
Half-life: N/A
 Clinically important, potentially hazardous interactions with: alendazole, aminoglutethimide, amphenaprin, aprepitant, aspirin, bexarotene, boceprevir, carbamazepine, caspofungin, cobicistat/elvitegravir/emtricitabine/tenofovir/alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, cyclophosphamide, dasatinib, delavirdine, diuretics, ephedrine, imatinib, iraconazole, ixabepilone, lapatinib, lenalidomide, live vaccines, lopinavir, methotrexate, midazolam, phenobarbital, phenytoin, praziquantel, primidone, rifampin, rifapentine, romidepsin, simprevir, sorafenib, sunbinit, telaprevir, temsirolimus, ticagrelor, vandetanib, warfarin
 Pregnancy category: C
 Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Acneform eruption [6]
AGEP [2]
Anaphylactic reactions/Anaphylaxis [3]
Dermatitis [5]
Edema [4]
Erythema multiforme [3]
Exanthems [4]
Herpes zoster [2]
Hyperthermia [2]
Hypersensitivity [5]
Peripheral edema [8]
Pigmentation [2]
Pruritus [7]
Pruritus ani et vulvae [2]
Rash [10]
Striae [4]
Toxicity [5]
Tumor lysis syndrome [3]
Xerosis [2]

Mucosal
Oral candidiasis [2]

Central Nervous System
Anxiety (4%) [2]
Depression [3]
Insomnia (7%) [2]
Somnia (drowsiness) (11%) [4]
Vertigo (dizziness) (4%)

Neuromuscular/Skeletal
Ataxia (fatigue) [9%] [3]

Gastrointestinal/Hepatic
Constipation [4%]
Diarrhea [9%] [2]

Genitourinary
Urine tract infection (7%)

DEUTEROLANFAXINE *
DEXCHLOR-PHENIRAMINE
See: www.drugeruptiondata.com/drug/id/204

DEXIBUPROFEN
See: www.drugeruptiondata.com/drug/id/1284

DEXKETOPROFEN
See: www.drugeruptiondata.com/drug/id/1232

DEXLANSOPRAZOLE
Trade name: Dexilant (Takeda)
Indications: Erosive esophagitis, heartburn associated with gastroesophageal reflux disease
Class: Proton pump inhibitor (PPI)
Half-life: <2 hours
Clinically important, potentially hazardous interactions with: atazanavir, clopidogrel, digoxin, emtricitabine/tenofovir alafenamide, ketoconazole, tacrolimus, warfarin
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers

DEXMEDETOMIDINE
See: www.drugeruptiondata.com/drug/id/206

DEXMETHYL-PHENIDATE
Trade name: Focalin (Novartis)
Indications: Attention deficit disorder
Class: CNS stimulant
Half-life: 2–4.5 hours
Clinically important, potentially hazardous interactions with: amitriptyline, clonidine, linezolid, MAO inhibitors, pantoprazole
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with marked anxiety, tension and agitation, with glaucoma, or with motor tics or history/diagnosis of Tourette's syndrome.

DEXRAZOXANE
See: www.drugeruptiondata.com/drug/id/1286
**DEXTROAMPHETAMINE**

**Trade names:** Adderall (Shire), Dexedrine (Alliance), Mydayis (Shire)

**Indications:** Narcolepsy, attention deficit disorder (ADD)

**Class:** Amphetamine, CNS stimulant

**Half-life:** 2070 hours

**Clinically important, potentially hazardous interactions with:** Fluoxetine, fluvoxamine, MAO inhibitors, paroxetine hydrochloride, phenelzine, sertraline, tranylcypromine

**Important contra-indications noted in the prescribing guidelines for:** Nursing mothers; Pediatric patients

**Warning:** Abuse and dependence

**Skin**
- Diaphoresis (<10%)
- Mucosal
  - Xerostomia (<10%)

**Central Nervous System**
- Insomnia [2]

**Neuromuscular/Skeletal**
- Rhabdomyolysis [10]

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**DIAZEPAM**

**Trade names:** Diastat (Xcel), Valium (Roche)

**Indications:** Anxiety

**Class:** Benzodiazepine, Skeletal muscle relaxant

**Half-life:** 1012 hours

**Clinically important, potentially hazardous interactions with:** Alcohol, amproliavir, barbiturates, buprenorphine, chlorpromazine, clonidin, CNS depressants, cyclobenzaprine, cyclosporine, dapsone, delirium tremens, diazoxide, diuretics, enoxaparin, eserine, furosemide, heparin, hydroxyzine, iloprost, ketorolac, lithium, mafenine, meprobamate, meperidine, methadone, mianserin, nalbuphine, narcotics, nefazodone, nefopam, nifedipine, nortriptyline, paroxetine hydrochloride, phenelzine, phenothiazines, propranolol, ritalin, SSRIs, sibutramine, tranylcypromine, valdecoxib

**Important contra-indications noted in the prescribing guidelines for:** Nursing mothers; Pediatric patients

**Warning:** Abuse and dependence

**Skin**
- Dermatitis (<10%) [3]
- Diaphoresis (>10%) [10]
- Exanthems [2]
- Erythema (dizziness) [2]
- Fixed eruption [2]
- Exfoliative dermatitis [2]
- Exanthems [6]
- Erythema multiforme [6]
- Erythema [4]
- Eczema (<3%)
- Dermal rash [2]
- Diastat (Xcel), Valium (Roche)

**Gastrointestinal/Hepatic**
- Serotonin syndrome [4]
- Vertigo (dizziness) [2]
- Vertigo (dizziness) [6]
- Vertigo [2]

**Neuromuscular/Skeletal**
- Ataxia [2]

**Endocrine/Metabolic**
- Gynecomastia [4]

**Local**
- Injection-site pain [2]
- Injection-site phlebitis (>10%) [2]

**Other**
- Adverse effects [3]
- Allergic reactions [2]

**DICLOFENAC**

**Trade names:** Arthrotec (Pfizer), Cataflam (Novartis), Diclofenac (Galén), Motifene (Daichy Sankyo), Pennsaid (Mannikinrad), Solaraze Gel (Novocem), Voltaren (Novartis), Voltarol (Novartis), Zolpro (Deponed)

**Indications:** Rheumatoid and osteoarthritis, topical treatment of actinic keratosis, postoperative inflammation in patients who have undergone cataract extraction and for the temporary relief of pain and photophobia in patients undergoing corneal refractive surgery

**Class:** Non-steroidal anti-inflammatory (NSAID)

**Half-life:** 12 hours

**Clinically important, potentially hazardous interactions with:** ACE inhibitors, adrenergic neurone blockers, aldosterone antagonists, aliskiren, alpha blockers, angiotensin II receptor antagonists, anticoagulants, aspirin, baclofen, beta blockers, calcium channel blockers, cardiac glycosides, clonidine, clopidogrel, corticosteroids, coenzyme Q10, cyclosporine, diazepam, deferoxamine, diazoxide, diuretics, enoxapain, erlotinib, furosemide, heparin, hyaluronic, iloprost, ketorolac, lithium, mafenine, meprobamate, methadone, mianserin, nalbuphine, narcotics, nitrofurantoin, norepinephrine, phenindione, phenothiazines, procainamide, propanolol, prazosin, SSRIs, sibutramine, tranylcypromine, valdecoxib, diazoxide, diuretics, enoxaparin, erlotinib, furosemide, heparin, hyaluronic, iloprost, ketorolac, lithium, mafenine, meprobamate, methadone, mianserin, nalbuphine, narcotics, nitrofurantoin, norepinephrine, phenindione, phenothiazines, procainamide, propanolol, prazosin, SSRIs, sibutramine, tranylcypromine, valdecoxib, diazoxide, diuretics, enoxaparin, erlotinib, furosemide, heparin, hyaluronic, iloprost, ketorolac, lithium, mafenine, meprobamate, methadone, mianserin, nalbuphine, narcotics, nitrofurantoin, norepinephrine, phenindione, phenothiazines, procainamide, propanolol, prazosin, SSRIs, sibutramine, tranylcypromine, valdecoxib

**Important contra-indications noted in the prescribing guidelines for:** Nursing mothers; Pediatric patients

**Skin**
- Photosensitivity (<3%) [4]
- Fixed eruption (<3%) [2]

**Important contra-indications noted in the prescribing guidelines for:** Nursing mothers; Pediatric patients

**Warning:** Risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

**Contra-indicated in patients who have experienced asthma, urticaria, or allergic-type reactions after taking aspirin or other NSAIDs. Severe, rarely fatal, anaphylactic-like reactions to NSAIDs have been reported in such patients.**

**Further Reading:**
- Litt’s Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC

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See all our books at www.crcpress.com
DICUMAROL

Indications: Atrial fibrillation, pulmonary embolism, venous thrombosis
Class: Coumarin
Half-life: 14 days
Clinically important, potentially hazardous interactions with: allopurinol, amiodarone, amobarbital, anabolic steroids, anti-thyroid agents, apropabarbital, aspirin, barbiturates, bivalirudin, butabarbital, butalbital, cimetidine, clobiflurate, clobidigrel, cyclosporine, delavirdine, disulfiram, fenofibrate, fluconazole, gemfibrozil, glutethimide, imatinib, iraconazole, ketoconazole, levotheroxine, mephobarbital, metimazole, metronidazole, miconazole, penicillins, pentobarbital, phenobarbital, phenylbutazone, pipercillin, prednisone, primidone, propylthiouracil, quinidine, quinine, rifabutin, rifampin, rifapentine, rofecoxib, salicylates, secobarbital, sulfapyrazine, sulfonamides, testosterone, zileuton

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
- Dermatitis [2]
- Exanthesms [5]

Hematologic
- Bleeding [2]
- Gastrointestinal/Hepatic
- Hemorrhage [3]

Other
- Adverse effects [11]
- Allergic reactions [2]
- Death [6]

DICLOXACILLIN

See: www.drugeruptiondata.com/drug/id/215

DICUMAROL

Indications: Atrial fibrillation, pulmonary embolism, venous thrombosis
Class: Coumarin
Half-life: 14 days
Clinically important, potentially hazardous interactions with: allopurinol, amiodarone, amobarbital, anabolic steroids, anti-thyroid agents, apropabarbital, aspirin, barbiturates, bivalirudin, butabarbital, butalbital, cimetidine, clotidilate, clobidigrel, cyclosporine, delavirdine, disulfiram, fenofibrate, fluconazole, gemfibrozil, glutethimide, imatinib, iraconazole, ketoconazole, levotheroxine, mephobarbital, metimazole, metronidazole, miconazole, penicillins, pentobarbital, phenobarbital, phenylbutazone, pipercillin, prednisone, primidone, propylthiouracil, quinidine, quinine, rifabutin, rifampin, rifapentine, rofecoxib, salicylates, secobarbital, sulfapyrazine, sulfonamides, testosterone, zileuton

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
- Dermatitis [2]
- Exanthesms [5]

Hematologic
- Bleeding [2]
- Gastrointestinal/Hepatic
- Hemorrhage [3]

Other
- Adverse effects [11]
- Allergic reactions [2]
- Death [6]
phenylbutazone, polythiazide, posaconazole, propafenone, propantheline, quinethazone, quinidine, quinine, rabeprazole, rifampin, roxithromycin, sitagliptin, sodium picosulfate, sorafenib, St John's wort, sunsitinib, telaprevir, telithromycin, temozolomide, temsirolimus, teriparatide, tetracycline, thalidomide, thiazide diuretics, ticagrelor, tipranavir, tolvaptan, trichloromethiazide, trimethoprim, troglitazone, ulipristal, valbenazine, venetoclax, verapamil, zuclopenthixol

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** This is the pure form of Digitalis. Contra-indicated in ventricular fibrillation.

**Skin**
- Exanthems (2%) [2]
- Psoriasis [2]
- Toxicity [4]

**Cardiovascular**
- Arrhythmias [7]
- Atrial fibrillation [4]
- Bradycardia [3]
- Tachycardia [2]

**Central Nervous System**
- Anorexia [2]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) [2]

**Gastrointestinal/Hepatic**
- Nausea [4]
- Vomiting [2]

**Endocrine/Metabolic**
- Gynecostasia [2]

**Ocular**
- Dysthyroidopaenia (green) [6]
- Hallucinations, visual [2]

**Other**
- Death [5]

### DIHYDROCODEINE

**Trade name:** DHC-Continus (Napp)

**Indications:** Severe pain in cancer and other chronic conditions

**Class:** Analgesic, opioid

**Half-life:** 12 hours

**Clinically important, potentially hazardous interactions with:** CNS depressants, MAO inhibitors, phenothiazines, tranquilizers

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

**Skin**
- AGEP [2]

**Mucosal**
- Xerostomia [2]

**Central Nervous System**
- Narcosis [2]
- Seizures [3]
- Somnolence (drowsiness) [2]

### DIHYDROERGOTAMINE

**See:** [www.drugeruptiondata.com/drug/id/222](http://www.drugeruptiondata.com/drug/id/222)

### DIHYDROTACHYSTEROL

**See:** [www.drugeruptiondata.com/drug/id/223](http://www.drugeruptiondata.com/drug/id/223)

### DILTIAZEM

**Trade names:** Cardizem (Biovail), Dilacor XR (Watson), Teczem (Sanofi-Aventis), Tiazac (Forest)

**Indications:** Angina, essential hypertension

**Class:** Antiarrhythmic class IV, Calcium channel blocker, CYP3A4 inhibitor

**Half-life:** 58 hours (for extended-release capsules)

**Clinically important, potentially hazardous interactions with:** acebutolol, alfuzosin, amiodarone, amitriptyline, amprenavir, aprepitant, atazanavir, atenolol, atorvastatin, avanafil, bisoprolol, bosentan, carbamazepine, celeprolol, cilostazol, cobicistat/elvitegravir/emeritcinibat/tenofovir alafenamide, cobicistat/elvitegravir/emeritcinibat/tenofovir disoproxil, colchicine, copanlisib, corticosteroids, cyclosporine, deflazacort, delavirdine, dronedarone, dutasteride, efavirenz, epirubicin, erythromycin, fingolimod, flibanserin, lurasidone, midostaurin, nelfinavir, olaparib, oxaprenolol, posaconazole, ranolazine, sirolimus, sitagliptin, sodium picosulfate, trichlormethiazide, trimethoprim, troglitazone, ulipristal, valbenazine, venetoclax, verapamil, zuclopenthixol

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Teczem is diltiazem and enalapril.

**Skin**
- AGEP [21]
- Angioedema [3]
- Diaphoresis [2]
- Edema (<10%) [4]
- Erythema [2]
- Erythema multiforme (<31%) [11]
- Exanthems [17]
- Exfoliative dermatitis [6]

### DIMENHYDRINATE

**Trade name:** Dramamine (Pfizer)

**Indications:** Motion sickness, dizziness, nausea, vomiting

**Class:** Antiemetic, Cholinesterase absorption inhibitor

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

**Skin**
- Fixed eruption [12]

**Mucosal**
- Xerostomia (<10%)

**Central Nervous System**
- Somnolence (drowsiness) [5]

### DIMERCAPROL

See: [www.drugeruptiondata.com/drug/id/1056](http://www.drugeruptiondata.com/drug/id/1056)
**DIMETHYL FUMARATE**

**Synonyms:** dimethyl (E) butenedioate; BG-12  
**Trade names:** Fumaderm (Biogen Idec), Tecfidera (Biogen Idec)  
**Indications:** Relapsing forms of multiple sclerosis, psoriasis  
**Class:** Fumaric acid ester  
**Half-life:** 1 hour  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients  
**Note:** Fumaderm is mixed dimethyl fumarate and monoethylfumarate salts.

**DIOPROSTONE**

**Trade names:** Cervidel (Forest), Prepidil (Pfizer)  
**Indications:** Pregnancy termination, uterine content evacuation, cervical ripening  
**Class:** Prostaglandin  
**Half-life:** 2.5–5 minutes  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** C  
**Note:** Dinoprostone is the naturally occurring form of Prostaglandin E2 (PGE2).

**DINUTUXIMAB**

**Trade name:** Unituxin (United Therapeutics)  
**Indications:** High-risk neuroblastoma in combination with granulocyte-macrophage colony-stimulating factor (GM-CSF), interleukin-2 (IL-2), and isotretinoin (13-cis-retinoic acid), in pediatric patients who achieve at least a partial response to prior first-line multiagent, multimodality therapy  
**Class:** GD2-binding monoclonal antibody.  
**Half-life:** 10 days  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** N/A (May cause fetal harm)  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers  
**Warning:** SERIOUS INFUSION REACTIONS AND NEUROTOXICITY

**Skin**  
Edema (17%)  
Urticaria (25–37%)  
**Mucosal**  
Nasal congestion (20%)  
**Cardiovascular**  
Capillary leak syndrome (22–40%)  
Hypertension (14%)  
Hypotension (60%)  
Tachycardia (19%)  
**Central Nervous System**  
Fever (55–72%)  
Peripheral neuropathy (13%)  
**Gastrointestinal/Hepatic**  
Diarrhea (31–43%)  
Nausea (10%)  
Vomiting (33–46%)  
**Respiratory**  
Hypoxia (24%)  
Wheezing (15%)  
**Endocrine/Metabolic**  
ALT increased (43%)  
AST increased (16–28%)  
Creatine phosphokinase increased (15%)  
**Musculoskeletal**  
Rhabdomyolysis (5%)  
**Other**  
Adverse reactions (gastrointestinal) [19]  
**Adverse effects (gastrointestinal) [19]**  
**DIPHENOXYLATE**

**Trade name:** Lomotil (Pfizer)  
**Indications:** Diarrhea  
**Class:** Antimotility, Opioid agonist  
**Half-life:** 2.5 hours  
**Clinically important, potentially hazardous interactions with:** oxybutynin  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  
**Note:** Diphenoxylate is almost always prescribed with atropine sulfate.

**Mucosal**  
Xerostomia (3%)
DIPHTHERIA ANTITOXIN

See: www.drugeruptiondata.com/drug/id/1216

DIPYRIDAMOLE

Trade names: Aggrenox (Boehringer Ingelheim), Persantine (Boehringer Ingelheim)

Indications: Thromboembolic complications following cardiac valve replacement

Class: Adenosine reuptake inhibitor, Antiplatelet

Half-life: 1012 hours

Clinically important, potentially hazardous interactions with: adenosine, cefotibiprole, clopidogrel, enoxaparin, fondaparinux, regadenoson, reteplase, riociguat, tinzaparin

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Aggrenox is dipyridamole and aspirin.

Skin

Rash (2%)
Stevens-Johnson syndrome [2]

Cardiovascular

Flushing (3%)

Central Nervous System

Headache [3]

Other

Adverse effects [3]

DIRITHROMYCIN

See: www.drugeruptiondata.com/drug/id/230

DISOPYRAMIDE

Trade name: Norpace (Pfizer)

Indications: Ventricular arrhythmias

Class: Antiarrhythmic, Antiarrhythmic class la, Muscarinic antagonist

Half-life: 410 hours

Clinically important, potentially hazardous interactions with: acebutolol, amioidarone, amisulpride, amitriptyline, arsenic, artemether/lumefantrine, atenolol, bisoprolol, ceftobiprole, clarithromycin, ciprofloxacin, clonazepam, cyclobenzaprine, cyclosporine, dicumarol, dihydroergotamine, diethylstilbestrol, diltiazem, dipyridamole, dexamethasone, disopyramide, doxapram, droperidol, enoxacin, etretinate, erythromycin, esmolol, fosphenytoin, fusidic acid, gabapentin, garlic, gemfibrozil, gemtuzumab ozogamicin, gemcitabine, glibenclamide, glycopyrrolate, glycopyrrolate,loxapine, loxapine, mefloquine, metformin, metoclopramide, metoclopramide, metoprolol, methylprednisolone, midazolam, minocycline, moxifloxacin, nevirapine, nilutamide, nifedipine, niacin, nifedipine, nitroglycerin, nisoldipine, nortriptyline, nonsteroidal anti-inflammatory drugs, oxaprazin, oxybutynin, palonosetron, pamidronate, paroxetine, pentazocine, phenytoin, pioglitazone, piromid, piroxicam, piperacillin, piperacillin/tazobactam, plicamycin, prochlorperazine, propranolol, prourokinase, quinidine, quinidine, ceftriaxone, quinolinones, ribocilic, ritonavir, rivastigmine, saxagliptin, saxodil, schiffs base, sildenafil, sibutramine, simvastatin, sodium, sotalol, sparfloxacin, sulpiride, tadalafil, telithromycin, tiotropium, trospium, vandetanib, vardenafil, zuclophenol,omeprazole, oxipiphiline, phenytoin, thiadomide, tipranavir, warfarin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Acneform eruption [3]
Bullous dermatitis [2]
Dermatitis [17]
Eczema [2]
Exanthemas [2]
Fixed eruption [2]
Rash (<10%)
Recall reaction (nickel) [4]
Urticaria [3]

Cardiovascular

Flushing (with alcohol) [5]
Hypertension [2]
Polyarteritis nodosa [2]
Tachycardia [2]

Central Nervous System

Dysgeusia (taste perversion) (metallic or garlic aftertaste) (<10%)
Neurotoxicity [6]
Psychosis [5]
Seizures [2]
Somnolence (drowsiness) [2]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal

Ashtenia (fatigue) (3-9%)

Gastrointestinal/Hepatic

Abdominal pain (3-9%)
Constipation (11%) [2]
Diarrhea (<3%)
Nausea (3-9%)
Vomiting (<3%)

Respiratory

Dyspnea (<3%)

Endocrine/Metabolic

Hypocalcemia [3]
Hypoglycemia [4]
Hypokalemia (<3%)

Genitourinary

Impotence (<3%)
Urinary hesitancy (14%) 
Urinary retention (3-9%)

Ocular

Vision blurred (3-9%)
Xerophthalmia (3-9%)

DIBUTAMINE

See: www.drugeruptiondata.com/drug/id/234

DOBUTAMINE

See: www.drugeruptiondata.com/drug/id/230

DOCETAXEL

Trade name: Taxotere (Sanofi-Aventis)

Indications: Metastatic breast cancer, non-small cell lung cancer, with prednisone in hormone refractory prostate cancer, with cisplatin and fluorouracil for gastric adenocarcinoma and squamous cell carcinoma of the head and neck

Class: Antineoplastic, Taxane

Half-life: 1118 hours

Clinically important, potentially hazardous interactions with: alcohol, aldesleukin, anthracyclines, antifungals, aprepitant, BCG vaccine, conivaptan, cyclosporine, CYP3A4 inhibitors or inducers, dasatinib, deferasirox, denosumab, echinacea, erythromycin, ifosfamide, ketoconazole, lapatinib, leflunomide, nalizumab, P-glycoprotein inhibitors or inducers, pimecrolimus, prednisone, ritonavir, sipuleucel-T, sorafenib, St John's wort, tacrolimus, thalidomide, trastuzumab, vaccines, voriconazole

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Acneform eruption [3]
Bullous dermatitis [2]
Dermatitis [17]
Eczema [2]
Exanthems [2]
Fixed eruption [2]
Rash (<10%)
Recall reaction (nickel) [4]
Urticaria [3]

Cardiovascular

Flushing (with alcohol) [5]
Hypertension [2]
Polyarteritis nodosa [2]
Tachycardia [2]

Central Nervous System

Dysgeusia (taste perversion) (metallic or garlic aftertaste) (<10%)
Neurotoxicity [6]
Psychosis [5]
Seizures [2]
Somnolence (drowsiness) [2]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal

Ashtenia (fatigue) [2]

Ocular

Optic neuropathy [2]

Other

Adverse effects [2]
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Note: Contra-indicated in patients with hypersensitivity to docetaxel or polysorbate 80, or with neutrophil counts of <1500 cells/mm².

Warning: TOXIC DEATHS, HEPATOTOXICITY, NEUTROPENIA, HYPERSENSITIVITY REACTIONS, and FLUID RETENTION

Litt's Drug Eruption & Reaction Manual

DOCUSATE
See: www.drugeruptiondata.com/drug/id/236

DOFETILIDE
See: www.drugeruptiondata.com/drug/id/237

DOLASETRON
See: www.drugeruptiondata.com/drug/id/238

DOLUGRAVIR
Trade names: Tivicay (ViiV), Triumeq (ViiV)
Indications: HIV-1 infection
Class: Antiretroviral, Integrase strand transfer inhibitor
Half-life: ~14 hours
Clinically important, potentially hazardous interactions with: dofetilide

Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Triumeq is abacavir, dolutegravir and lamivudine.

Skin
- AGEP [2]
- Anaphylactoid reactions/Anaphylaxis [3]
- Edema (3%) [24]
- Erythema [4]
- Exanthems [3]
- Facial erythema [2]
- Flagellate erythema/pigmentation [2]
- Hand-foot syndrome [42]
- Hypersensitivity (6%) [15]
- Peripheral edema [9]
- Photosensitivity [6]
- Pigmentation [2]
- Psoriasis [3]
- Radiation recall dermatitis [18]
- Rash [12]
- Recall reaction [2]
- Scleroderma [9]
- Thrombocytopenic purpura [2]
- Toxicity (20–48%) [10]
- Xerosis [2]

Hair
- Alopecia (56–76%) [30]

Nails
- Beau’s lines (transverse nail bands) [2]
- Discoloration [2]
- Melanonychia [2]
- Nail changes [17]
- Nail disorder (11–41%) [2]
- Nail loss [3]
- Nail pigmentation [6]
- Onycholysis [15]
- Onychopathy [2]
- Paronychia [4]
- Pyogenic granuloma [2]
- Subungual abscess [2]
- Subungual hemorrhage [2]
- Transverse superficial loss of nail plate [2]

Mucosal
- Aphthous stomatitis [2]
- Mucositis [15]
- Oral mucositis [5]
- Stomatitis (19–53%) [19]

Cardiovascular
- Capillary leak syndrome [2]
- Cardiotoxicity [2]
- Flushing [2]
- Hypertension [10]
- Hypotension (3%) [3]
- Thromboembolism [2]

Central Nervous System
- Dysesthesia (4%) [4]
- Dysequia (taste perversion) (6%) [7]
- Fever (31–35%) [6]
- Headache [2]
- Mood changes [2]
- Neurotoxicity [20]
- Pain [5]
- Paresthesias (4%) [2]
- Peripheral neuropathy [10]
- Vertigo (dizziness) [2]

Neuromuscular/Skeletal
- Arthralgia (3–9%) [3]
- Asthenia (fatigue) (53–66%) [60]
- Bone or joint pain [2]

Gastrointestinal/Hepatic
- Abdominal pain [4]
- Constipation [3]
- Diarrhea (23–43%) [48]
- Dysphagia [2]
- Hepatotoxicity [2]
- Nausea (34–42%) [27]
- Vomiting (22–23%) [30]

Other
- Adverse effects [4]
- Allergic reactions [2]
- Death [17]
- Infection (<34%) [9]

DOMPERIDONE
See: www.drugeruptiondata.com/drug/id/843

DOCOSANOL
See: www.drugeruptiondata.com/drug/id/957
DONEPEZIL

Trade names: Aricept (Eisai), Aricept Evess (Eisai)

Indications: Mild, moderate and severe dementia of the Alzheimer’s type

Class: Acetylcholinesterase inhibitor, Cholinesterase inhibitor, Parasympathomimetic

Half-life: 5070 hours

Clinically important, potentially hazardous interactions with: anticholinergics, cholinergic agonists, galantamine, non-depolarising muscle relaxants, raltestron, succinylcholine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with known hypersensitivity to donepezil hydrochloride or to piperidine derivatives.

Skin
Diaphoresis [2]
Ecchymoses (4–5%) [2]
Eczema (3%) [2]
Purpura (<10%) [2]

Cardiovascular
Atroventricular block [2]
Bradycardia [7]
Chest pain (2%) [2]
Hypertension [2]
Hypotension (3%) [2]
QT prolongation [4]
Torsades de pointes [2]

Central Nervous System
Abnormal dreams (3%) [2]
Agitation [2]
Anorexia (4–8%) [5]
Confusion (2%) [3]
Delirium [2]
Depression (2–3%) [3]
Emotional lability (2%) [2]
Fever (3%) [2]
Gait instability [2]
Hallucinations (3%) [2]
Headache (4–10%) [6]
Hostility (3%) [2]
Insomnia (5–9%) [4]
Mania [2]
Nervousness (3%) [2]
Neuroleptic malignant syndrome [2]
Pain (3–9%) [6]
Parkinsonism [2]
Somnolence (drowsiness) (2%) [2]
Sycncope (2%) [5]
Tremor [3]
Vertigo (dizziness) (2–8%) [6]

Neuromuscular/Skeletal
Arthralgia (2%) [2]
Asthenia (fatigue) (5%) [3]
Back pain (3%) [2]
Dystonia [2]
Muscle spasm [2]
Myoclonus [2]

Gastrointestinal/Hepatic
Constipation [3]
Diarrhea (10%) [11]
Hepatotoxicity [3]

DOPAMINE

Trade name: Intropin (Hospira)

Indications: Hemodynamic imbalances present in shock

Class: Adrenergic alpha-receptor agonist, Catecholamine, Inotropic sympathomimetic

Half-life: 2 minutes

Clinically important, potentially hazardous interactions with: ethosotin, fosphenytoin, furazolidone, lurasidone, MAO inhibitors, mefenpytoin, phenelzine, phenytoin, quetiapine, tranylcypromine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Cardiovascular
QT prolongation [2]

Local
Injection-site extravasation [2]
Injection-site necrosis [3]

DOPAMINE

See: www.drugeruptiondata.com/drug/id/1331

DORIPENEM

See: www.drugeruptiondata.com/drug/id/1254

DORNASE ALFA

See: www.drugeruptiondata.com/drug/id/1048

DORZOLAMIDE

Trade names: Cosopt (Merck), Trusopt (Banyu)

Indications: Glaucoma, ocular hypertension

Class: Carbonic anhydrase inhibitor, Diuretic

Half-life: ~4 months

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Note: Dorzolamide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Cosopt is dorzolamide and timolol.

Skin
Contact dermatitis [4]

Central Nervous System
Dysgeusia (taste perversion) (25%) [8]

Ocular
Erectile dysfunction [3]

Adrenergic alpha-receptor agonist, Hemodynamic imbalances present

~4 months

Other
Adverse effects [2]

DOXACURIUM

See: www.drugeruptiondata.com/drug/id/242

DOXAPRAM

See: www.drugeruptiondata.com/drug/id/243

DOXAZOSIN

Trade name: Cardura (Pfizer)

Indications: Hypertension

Class: Adrenergic alpha-receptor antagonist

Half-life: 1922 hours

Clinically important, potentially hazardous interactions with: tadalafil, vardenafil, zuclopenthixol

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Edema (4%) [2]
Exanthems (2%) [2]

Mucosal
Xerostomia (2%) [2]

Cardiovascular
Hypertension [3]
Orthostatic hypotension [2]
Postural hypotension [2]

Central Nervous System
Headache [2]
Vertigo (dizziness) [9]

Neuromuscular/Skeletal
Asthenia (fatigue) [4]

Gastrointestinal/Hepatic
Abdominal pain [2]

Genitourinary
Erectile dysfunction [3]
Ocular
Floppy iris syndrome [3]

DOXPINEP
Trade names: Adapin (LGM Pharma), Silenor (Somaxon), Sinequan (Pfizer)
Indications: Mental depression, anxiety, insomnia
Class: Antidepressant, tricyclic, Muscarinic antagonist
Half-life: 68 hours
Clinically important, potentially hazardous interactions with: alcohol, amphetamine, butalbital, cholestyramine, codeine, CNS depressants, epinephrine, furosemide, guanethidine, isocarbocoumarin, linezolid, MAO inhibitors, phenelzine, QT prolonging agents, quinolones, ramelteon, selegiline, sparfloxacin, sympathomimetics, tranylcypromine
Pregnancy category: C (pregnancy category is B for topical use)
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
Dermatitis (from topical) [9]
Diaphoresis (< 10%) [9]
Pseudolymphoma [2]

Mucosal
Xerostomia (> 10%) [6]

Cardiovascular
QT prolongation [2]

Central Nervous System
Dysgeusia (taste perversion) (> 10%)
Headache [4]
Somnolence (drowsiness) [7]

DOXERCALCIFEROL
See: www.drugeruptiondata.com/drug/id/246

DOXORUBICIN
Synonym: hydroxydaunomycin
Trade names: Adriamycin (Bedford), Doxil (Tibotec), Rubex (Mead Johnson)
Indications: Carcinomas, leukemias, sarcomas
Class: Antibiotic, anthracycline
Half-life: 20–48 hours
Clinically important, potentially hazardous interactions with: aldesleukin, cAbaxil, CYP3A4 inhibitors or inducers, CYP3A4 inhibitors or inducers, gadothate, P-glycoprotein inhibitors or inducers, paclitaxel, sorafenib, stavudine, trastuzumab, zidovudine
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Warning: CARDIOMYOPATHY, SECONDARY MALIGNANCIES, EXTRAVASATION AND TISSUE NECROSIS, and SEVERE MYELOSUPPRESSION

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Angioedema [3]
Erythema [2]
Exantheme [4]
Exfoliative dermatitis [2]
Hand-foot syndrome [60]
Hypersensitivity [2]
Intertrigo [3]
Lupus erythematosus [3]
Necrosis (local) [5]
Palmar–plantar erythema (painful) [4]
Pigmentation [15]
Pruritus [2]
Purpura [2]
Radiation recall dermatitis [8]
Rash [6]
Toxicity [12]
Urticaria [10]

Hair
Alopecia (> 10%) [39]

Nails
Beau’s lines [2]
Melanonychia [2]
Nail changes [2]
Nail pigmentation [16]
Onycholysis [5]

Mucosal
Aphthaous stomatitis [2]
Mucositis [16]
Oral lesions [7]
Stomatitis (> 10%) [19]
Tongue pigmentation [3]

Cardiovascular
Atrial fibrillation [2]
Cardiomyopathy [5]
Cardiotoxicity [18]
Chest pain [2]
Congestive heart failure [5]
Flushing (< 10%) [2]
Myocardial toxicity [4]

Central Nervous System
Anorexia [5]
Dysgeusia (taste perversion) [2]
Fever [5]
Headache [3]
Leukoencephalopathy [4]
Neurotoxicity [4]
Pain [2]
Peripheral neuropathy [5]

Neuromuscular/Skeletal
Amenorrhea [2]

Renal
Nephrotoxicity [2]

Hematologic
Anemia [12]
Febrile neutropenia [15]
Hemorrhage [2]
Hemotoxicity [2]
Leukopenia [3]
Neutropenia [31]
Thrombocytopenia [18]

Local
Injection-site erythema [7]
Injection-site extravasation (> 10%) [12]
Injection-site necrosis (> 10%) [5]
Injection-site reactions [2]
Injection-site ulceration (> 10%) [4]

Other
Adverse effects [5]
Allergic reactions [3]
Death [10]
Infection [4]

DOXYCYCLINE
Trade names: Adoxa (Bioglan), Doryx (Warner Chilcott), Oracea (Gelderma), Vibra-Tabs (Pfizer), Vibramycin-D (Pfizer)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, tetracycline
Half-life: 1222 hours
Clinically important, potentially hazardous interactions with: acitretin, amoxicillin, ampicillin, antacids, bacampicillin, barbiturates, BCG vaccine, bismuth, calcium salts, carbamazepine, carbencillin, cloxacillin, corticosteroids, coumarins, cyclosporine, dairy products, digoxin, ergotamine, kaolin, methotrexate, methoxylflurane, metysergide, mezlocillin, nafcillin, oral contraceptives, oral iron, oral typhoid vaccine, oxacillin, penicillins, quinapril, retinoids, rifampin, St John’s wort, streptomycin, sulfa drugs, sulfonamides, tetracycline, ticarcillin, trimethoprim, valproic acid, vancomycin, vitamin A products, digoxin, ergotamine, kaolin, methotrexate, methoxylflurane, metysergide, mezlocillin, nafcillin, oral contraceptives, oral iron, oral typhoid vaccine, oxacillin, penicillins, quinapril, retinoids, rifampin, St John’s wort, streptomycin, sulfa drugs, sulfonamides, tetracycline, ticarcillin, trimethoprim, valproic acid, vitamin A products
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
AGEP [2]
Angioedema [2]
Candidiasis [3]
Erythema multiforme [4]
Exantheme [2]
Fixed eruption [9]
Hypersensitivity [2]
Photosensitivity [20]
Phototoxicity [9]
Pigmentation [5]
Pruritus [3]
Rash [5]
Stevens-Johnson syndrome [6]
Sweet’s syndrome [2]
Toxic epidermal necrolysis [2]
Urticaria [6]
DRONABINOL

Synonyms: tetrahydrocannabinol; THC
Trade names: Marinol (AbbVie), Syndros (Insys)
Indications: Chemotherapy-induced nausea, anorexia associated with weight loss in patients with AIDS
Class: Antiemetic, Cannabinoid
Half-life: 1924 hours
Clinically important, potentially hazardous interactions with: disulfiram, metronidazole

Important contra-indications noted in the prescribing guidelines for: the elderly, nursing mothers, pediatric patients

Mucosal
Xerostomia (<10%)

Central Nervous System
Euphoria (<10%)
Paranoia (<10%)
Somnolence (drowsiness) (<10%)
Vertigo (dizziness) (<10%) [5]

Gastrointestinal/Hepatic
Abdominal pain (<10%)
Nausea (<10%) [2]
Vomiting (<10%) [2]

Other
Adverse effects [4]

DOXYCYCLINE

Nails
Photo-onycholysis [13]

Mucosal
Black tongue [2]
Mucosal candidiasis [2]

Central Nervous System
Anosmia [2]
Fever [2]
Headache [4]
Intracranial pressure increased [2]
Paresthesias [4]
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Myalgia/Myopathy [2]

Gastrointestinal/Hepatic
Abdominal pain [3]
Diarrhea [3]
Esophagitis [3]
Hepatotoxicity [2]
Nausea [5]
Pancreatitis [3]
Ulcereative esophagitis [2]
Vomiting [3]

Endocrine/Metabolic
Hypoglycemia [2]

Genitourinary
Vaginitis [2]

Other
Adverse effects [6]
Allergic reactions [3]
Tooth pigmentation (>10%) [5]

DRONARONE

Trade name: Multaq (Sanofi-Aventis)
Indications: Atrial fibrillation and atrial flutter
Class: Antiarrhythmic, Antiarrhythmic class III
Half-life: 13–19 hours
Clinically important, potentially hazardous interactions with: amiodarone, amitriptyline, amoxapine, antiarrhythmics, antipsychotics prolonging QT interval, arsenic, atorvastatin, beta blockers, bupivacaine, calcium channel blockers, carbamezepine, citalopram, clari-thromycin, conivaptan, coumarins, cyclosporine, CYP3A inducers, dabigatran, darunavir, dasabuvir/ombitasvir/paritaprevir/ritonavir, dasatinib, degarelix, delavirdine, digoxin, diltiazem, disopyramide, duloxetine, efavirenz, erythromycin, finge-lomide, grapefruit juice, indinavir, itracan-zole, ketoconazole, lapanin, levobupivacaine, levofloxacin, levomepromazine, metoprolol, moxifloxacin, nefazodone, nelazodone, neronib, nifedipine, ombitasvir/paritaprevir/ritonavir, oxcarbazepine, pazopanib, pheinindone, phenobarbital, phenothiazines, phenytoin, posaconazole, prilocaine, propranolol, rifampin, saquinavir, simvastatin, sirolimus, statin, talcrolimus, tacrolimus, telavancin, telithromycin, tricyclic antidepressants, venetoclax, verapamil, voriconazol, vorinostat, warfarin, ziprasidone

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers, pediatric patients

Warning: INCREASED RISK OF DEATH, STROKE AND HEART FAILURE IN PATIENTS WITH DECOMPENSATED HEART FAILURE OR PERMANENT ATRIAL FIBRILLATION

Skin
Anaphylactoid reactions/Anaphylaxis [2]

Dermatitis (5%) [12]
Eczema (5%)

Cardiovascular
Arrhythmias [3]

Bradycardia (3%) [8]
Cardiac failure (new or worsening) [9]
Congestive heart failure [2]
QT prolongation (28%) [10]

Central Nervous System
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Asthenia (fatigue) (7%) [3]

Gastrointestinal/Hepatic
Abdominal pain (4%) [2]
Diarrhea (9%) [14]
Dyspepsia (2%)
Gastrointestinal disorder [4]
Hepatic failure [2]
Pruritus (5%) [8]

Central Nervous System
Vertigo (dizziness) [2]

Other
Adverse effects [4]

DROTERECOGIN ALFA

Respiratory
Pulmonary toxicity [9]

Endocrine/Metabolic
Serum creatinine increased (51%) [6]

Renal
Nephrotoxicity [2]
Renal failure [2]

Other
Death [2]

See: www.drugeruptiondata.com/drug/id/918
**DROXIDOPA**

**Synonym:** L-DOPS  
**Trade name:** Northera (Chelsea Therapeutics)  
**Indications:** Neurogenic orthostatic hypotension  
**Class:** Amino acid analog (synthetic)  
**Half-life:** 2.5 hours  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  
**Warning:** SUPINE HYPERTENSION

**Cardiovascular**  
Hypertension (2–7%)  
**Central Nervous System**  
Gait instability (15%)  
Syncpe (13%)  
Vertigo (dizziness) (4–10%)  
**Gastrointestinal/Hepatic**  
Nausea (2–9%)  
**Genitourinary**  
Urinary tract infection (15%)  

**DULAGlutide**

**Trade name:** Trulicity (Lilly)  
**Indications:** To improve glycemic control in adults with Type II diabetes mellitus  
**Class:** Glucagon-like peptide-1 (GLP-1) receptor agonist  
**Half-life:** 5 days  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  
**Note:** Contra-indicated in patients with a personal or family history of medullary thyroid carcinoma or in patients with multiple endocrine neoplasia syndrome Type 2.  
**Warning:** RISK OF THYROID C-CELL TUMORS

**Cardiovascular**  
Atroventricular block (2%)  
Tachycardia (3–6%)  
**Central Nervous System**  
Headache [3]  
**Neuromuscular/Skeletal**  
Asthenia (fatigue) (4–6%)  
**Gastrointestinal/Hepatic**  
Abdominal pain (7–9%)  
Constipation [4]  
Diarrhea [22]  
Dyspepsia (4–6%)  
Nausea (12–21%)  
Pancreatitis [2]  
Vomiting (6–13%)  
**Respiratory**  
Nasopharyngitis [6]

**Endocrine/Metabolic**  
Appetite decreased (5–9%)  
**Local**  
Injection-site reactions [5]  
**Other**  
Adverse effects (gastrointestinal) [4]

**DULoxetine**

**Trade names:** Cymbalta (Lilly), Yentreve (Lilly)  
**Indications:** Depression  
**Class:** Antidepressant, Noradrenaline reuptake inhibitor, Serotonin reuptake inhibitor  
**Half-life:** 817 hours  
**Clinically important, potentially hazardous interactions with:** SHT1 agonists, alcohol, amitriptyline, artemether/lumefantrine, aspirin, atomoxetine, cimetidine, ciprofloxacin, citalopram, clomipramine, CYP1A2 inducers, CYP2D6 inhibitors and substrates, darunavir, droperidol, enoxacin, fesoterodine, fluoxetine, fluvoxamine, iboguan, levomepromazine, MAO inhibitors, meperidine, moclobemide, naratriptan, nebulol, NSAIDs, paroxetine hydrochloride, PEG-interferon, quinidine, saxitoxin, sirolimus, SSRIs, St John’s wort, tamoxifen, terfenadine, thioridazine, tramadol, tricyclic antidepressants, tryptophan, venlafaxine, warfarin  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  
**Warning:** SUICIDAL THOUGHTS AND BEHAVIORS

**Skin**  
Diaphoresis (6%)  
Hot flashes (>2%)  
Hyperhidrosis (7%)  
**Mucosal**  
Oropharyngeal pain (>2%)  
Xerostomia (13%)  
**Cardiovascular**  
Flushing (3%)  
Palpitation (>2%)  
**Central Nervous System**  
Agitation (5%)  
Anxiety (3%)  
Headache (14%)  
Insomnia (10%)  
Paresthesias (>2%)  
Restless legs syndrome [2]  
Serotonin syndrome [4]  
Somnolence (drowsiness) (10%)  
Suicidal ideation [4]  
Tardive dyskinesia [3]  
Tremor (3%)  
Vertigo (dizziness) (10%)  
Yawning (>2%)  
**Neuromuscular/Skeletal**  
Arthralgia (>2%)  
Asthenia (fatigue) (10%)  
Back pain (>2%)  
Bone or joint pain (4%)  
Muscle spasm (3%)  
**Gastrointestinal/Hepatic**  
Abdominal pain (>2%)

**DUPILUMAB**

**Trade name:** Dupixent (Regeneron)  
**Indications:** Moderate-to-severe atopic dermatitis  
**Class:** Interleukin-4 receptor alpha antagonist, Monoclonal antibody  
**Half-life:** N/A  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** N/A (Insufficient evidence to inform drug-associated risk)  
**Important contra-indications noted in the prescribing guidelines for:** pediatric patients

**Skin**  
Herpes simplex (2%)  
**Mucosal**  
Oral candidiasis (4%)  
**Central Nervous System**  
Headache [2]  
**Respiratory**  
Nasopharyngitis [3]  
**Ocular**  
Conjunctivitis (10%)  
**Local**  
Injection-site reactions (10%)  

Colitis [2]  
Constipation (10%)  
Diarrhea (9%)  
Hepatotoxicity (rare)  
Nausea (24%)  
Vomiting (>2%)  
Cough (>2%)  
Influenza (3%)  
Nasopharyngitis (5%)  
Upper respiratory tract infection (4%)

**Endocrine/Metabolic**  
ALT increased [2]  
Appetite decreased (8–9%)  
Hypotension [2]  
Libido decreased (4%)  
SUADH [6]  
Weight loss (>2%)  
**Genitourinary**  
Ejaculatory dysfunction (2–5%)  
Sexual dysfunction [6]  
**Other**  
Adverse effects [11]  
Bruxism [3]  
Death [2]
**DURVALUMAB**

**Trade name:** Imfinzi (AstraZeneca)

**Indications:** Locally advanced or metastatic urothelial carcinoma in patients having disease progression following platinum-containing chemotherapy

**Class:** Monoclonal antibody, Programmed death-ligand (PD-L1) inhibitor

**Half-life:** 17 days

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

### Skin
- Peripheral edema (15%)
- Rash (11%)

### Central Nervous System
- Fever (14%)

### Neuromuscular/Skeletal
- Asthenia (fatigue) (39%)
- Bone or joint pain (24%)

### Gastrointestinal/Hepatic
- Abdominal pain (14%)
- Colitis (13%)
- Constipation (21%)
- Diarrhea (13%) [3]
- Nausea (16%)

### Respiratory
- Cough (10%)
- Dyspnea (13%)
- Pneumonitis (2%)

### Endocrine/Metabolic
- ALP increased (4%)
- Appetite decreased (19%)
- AST increased (2%)
- Hypercalcemia (3%)
- Hyperglycemia (3%)
- Hypermagnesemia (4%)
- Hyperthyroidism (5–6%)
- Hyponatremia (12%)
- Hypothyroidism (6–10%)

### Genitourinary
- Urinary tract infection (15%)

### Hematologic
- Anemia (8%)
- Lymphopenia (11%)

### Local
- Infusion-related reactions (2%)

### Other
- Death [2]
- Infection (30–38%)

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**DUTASTERIDE**

**Trade names:** Avodart (GSK), Jalyn (GSK)

**Indications:** Benign prostatic hyperplasia, male pattern baldness (anecdotal)

**Class:** 5-alpha reductase inhibitor, Androgen antagonist

**Half-life:** 35 weeks

**Clinically important, potentially hazardous interactions with:** cimetidine, ciprofloxacin, conivaptan, darunavir, delavirdine, diltiazem, indinavir, ketoconazole, ritonavir, telithromycin, troleandomycin, verapamil, voriconazole

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Jalyn is dutasteride and tamsulosin.

### Endocrine/Metabolic
- Gynecomastia [2]
- Libido decreased (<3%) [3]

### Genitourinary
- Ejaculatory dysfunction [3]
- Erectile dysfunction [8]
- Impotence (<5%)
- Sexual dysfunction [6]

### Other
- Adverse effects [2]
ECALLANTIDE
See: www.drugeruptiondata.com/drug/id/1425

ECONAZOLE
See: www.drugeruptiondata.com/drug/id/1342

ECULIZUMAB
Trade name: Soliris (Alexion)  
Indications: Paroxysmal nocturnal hemoglobinuria, atypical hemolytic uremic syndrome  
Class: Complement inhibitor, Monoclonal antibody  
Half-life: ~12 days  
Clinically important, potentially hazardous interactions with: none known  
Pregnancy category: C  
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients  
Warning: SERIOUS MENINGOCOCCAL INFECTIONS

Skin
Peripheral edema [2]  
Pruritus [2]  

Mucosal
Nasal congestion [2]  

Cardiovascular
Hypertension [2]  

Central Nervous System
Fever [3]  
Headache (44%) [5]  
Insomnia [2]  
Meningococcal infection [4]  
Vertigo (dizziness) [3]  

Neuromuscular/Skeletal
Asthenia (fatigue) (12%) [4]  
Back pain (19%) [3]  

Gastrointestinal/Hepatic
Abdominal pain [2]  
Diarrhea [3]  
Nausea [4]  
Vomiting [3]  

Respiratory
Cough (12%) [4]  
Nasopharyngitis (23%) [5]  
Pharyngolaryngeal pain [2]  
Upper respiratory tract infection [2]  

Genitourinary
Urinary tract infection [3]  

Hematologic
Anemia [2]  
Leukopenia [2]  

EDARAVONE *
Trade name: Radicava (Mitsubishi Tanabe Pharma)  
Indications: Amyotrophic lateral sclerosis  
Class: Antioxidant  
Half-life: 4-6 hours  
Clinically important, potentially hazardous interactions with: none known  
Pregnancy category: N/A (May cause fetal toxicity based on findings in animal studies)  
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients  
Note: Radicava contains sodium bisulfite which may cause allergic type reactions.

Skin
Dermatitis (8%)  
Eczema (7%) [2]  
Hematoma (15%) [2]  
Tinea (4%)  

Central Nervous System
Gait instability (13%) [2]  
Headache (10%) [2]  
Insomnia [2]  

Gastrointestinal/Hepatic
Constipation [2]  
Diarrhea [2]  
Dysphagia [3]  
Hepatotoxicity [2]  

Respiratory
Hypoxia (6%)  
Nasopharyngitis [2]  
Respiratory failure (6%) [2]  

Genitourinary
Glycosuria (4%)  

Renal
Nephrotoxicity [2]  

Other
Adverse effects [2]  

EDOXABAN
Trade name: Savaysa (Daichii Sankyo)  
Indications: Reduce the risk of stroke and systemic embolism in patients with nonvalvular atrial fibrillation, treatment of deep vein thrombosis and pulmonary embolism  
Class: Direct factor Xa inhibitor  
Half-life: 10–14 hours  
Clinically important, potentially hazardous interactions with: anticoagulants, rifampin  
Pregnancy category: C  
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients  
Note: Contra-indicated in patients with active pathological bleeding.  
Warning: REDUCED EFFICACY IN NONVALVULAR ATRIAL FIBRILLATION PATIENTS WITH CRCL<95ml/min  
ISCHEMIC EVENTS ON PREMATURE DISCONTINUATION  
SPINAL/EPIDURAL HEMATOMA

Skin
Rash (4%)  

Mucosal
Epistaxis (nosebleed) (5%)  
Gingival bleeding [2]  
Oral bleeding (3%)  

Gastrointestinal/Hepatic
Diarrhea [2]  
Gastrointestinal bleeding (4%)  
Hepatotoxicity (5–8%) [2]  

Genitourinary
Hematuria (2%) [2]  

Hematologic
Anemia (2–10%)  
Bleeding (>5%) [13]  

Other
Adverse effects [4]  

EDROPHONIUM
See: www.drugeruptiondata.com/drug/id/251

EFALIZUMAB
See: www.drugeruptiondata.com/drug/id/1004

EFAVIRENZ
Trade names: Atripla (Gilead), Sustiva (Bristol-Myers Squibb)  
Indications: HIV infection  
Class: Antiretroviral, CYP1A2 inhibitor, CYP3A4 inducer, Non-nucleoside reverse transcriptase inhibitor  
Half-life: 52–76 hours  
Clinically important, potentially hazardous interactions with: alcohol, alprazolam, amphenavir, aripiprazole, artesunate, atazanavir, atorvastatin, atovaquone, benzodiazepines, bepridil, bosaprevir, bortezomib, bromosulham vedotin, budesonide, buprenorphine, buspirone, carbamazepine, carbenicillin, chloramphenicol, colchicine, conivaptan, crotinotin, cyclosporine, CYP2B6 inhibitors and inducers, CYP2C19 substrates, CYP2C9 substrates, CYP3A inducers and inducers, darunavir, dasabuvir/ombitasvir/paritaprevir/ritonavir, dasatinib, deferasirox, deflazacort, diazepam, dihydroergotamine, diluziam, dromedaron, elbasvir & grazoprevir, enalapril, eplerenone, ergot, etravirine, everolimus, exenestane, fentanyl, fluoxetine, fosamprenavir, fosphenytoin, gefitinib, glecaprevir & pibrentasvir, grapefruit juice, guanfacine, halofantrine, hydroxyzine, imatinib, indinavir, iraconazole, ixabepilone, lapatatin, levomepramazine, levonorgestrel, linagliptin, lopinavir, lorazepam, losartan, lurasidone, maraviroc, methadone, methysergide, midazolam, mifepristone, neratinib, nevirapine, nilotinib, nisoldipine, olaparib, ombitasvir/paritaprevir/ritonavir, oral contraceptives, oxazepam, ritonavir, ritonavir/lopinavir, ritonavir/protease inhibitors...

Skin
Rash (4%)  

Mucosal
Epistaxis (nosebleed) (5%)  
Gingival bleeding [2]  
Oral bleeding (3%)  

Gastrointestinal/Hepatic
Diarrhea [2]  
Gastrointestinal bleeding (4%)  
Hepatotoxicity (5–8%) [2]  

Genitourinary
Hematuria (2%) [2]  

Hematologic
Anemia (2–10%)  
Bleeding (>5%) [13]  

Other
Adverse effects [4]  

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EFAVIRENZ

paclitaxel, palbociclib, pazopanib, phenytoin, pimecrolimus, pimozone, posaconazole, pravastatin, praziquantel, protease inhibitors, quazepam, raltegravir, ranolazine, rifabutin, rifampin, rilpivirine, ritonavir, rivaroxaban, roflummilast, romidepsin, salmeterol, saquinavir, saxagliptin, sertraline, simprevir, simvastatin, sirolimus, sofosbuvir & velpatavir, sofosbuvir/velpatavir/voxilaprevir, sonidegib, ticagrelor, tipranavir, tocilizumab, tolvaptan, toremifene, triazolam, ulipristal, vandetanib, vernafasib, venetoclax, vilazodone, vitamin K antagonists, voriconazole, warfarin, zuclopenthixol

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Atripla is efavirenz, emtricitabine and tenofovir disoproxil.

Skin

DRESS syndrome [2]
Ecchymosis (<2%)
Exantheme (11%) [3]
Exfoliative dermatitis (<2%)
Folliculitis (<2%)
Hot flashes (<2%)
Hypersensitivity [5]
Lipodyphrosis [2]
Peripheral edema (<2%)
Photosensitivity [2]
Pruritus (11%) [5]
Rash (26%) [6]
Stevens-Johnson syndrome [3]
Toxicity [2]
Urticaria (<2%)

Hair

Alopecia (<2%)

Mucosal

Xerostomia (<2%)

Cardiovascular

Flushing (<2%)
Thrombophlebitis (<2%)

Central Nervous System

Abnormal dreams (<3%) [9]
Aggression [2]
Anorexia (<2%)
Anxiety (13%) [4]
Depression (15%) [9]
Dysgeusia (taste perversion) (<2%)
Hallucinations [2]
Headache (2–8%) [2]
Impaired concentration (3–5%) [4]
Insomnia (7%) [4]
Nervousness (7%)
Neuropsychiatric disturbances [2]
Neurotoxicity [14]
Nightmares [3]

Pain (<13%)
Parasthesias (<2%)
Parosmia (<2%)
Psychosis [6]
Sleep related disorder [2]
Somnolence (drowsiness) (2%) [2]
Suicidal ideation [5]

Neuromuscular/Skeletal

Ahensia (fatigue) (2–8%) [3]
Myalgia/Myalgia (<2%)

Gastrointestinal/Hepatic

Abdominal pain (2–3%)
Diarrhea (3–14%) [2]
Dyspepsia (4%)
Hepatic failure [2]
Hepatotoxicity [13]
Nausea (2–10%) [3]
Vomiting (3–6%)

Endocrine/Metabolic

ALT increased [2]
Gynecomastia [14]

Genitourinary

Urolithiasis [3]

Hematologic

Dysplasia [2]

Other

Adverse effects [10]
Teratogenicity [4]

EFINACONAZOLE

Trade name: Jublia (Valeant)
Indications: Onychomycosis
Class: Antifungal
Half-life: 3 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Nails

Onychomycosis (2%)

Local

Application-site dermatitis (2%)
Application-site reactions [4]
Application-site vesicles (2%)

EFLORNITHINE

Trade name: Vaniqa (Women First)
Indications: Sleeping sickness, hypotrichosis
Class: Ornithine decarboxylase inhibitor
Half-life: 3–3.5 hours (intravenous); 8 hours (topical)
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Acneform eruption (24%)
Burning (4%)
Facial edema (3%)
Pruritus (4%) [2]
Rash (3%)
Stinging (8%)

Xerosis (2%)
Hair

Alopecia (510%)
Ingrown (2%)
Pseudofolliculitis barbae (515%)

Central Nervous System

Headache (5%)
Paresthesias (4%)
Seizures (7%) [2]
Vertigo (dizziness) (<10%)

Gastrointestinal/Hepatic

Diarrhea (<10%)
Vomiting (<10%)

Hematologic

Eosinophilia (<10%)

Otic

Hearing impairment (<10%)

ELBASVIR & GRAZOPREVIR

Trade name: Zepatier (Merck)
Indications: Chronic hepatitis C virus genotypes 1 or 4 (with or without ribavirin)
Class: Direct-acting antiviral, Hepatitis C virus NS3/4A protease inhibitor (grazoprevir), Hepatitis C virus NSSA inhibitor (elbasvir)
Half-life: 24 hours (elbasvir); 31 hours (grazoprevir)
Clinically important, potentially hazardous interactions with: atazanavir; atorvastatin, boseptan, carbamazepine, cobicistat/elvitegravir/eremiticabine/tenofovir disoproxil, ciclosporine, darunavir, efavirenz, fluvalastin, ketoconazole, lopinavir, lovastatin, medallin, moderate CYP3A inducers, nafcinil, OATP1B1/3 inhibitors, phenytoin, rifampin, rosvastatin, saquinavir, simvastatin, strong CYP3A inducers, tacrolimus, tipiranavir

Pregnancy category: N/A (No available data; contra-indicated in pregnant women and in men with pregnant partners when administered with ribavirin)

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Note: Contra-indicated in patients with moderate or severe hepatic impairment (Child-Pugh B or C).

Central Nervous System

Diarrhea (2%) [2]
Nausea (1%) [7]

Neuromuscular/Skeletal

Ahensia (fatigue) (5–11%) [8]

Gastrointestinal/Hepatic

Abdominal pain (2%)
### ELETRIPTAN

- **Trade name:** Relpax (Pfizer)
- **Indications:** Migraine headaches
- **Class:** 5-HT1 agonist, Serotonin receptor agonist, Triptan
- **Half-life:** 4–5 hours
- **Clinically important, potentially hazardous interactions with:** clarithromycin, diltiazem, diltiazem, ethinyl estradiol, etonogestrel, fluconazole, fluoxetine, fluvoxamine, furosemide, griseofulvin, haloperidol, hydrochlorothiazide, indinavir, irinotecan, irinotecan, ketoconazole, ketorolac, lamotrigine, levetiracetam, levonorgestrel, lithium, linezolid, losartan, mifepristone, mitoxantrone, nelfinavir, nizatidine, omeprazole, ondansetron, omeprazole, palonosetron, paxil, paclitaxel, prasugrel, prazosin, procainamide, prochlorperazine, propranolol, quetiapine, ranolazine, ritonavir, ranitidine, risperidone, ritonavir, saquinavir, sertraline, simvastatin, sodium valproate, spironolactone, sotalol, triamterene, triazolam, triazolam, verapamil, voriconazole, voriconazole, zidovudine, zolendronic acid
- **Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients
- **Note:** Contra-indicated in patients with history, symptoms, or signs of ischemic cardiac, cerebrovascular, or peripheral vascular syndromes, or in patients with uncontrolled hypertension.

### Mucosal
- **Xerostomia (2–4%)**
- **Cardiovascular**
  - Chest pain (<4%) [3]
  - Flushing (2%)
- **Central Nervous System**
  - Headache (3–4%)
  - Neurotoxicity [2]
  - Somnolence (drowsiness) (3–7%) [2]
  - Vertigo (dizziness) (3–7%)
  - Warm feeling (2%)
- **Neuromuscular/Skeletal**
  - Asthenia (fatigue) (4–10%) [4]
- **Gastrointestinal/Hepatic**
  - Abdominal pain (<2%)
  - Nausea (3–7%) [5]
  - Vomiting [2]
- **Other**
  - Adverse effects [2]

### ELIGLUSTAT

- **Trade name:** Cerdelga (Genzyme)
- **Indications:** Gaucher disease
- **Class:** Glucosylceramide synthase inhibitor
- **Half-life:** 7–9 hours
- **Clinically important, potentially hazardous interactions with:** carbenoxolone, estradiol, fenofibrate, ibuprofen, indomethacin, leuprolide, lidocaine, methyldopa, midazolam, omeprazole, pantoprazole, phenobarbital, phenytoin, rifampin, rifabutin, St John's wort, strong or moderate CYP3A4 inhibitors
- **Pregnancy category:** C
- **Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients
- **Skin**
  - Rash (5%)
- **Mucosal**
  - Oropharyngeal pain (10%)
ELTROMBOPAG

Trade names: Promacta (Novartis), Revolade (Novartis)
Indications: Thrombocytopenic purpura, severe aplastic anemia in patients with insufficient response to immunosuppressive therapy
Class: Thrombopoietin receptor (TPO) agonist
Half-life: 2132 hours
Clinically important, potentially hazardous interactions with: antacids, atorvastatin, diary products, chlordiazepoxide, lithium, minoxidil, naproxen, olmesartan, pimozide, quinidine, rifampin, ritonavir, rosuvastatin, selegiline, valproic acid, vancomycin, xenobutamine, ziconotide, zidovudine, zinc, minoxidil, minoxidil
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: RISK FOR HEPATIC DECOMPENSATION IN PATIENTS WITH CHRONIC HEPATITIS C

Skin
Peripheral edema (3–4%)
Petechial rash (3–7%)
Hair
Alopecia (2%)
Mucosal
Oropharyngeal pain (4%)
Xerostomia (2%)
Cardiovascular
Thromboembolism [5]
Venous thromboembolism [2]
Central Nervous System
Dysgeusia (taste perversion) [4]
Headache (10–21%) [10]
Paresthesias (3%)
Neuromuscular/Skeletal
Arthralgia (3%) [2]
Asthenia (fatigue) (3–4%) [4]
Back pain (3%)
Myalgia/Myalgias (5%) [2]
Pain in extremities (7%)
Gastrointestinal/Hepatic
Abdominal pain [2]
Constipation [2]
Diarrhea (9%)
Hepatotoxicity [3]
Nausea (4–9%) [5]
Vomiting (6%)
Respiratory
Cough (5%)
Nasopharyngitis [2]
Pharyngitis (4%)
Upper respiratory tract infection (7%)
Endocrine/Metabolic
ALP increased (2%)
ALT increased (5–6%) [4]
AST increased (4%)
Genitourinary
Urinary tract infection (5%)
Renal
Renal failure [3]
Hematologic
Bleeding [3]

Neutropenia [2]
Thrombocytopenia [2]
Thrombosis [5]
Ocular
Cataract (5%) [2]
Other
Adverse effects [8]

AST increased (<2%)

EMPAGLIFLOZIN

Trade names: Glyxambi (Boehringer Ingelheim), Jardiance (Boehringer Ingelheim), Synjardy (Boehringer Ingelheim)
Indications: Type II diabetes mellitus
Class: Sodium-glucose co-transporter 2 (SGLT2) inhibitor
Half-life: 12 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with severe renal impairment, end stage renal disease, or on dialysis. Glyxambi is empagliflozin and linagliptin; Synjardy is empagliflozin and metformin.

Central Nervous System
Headache [2]
Gastrointestinal/Hepatic
Constipation [2]
Respiratory
Nasopharyngitis [4]
Endocrine/Metabolic
Hypoglycemia [3]
Genitourinary
Genital mycotic infections (2-6%) [7]
Pollakiuria [3]
Urinary frequency (3%)
Urinary tract infection (8-9%) [7]
Other
Adverse effects [7]
Dipsia (thirst) (2%)

EMTRICITABINE

Trade names: Atripla (Gilead), Complera (Gilead), Descovy (Gilead), Emtriva (Gilead), Truvada (Gilead)
Indications: HIV-1 infection
Class: Antiretroviral, Nucleoside analog reverse transcriptase inhibitor
Half-life: ~10 hours
Clinically important, potentially hazardous interactions with: cobicistat/elvitegravir/ emtricitabine/tenofovir disoproxil, ganciclovir, lamivudine, ribavirin, valganciclovir
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: Emtricitabine is a fluorinated derivative of lamivudine. Atripla is emtricitabine, efavirenz and tenofovir disoproxil; Complera is emtricitabine, rilpivirine and tenofovir disoproxil; Descovy is emtricitabine and tenofovir alafenamide; Truvada is emtricitabine and tenofovir disoproxil. See also separate profiles for emtricitabine in combination with cobicistat, elvitegravir and tenofovir disoproxil or tenofovir alafenamide.
LACTIC ACIDOSIS / SEVERE HEPATOMEGALY WITH STEATOSIS and POST TREATMENT EXACERBATION OF HEPATITIS B

Central Nervous System
Abnormal dreams (2–11%) [3]
Anxiety [2]
Depression (6–9%) [2]
Fever (18%) [5]
Headache (13–22%) [5]
Insomnia (7–16%) [6]
Neurotoxicity [5]
Paresthesias (6%) [2]
Peripheral neuropathy (4%) [4]
Somnolence (drowsiness) [2] [Vertigo (dizziness) (4–25%) [4]

Neuromuscular/Skeletal
Arthralgia (3–5%)
Arthritis (2–5%)
Athetosis (6–10%)
Ataxia (9–14%)
Facial weakness (2%)
Muscle spasms (2%)
Myalgia/Myalgia (4–6%) [2]

Gastrointestinal/Hepatic
Abdominal pain (8–14%) [2]
Diarrhea (20–23%) [6]
Dyspepsia (4–8%)
Gastroenteritis (11%)
Hepatotoxicity [2]
Hepatic failure [2]
Hepatotoxicity [2]
Nausea (13–18%) [7]
Vomiting (9–23%) [4]

Respiratory
Cough (14–28%)
Pneumonia (15%)
Rhinitis (12–20%)

Hematologic
Anemia (7%)

Otic
Otitis media (23%)

Other
Adverse effects [5]
Allergic reactions (17–30%)
Infection (44%)

EMTRICITABINE/ RILPIVIRINE/ TENOFOVIR ALAFENAMIDE

Trade name: Odefsey (Gilead)
Indications: HIV-1 infection
Class: Hepatitis B virus nucleoside analog reverse transcriptase inhibitor (tenofovir alafenamide), Non-nucleoside reverse transcriptase inhibitor (rilpivirine), Nucleoside analog reverse transcriptase inhibitor (emtricitabine)
Half-life: 10 hours (emtricitabine); 50 hours (rilpivirine); <1 hour (tenofovir alafenamide)

Central Nervous System
Depression (<2%)
Headache (<2%)
Insomnia (<2%)

ENALAPRIL

Trade names: Innovace (Merck Sharpe & Dohme), Lexxel (AstraZeneca), Teczem (Sanofi-Aventis), Vaseretic (Valeant), Vasotec (AstraZeneca), Lexxel (AstraZeneca), Teczem (Sanofi-Aventis), Vaseretic is enalapril and diltiazem; Vaseretic is enalapril and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome. Contra-indicated in patients with a history of angioedema with or without previous ACE inhibitor treatment.

Warning: Fetal Toxicity

Skin
Exanthems (17%)
Pigmentation (palms and soles) (32%)
Pruritus (17–30%)
Pustules (17–30%)
 Rash (17–30%) [5]
Urticaria (17–30%)
Vesiculobullous eruption (17–30%)

Central Nervous System
Abnormal dreams (2–11%) [3]
Anxiety [2]
Depression (6–9%) [2]
Fever (18%) [5]
Headache (13–22%) [5]
Insomnia (7–16%) [6]
Neurotoxicity [5]
Paresthesias (6%) [2]
Peripheral neuropathy (4%) [4]
Somnolence (drowsiness) [2] [Vertigo (dizziness) (4–25%) [4]

Neuromuscular/Skeletal
Arthralgia (3–5%)
Arthritis (2–5%)
Athetosis (6–10%)
Ataxia (9–14%)
Facial weakness (2%)
Muscle spasms (2%)
Myalgia/Myalgia (4–6%) [2]

Gastrointestinal/Hepatic
Abdominal pain (8–14%) [2]
Diarrhea (20–23%) [6]
Dyspepsia (4–8%)
Gastroenteritis (11%)
Hepatotoxicity [2]
Hepatic failure [2]
Hepatotoxicity [2]
Nausea (13–18%) [7]
Vomiting (9–23%) [4]

Respiratory
Cough (14–28%)
Pneumonia (15%)
Rhinitis (12–20%)

Hematologic
Anemia (7%)

Otic
Otitis media (23%)

Other
Adverse effects [5]
Allergic reactions (17–30%)
Infection (44%)

sulfonylureas, tadalaflit, tamsulosin, tizanidine, tolvaptan, triamterene, trimethoprim
Pregnancy category: D (category C in first trimester; category D in second and third trimesters)

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Warning: Fetal Toxicity

Skin
Angioedema [73]
Bullous pemphigoid [2]
Exanthems [9]
Lichenoid eruption [2]
Lupus erythematosus [2]
Pemphigus [10]
Pemphigus foliaceus [2]
Peripheral edema [2]
Photosensitivity [2]
Pruritus [3]
Psoriasis [3]
Rash [5]
Urticaria [5]
Vasculitis [2]

Mucosal
Oral lesions [4]
Oral ulceration [2]
Tongue edema [2]

Cardiovascular
Hypotension [2]

Central Nervous System
Ageusia (taste loss) [4]
Dysgeusia (taste perversion) (<10%) [7]
Headache (5%) [2]
Vertigo (dizziness) (4–8%) [2]

Neuromuscular/Skeletal
Arthritis (fatigue) (<3%)

Pseudopodymalgalia [2]

Gastrointestinal/Hepatic
Hepatotoxicity [3]
Pancreatitis [2]

Respiratory
Cough (82%) [40]

Endocrine/Metabolic
Hyperkalemia [4]
SIADH [3]

Renal
Nephrotoxicity [2]

Other
Adverse effects [9]
Death [4]
ENASIDENIB

*Trade name: Idhifa (Celgene)*

**Indications:** Relapsed or refractory acute myeloid leukemia

**Class:** Isocitrate dehydrogenase-2 inhibitor

**Half-life:** 137 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Warning:** DIFFERENTIATION SYNDROME

**Skin**
- Differentiation syndrome (14%)
- Tumor lysis syndrome (6%)

**Cardiovascular**
- Pulmonary edema (<10%)

**Central Nervous System**
- Dysesthesia (taste perversion) (12%)

**Gastrointestinal/Hepatic**
- Diarrhea (43%)
- Nausea (50%)
- Vomiting (34%)

**Respiratory**
- Acute respiratory distress syndrome (<10%)

**Endocrine/Metabolic**
- Appetite decreased (34%)
- Hyperbilirubinemia (12%)

**Hematologic**
- Leukocytosis (12%)

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ENFLURANE

See: www.drugeruptiondata.com/drug/id/879

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ENFUVIRTIDE

**Trade name:** Fuzeon (Roche)

**Indications:** HIV-1 infection (in combination with other antiretroviral agents)

**Class:** Antiretroviral, HIV cell fusion inhibitor

**Half-life:** 3.8 hours

**Clinically important, potentially hazardous interactions with:** darunavir, indinavir, tipranavir

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

**Skin**
- Folliculitis (2%)
- Herpes simplex (4%)
- Hypersensitivity [3]
- Papillomas (4%)
- Pruritus (62%)

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ENOXAPARIN

**Trade names:** Clexane (Sanofi-Aventis), Lovenox (Sanofi-Aventis)

**Indications:** Prevention of deep vein thrombosis, ischemic complications of unstable angina and non-Q wave myocardial infarction, treatment of acute ST-segment elevation myocardial infarction

**Class:** Heparin, low molecular weight

**Half-life:** 4.5 hours

**Clinically important, potentially hazardous interactions with:** ACE inhibitors, angiotensin II receptor antagonists, anticoagulants, aspirin, butabarbital, clopidogrel, danaparoid, diclofenac, dipyriramole, doxercoglin alfa, iloprost, infused nitrates, ketorolac, NSAIDs, platelet inhibitors, rivaroxaban, salicylates, sulfipyrazone

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Epidural or spinal hematomas may occur in patients who are anticoagulated with low molecular weight heparins or heparinoids and are receiving neuraxial anesthesia or undergoing spinal puncture.

Contra-indicated in patients with active major bleeding; thrombocytopenia with a positive in vitro test for anti-platelet antibody in the presence of enoxaparin; hypersensitivity to heparin or pork products; hypersensitivity to benzyl alcohol (multi-dose formulation only).

**Warning:** SPINAL/EPIDURAL HEMATOMA

**Skin**
- Anaphylactoid reactions/Anaphylaxis [3]
- Angioedema [2]
- Bullous dermatitis [7]
- Eczymosases (2%) Edema (3%)
- Erythema (<10%) [2]
- Exanthesms [2]
- Hematoma [1]
- Hypersensitivity [7]
- Necrosis [4]
- Peripheral edema (3%)
- Pruritus [2]
- Purpura (<10%)

**Cardiovascular**
- Venous thromboembolism [2]

**Gastrointestinal/Hepatic**
- Hepatotoxicity [5]

**Endocrine/Metabolic**
- ALT increased [4]
- AST increased [3]

**Genitourinary**
- Hematuria [2]

**Hematologic**
- Bleeding [8]
- Hemorrhage [4]
- Thrombocytopenia [5]

**Local**
- Injection-site necrosis [4]
- Injection-site plaques [2]

**Other**
- Adverse effects [4]
- Death [2]

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ENTACAPONE

**Trade names:** Comtan (Orion), Comtess (Orion), Stalevo (Orion)

**Indications:** Parkinsonism

**Class:** Catechol-O-methyl transferase inhibitor

**Half-life:** 2.4 hours

**Clinically important, potentially hazardous interactions with:** amantadine, MAO inhibitors, paroxetine hydrochloride, phenelzine, rasagiline, tranylcypromine, venlafaxine

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Diaphoresis (2%)
- Purpura (2%)

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ENDOCAVIR

See: www.drugeruptiondata.com/drug/id/255

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See all our books at www.crcpress.com
Chronic hepatitis B virus infection

Adrenalin

~24 hours

36 hours

www.drugeruptiondata.com/drug/id/1013

Antiviral, Guanosine nucleoside analog

Androgen antagonist

Cardiac arrest, hay fever, asthma,

Metastatic castration-resistant

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Adrenergic alpha-receptor agonist,

N/A

8–9 days

SEVERE ACUTE EXACERBATIONS

Catecholamine, Sympathomimetic

Endocrine/Metabolic

Respiratory

Gastrointestinal/Hepatic

Neuromuscular/Skeletal

Central Nervous System

Hair

Skin

AND HEPATOMEGALY

WITH HIV AND HBV, and LACTIC ACIDOSIS

OF HEPATITIS B, PATIENTS CO-INFECTED

Warning:
pediatric patients

prescribing guidelines for:

Important contra-indications noted in the

Pregnancy category:

interactions with:

Clinically important, potentially hazardous

Half-life:

Class:

Indications:

Trade name:

Baraclude (Bristol-Myers Squibb)

Important contra-indications noted in the

prescribing guidelines for: nursing mothers; pediatric patients

Skin

Rash [2]

Hair

Alopecia [2]

Central Nervous System

Headache (2–4%) [3]

Neurotoxicity [3]

Peripheral neuropathy [2]

Neuromuscular/Skeletal

Asthenia (fatigue) (<3%) [6]

Myalgia/Myopathy [3]

Gastrointestinal/Hepatic

Abdominal pain [2]

Diarrhea [2]

Pancreatitis [3]

Respiratory

Cough [2]

Upper respiratory tract infection [2]

Endocrine/Metabolic

Acidosis [6]

ALT increased (2–12%) [2]

Creatine phosphokinase increased (<2%)

Hypophosphatemia [2]

Genitourinary

Hematuria (9%) [2]

Other

Adverse effects [4]

ENZALUTAMIDE

Trade name: Xtandi (Medivation)

Indications: Metastatic castration-resistant prostate cancer in patients who have previously received docetaxel

Class: Androgen antagonist

Half-life: 8–9 days

Clinically important, potentially hazardous interactions with: alfentanil, bosentan, carbamazepine, copainsib, cyclosporine, dihydroergotamine, efavirenz, ergotamine, fentanyl, gemfibrozil, itraconazole, midazolam, midostaurin, modafinil, nafcinil, neratinib, omeprazole, phenobarbital, phenytoin, pimozide, quinine, rifabutin, rifampin, rifapentine, sirolimus, St John’s wort, tacrolimus, warfarin

Pregnancy category: X (not indicated for use in women)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Hot flushes (20%) [11]

Peripheral edema (15%) [3]

Pruritus (4%) [2]

Xerosis (4%) [2]

Mucosal

Epistaxis (nosebleed) (3%) [2]

Cardiovascular

Hypertension (6%) [5]

Central Nervous System

Anosmia (>2%)

Anxiety (7%)

Cognitive impairment (4%)

Gait instability [3]

Hallucinations (2%) [3]

Headache (12%) [4]

Hypoesthesia (4%)

Insomnia (9%)

Mucosal

Paresthesias (7%) [2]

Seizures [12]

Other

Diabetes (26%) [3]

Bone or joint pain (15%) [7]

Fractures (4%) [2]

Gastrointestinal/Hepatic

Constipation [3]

Diarrhea (22%) [9]

Nausea (4%) [2]

Diaper rash [4]

Upper respiratory tract infection (11%) [3]

Endocrine/Metabolic

ALT increased (10%)

Apoptosis decreased [5]

Gynecomatia [2]

Weight loss [3]

Genitourinary

Hematuria (7%) [2]

Pollakiuria (5%)

Hematologic

Anemia [2]

Neutropenia (15%)

Other

Adverse effects [4]

EPINEPHRINE

Trade names: Epipen (Mylan), Adrenaclick (Amedra), Adrenaline (JHP Pharmaceuticals), Auvi-Q (Sanofi-Aventis), Epipen (Mylan)

Indications: Cardiac arrest, hay fever, asthma, anaphylaxis

Class: Catecholamine, Sympathomimetic

Half-life: N/A

Clinically important, potentially hazardous interactions with: albuterol, alpha blockers, amitriptyline, amoxapine, atenolol, beta blockers,

Upper respiratory tract infection (11%) [3]

Diaphoresis (11%)

Fixed eruption [6]

Pallor (<10%)

Urticaria [2]

Mucosal

Xerostomia (<10%) [4]

Central Nervous System

Trembling (<10%)

Tremor (<10%)

EPINEPHRINE

Synonym: adrenaline

Trade names: Adrenaclick (Amedra), Adrenaline (JHP Pharmaceuticals), Auvi-Q (Sanofi-Aventis), Epipen (Mylan)

Indications: Cardiac arrest, hay fever, asthma, anaphylaxis

Class: Catecholamine, Sympathomimetic

Half-life: N/A

Clinically important, potentially hazardous interactions with: albuterol, alpha blockers, amitriptyline, amoxapine, atenolol, beta blockers,
EPIRUBICIN

Trade name: Ellence (Pfizer)

Indications: Adjuvant therapy in primary breast cancer

Class: Antibiotic, anthracycline

Half-life: 33 hours

Clinically important, potentially hazardous interactions with: amiodarone, bepridil, cinemidine, diltiazem, felodipine, isradipine, nicardipine, nilfipidine, nisoldipine, verapamil

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Warning: SEVERE OR LIFE-THREATENING HEMATOLOGICAL AND OTHER ADVERSE REACTIONS

Skin
- Erythroderma (5%)
- Hand-foot syndrome [5]
- Hot flashes (539%) [9]
- Pruritus (9%) [17]
- Rash (<9%) [2]

Hair
- Alopecia (6995%) [17]

Mucosal
- Mucositis [5]

Stomatitis [9]

Cardiovascular
- Cardiotoxicity [3]
- QT prolongation [3]

Central Nervous System
- Anemia [5]
- Dysgeusia (taste perversion) [2]
- Fever [2]
- Headache [2]
- Neurotoxicity [2]
- Peripheral neuropathy [3]

Neuromuscular/Skeletal
- Arthralgia [2]
- Myalgia/Myopathy (55%) [5]

Gastrointestinal/Hepatic
- Abdominal pain [2]
- Constipation [2]
- Diarrhea [7]
- Hepatotoxicity [2]
- Nausea [12]
- Vomiting [11]

Endocrine/Metabolic
- ALT increased [2]
- Amenorrhea [2]
- AST increased [2]

Hematologic
- Anemia [9]
- Febrile neutropenia [5]
- Leukopenia [4]
- Neutropenia [12]
- Thrombocytopenia [5]

Local
- Injection-site reactions (320%)

Other
- Allergic reactions [2]

EPINEPHRINE

Over 100 updates per week on www.drugeruptiondata.com

EPOTIN ALFA

Synonyms: erythropoietin; EPO

Trade names: Epogen (Amgen), Eprex (Janssen-Cilag), Procrit (Ortho)

Indications: Anemia

Class: Erythropoiesis-stimulating agent (ESA), Erythropoietin

Half-life: 413 hours (in patients with chronic renal failure)

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Warning: ERYTHROPOIESIS-STIMULATING AGENTS (ESAs) INCREASE THE RISK OF DEATH, MYOCARDIAL INFARCTION, STROKE, VENOUS THROMBOEMBOLISM, THROMBOSIS OF VASCULAR ACCESS AND TUMOR PROGRESSION OR RECURRENCE

Skin
- Angioedema (<5%)
- Edema (17%)
- Pruritus (12-21%) [2]
- Rash (2-19%)

Cardiovascular
- Hypertension (3-28%)

Central Nervous System
- Fever (10-42%) [2]
- Headache (5-18%) [12]
- Paresthesias (11%)

Neuromuscular/Skeletal
- Arthralgia (10-16%)

Gastrointestinal/Hepatic
- Constipation [2]
- Nausea (35-56%)

Respiratory
- Cough (4-26%)
- Dyspnea [2]

Hematologic
- Thrombocytopenia [2]

Ocular
- Hallucinations, visual [2]

Local
- Injection-site reactions (7%)

EPOPROSTENOL

Trade names: Flolan (GSK), Veletri (Actelion)

Indications: Pulmonary arterial hypertension

Class: Peripheral vasodilator

Half-life: 6 minutes

Clinically important, potentially hazardous interactions with: anticoagulants, diuretics, vasodilators

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Contra-indicated in patients with heart failure induced by reduced left ventricular ejection fraction.
EMERGLIN

ERGOTAMINE

Trade name: Wigrettes (Organon)
Indications: Migraine, migraine variants
Class: Ergot alkaloid
Half-life: 2 hours
Clinically important, potentially hazardous interactions with: acetabulol, almotriptan, ampanavir, azithromycin, boceprevir, ceritinib, chlorotetracycline, crizotinib, darunavir, dasabuvir/ombitasvir/paritaprevir/ritonavir, dasatinib, delavirdine, demeclocycline, doxycycline, eluxadoline, enalaprilat, epinephrine, erythromycin, indinavir, itraconazole, lopinavir, lymecycline, methylprednisolone, mifepristone, minocycline, naraniprant, nelfinavir, nilotinib, ombitasvir/paritaprevir/ritonavir, oxetacycline, pasipramol, propylhormone, ribociclib, ritonavir, telaprevir, telithromycin, tetracycline, tegacycline, tipranavir, troleanzyme, voriconazole, warfarin
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: Ergotamine is excreted in breast milk and may cause symptoms of vomiting, diarrhea, weak pulse and unstable blood pressure in nursing infants.

Skin
Toxicity [4]
Cardiovascular
Valvulopathy [3]
Respiratory
Pleural effusion [2]

ERIBULIN

Trade name: Halaven (Eisai)
Indications: Metastatic breast cancer in patients who have previously received at least two chemotherapy regiments (prior therapy should have included an anthracycline and a taxane in either the adjuvant or metastatic setting), unresectable or metastatic liposarcoma in patients who have received a prior anthracycline-containing regimen
Class: Antineoplastic, Microtubule inhibitor
Half-life: 40 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (No available data but caused embryo-fetal toxicity in animal studies)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Peripheral edema (5–10%)
Rash (5–10%)
Hair
Alopecia (45%) [10]
Mucosal
Mucosal inflammation (9%)
Stomatitis (5–10%)
Xerostomia (5–10%)

ERGOMETRINE

Trade name: Ergometrine (Hameln)
Indications: Management of the third stage of labor and in the treatment of postpartum hemorrhage
Class: Amine alkaloid
Half-life: N/A
Clinically important, potentially hazardous interactions with: halothane, sympathomimetic agents
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Cardiovascular
Myocardial infarction [4]
Myocardial ischemia [3]

ERGOalciferol

See: www.drugerupiondata.com/drug/id/264

ERDOSINE

See: See: www.drugerupiondata.com/drug/id/1258

EPTIFIBATIDE

Trade name: Integrinl (Merck)
Indications: Acute coronary syndrome, unstable angina
Class: Antiplatelet, Glycoprotein Ilb/llla inhibitor
Half-life: 2.5 hours
Clinically important, potentially hazardous interactions with: anticoagulants, antiplatelet agents, collagenase, dansatinib, drotrecogin alfa, fondaparinux, glucosamine, ibritumomab, iloprost, lepinulin, NSAIDs, pentoxifylline, salicylates, thrombolytic agents, tositumomab & iodine [131]
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with a history of bleeding diathesis, or evidence of active abnormal bleeding within the previous 30 days; severe hypertension not adequately controlled on antihypertensive therapy; major surgery within the preceding 6 weeks; history of stroke within 30 days or any history of hemorrhagic stroke; current or planned administration of another parenteral GP Ilb/Ilia inhibitor; or dependency on renal dialysis

Cardiovascular
Hypotension (7%)

Hematologic

Other
Adverse effects [3]

Central Nervous System
Dysgeusia (taste perversion) [2]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Arthralgia (2%)
Asthenia (fatigue) (2%)

Gastrointestinal/Hepatic
Abdominal pain (2%)

Respiratory
Cough (4%) [3]
Pharyngitis (4%) [2]

Other
Adverse effects [3]
Central Nervous System
Anorexia (20%) [3]
Depression (5–10%)
Dysgeusia (taste perversion) (5–10%)
Fever (21%)
Headache (19%)
Insomnia (5–10%)
Neurotoxicity [6]
Peripheral neuropathy (35%) [25]
Vertigo (dizziness) (5–10%)

Neuromuscular/Skeletal
Arthralgia (22%)
Asthenia (fatigue) (54%) [29]
Back pain (16%)
Myalgia/Myopathy (22%)
Pain in extremities (11%)

Gastrointestinal/Hepatic
Abdominal pain (5–10%)
Constipation (25%) [2]
Diarrhea (18%) [3]
Dyspepsia (5–10%)
Hepatotoxicity [2]
Nausea (35%) [9]
Vomiting (18%)

Respiratory
Cough (14%) [2]
Dyspnea (16%) [2]
Upper respiratory tract infection (5–10%)

Endocrine/Metabolic
Appetite decreased [2]
Hypokalemia (5–10%)
Weight loss (21%)

Genitourinary
Urinary tract infection (10%)

Hematologic
Anemia (58%) [11]
Febrile neutropenia (5%) [14]
Leukopenia [16]
Lymphopenia [3]
Neutropenia (82%) [47]

Ocular
Lacrimation (increased) (5–10%)

Other
Adverse effects [3]
Death [2]

ERIBULIN

Trade name: Tarceva (OSI)
Indications: Non-small cell lung cancer, pancreatic cancer (with gemcitabine)
Class: Antineoplastic, Biologic, Epidermal growth factor receptor (EGFR) inhibitor, Tyrosine kinase inhibitor
Half-life: ~36 hours
Clinically important, potentially hazardous interactions with: atazanavir, capcetabine, carbamazepine, ciprofloxacin, clarithromycin, dicyclomine, itraconazole, ketoconazole, meloxicam, nefazodone, nelfinavir, omeprazole, pantoprazole, phenobarbital, phenoxyin, rifabutin, rifampin, rifapentine, ritonavir, saquinavir, St John’s wort, troleandomycin, voriconazole, warfarin

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers, pediatric patients

Skin
Acne keloid [2]
Acneform eruption [27]
Dermatitis [4]
DRESS syndrome [2]
Erythema (18%) [3]
Exanthems [3]
Folliculitis [9]
Hand-foot syndrome [3]
Papulopustular eruption [9]
Pruritus (13%) [8]
 Purpura [3]
Rash (75%) [112]
Rosacea [2]
Toxicity [9]
Xerosis (12%) [12]

Hair
Alopecia [10]
Hair changes [4]
Hypertrichosis [4]

Nails
Nail changes [3]
Paronychia [11]

Mucosal
Mucositis [10]
Stomatitis (17%) [10]

Cardiovascular
Hypertension [2]

Central Nervous System
Anorexia [9]
Fever [2]

Neuromuscular/Skeletal
Asthenia (fatigue) (52%) [31]
Rhabdomyolysis [2]

Gastrointestinal/Hepatic
Abdominal pain (11%) [2]
Cholangitis [2]
Diarrhea [67]
Gastrointestinal bleeding [3]
Hepatotoxicity [13]
Nausea [16]

Ocular
Lacrimation (increased) (5–10%)

Other
Adverse effects [3]
Death [2]

ERTAPENEM

Trade name: Invanz (Merck)
Indications: Severe resistant bacterial infections caused by susceptible organisms
Class: Antibiotic, carbapenem
Half-life: 4 hours
Clinically important, potentially hazardous interactions with: probenecid
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Skin
Edema (3%)
Erythema (<2%)
Pruritus (<2%)
Rash (23%)
Wound complications [2]

Cardiovascular
Phlebitis (2%)
Thrombophlebitis (2%)

Central Nervous System
Delirium [2]
Hallucinations [2]
Seizures [7]

Gastrointestinal/Hepatic
Nausea [2]

Respiratory
Cough (<2%)

Genitourinary
Vaginitis (<3%)

Local
Injection-site extravasation (2%)

Other
Death (2%)

ERYTHROMYCIN

Trade names: Eryc (Warner Chilcott), PCE (AbbVie)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, macrolide, CYP3A4 inhibitor
Half-life: 1.42 hours
Clinically important, potentially hazardous interactions with: aminoglycosides, amphotericin, amoxicillin, ampicillin, anticonvulsants, arsenic, amnesteem, atorvastatin, avanafil, benzodiazepines, bosentan, bronchodilators, buspirone, bunropion, carbapenem, cilostazol, ciprofloxacin,
ESCITALOPRAM

Trade name: Lexapro (Forest)

Indications: Major depressive disorders, anxiety

Class: Antidepressant, Selective serotonin reuptake inhibitor (SSRI)

Half-life: 27±2 hours

Clinically important, potentially hazardous interactions with: alcohol, bupropion, MAO inhibitors, methylphenidate, omeprazole, selegiline, St John's wort, sumatriptan, telaprevir, valerian

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Skin

Diaphoresis (5%)
Hot flashes (<10%)
 Rash (<10%)

Mucosal

Oral vesication (<1%)
Xerostomia (6%) [6]

Cardiovascular

QT prolongation [9]
Torsades de pointes [2]

Central Nervous System

Anxiety [2]
Headache (24%) [5]
Insomnia (9–12%) [4]
Paresthesias (<10%)
Restless legs syndrome [5]
Serotonin syndrome [5]
Somniaolence (drowsiness) (6–13%) [7]
Tremor (<10%)
Vertigo (dizziness) (5%) [6]

Neuromuscular/Skeletal

Asthenia (fatigue) [4]
Myalgia/Myopathy (<10%)

Gastrointestinal/Hepatic

Abdominal pain [3]
Constipation [2]
Diarrhea [3]
Dry mouth [4]
Nausea [9]
Vomiting [3]

Respiratory

Cough (<10%)
Flu-like syndrome (5%)

Endocrine/Metabolic

Glucocorticoid [2]
Gynecomastia [3]

Genitourinary

Ejaculatory dysfunction (9–14%)
Sexual dysfunction [4]

Otic

Tinnitus (<10%)

Other

Allergic reactions (<2%)

ESLICARBAZEPINE

Trade names: Aptiom (Sunovion), Zebrin (Eisai)

Indications: Partial-onset seizures

Class: Antiepileptic

Half-life: 13–20 hours

Clinically important, potentially hazardous interactions with: carbamazepine, digoxin, lamotrigine, levetiracetam, MAO inhibitors, oral contraceptives, oxcarbazepine, phenytoin, topiramate, valproic acid, warfarin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Peripheral edema (<2%)
 Rash (<3%) [2]

Cardiovascular

Hypertension (<2%)

Central Nervous System

Balance disorder (3%)
Depression (<3%)
Dysarthria (<2%)
Gait instability (2%) Headache (13–15%) [12]
Incoordination [3]
Insomnia (2%) Somnolence (drowsiness) (11–18%) [15]
Tremor (2–4%) Vertigo (dizziness) (20–28%) [20]

Neuromuscular/Skeletal

Asthenia (fatigue) (4–7%) [7]
Ataxia (4–6%)

Gastrointestinal/Hepatic

Constipation (2%)
Diarrhea (2–4%)
Nausea (10–16%) [10]
Vomiting (6–10%) [4]

Respiratory

Cough (<2%)
Nasopharyngitis [2]

Endocrine/Metabolic

Hypoparathyroidism (2%) [3]

Genitourinary

Urinary tract infection (2%)

Ocular

Diplopia (9–11%) [8]
Nystagmus (<2%)
Vision blurred (5–6%) [3]
Vision impaired (<2%)

ESMOLOL

Trade name: Brevibloc (Baxter)

Indications: Tachyarrhythmias, tachycardia

Class: Adrenergic beta-receptor antagonist, Antiarrhythmic class II

Half-life: 9 minutes

Clinically important, potentially hazardous interactions with: clonidine, verapamil
ESOMEPRAZOLE

Trade name: Nexium (AstraZeneca)

Indications: Gastroesophageal reflux disease

Class: Proton pump inhibitor (PPI)

Half-life: 1.5 hours

Clinically important, potentially hazardous interactions with: benzodiazepines, chlorzoxazone, clobazam, diazepam, digoxin, flurazepam, lorazepam, midazolam, oxazepam, posaconazole, quazepam, rifampin, rilpivirine, St John’s wort, temazepam, tipranavir, voriconazole

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Diaphoresis (>10%)

Cardiovascular
Bradycardia [5]
Hypotension [12]

Local
Injection-site pain (8%)
Injection-site reactions (<1%) [10]

Other
Death [2]

ESTRADIOL

Trade names: Alora (Watson), Climara (Bayer), Divigel (Upsher-Smith), Estrin (Azur Pharma), Esclim (Women First), Estrace (Bristol-Myers Squibb) (Warner Chilcott), Estraderm (Novartis), Estrin (Pharmacia & Upjohn), Estrogen (Ascend), Evamist (KV Pharm), Fempatch (Pfizer), Gynodiol (Barr), Innoferm (Novo Nordisk), Menostar (Bayer), Vagifem (Novo Nordisk), Vivelle (Novartis), Vivelle-Dot (Novartis)

Indications: Menopausal symptoms, hypoestrogenism due to hypogonadism, castration or primary ovarian failure, postmenopausal osteoporosis

Class: Estrogen, Hormone

Half-life: 1.75±2.87 hours

Clinically important, potentially hazardous interactions with: alcohol, amphenar, anastrozole, ascorbic acid, atorvastatin, boceprevir, carbamazepine, chenodiol, clarithromycin, colestipol, colacevelam, conivaptan, corticosteroids, CYP1A2 inducers, CYP3A4 inducers, deferisirox, delavirdine, erythromycin, folic acid, grapefruit juice, itraconazole, ketoconazole, lopinavir, minocycline, omeprazole, Pgp-glycoprotein inhibitors or inducers, PEG-interferon, phenobarbital, rifampin, ritonavir, ropinirrole, saxaglitin, somatropin, St John’s wort, telaprevir, thyroid products, tipranavir, Ursodiol

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
DRESS syndrome [2]
Fixed eruption [2]
Lupus erythematosus [2]

Central Nervous System
Dysgeusia (taste perversion) [3]
Fever [2]
Headache (8–11%) [6]
Somnolence (drowsiness) [2]
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Rhombodysosis [2]

Gastrointestinal/Hepatic
Abdominal pain [3]
Constipation [3]
Diarrhea [7]
Nausea [5]
Vomiting [4]

Respiratory
Bronchitis (4%)

Endocrine/Metabolic
Hypomagnesemia [2]

Other
Adverse effects [6]

ESTAZOLAM

See: www.drugeruptiondata.com/drug/id/267

Skin
Angioedema [2]
Edema (>10%) [4]
Peripheral edema [2]
Pruritus (2%) [2]
Purpura (3%) [2]
Xerosis (2%) [2]

Cardiovascular
Thrombophlebitis (3%)

Neuromuscular/Skeletal
Ashtenia (fatigue) [3]

Gastrointestinal/Hepatic
Diarrhea [3]
Nausea [3]

Endocrine/Metabolic
Gynecomastia (>10%) [5]
Mastodynia (66%) [5]

Hematologic
Anemia [3]
Febrile neutropenia [2]
Leukopenia [2]
Neutropenia [5]

Local
Injection-site thrombophlebitis (<1%) [3]

Other
Allergic reactions [2]
Death [2]

ESTROGENS

See: www.drugeruptiondata.com/drug/id/269

ESZOPICLONE

Trade names: Emcyt (Pfizer), Imovane (Sanofi-Aventis), Lunesta (Sanovion), Zimovane (Sanofi-Aventis)

Indications: Insomnia

Class: Hypnotic, non-benzodiazepine

Half-life: 6 hours

Clinically important, potentially hazardous interactions with: alcohol, antifungals, cilostazol, colazepam, diphenhydramine, diuretics, enalapril, flurazepam, lorazepam, nefazodone, nelfinavir, olanzapine, oxazepam, phenobarbital, phenytoin, phenprocoumon, prasugrel, propafenone, propoxyphene, quinidine, ritonavir, rosuvastatin, sulindac, tramadol, ticlopidine, valproic acid, voriconazole

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Pruritus (<4%)
Rash (<5%)

Mucosal
Xerostomia (3–7%) [5]

Central Nervous System
Abnormal dreams (<3%)
Amnesia [3]
Anxiety (<3%)
Confusion (<3%)
Depression (<4%)
Dysgeusia (taste perversion) (8–34%) [21]
Hallucinations (<3%)  
Headache (15–21%) [8]  
Nervousness (<3%)  
Neurotoxicity (<3%)  
Pain (4–5%)  
Somnolence (drowsiness) (8–10%) [2]  
Vertigo (dizziness) [3]  
**Gastrointestinal/Hepatic**  
Diarrhoea (2–4%)  
Dyspepsia (2–6%)  
Nausea (4–5%) [2]  
Vomiting (<3%)  
**Endocrine/Metabolic**  
Gynaecomastia (<3%)  
Libido decreased (<3%)  
**Genitourinary**  
Dysmenorrhoea (<3%)  
Urinary tract infection (<3%)  
**Other**  
Adverse effects [4]  
Infection (3–10%)  

**ETAMSYLATE**  
See: www.drugeruptiondata.com/drug/id/1374  

**ETANERCEPT**  
**Trade names:** Enbrel (Amgen), Erelzi (Sandoz)  
**Indications:** Rheumatoid arthritis, polyarticular juvenile idiopathic arthritis in patients aged 2 years or older, psoriatic arthritis, ankylosing spondylitis, plaque psoriasis  
**Class:** Cytokine inhibitor, Disease-modifying antirheumatic drug (DMARD), TNF inhibitor  
**Half-life:** 4–13 days  
**Clinically important, potentially hazardous interactions with:** abactept, anakinra, cyclophosphamide, live vaccines  
**Pregnancy category:** B  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients  
**Note:** TNF inhibitors should be used in patients with heart failure only after consideration of other treatment options. Contra-indicated in patients with sepsis. TNF inhibitors are contra-indicated in patients with a personal or family history of multiple sclerosis or demyelinating disease. TNF inhibitors should not be administered to patients with moderate to severe heart failure (New York Heart Association Functional Class III/IV).  
**Warning:** SERIOUS INFECTIONS AND MALIGNANCIES  

**Skin**  
Abscess [2]  
Anaphylactoid reactions/Anaphylaxis [2]  
Carcinoma [2]  
Cellulitis [2]  
Dermatitis [3]  
Dermatomyositis [4]  
Exanthes [2]  
Granulomas [2]  
Granulomatous reaction [5]  
Henoch-Schönlein purpura [3]  
Herpes zoster [5]  
Hidradenitis [2]  
Leprosy [2]  
Lichen planus [2]  
Lichenoid eruption [3]  
Lupus erythematosus [25]  
Lupus syndrome [3]  
Lymphoma [3]  
Malignancies (<3%) [3]  
Melanoma [2]  
Neoplasms [2]  
Nodular eruption [3]  
Pruritus (2–5%) [2]  
Psoriasis [19]  
Pustules [2]  
Rash (3–13%) [7]  
Sarcoidosis [10]  
Squamous cell carcinoma [4]  
Urticaria (2%) [2]  
Vasculitis [23]  
Hair  
Alopecia [5]  
**Cardiovascular**  
Atrial fibrillation [2]  
Cardiotoxicity [2]  
Hypertension [2]  
**Central Nervous System**  
Fever (2–3%)  
Headache [16]  
Leukoencephalopathy [3]  
Multiple sclerosis [2]  
Neurotoxicity [4]  
Paresthesias [2]  
Peripheral neuropathy [2]  
Vertigo (dizziness) [2]  
**Neuromuscular/Skeletal**  
Asthenia (fatigue) [7]  
Back pain [2]  
Myalgia/Myopathy [2]  
Myasthenia gravis [3]  
**Gastrointestinal/Hepatic**  
Abdominal pain [3]  
Crohn's disease [4]  
Diarrhoea (8–16%) [4]  
Gastroenteritis [3]  
Hepatotoxicity [4]  
Inflammatory bowel disease [2]  
Malignancies (<3%) [3]  
**Respiratory**  
Asthma [2]  
Bronchitis [4]  
Cough [4]  
Flu-like syndrome [3]  
Laryngitis [2]  
Nasopharyngitis [3]  
Pharyngitis [4]  
Pneumonia [5]  
Pneumonitis [2]  
Pulmonary toxicity [4]  
Rhinitis [4]  
Sinositis [3]  
Tuberculosis [2]  
Urticaria (<4%)  
**Cardiovascular**  
Cardiac failure (<4%)  
**Central Nervous System**  
Headache (8%)  
Paresthesias (6%)  
**Neuromuscular/Skeletal**  
Muscle spasm (12%)  
Myalgia/Myopathy (2%)  
**Gastrointestinal/Hepatic**  
Diarrhoea (1%)  
Pruritus (<4%)  
Urticaria (<4%)  
**Skin**  
Facial edema (<4%)  
Hypersensitivity (4%)  
**Other**  
Adverse effects [36]  
Allergic reactions (<3%)  
Death [6]  
Infection (50–81%) [43]  

**ETELCALCETIDE**  
**Trade name:** Parsabiv (Amgen)  
**Indications:** Secondary hyperparathyroidism in adult patients with chronic kidney disease on haemodialysis  
**Class:** Calcimimetic  
**Half-life:** 3–4 days  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** N/A (No data available)  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  

**Skin**  
Abscess [2]  
Anaphylactoid reactions/Anaphylaxis [2]  
Carcinoma [2]  
Cellulitis [2]  
Dermatitis [3]  
Dermatomyositis [4]  
Exanthes [2]  
Granulomas [2]  
Granulomatous reaction [5]  
Henoch–Schönlein purpura [3]  
Herpes zoster [5]  
Hidradenitis [2]  
Leprosy [2]  
Lichen planus [2]  
Lichenoid eruption [3]  
Lupus erythematosus [25]  
Lupus syndrome [3]  
Lymphoma [3]  
Malignancies (<3%) [3]  
Melanoma [2]  
Neoplasms [2]  
Nodular eruption [3]  
Pruritus (2–5%) [2]  
Psoriasis [19]  
Pustules [2]  
Rash (3–13%) [7]  
Sarcoidosis [10]  
Squamous cell carcinoma [4]  
Urticaria (2%) [2]  
Vasculitis [23]  
Hair  
Alopecia [5]  
**Cardiovascular**  
Atrial fibrillation [2]  
Cardiotoxicity [2]  
Hypertension [2]  
**Central Nervous System**  
Fever (2–3%)  
Headache [16]  
Leukoencephalopathy [3]  
Multiple sclerosis [2]  
Neurotoxicity [4]  
Paresthesias [2]  
Peripheral neuropathy [2]  
Vertigo (dizziness) [2]  
**Neuromuscular/Skeletal**  
Asthenia (fatigue) [7]  
Back pain [2]  
Myalgia/Myopathy [2]  
Myasthenia gravis [3]  
**Gastrointestinal/Hepatic**  
Abdominal pain [3]  
Crohn's disease [4]  
Diarrhoea (8–16%) [4]  
Gastroenteritis [3]  
Hepatotoxicity [4]  
Inflammatory bowel disease [2]  
Malignancies (<3%) [3]  
**Respiratory**  
Asthma [2]  
Bronchitis [4]  
Cough [4]  
Flu-like syndrome [3]  
Laryngitis [2]  
Nasopharyngitis [3]  
Pharyngitis [4]  
Pneumonia [5]  
Pneumonitis [2]  
Pulmonary toxicity [4]  
Rhinitis [4]  
Sinositis [3]  
Tuberculosis [2]  
Urticaria (<4%)  
**Cardiovascular**  
Cardiac failure (<4%)  
**Central Nervous System**  
Headache (8%)  
Paresthesias (6%)  
**Neuromuscular/Skeletal**  
Muscle spasm (12%)  
Myalgia/Myopathy (2%)  
**Gastrointestinal/Hepatic**  
Diarrhoea (1%)  
Pruritus (<4%)  
Urticaria (<4%)  
**Skin**  
Facial edema (<4%)  
Hypersensitivity (4%)  
**Other**  
Adverse effects [36]  
Allergic reactions (<3%)  
Death [6]  
Infection (50–81%) [43]  

**ETHACRYNIC ACID**  
See: www.drugeruptiondata.com/drug/id/271
**ETHAMBUTOL**

*Trade name:* Myambutol (Stat Trade)
*Indications:* Tuberculosis
*Class:* Antimycobacterial
*Half-life:* 34 hours

Clinically important, potentially hazardous interactions with: cortisone, zinc

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Skin**
- Bullous dermatitis [2]
- Dermatitis [2]
- DRESS syndrome [5]
- Erythema multiforme [2]
- Exanthems (<5%) [4]
- Hypersensitivity [3]
- Lichenoid eruption [2]
- Lupus erythematosus [2]
- Pruritus [4]
- Rash [2]
- Toxic epidermal necrolysis [2]
- Urticaria [2]

**Renal**
- Nephrotoxicity [2]

**Ocular**
- Amblyopia [2]
- Ocular toxicity [9]
- Optic neuritis [4]
- Optic neuropahty [9]
- Vision impaired [2]

**Other**
- Adverse effects [4]

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**ETHANOLAMINE**

See: www.drugeruptiondata.com/drug/id/273

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**ETHCHLORVYNOL**

See: www.drugeruptiondata.com/drug/id/274

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**ETHIONAMIDE**

See: www.drugeruptiondata.com/drug/id/275

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**ETHOSUXIMIDE**

*Trade name:* Zarontin (Pfizer)
*Indications:* Absence (petit mal) seizures
*Class:* Antiepileptic, succinimide
*Half-life:* 5060 hours

Clinically important, potentially hazardous interactions with: antipsychotics, carbamazepine, chloroquine, cobicistat/elvitegravir/emericitabine/tenofovir alafenamide, cobicistat/elvitegravir/emericitabine/tenofovir disoproxil, hydroxychloroquine, isoniazid, levomepromazine, lisdexamfetamine, MAO inhibitors, mefloquine, nevirapine, orlistat, phenobarbital, phenytoin, primidone, risperidone, SSRIs, St John’s wort, tricyclic antidepressants, valproic acid, zidovudine

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Skin**
- Erythema [2]
- Dermatitis [2]
- Erythema multiforme [2]
- Exanthems (<5%) [4]
- Hypersensitivity [3]
- Lichenoid eruption [2]
- Lupus erythematosus [2]
- Pruritus [4]
- Rash [2]
- Toxic epidermal necrolysis [2]
- Urticaria (3%) [2]

**Other**
- Adverse effects [4]

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**ETHIDRONATE**

See: www.drugeruptiondata.com/drug/id/1951

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**ETOPOSIDE**

*Trade name:* VePesid (Bristol-Myers Squibb)
*Indications:* Lymphomas, carcinomas
*Class:* Topoisomerase 2 inhibitor
*Half-life:* 4–11 hours

Clinically important, potentially hazardous interactions with: aldesleukin, atovaquone, atovaquone/proguanil, cyclosporine, gadobenate dimeglumine, St John's wort

**Pregnancy category:** D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

**Skin**
- Exanthems (<2%) [2]
- Erythema [3]
- Exanthems [4]
- Hypersensitivity [9]
- Pigmentation [2]
- Raynaud's phenomenon [3]
- Stevens-Johnson syndrome [3]
- Toxicity [2]

**Hair**
- Alopecia (86%) [8]

[Mucosal]
- Mucositis (>10%) [2]
- Oral lesions (<5%) [2]
- Stomatitis (<10%) [2]

**Cardiovascular**
- Flushing [3]

**Central Nervous System**
- Anorexia [2]
- Leukoencephalopathy [2]
- Neurotoxicity [3]

**Neuromuscular/Skeletal**
- Anorexia (fatigue) [4]

**Gastrointestinal/Hepatic**
- Diarrhea [2]

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**ETHOTINOIN**

See: www.drugeruptiondata.com/drug/id/277

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**ETHOZOLAMIDE**

See: www.drugeruptiondata.com/drug/id/1951

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**ETIDROLAC**

*Trade name:* Lodine (Wyeth)
*Indications:* Pain
*Class:* COX-2 inhibitor, Non-steroidal anti-inflammatory (NSAID)
*Half-life:* 7 hours

Clinically important, potentially hazardous interactions with: aspirin, metotrexate

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

**Skin**
- Exanthems (<2%) [2]
- Erythema [3]
- Erythema multiforme [2]
- Exanthems (>10%) [22]
- Raynaud's phenomenon [3]
- Stevens-Johnson syndrome (>10%)
- Urticaria (5%)

**Hematologic**
- Agranulocytosis [2]

**Other**
- Side effects (3%)

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**ETOMIDATE**

See: www.drugeruptiondata.com/drug/id/1399

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**SIDE EFFECTS (3%)**

- Agranulocytosis [2]

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**ETHOSUXIMIDE**

*Trade name:* Zarontin (Pfizer)
*Indications:* Absence (petit mal) seizures
*Class:* Antiepileptic, succinimide
*Half-life:* 5060 hours

Clinically important, potentially hazardous interactions with: antipsychotics, carbamazepine, chloroquine, cobicistat/elvitegravir/emericitabine/tenofovir alafenamide, cobicistat/elvitegravir/emericitabine/tenofovir disoproxil, hydroxychloroquine, isoniazid, levomepromazine, lisdexamfetamine, MAO inhibitors, mefloquine, nevirapine, orlistat, phenobarbital, phenytoin, primidone, risperidone, SSRIs, St John’s wort, tricyclic antidepressants, valproic acid, zidovudine

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Skin**
- Bullous dermatitis [2]
- Dermatitis [2]
- DRESS syndrome [5]
- Erythema multiforme [2]
- Exanthems (<5%) [4]
- Hypersensitivity [3]
- Lichenoid eruption [2]
- Lupus erythematosus [2]
- Pruritus [4]
- Rash [2]
- Toxic epidermal necrolysis [2]
- Urticaria [2]

**Renal**
- Nephrotoxicity [2]

**Ocular**
- Amblyopia [2]
- Ocular toxicity [9]
- Optic neuritis [4]
- Optic neuropathy [9]
- Vision impaired [2]

**Other**
- Adverse effects [4]

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**ETHANOLAMINE**

See: www.drugeruptiondata.com/drug/id/273

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**ETHCHLORVYNOL**

See: www.drugeruptiondata.com/drug/id/274

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**ETHIONAMIDE**

See: www.drugeruptiondata.com/drug/id/275

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**ETHOSUXIMIDE**

*Trade name:* Zarontin (Pfizer)
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*Class:* Antiepileptic, succinimide
*Half-life:* 5060 hours

Clinically important, potentially hazardous interactions with: antipsychotics, carbamazepine, chloroquine, cobicistat/elvitegravir/emericitabine/tenofovir alafenamide, cobicistat/elvitegravir/emericitabine/tenofovir disoproxil, hydroxychloroquine, isoniazid, levomepromazine, lisdexamfetamine, MAO inhibitors, mefloquine, nevirapine, orlistat, phenobarbital, phenytoin, primidone, risperidone, SSRIs, St John’s wort, tricyclic antidepressants, valproic acid, zidovudine

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Skin**
- Exanthems (<2%) [2]
- Erythema [3]
- Exanthems [4]
- Hypersensitivity [9]
- Pigmentation [2]
- Raynaud’s phenomenon [3]
- Stevens-Johnson syndrome [3]
- Toxicity [2]

**Hair**
- Alopecia (86%) [8]

[Mucosal]
- Mucositis (>10%) [2]
- Oral lesions (<5%) [2]
- Stomatitis (<10%) [2]

**Cardiovascular**
- Flushing [3]

**Central Nervous System**
- Anorexia [2]
- Leukoencephalopathy [2]
- Neurotoxicity [3]

**Neuromuscular/Skeletal**
- Anorexia (fatigue) [2]

**Gastrointestinal/Hepatic**
- Diarrhea [2]
EVEROLIMUS

Trade names: Afinitor (Novartis), Certican (Novartis), Zortress (Novartis)

Indications: Prophylaxis of organ rejection in adults following kidney or liver transplant, advanced renal cell carcinoma, neuroendocrine tumors of pancreatic, gastrointestinal or lung origin, breast cancer in post-menopausal women with advanced hormone-receptor positive, HER2-negative type cancer, renal angiomylipoma and tuberous sclerosis complex, subependymal giant cell astrocytoma associated with tuberous sclerosis

Class: Antineoplastic, Immunosuppressant, mTOR inhibitor

Half-life: ~30 hours

Clinically important, potentially hazardous interactions with: aprepitant, atazanavir, atorvastatin, benazepril, captopril, clarithromycin, clozapine, conivaptan, cyclosporine, darunavir, delavirdine, digoxin, efavirenz, enalapril, erythromycin, grapefruit juice, indinavir, itraconazole, ketoconazole, lopinavir, lusinipril, live vaccines, nelfinavir, oxcarbazepine, phenytoin, posaconazole, quinapril, ramipril, ribociclib, ritampin, rifapentine, ritonavir, saquinavir, St John's wort, telithromycin, venecloxal, verapamil, voriconazole

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: In immunosuppression therapy: MALIGNANCIES AND SERIOUS INFECTIONS, KIDNEY GRAFT THROMBOSIS; NEPHROTOXICITY

In heart transplantation: MORTALITY

Skin

Acneform eruption (3–25%) [5]
Angioedema [4]
Cellulitis (21%) [4]
Contact dermatitis (14%) [4]
Edema (39%) [4]
Erythema (49%) [4]
Excoriations (14%) [9]
Hand-foot syndrome (3%) [9]
Hypersensitivity [2]
Lymphedema [2]
Peripheral edema (4–39%) [8]
Pityriasis rosea (4%) [2]
Pruritus (14–21%) [5]
Rash (18–59%) [47]
Tinea (18%) [9]
Toxicity [9]
Xerosis (13–18%)

Nails

Nail disorder (4–22%) [2]

Mucosal

Aphthous stomatitis [4]
Epistaxis (nosebleed) (18–22%) [3]
Mucosal inflammation (19%) [3]
Mucositis [17]
Nasal congestion (14%) [4]
Oral ulceration [4]
Oropharyngeal pain (11%) [4]
Rhinorrhea (1%) [3]
Stomatitis (44–86%) [70]
Xerostomia (8–11%)  

**Cardiovascular**  
Chest pain (5%)  
Hypertension (4–13%) [14]  
Tachycardia (3%)  

**Central Nervous System**  
Anorexia (25%) [12]  
Anxiety (7%)  
Chills (4%)  
Dysgeusia (taste perversion) (10–19%) [2]  
Fever (20–32%) [7]  
Headache (18–30%) [4]  
Insomnia (9%)  
Migraine (30%)  
Seizures (29%)  
Somnolence (drowsiness) (7%)  
Vertigo (dizziness) (7–14%)  

**Neuromuscular/Skeletal**  
Arthralgia (15%)  
Asthenia (fatigue) (7–45%) [60]  
Back pain (15%)  
Jaw pain (3%)  
Muscle spasm (10%)  
Pain in extremities (10–14%)  

**Gastrointestinal/Hepatic**  
Abdominal pain (9–36%) [4]  
Constipation (11–14%)  
Diarrhea (25–50%) [34]  
Dysphagia (4%)  
Gastritis (7%)  
Gastroenteritis (18%)  
Gastrointestinal bleeding [3]  
Hemorrhoids (5%)  
Hepatotoxicity [7]  
Nausea (26–32%) [10]  
Pancreatitis [2]  
Pain (20–29%) [3]  

**Respiratory**  
Cough (21–30%) [6]  
Dyspnea (20–24%) [7]  
Nasopharyngitis (25%)  
Pharyngitis (11%)  
Pharyngolaryngeal pain (4%)  
Pharyngitis (11%)  
Platelets decreased (23–45%)  
Sepsis (2)  
Thrombocytopenia (20)  

**Otic**  
Otosis media (36%)  

**Ocular**  
Conjunctivitis (2%)  
Eyelid edema (4%) [2]  
Ocular hyperemia (4%)  

**Other**  
Adverse effects [29]  
Death [8]  
Infection (18%) [29]  
Side effects [2]  

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**EVOLOCUMAB**  
Trade name: Repatha (Amgen)  
**Indications:** Heterozygous or homozygous familial hypercholesterolemia where additional lowering of low density lipoprotein cholesterol is required  

**Class:** Monoclonal antibody, Proprotein convertase subtilisin kexin type 9 (PCSK9) inhibitor  

**Half-life:** 11–17 days  

**Clinically important, potentially hazardous interactions with:** efavirenz, oxcarbazepine, rifampin  

**Pregnancy category:** X  

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  

**Mucosal**  
Nasal congestion [2]  
Oropharyngeal pain [2]  

**Cardiovascular**  
Hypertension (2%)  

**Central Nervous System**  
Headache (4%) [10]  
Neurotoxicity [2]  
Vertigo (dizziness) (3%)  

**Neuromuscular/Skeletal**  
Arthralgia (2%) [8]  
Asthenia (fatigue) [3]  
Back pain (2–6%) [10]  
Bone or joint pain (3%) [3]  

**Endocrine/Metabolic**  
Weight loss (9–28%) [3]  
Genitourinary  
Urinary tract infection (15%)  

**Renal**  
Nephrotoxicity [5]  
Proteinuria (7%) [15]  
Renal failure (3%) [3]  

**Hematologic**  
Anemia [33]  
Febrile neutropenia [5]  
Hemoglobin decreased (66–92%) [2]  
Hemolytic uremic syndrome [2]  
Hemorrhage (9%) [3]  
Hemototoxicity [5]  
Immunosuppression [2]  
Leukopenia [4]  
Lymphopenia [8]  
Neutropenia [17]  
Platelets decreased (23–45%)  
Sepsis [2]  
Thrombocytopenia [20]  

**Otic**  
Otosis media (36%)  

**Ocular**  
Conjunctivitis (2%)  
Eyelid edema (4%) [2]  
Ocular hyperemia (4%)  

**Other**  
Adverse effects [29]  
Death [8]  
Infection (18%) [29]  
Side effects [2]  

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**EXEMESTANE**  
Trade name: Aromasin (Pfizer)  
**Indications:** Advanced breast cancer  

**Class:** Aromatase inhibitor  

**Half-life:** 24 hours  

**Clinically important, potentially hazardous interactions with:** efavirenz, oxcarbazepine, rifampin  

**Pregnancy category:** X  

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  

**Skin**  
Diaphoresis (612%) [2]  
Edema (7%)  
Hot flashes (30%) [7]  
Lymphedema (25%)  
Peripheral edema (9%) [2]  
Pruritus (25%)  
Radiation recall dermatitis [2]  
Rash (25%) [6]  

**Hair**  
Alopecia (25%)  

**Mucosal**  
Stomatitis [7]  

**Central Nervous System**  
Dysgeusia (taste perversion) [2]  
Headache [3]  
Insomnia [2]  
Paresthesias (25%)  
Tumor pain (30%)  

**Neuromuscular/Skeletal**  
Arthralgia (4%)  
Asthenia (fatigue) [6]  

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**EVEROLIMUS**  
Over 100 updates per week on www.drugeruptiondata.com
Type II diabetes mellitus

Liptruzet is ezetimibe and atorvastatin;

Glucagon-like peptide-1 (GLP-1) receptor

Anticonvulsant, Potassium channel opener

Cholesterol inhibitor

2.4 hours

Hypercholesterolemia

Risk of thyroid C-cell tumors with

Epilepsy

retigabine

7–11 hours

22 hours

RETINAL ABNORMALITIES AND

2018 by Taylor & Francis Group, LLC 113

Respiratory

Gastrointestinal/Hepatic

Neuromuscular/Skeletal

Cardiovascular

Skin

Endocrine/Metabolic

Other

Adverse effects [2]

Endocrine/Metabolic

Appetite decreased (<10%) [3]

Hypoglycemia (>3%) [4]

Genitourinary

Urinary tract infection [2]

Renal

Nephrotoxicity [2]

Renal failure [3]

Local

Injection-site erythema (5–7%)

Injection-site nodules (~10%) [4]

Injection-site pruritus (5–6%) [2]

Injection-site reactions [7]

Other

Adverse effects [10]

Cancer [2]

EXENATIDE

Trade names: Bydureon (Amylin), Byetta (Amylin)

Indications: Type 2 diabetes mellitus

Class: Glucagon-like peptide-1 (GLP-1) receptor agonist, Incretin mimetic, Insulin secretagogue

Half-life: 2.4 hours

Clinically important, potentially hazardous interactions with: acetaminophen, alcohol, antibiotics, corticosteroids, lovastatin, oral contraceptives, pegvisomant, prandial insulin, somatropin, sulfonylureas, thiazide diuretics, vitamin K antagonists, warfarin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Risk of thyroid C-cell tumors with exenatide extended release formulations. Bydureon is contra-indicated in patients with a personal or family history of medullary thyroid carcinoma or in patients with multiple endocrine neoplasia syndrome Type 2.

Skin

Hyperhidrosis (<10%)

Urticaria [2]

Cardiovascular

Cardiotoxicity [2]

Central Nervous System

Chills (<2%)

Headache (<10%) [8]

Vertigo (dizziness) (<10%) [3]

Neuromuscular/Skeletal

Asthenia (fatigue) (<10%)

Gastrointestinal/Hepatic

Abdominal distension (<10%) [3]

Abdominal pain (<10%) [2]

Constipation (>5%)

Diarrhea (<1%) [18]

Dyspepsia (<10%)

Flatulence (2%)

Gastroenteritis (<10%)

Gastroesophageal reflux (3%)

Nausea (<1%) [43]

Pancreatitis [10]

Vomiting (~10%) [25]

Respiratory

Nasopharyngitis [2]

Endocrine/Metabolic

Appetite decreased (<10%)

Hypoglycemia (>3%)

Genitourinary

Urinary tract infection [2]

Hematologic

Thrombocytopenia [2]

Local

Injection-site erythema [2]

Injection-site reactions [5]

Other

Adverse effects [6]

EZOGABINE

Synonym: retigabine

Trade names: Potiga (GSK), Trobalt (GSK)

Indications: Epilepsy

Class: Anticonvulsant, Potassium channel opener

Half-life: 7–11 hours

Clinically important, potentially hazardous interactions with: alcohol, carbamazepine, digoxin, phenytoin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: RETINAL ABNORMALITIES AND POTENTIAL VISION LOSS

Skin

Hyperhidrosis (<2%)

Peripheral edema (<2%)

Pigmentation [2]

Mucosal

Mucosal membrane pigmentation [4]

Xerostomia (<2%)

Central Nervous System

Annesia (2%)

Anxiety (3%)

Aphasia (4%)

Balance disorder (4%)

Confusion (9%) [6]

Disorientation (2%)

Dysarthria (4%) [3]

Dysphasia (2%)

Gait instability (4%)

Hallucinations (<2%)

Headache [6]

Hypokinesia (<2%)

Impaired concentration (6%)

Incoordination (7%)

Memory loss (6%)

Neurotoxicity [3]

Paresthesias (3%)

Somnolence (drowsiness) (22%) [14]

Speech disorder [3]

Tremor (8%) [3]

Vertigo (dizziness) (31%) [14]

Neuromuscular/Skeletal

Asthenia (fatigue) (20%) [11]

Ataxia [3]

Myoclonus (<2%)

Gastrointestinal/Hepatic

Constipation (3%)

Dyspepsia (2%)

Dysphagia (<2%)

Nausea (7%) [5]

Respiratory

Influenza (3%)

Endocrine/Metabolic

Appetite increased (<2%)

Weight gain (dose related) (3%)

Back pain [2]

Bone or joint pain [2]

Myalgia/Myopathy [3]

Gastrointestinal/Hepatic

Diarrhea [4]

Respiratory

Pneumonitis [5]

Endocrine/Metabolic

Hyperglycemia [4]

Hematologic

Anemia [2]

Other

Adverse effects [2]

Trade names: Ezetrol (Merck), Liptruzet (Merck Sharpe & Dohme), Vytorin (MSD), Zetia (Merck)

Indications: Cholesterol inhibitor

Class: Cholesterol inhibitor

Half-life: 22 hours

Clinically important, potentially hazardous interactions with: cholestyramine, cyclosporine, fenofibrate, gemfibrozil, HMG-CoA reductase inhibitors, ritonavir

Pregnancy category: C (Pregnancy category is X when combined with a statin.)

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Note: Liptruzet is ezetimibe and atorvastatin; vitorzin is ezetimibe and simvastatin.

Skin

 Rash [3]

Central Nervous System

Headache [5]

Vertigo (dizziness) [4]

Neuromuscular/Skeletal

Arthralgia (4%) [3]

Asthenia (fatigue) [2]

Back pain (4%) [4]

Bone or joint pain [4]

Muscle spasm [3]

Myalgia/Myopathy (5%) [16]

Pain in extremities [2]

Gastrointestinal/Hepatic

Abdominal pain (2%)

Diarrhea [4]

Hepatotoxicity [6]

Nausea [4]

Pancreatitis [3]

Respiratory

Cough (2%)

Influenza (3%)

Nausea (7%) [5]

Dyspepsia (2%)

Hepatotoxicity (3%)

Nausea (2%)

Vertigo (3%) [2]

Paresthesias (3%)

Speech disorder (2%) [11]

Ataxia [3]

Myoclonus (<2%)

Gastrointestinal/Hepatic

Constipation (3%)

Dyspepsia (2%)

Dysphagia (<2%)

Nausea (7%) [5]

Respiratory

Influenza (3%)

Endocrine/Metabolic

Appetite increased (<2%)

Weight gain (dose related) (3%)

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<table>
<thead>
<tr>
<th>Category</th>
<th>Common Adverse Effects</th>
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</thead>
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<tr>
<td><strong>Genitourinary</strong></td>
<td>Dysuria (2%)&lt;br&gt;Hematuria (2%)&lt;br&gt;Urinary hesitancy (2%)&lt;br&gt;Urinary retention (&lt;2%) [6]&lt;br&gt;Urinary tract infection [3]</td>
</tr>
<tr>
<td><strong>Renal</strong></td>
<td>Chromaturia (2%)</td>
</tr>
<tr>
<td><strong>Ocular</strong></td>
<td>Diplopia (7%) [2]&lt;br&gt;Ocular pigmentation [4]</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Vision blurred (5%) [2]&lt;br&gt;Adverse effects [2]</td>
</tr>
</tbody>
</table>
FACTOR VIII - VON WILLEBRAND FACTOR
See: www.drugeruptiondata.com/drug/id/1404

FAMCICLOVIR
Trade name: Famvir (Novartis)
Indications: Acute herpes zoster, recurrent genital herpes
Class: Antiviral, Guanine nucleoside analog
Half-life: 23 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Skin
Pruritus (4%)<br>Rash (<4%)
Vasculitis [3]
Central Nervous System
Headache (9–39%) [5]
Paresthesias (<3%)
Neuromuscular/Skeletal
Ashtenia (fatigue) (<5%)
Gastrointestinal/Hepatic
Abdominal pain (<8%) [2]
Diarrhea (2–9%) [3]
Dyspepsia [3]
Gastroesophageal reflux [2]
Nausea [4]
Vomiting [4]
Respiratory
Influenza [2]
Sinusitis [2]
Upper respiratory tract infection [2]
Endocrine/Metabolic
Hypomagnesemia [2]
Hypophosphatemia [2]
Genitourinary
Urinary tract infection [2]
Hematologic
Eosinophilia [2]
Thrombocytopenia [2]
FEBUXOSTAT
Trade name: Uloric (Takeda)
Indications: Hyperuricemia in gout
Class: Xanthine oxidase inhibitor
Half-life: 5–8 hours
Clinically important, potentially hazardous interactions with: aminophylline, azathioprine, didanosine, mercaptopurine, oxtriphylline, theophylline
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Skin
Photosensitivity [11]
Phototoxicity [2]
Rash (<4%) [2]
Central Nervous System
Confusion [2]
Delirium [3]
Fever [2]
Headache (5%) [4]
Neurotoxicity [2]
Somnolence (drowsiness) [2]
Neuromuscular/Skeletal
Arthralgia [2]
Back pain [2]
Gastrointestinal/Hepatic
Abdominal pain [2]
Diarrhea (2%) [3]
Dyspepsia [3]
Gastroesophageal reflux [2]
Nausea [4]
Vomiting [4]
Respiratory
Influenza [2]
Sinusitis [2]
Upper respiratory tract infection [2]
Endocrine/Metabolic
Hypomagnesemia [2]
Hypophosphatemia [2]
Genitourinary
Urinary tract infection [2]
Hematologic
Eosinophilia [2]
Thrombocytopenia [2]
FELBAMATE
See: www.drugeruptiondata.com/drug/id/283
FELBINAC
See: www.drugeruptiondata.com/drug/id/1407
FELODIPINE
See: www.drugeruptiondata.com/drug/id/284
FENBUTEN
See: www.drugeruptiondata.com/drug/id/1143
FENOFIBRATE
Trade name: Tricor (AbbVie)
Indications: Hyperlipidemia
Class: Fibrate, Lipid regulator
Half-life: 20 hours
Clinically important, potentially hazardous interactions with: atorvastatin, colchicine, dicumarol, ezetimibe, lovastatin, nicoitnic acid, rosuvastatin, statins, warfarin
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Skin
Photosensitivity [11]
Phototoxicity [2]
Rash (<4%) [2]
Central Nervous System
Confusion [2]
Vertigo (dizziness) [5]
Neuromuscular/Skeletal
Arthralgia [5]
Bone or joint pain [2]
Gouty tophi (flare) [3]
Joint disorder [2]
Gastrointestinal/Hepatic
Diarrhea [9]
Hepatotoxicity (5%) [13]
Nausea [7]
Vomiting [2]
Respiratory
Upper respiratory tract infection [2]
Other
Adverse effects (<10%)
FENOLDOPAM
See: www.drugeruptiondata.com/drug/id/994
FENOPROFEN
See: www.drugeruptiondata.com/drug/id/287
Iron deficiency anemia in adults with chronic kidney disease over 100 updates per week on www.drugeruptiondata.com

**FENTANYL**

**Trade names:** Actiq (Cephalon), Duragesic (Janssen)

**Indications:** Chronic pain

**Class:** Analgesic, opioid, Anesthetic

**Half-life:** ~7 hours

**Clinically important, potentially hazardous interactions with:** amiodarone, ampicillin, aprepitant, atazanavir, cetirizine, cimetidine, conivaptan, crizotinib, darunavir, dasatinib, delavirdine, efavirenz, eluxadoline, enalaprilat, indinavir, iraconazole, ketoconazole, lopinavir, lortatadine, nefazodone, nifedipine, osimertinib, ranitidine, ribociclib, ritonavir, saquinavir, telithromycin, voriconazole

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in opioid non-tolerant patients, and for the management of acute or postoperative pain including headache/migraines and dental pain.

**Warning:** ADDICTION, ABUSE, and MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; ACCIDENTAL EXPOSURE; NEONATAL OPIOID WITHDRAWAL SYNDROME; CYTOCHROME P450 3A4 INTERACTION

**EXPOSURE TO HEAT (for topical patches)**

**System**

- **Gastrointestinal/Hepatic**
  - Anorexia (<2%) [2]
  - Constipation (<2%)
  - Diarrhea (2%–3%)

- **Central Nervous System**
  - Agitation [2]
  - Anorexia [2]
  - Confusion (>10%)
  - Delirium [2]
  - Depression (>10%)
  - Hallucinations [2]
  - Headache (>10%)
  - Neuropathic malignant syndrome [2]
  - Sedation [2]
  - Serotonin syndrome [4]
  - Somnolence (drowsiness) [13]
  - Vertigo (dizziness) [12]

- **Neuromuscular/Skeletal**
  - Asthenia (fatigue) (>10%) [2]
  - Myoedema [3]

- **Gastrointestinal/Hepatic**
  - Constipation (>10%) [11]
  - Nausea (>10%) [31]
  - Vomiting (>10%) [21]

- **Skin**
  - Acne/hypersensitivity reactions/Anaphylaxis [3]
  - Pruritus [344%] [30]
  - Rash [3]

- **Respiratory**
  - Cough [15]
  - Respiratory depression [7]

- **Ocular**
  - Miosis (>10%)

- **Local**
  - Injection-site pain [3]

- **Other**
  - Adverse effects [2]

**FERRIC GLUCONATE**

**See:** www.drugeruptiondata.com/drug/id/2817

**FEROUS SULFATE**

**See:** www.drugeruptiondata.com/drug/id/2677

**FERUMOXSIL**

**See:** www.drugeruptiondata.com/drug/id/2235

**FERUMOXYTOL**

**Trade name:** Feraheme (AMG Pharma)

**Indications:** Iron deficiency anemia in adults with chronic kidney disease

**Class:** Iron supplement

**Half-life:** 15 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with urinary retention, gastric retention, or uncontrolled narrow-angle glaucoma.

**Mucosal**

- Xerostomia (>10%) [3]

**Cardiovascular**

- Bradycardia (>10%) [3]
- Flushing (310%)
- Hypotension [8]
- Tachycardia [2]

**Central Nervous System**

- Agitation [2]
- Anorexia [2]
- Confusion (>10%)
- Delirium [2]
- Depression (>10%)
- Hallucinations [2]
- Headache (>10%)
- Neuropathic malignant syndrome [2]
- Sedation [2]
- Serotonin syndrome [4]
- Somnolence (drowsiness) [13]
- Vertigo (dizziness) [12]

**Neuromuscular/Skeletal**

- Asthenia (fatigue) [2]
- Myoedema [3]

**Gastrointestinal/Hepatic**

- Constipation (>10%) [11]
- Nausea (>10%) [31]
- Vomiting (>10%) [21]

**Skin**

- Acne/hypersensitivity reactions/Anaphylaxis [3]
- Pruritus [344%] [30]
- Rash [3]

**Respiratory**

- Cough [15]
- Respiratory depression [7]

**Ocular**

- Miosis (>10%)

**Local**

- Injection-site pain [3]

**Other**

- Adverse effects [2]

**FESOTERODINE**

**Trade name:** Toviaz (Pfizer)

**Indications:** Overactive bladder syndrome, urinary incontinence, urgency and frequency

**Class:** Antimuscarinic, Muscarinic antagonist

**Half-life:** 7 hours; 4 hours (oral)

**Clinically important, potentially hazardous interactions with:** alcohol, amantadine, anticholinergics, antidepressants, antimuscarinics, azacitidine, mitomycin C, motility disorders, phenothiazines, ritonavir, sildenafil, thioridazine, tolbutamide, topiramate, tizanidine, tolbutamide, verapamil, voriconazole

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with urinary retention, gastric retention, or uncontrolled narrow-angle glaucoma.

**Mucosal**

- Xerostomia (19–35%) [28]

**Central Nervous System**

- Headache [3]

**Neuromuscular/Skeletal**

- Back pain (2%)

**Gastrointestinal/Hepatic**

- Constipation (4–6%) [16]
- Diarrhea (<10%)
- Dyspepsia (<2%) [2]
- Nausea (<2%) [2]

**Respiratory**

- Upper respiratory tract infection (2–3%)

**Genitourinary**

- Dysuria (<2%)
- Urinary retention [2]
- Urinary tract infection (3–4%) [3]

**Ocular**

- Vision blurred [2]
- Xerophthalmia (<4%) [2]

**Other**

- Adverse effects [3]
**FEXOFENADINE**

Trade name: Allegra (Sanofi-Aventis)

Indications: Allergic rhinitis, pruritus, urticaria

Class: Histamine H1 receptor antagonist

Half-life: 14.4 hours

Clinically important, potentially hazardous interactions with: neratinib, St John’s wort

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

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**Skin**

Urticaria [3]

Central Nervous System

Headache (5–11%) [2]

---

**FIDAXOMICIN**

See: www.drugeruptiondata.com/drug/id/2537

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**FINAFLOXACIN**

Trade name: Xtoro (Alcon)

Indications: Acute otitis externa caused by susceptible strains of Pseudomonas aeruginosa and Staphylococcus aureus

Class: Antibiotic, fluoroquinolone

Half-life: N/A

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: none known

---

**Central Nervous System**

Headache [2]

**Gastrointestinal/Hepatic**

Diarrhea [2]

Flatulence [2]

Loose stools [2]

Nausea [2]

**Respiratory**

Nasopharyngitis [2]

Rhinitis [2]

---

**FINASTERIDE**

Trade names: Propecia (Merck), Proscar (Merck)

Indications: Benign prostatic hypertrophy, male-pattern baldness

Class: 5-alpha reductase inhibitor, Androgen antagonist, Enzyme inhibitor

Half-life: 5–8 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: N/A (Contra-indicated in women)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

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**Skin**

Folliculitis [2]

Rash [3]

Urticaria [2]

Xerosis [2]

**Hair**

Hirsutism [3]

---

**FINOLIMOD**

Trade name: Gilenya (Novartis)

Indications: Multiple sclerosis

Class: Immunosuppressant

Half-life: 6–9 days

Clinically important, potentially hazardous interactions with: BCG vaccine, beta blockers, class la antiarrhythmics, class III antiarrhythmics, conivaptan, cyproterone, denosumab, digoxin, diltiazem, dronedarone, ketoconazole, leflunomide, live vaccines, natalizumab, PEG-follistim, sipuleucel-T, tacrolimus, tocilizumab, trastuzumab, typhoid vaccine, verapamil, yellow fever vaccine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

---

**Skin**

Basal cell carcinoma [4]

Eczema (3%) [3]

Herpes (9%) [6]

Herpes simplex [3]

Herpes zoster [3]

Kaposi’s sarcoma [2]

Lymphoma [2]

Melanoma [2]

Neoplasms [2]

Pruritus (3%)

Skin cancer [3]

Tinea (4%) [3]

Varicella zoster [5]

**Hair**

Alopecia (4%)

---

**Cardiovascular**

Asystole [2]

Atrial fibrillation [2]

Atroventricular block [19]

Bradyarrhythmia (4%) [23]

Cardiac failure [2]

Cardiotoxicity [3]

Hypertension (6%) [9]

**Central Nervous System**

Depression (8%)

Encephalopathy [2]

Headache (25%) [10]

Leukoencephalopathy (5%) [5]

Migraine (5%) [25]

Paresthesias (5%)

Vertigo (dizziness) (7%)

**Neuromuscular/Skeletal**

Asthenia (fatigue) (5%) [2]

Erectile dysfunction [7]

Sexual dysfunction [6]

Other

Adverse effects [6]

---

**Gastrointestinal/Hepatic**

Diarrhea (12%) [3]

Gastroenteritis (5%)

Hepatotoxicity (10%)

**Respiratory**

Bronchitis (8%)

Cough (10%) [3]

Dyspnea (8%)

Influenza (13%) [3]

Nasopharyngitis [5]

Pulmonary toxicity [4]

Respiratory tract infection [2]

Sinusitis (7%)

**Endocrine/Metabolic**

ALT increased (14%) [2]

AST increased (14%)

GGT increased (5%)

**Hematologic**

Leukopenia (3%)

Lymphopenia (1%)

Lymphopenia (4%) [10]

**Ocular**

Macular edema [22]

Ocular pain (3%)

Vision blurred (4%)

**Other**

Adverse effects [11]

Death [7]

Infection [16]
FLAVOXATE

See: www.drugeruptiondata.com/drug/id/292

FLECAINIDE

Trade name: Tambocor (3M)
Indications: Atrial fibrillation
Class: Antiarrhythmic, Antiarrhythmic class lc
Half-life: 12–16 hours
Clinically important, potentially hazardous interactions with: acebutolol, amiodarone, amisulpride, amitriptyline, artesoether/ lumezantrine, bepridil, cinacalcet, clozapine, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, darfenacin, delavirdine, fosamprenavir, lopinavir, mirabegron, quinine, ritonavir, telaprevir, tipranavir

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Diaphoresis (<3%)
Edema (4%)
Psoriasis [2]
Rash (<3%)

Cardiovascular
Arrhythmias [7]
Atrial fibrillation [3]
Atrial flutter [2]
Atrioventricular block [2]
Bradyardia [4]
Brugada syndrome [4]
Bundle branch block [2]
Cardiotoxicity [3]
Chest pain (5%)
Congestive heart failure [2]
Extravasole [2]
Flushing (<3%)
Hypotension [2]
Palpitation (6%)
QT prolongation [7]
Supraventricular tachycardia [2]
Tachycardia [2]
Torsades de pointes [4]

Central Nervous System
Headache (10%)
Hyperesthesia (<10%)
Neurotoxicity [3]
Seizures [2]
Syncpe [2]
Tremor (5%)
Vertigo (dizziness) (19%) [5]

Neuromuscular/Skeletal
Asthenia (fatigue) (5–8%)

Gastrointestinal/Hepatic
Abdominal pain (3%)
Constipation (4%)
Diarrhea (<3%) [2]
Nausea (9%) [3]

Respiratory
Dyspnea (10%)

Ocular
Vision blurred [2]
Visual disturbances (16%) [3]

Other
Adverse effects [2]

FLIBANSERIN

Trade name: Addyi (Sprout)
Indications: Hypoactive sexual desire disorder in premenopausal women
Class: Serotonin type 1A receptor agonist, Serotonin type 2A receptor antagonist
Half-life: 11 hours
Clinically important, potentially hazardous interactions with: alcohol, amphetamine, azapamavir, bepridil; carbamazepine, ciprofloxacin, clarithromycin, conivaptan, dextin, diltiazem, erythromycin, fluconazole, fosamprenavir, grapefruit juice, indinavir, iraconazole, ketoconazole, nefazodone, nefinavir, phenobarbital, phenytoin, posaconazole, rifabutin, rifampin, ritonavir, saquinavir, St John’s wort, telaprevir, telithromycin, verapamil

Pregnancy category: N/A (No data available)
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: HYPOTENSION AND SYCNOPE IN CERTAIN SETTINGS

Mucosal
Xerostomia (2%)

Central Nervous System
Anxiety (2%)
Insomnia (3%) [2]
Sedation [2]
Somnolence (drowsiness) (11%) [9]
Vertigo (dizziness) (2%) [9]

Neuromuscular/Skeletal
Asthenia (fatigue) (9%) [5]

Gastrointestinal/Hepatic
Abdominal pain (2%) [6]
Constipation (2%) [6]
Nausea (10%) [6]

FLORBETAPIR F18

See: www.drugeruptiondata.com/drug/id/2897

FLOXURIDINE

See: www.drugeruptiondata.com/drug/id/960

FLUCLOXACILLIN

Trade name: Floxapen (Actavis)
Indications: Infections due to sensitive Gram-positive organisms
Class: Antibiotic, beta-lactam
Half-life: 53 minutes
Clinically important, potentially hazardous interactions with: oral contraceptives, probenecid
Pregnancy category: N/A
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
AGEP [2]

Gastrointestinal/Hepatic
Hepatotoxicity [21]

Endocrine/Metabolic
Acidosis [2]

Renal
Nephrotoxicity [4]

Hematologic
Anemia [2]

FLUCONAZOLE

Trade name: Diflucan (Pfizer)
Indications: Candidiasis
Class: Antibiotic, triazole, Antifungal, azole, CYP3A4 inhibitor
Half-life: 2530 hours
Clinically important, potentially hazardous interactions with: alprazolam, amphotericin B, anisidine, antiocoagulants, atorvastatin, avanafil, betamethasone, bosentan, celecoxib, citalopram, clobazam, clopidogrel, deflazacort, dicumarol, eluxadoline, eplerenone, erthyromycin, flibanserin, irbesartan, ivacaftor, lesinurad, methylprednisolone, mifepristone, naldemedine, neratinib, nevirapine, olaparib, osopemine, pantoprazole, phenobarbital, phenytoin, pimecrolimus, pranopronal, quetiapine, ramelteon, rivapartin, rilpivirine, ruxolitinib, simprevir, sonidegib, sulfonyleureas, temsirolimus, terbinafine, tipranavir, tofacitinib, trabectedin, tramacinolone, venetoclax, vinblastine, vincristine, warfarin, zidovudine

Pregnancy category: D (fluconazole is pregnancy category C for vaginal candidiasis)
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Skin
AGEP [3]

Gastrointestinal/Hepatic
Fixed eruption [10]

Renal
Hypersensitivity (<4%) [2]

Hematologic
Anemia [2]

Hair
Alopecia [4]
FLUCYTOSINE

See: www.drugeruptiondata.com/drug/id/295

FLUDARABINE

Trade names: Fludara (Genzyme), Oforta (Sanofi-Aventis)
Indications: Chronic lymphocytic leukemia (B-cell)
Class: Antimetabolite, Antineoplastic
Half-life: 9 hours
Clinically important, potentially hazardous interactions with: aldesleukin, clofazimine, live vaccines, pentostatin
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Severe neurologic effects, including blindness, coma, and death were observed in dose-ranging studies in patients with acute leukemia when fludarabine phosphate was administered at high doses. Instances of life-threatening and sometimes fatal autoimmune hemolytic anemia have been reported after one or more cycles of treatment with fludarabine phosphate.
Warning: CNS TOXICITY, HEMOLYTIC ANEMIA, AND PULMONARY TOXICITY

Skin
- Anaphylactoid reactions/Anaphylaxis (<3%)
- Diaphoresis (14%)
- Edema (8–19%)
- Herpes simplex (7–8%)
- Herpes zoster [2]
- Paraneoplastic pemphigus [4]
- Peripheral edema (7%)
- Pruritus (<3%)
- Rash (4–15%)

Hair
- Alopecia (<10%)

Mucosal
- Mucositis (2%)
- Stomatitis (9%)

Cardiovascular
- Angina (6%)
- Arrhythmias (<4%)
- Chest pain (5%)
- Congestive heart failure (<4%)
- Myocardial infarction (<4%)
- Phlebitis (<3%)
- Supraventricular tachycardia (<4%)

Central Nervous System
- Anorexia (7–34%)
- Cerebrovascular accident (<4%)
- Chills (11–19%)
- Fever (11–69%) [2]
- Headache (3–9%)
- Leukocerebrocerebral atrophy [9]
- Neurotoxicity [3]
- Pain (5–22%)
- Paresthesias (4–12%)
- Sleep related disorder (<3%)

Neuromuscular/Skeletal
- Asthenia (fatigue) (6–65%)
- Back pain (4–9%)
- Myalgia/Myopathy (>10%)

Gastrointestinal/Hepatic
- Abdominal pain (8–10%)
- Cholelithiasis (gallstones) (3%)
- Constipation (<3%)
- Diarrhea (5–15%)
- Esophagitis (3%)
- Gastrointestinal bleeding (3–13%) [2]
- Hepatotoxicity [2]
- Nausea (<36%)

Respiratory
- Bronchitis (<9%)
- Cough (6–44%)
- Dyspnea (<22%)
- Flu-like syndrome (5–8%)
- Hemosiderosis (<6%)
- Pharyngitis (9%)
- Pneumonia (3–22%) [3]
- Pneumonitis (6%) [3]
- Pulmonary toxicity [4]
- Rhinitis (3–11%)
- Sinusitis (<5%)
- Upper respiratory tract infection (2–14%)

Endocrine/Metabolic
- Hyperglycemia (<6%)
- Weight loss (<6%)

Genitourinary
- Dysuria (3–4%)
- Hematuria (<3%)
- Urinary hesitancy (3%)
- Urinary tract infection (4–15%)

Hematologic
- Anemia [3]
- Cytopenia [2]
- Febrile neutropenia [2]
- Hemolytic anemia [2]
- Hemotoxicity [3]
- Leukopenia [2]
- Myelosuppression [3]
- Myelotoxicity [2]

Other
- Adverse effects [2]
- Death [4]
- Infection (12–44%) [6]

FLUDEOXYGLUCOSE F18

See: www.drugeruptiondata.com/drug/id/1761

FLUDROCORTISONE

See: www.drugeruptiondata.com/drug/id/1931

FLUMAZENIL

See: www.drugeruptiondata.com/drug/id/297

FLUMETASONE

See: www.drugeruptiondata.com/drug/id/1086

FLUNISOLIDE

See: www.drugeruptiondata.com/drug/id/1087

FLUOCINOLONE

See: www.drugeruptiondata.com/drug/id/1093

FLUOCINONIDE

See: www.drugeruptiondata.com/drug/id/1092

FLUORIDES

Indications: Caries prevention (topical), osteoporosis prevention (oral)
Class: Chemical
Half-life: N/A
Clinically important, potentially hazardous interactions with: caffeine
Pregnancy category: C

Skin
- Acneform eruption [2]
- Burning [12]
- Dermatitis [4]
- Edema [2]
- Erythema [2]
- Neutropenia [6]
- Sepsis [2]
- Thrombocytopenia [4]
- Thrombosis (<3%)
- Otic
  - Hearing loss (2–6%)
- Ocular
  - Visual disturbances (3–15%)
- Other
  - Adverse effects [2]
  - Death [4]
  - Infection (12–44%) [6]

FLUDEOXYGLUCOSE F18

See: www.drugeruptiondata.com/drug/id/1761

FLUDROCORTISONE

See: www.drugeruptiondata.com/drug/id/1931

FLUMAZENIL

See: www.drugeruptiondata.com/drug/id/297

FLUMETASONE

See: www.drugeruptiondata.com/drug/id/1086

FLUNISOLIDE

See: www.drugeruptiondata.com/drug/id/1087

FLUOCINOLONE

See: www.drugeruptiondata.com/drug/id/1093

FLUOCINONIDE

See: www.drugeruptiondata.com/drug/id/1092

FLUORIDES

Indications: Caries prevention (topical), osteoporosis prevention (oral)
Class: Chemical
Half-life: N/A
Clinically important, potentially hazardous interactions with: caffeine
Pregnancy category: C

Skin
- Acneform eruption [2]
- Burning [12]
- Dermatitis [4]
- Edema [2]
- Erythema [2]
adults taking antidepressants for Major Depressive Disorder (MDD) and other psychiatric disorders. Sarafem is not approved for use in pediatric patients with MDD and obsessive compulsive disorder. Symbyax is not approved for use in children and adolescents. Symbyax is fluoxetine and olanzapine.

**Warning:**

**SUICIDAL THOUGHTS AND BEHAVIORS**

### Skin

- Diaphoresis (8%) [2]
- Exanthems (4%) [7]
- Mycosis fungoides [2]
- Phototoxicity [2]
- Pseudolymphoma [4]
- Rash (6%) [3]
- Raynaud’s phenomenon [2]
- Serum sickness-like reaction [2]
- Toxic epidermal necrolysis [2]
- Urticaria (4%) [5]
- Vasculitis [2]

### Hair

- Alopecia [7]

### Mucosal

- Black tongue [2]
- Oral ulceration [2]

### Cardiovascular

- Flushing (<2%)
- Orthostatic hypotension [2]
- QT prolongation [7]
- Torsades de pointes [2]

### Central Nervous System

- Akathisia [6]
- Amnesia [2]
- Delirium [3]
- Depression [2]
- Dysgeusia (taste perversion) (2%)
- Extrapyramidal symptoms [3]
- Hallucinations [3]
- Headache (<27%)
- Neuroleptic malignant syndrome [2]
- Paresthesias [2]
- Restless legs syndrome [4]
- Serotonin syndrome [13]
- Somnolence (drowsiness) [4]
- Suicidal ideation [11]
- Tremor (210%)
- Vertigo (dizziness) [3]

### Neuromuscular/Skeletal

- Asthenia (fatigue) [2]
- Muscle cramps [2]
- Paralytic ileus [2]
- Paresthesias (<10%)
- Dystonia [3]
- General weakness [2]

### Endocrine/Metabolic

- Gynecomastia (9%) [4]
- Hypoglycemia [4]
- Hypothyroidism [1]
- Hypercholesterolemia [2]
- Hyperuricemia [2]

### Gastrointestinal/Hepatic

- Nausea [3]
- Hepatotoxicity [13]
- Jaundice [2]
- Flatulence [2]
- Diarrhea [2]
- Gastroenteritis [2]
- Liver function tests abnormal [2]

### Genitourinary

- Priapism [2]
- Sexual dysfunction [5]

### Ocular

- Hallucinations, visual [4]
**FLUTICASONE PROPIONATE**

See: www.drugeruptiondata.com/drug/id/1074

**FLUVASTATIN**

Trade name: Lescol (Novartis)

Indications: Hypercholesterolemia

Class: HMG-CoA reductase inhibitor, Statin

Half-life: 1.2 hours

Clinically important, potentially hazardous interactions with: azithromycin, bosantan, ciprofibrate, clarithromycin, colchicine, cyclosporine, delavirdine, elbasvir & grazoprevir, erythromycin, gemfibrozil, imatinib, miltefosine, red rice yeast

Pregnancy category: X

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
- Lupus erythematousus [2]
- Rash (3%)

Central Nervous System
- Headache (9%)

Neuromuscular/Skeletal
- Asthenia (fatigue) (3%)
- Myalgia/Myalgia (5%) [4]
- Rhabdomyolysis [13]

Gastrointestinal/Hepatic
- Diarrhea (5%)
- Hepatotoxicity [5]

Respiratory
- Sinusitis (3%)

Endocrine/Metabolic
- Creatine phosphokinase increased [2]

Other
- Allergic reactions (3%)

**FLUVOXAMINE**

Trade name: Luvox (Solvay)

Indications: Obsessive-compulsive disorder, depression

Class: Antidepressant, SERTRALIN inhibitor. Selective serotonin reuptake inhibitor (SSRI)

Half-life: 15 hours

Clinically important, potentially hazardous interactions with: alprazolam, clonazepam, codeine, diazepam, doxepin, imipramine, lorazepam, meprobamate, midazolam, propoxyphene, prazepam, diazepam, ketamine, ketorolac, ketoprofen, lithium, methadone, morphine, nortriptyline, pethidine,扑地酮, phencyclidine, propoxyphene, promethazine, propoxyphene, propoxyphene, propoxyphene, propranolol, pseudoephedrine, ramelteon, rasagiline, rifampin, saquinavir, selegiline, sibutramine, St John's wort, sumatriptan, sympathomimetics, tacrine, tasimelteon, tizanidine, tramadol, tranylcypromine, trazodone, trodolumycin, tryptophan, zolmitriptan

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: elderly; nursing mothers; pediatric patients

Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
- Diaphoresis (<7%)
- Photosensitivity [3]

Mucosal
- Oral lesions (10%)
- Xerostomia (<14%) [2]

Cardiovascular
- Chest pain (3%)
- Palpitation (3%)
- QT prolongation [3]

Central Nervous System
- Anorexia (6–14%)
- Anxiety (5–8%)
- Dysgeusia (taste perversion) (3%)
- Headache (22–35%)
- Insomnia (21–35%)
- Neuroleptic malignant syndrome [2]
- Pain (10%) [13]
- Seizures [2]
- Serotonin syndrome [6]
- Somnolence (drowsiness) (22–27%)
- Tremor (5–8%)
- Vomiting (11–15%)
- Yawning (2–5%)

Neuromuscular/Skeletal
- Asthenia (fatigue) (14–26%) [3]
- Myalgia/Myalgia (5%) [4]

Gastrointestinal/Hepatic
- Diarrhea (16–18%)
- Dyspepsia (8–10%)
- Nausea (34–40%)

Respiratory
- Pharyngitis (6%)
- Urticaria (2%)

Endocrine/Metabolic
- Galactorrhea [2]
- Libido decreased (2–10%)
- SIADH [2]

Genitourinary
- Ejaculatory dysfunction (8–11%)

**FOLIC ACID**

Synonyms: folacin; folate; vitamin B9

Indications: Anemias

Class: Vitamin

Half-life: N/A

Clinically important, potentially hazardous interactions with: balsalazine, estradiol, raloxifene

Pregnancy category: A

Skin
- Anaphylactoid reactions/Anaphylaxis [3]
- Exanthems [2]

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Pruritus [2]
- Urticaria [2]

**FOLLITROPIN ALFA/ BETA**

See: www.drugeruptiondata.com/drug/id/1074

**FOMEPIZOLE**

See: www.drugeruptiondata.com/drug/id/941

**FOMIVIRSEN**

See: www.drugeruptiondata.com/drug/id/102

**FONDAPARINUX**

Trade name: Arixtra (Mylan)

Indications: Prophylaxis of deep vein thrombosis

Class: Anticoagulant, Heparinoid

Half-life: 1721 hours

Clinically important, potentially hazardous interactions with: abciximab, anagrelide, anticoagulants, cilostazol, clopidogrel, dabigatran, dipyridamole, epoetin alfa, gemfibrozil, hirudin, hirulog, mifepristone, nandrolone, salicylates, ticlopidine, tirofiban

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: elderly; nursing mothers; pediatric patients

Warning: SPINAL/EPIDURAL HEMATOMAS

Skin
- Bullous dermatitis (3%)
- Edema (9%)
- Hematoma [2]
- Hypersensitivity [4]
- Purpura (4%)
- Rash (8%) [12]

Central Nervous System
- Pain (2%)

Gastrointestinal/Hepatic
- Hepatotoxicity [2]

Local
- Injection-site bleeding (<10%)
- Injection-site pruritus (<10%)

**FORMOTEROL**

Trade names: Dulera (Merck Sharpe & Dohme), Foradil (Novartis), Performonist (Mylan), Symbicort (AstraZeneca)

Indications: Asthma, bronchospasm

Class: Beta-2 adrenergic agonist, Bronchodilator

Half-life: 1014 hours

Clinically important, potentially hazardous interactions with: beta blockers, chlorpropamide, desipramine, doxepin, imipramine, iboguanine, nortriptyline, propranolol, trimipramine

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FURAZOLIDONE

Trade name: Lomax (Sanofi-Aventis)
Indications: Typhoid fever
Class: Antiprotozoal, antigiardial
Half-life: 4.8 hours
Clinically important, potentially hazardous interactions with: allopurinol, amodiaquine, artemisinin, azithromycin, clindamycin, cobicistat, conivaptan, darunavir, delavirdine, diterpinone, efavirenz, etravirine, fluconazole, fosamprenavir, gemifloxacin, ganciclovir, gatifloxacin, isoniazid, itraconazole, ivacaftor, ketocazole, lamivudine, lopinavir, melphalan, mycophenolate, nelfinavir, nelfinavir, nefazodone, nevirapine, olaparib, orlistat, piperacillin, tazobactam, procainamide, quinupristin, ritonavir, sitagliptin, simeprevir, tamsulosin, telithromycin, theophylline, tocofen, toremifene, trimethoprim-sulfamethoxazole, valtrex, voriconazole, voriconazole, warfarin, zidovudine

FURATRIPTAN

Trade name: Frocol (Novartis)
Indications: Migraine
Class: Calcium channel blocker
Half-life: 15 hours
Clinically important, potentially hazardous interactions with: alcohol, aliskiren, amlodipine, amlodipine, amiodarone, azathioprine, bezafibrate, betalain, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprost, bimatoprost, bilateral ischemia, bilateral ischemia, bisoprolol, bimatoprot
Exanthems (12%) [7]
Exfoliative dermatitis [3]
Lichenoid eruption [2]
Linear IgA bullous dermatosis [2]
Photosensitivity (<10%) [2]
Phototoxicity [4]
Pruritus [2]
Purpura [3]
Pustules [3]
Stevens-Johnson syndrome [3]
Sweet’s syndrome [2]
Urticaria [3]

Vasculitis [7]

Mucosal
Xerostomia [3]

Cardiovascular
Hypotension [2]

Gastrointestinal/Hepatic
Pancreatitis [3]

Endocrine/Metabolic
Porphyria cutanea tarda [3]

Otic
Hearing loss [2]
Ototoxicity [3]

Other
Adverse effects [3]
Side effects [2]

FUSIDIC ACID
See: www.drugeruptiondata.com/drug/id/1142
**GABAPENTIN**

*Trade names:* Horizant (GSK), Neurontin (Pfizer)

*Indications:* Postherpetic neuralgia in adults, seizures

*Class:* Anticonvulsant

*Half-life:* 5–7 hours

*Clinically important, potentially hazardous interactions with:* none known

*Pregnancy category:* C

*Important contra-indications noted in the prescribing guidelines for:* the elderly; nursing mothers; pediatric patients

**Skin**

Anticonvulsant hypersensitivity syndrome [2]

Bullous pemphigoid [2]

Edema [3]

Exanthes [2]

Peripheral edema (8%) [12]

Rash [2]

Stevens-Johnson syndrome [2]

**Hair**

Alopecia [2]

**Mucosal**

Xerostomia (5%)

**Central Nervous System**

Aggression [2]

Coma [3]

Confusion [3]

Delirium [2]

Fever (10%)

Gait instability (2%) [4]

Headache (3%) [9]

Incoordination (2%) [2]

Neurotoxicity [4]

Psychosis [2]

Sedation [5]

Seizures [4]

Somnolence (drowsiness) (21%) [38]

Tremor [3]

Vertigo (dizziness) (17–28%) [49]

**Neuromuscular/Skeletal**

Asthenia (fatigue) (6%) [13]

Ataxia (3%) [10]

Dystonia [2]

Myalgia/Myopathy [4]

Myasthenia gravis [3]

Myoclonus [5]

Rhabdomyolysis [4]

**Gastrointestinal/Hepatic**

Abdominal pain (3%) [2]

Constipation (4%) [2]

Diarrhea (6%) [2]

Flatulence (2%) [2]

Nausea (4%) [5]

Vomiting (3%) [3]

**Respiratory**

Respiratory depression [2]

**Endocrine/Metabolic**

Weight gain (2%) [8]

**Genitourinary**

Sexual dysfunction [5]

**Otic**

Hearing loss [2]

**GADOBENATE**

See: www.drugerupiondata.com/drug/id/3237

**GADOBUTROL**

See: www.drugerupiondata.com/drug/id/1289

**GADODIAMIDE**

See: www.drugerupiondata.com/drug/id/1063

**GADOFOSVESET**

See: www.drugerupiondata.com/drug/id/1259

**GADOPENTETATE**

See: www.drugerupiondata.com/drug/id/3207

**GADOTERIDOL**

See: www.drugerupiondata.com/drug/id/3267

**GADOVERSETAMIDE**

See: www.drugerupiondata.com/drug/id/3257

**GADOXETATE**

See: www.drugerupiondata.com/drug/id/1390

**GALANTAMINE**

*Trade names:* Razadyne (Janssen), Reminyl (Janssen)

*Indications:* Alzheimer’s disease

*Class:* Acetylcholinesterase inhibitor, Cholinesterase inhibitor

*Half-life:* ~7 hours

*Clinically important, potentially hazardous interactions with:* bethanechol, cimetidine, donepezil, edrophonium, paroxetine hydrochloride, physostigmine, pilocarpine, rivastigmine, succinylcholine, tacrine

*Pregnancy category:* C

*Important contra-indications noted in the prescribing guidelines for:* nursing mothers; pediatric patients

*Note:* Originally derived from snowdrop (Galanthus sp) bulbs.

**Skin**

Peripheral edema (>2%)

Purpura (>2%)

**Cardiovascular**

Bradycardia (2%) [5]

QT prolongation [5]

**Central Nervous System**

Anorexia (7–9%) [2]

Depression (7%) [2]

Insomnia (5%) [3]

Neurotoxicity (drowsiness) (4%) [2]

Syncope (2%) [3]

Tremor (3%)

Vertigo (dizziness) (9%) [4]

**Neuromuscular/Skeletal**

Asthenia (fatigue) (5%)

**Gastrointestinal/Hepatic**

Abdominal pain (5%)

Diarrhea (6–12%) [5]

Dyspepsia (5%)

Nausea (6–24%) [6]

Vomiting (4–13%) [6]

**Respiratory**

Rhinitis (4%)

Upper respiratory tract infection (>2%)

**Endocrine/Metabolic**

Weight loss (5–7%)

**Genitourinary**

Hematuria (3%)

Urinary tract infection (8%)

**Hematologic**

Anemia (3%)

**Other**

Adverse effects [3]

**GALSULFASE**

See: www.drugerupiondata.com/drug/id/1115

**GANCICLOVIR**

See: www.drugerupiondata.com/drug/id/315

**GANIRELIX**

See: www.drugerupiondata.com/drug/id/316

**GATIFLOXACIN**

See: www.drugerupiondata.com/drug/id/317
GEFITINIB

Trade name: Iressa (AstraZeneca)

Indications: Advanced non-small cell lung cancer

Class: Antineoplastic, Biologic, Epidermal growth factor receptor (EGFR) inhibitor, Tyrosine kinase inhibitor

Half-life: 48 hours

Clinically important, potentially hazardous interactions with: antifungals, BCG vaccine, boceprevir, carbamazepine, cardiac glycosides, clozapine, conviptan, CYP3A4 inhibitors and inducers, dasatinib, deferasirox, denosumab, echinacea, efavirenz, grapefruit juice, ifraconazole, leflunomide, natalizumab, phenobarbital, phenytoin, pimecrolimus, itraconazole, leflunomide, natalizumab, St John's wort, tacrolimus, topotecan, trastuzumab, warfarin

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Acneform eruption (25–33%) [32]
Desquamation (39%) [2]
Exanthems [3]
Folliculitis [4]
Hand-foot syndrome [2]
Papulopustular eruption [3]
Peripheral edema (2%) [3]
Pruritus (8–9%) [5]
Rash (43–54%) [63]
Seborrhea [2]
Toxicity [10]
Ulcerations [2]
Xerosis (13–26%) [12]

Hair

Alopecia [6]
Hypertrichosis [2]

Nails

Nail changes (17%)
Paronychia (6%) [13]
Pyogenic granuloma [2]

Mucosal

Mucositis [4]
Stomatitis [7]

Cardiovascular

Hypertension [2]

Central Nervous System

Anorexia (7–10%) [2]

Neuromuscular/Skeletal

Asthenia (fatigue) [11]

Gastrointestinal/Hepatic

Abdominal pain [3]
Diarrhea (48–67%) [37]
Gastrointestinal perforation [2]
Hepatotoxicity [26]
Nausea (13–18%) [9]
Vomiting (9–12%) [5]

Respiratory

Dyspnea (2%)
Pneumonia [2]
Pneumonitis [4]
Pulmonary toxicity [16]

Endocrine/Metabolic

ALT increased [7]
Appetite decreased [2]
AST increased [6]
Dehydration [2]
Weight loss (3–5%) [2]

Genitourinary

Cystitis [2]

Renal

Nephrotoxicity [2]

Hematologic

Anemia [4]
Neutropenia [6]
Thrombocytopenia [3]

Ocular

Amblyopia (2%) [3]
Blepharitis [2]
Conjunctivitis [2]

Other

Adverse effects [11]
Death [8]

GEMCITABINE

Trade name: Gemzar (Lilly)

Indications: Pancreatic carcinoma as a single agent, ovarian cancer (with carboplatin), breast cancer (with paclitaxel), non-small cell lung cancer (with cisplatin)

Class: Antimetabolite, Antineoplastic

Half-life: 42–94 minutes for short infusions; 4–11 hours for longer infusions

Clinically important, potentially hazardous interactions with: aldesleukin

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Acneform eruption [3]
Bullous dermatitis [2]
Cellulitis [5]
Dermatitis [6]
Eczema (13%) [4]
Exanthems [2]
Hand-foot syndrome [19]
Hypersensitivity [3]
Livedo reticularis [2]
Necrosis [2]
Peripheral edema (20%) [4]
Petechiae (16%)
Pruritus (13%) [2]
Radiation recall dermatitis (<74%) [17]
Rash (30%) [35]
Raynaud’s phenomenon [3]
Thrombocytopenic purpura [6]
Toxic epidermal necrolysis [3]
Toxicity [5]
Vasculitis [3]

Hair

Alopecia (15%) [15]

Mucosal

Mucositis [7]
Stomatitis (11%) [13]

Cardiovascular

Arrhythmias [3]
Atrial fibrillation [4]
Capillary leak syndrome [9]
Cardiotoxicity [3]
Hypertension [3]
Hypotension [2]
Myocardial infarction [3]
Thrombocytopenia [2]
Venous thromboembolism [4]

Central Nervous System

Anorexia [11]
Fever (41%) [13]
Leukoencephalopathy [4]
Neurotoxicity [10]
Pain [2]
Paresthesias (10%) [2]
Peripheral neuropathy [5]
Somnolence (drowsiness) (11%)

Neuromuscular/Skeletal

Asthenia (fatigue) (18%) [44]
Myalgia/Myalgia (>10%) [6]

Gastrointestinal/Hepatic

Abdominal pain [2]
Cholangitis [2]
Constipation [3]
Diarrhea (19%) [25]
Gastrointestinal bleeding [2]
Hepatic disorder [2]
Hepatotoxicity [11]
Nausea (69%) [25]
Vomiting (69%) [20]

Respiratory

Dyspnea (10–23%) [2]
Flu-like syndrome (19%) [2]
Pneumonitis [5]
Pulmonary toxicity [11]

Endocrine/Metabolic

ALT increased [6]
Appetite decreased [2]
AST increased [6]
Dehydration [2]
Nephrotoxicity [5]

Renal

Nephrotoxicity [5]
Renal failure [2]

Hematologic

Anemia (70%) [38]
Febrile neutropenia [17]
Hemolytic uremic syndrome [32]
Hemotoxicity [6]
Leukocytopenia [3]
Leukopenia (62%) [24]
Myelosuppression [7]
Myelotoxicity [3]
Neutropenia (61%) [87]
Thrombocytopenia (30%) [63]
Thrombosis [3]
Thrombotic microangiopathy [4]

Local

Injection-site reactions (4%)

Other

Adverse effects [9]
Allergic reactions (4%)
GEMFIBROZIL

Trade name: Lopid (Pfizer)
Indications: Hyperlipidemia
Class: Fibrate, Lipid regulator
Half-life: 2 hours
Clinically important, potentially hazardous interactions with: atorvastatin, bexarotene, colchicine, cyclosporine, dasabuvir/ombitasvir/paritaprevir/ritonavir, dicumarol, eluxadoline, enalaprilat, ezetimibe, fluvastatin, interferon alfa, lovastatin, nicotinic acid, paclitaxel, pioglitazone, pitavastatin, pravastatin, repaglinide, rosiglitazone, raltegravir/emtricitabine/tenofovir alafenamide, doxazosin, ethacrynic acid, furosemide, methoxyflurane, non-polarizing muscle relaxants, pancuronium, piperacillin, polypeptide antibiotics, roxithromycin, selexipag, simvastatin, sulpiride, tamsulosin, tramadol, warfarin
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with preexisting gallbladder disease.

Skin
Eczema (2%)
Exanthems (3%) [2]
Pseudoephedrine (3%) [2]
Rash (2%)

Central Nervous System
Headache [3]

Neuromuscular/Skeletal
Asthme (fatigue) (2%)
Compartment syndrome [2]
Methylprednisolone [5]
Rhabdomyolysis [33]

Gastrointestinal/Hepatic
Abdominal pain (10%)
Dyspepsia (20%)
Hepatotoxicity [2]
Pancreatitis [2]

Other
Death [2]

GEMIFLOXACIN

See: www.drugeruptIData.com/drug/id/967

GEMTUZUMAB

See: www.drugeruptIData.com/drug/id/320

GENTAMICIN

Trade names: Garamycin (Scherling), Genoptic (Allergan)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, aminoglycoside
Half-life: 24 hours
Clinically important, potentially hazardous interactions with: adefovir, aldesleukin, amoxicillin, atorvastatin, bexarotene, colchicine, cyclosporine, dasabuvir/ombitasvir/paritaprevir/ritonavir, dicumarol, eluxadoline, enalaprilat, ezetimibe, fluvastatin, interferon alfa, lovastatin, nicotinic acid, paclitaxel, pioglitazone, pitavastatin, pravastatin, repaglinide, rosiglitazone, raltegravir/emtricitabine/tenofovir alafenamide, doxazosin, ethacrynic acid, furosemide, methoxyflurane, non-polarizing muscle relaxants, pancuronium, piperacillin, polypeptide antibiotics, roxithromycin, selexipag, simvastatin, sulpiride, tamsulosin, tramadol, warfarin
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers
Note: Aminoglycosides may cause neurotoxicity and/or nephrotoxicity.

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Dermatitis [8]
Edema (<10%)
Erythema (<10%)
Facial edema (6%)
Herpes simplex (4%)
Hypersensitivity (3%)
Lipoatrophy [3]
Nicolau syndrome [3]
Nodular eruption (2%)
Ozocerite (35%)
Pruritus (<10%)
Rash (15%)

Hair
Alopecia (>2%)

Nails
Nail changes (>2%)

Mucosal
Oral vesiculation (6%)
Xerostomia (>2%)

Cardiovascular
Chest pain (13%) [2]
Flushing [5]
Pallpation (7%) [6]
 Vasodilation (20%) [2]

Central Nervous System
Anxiety (13%) [3]
Chills (4%)
Depression (>2%)
Dysgeusia (taste perversion) (>2%)
Fever (6%)
Hyperalgesia (>2%)
Migraine (4%)
Pain (28%) [2]
Paresthesias (>2%) [2]
Vertigo (dizziness) (>2%)

Neuromuscular/Skeletal
Arthralgia (24%)
Asthme (fatigue) (19%)
Methylprednisolone [5]
Myalgia/Myalgia (33%)
Rhabdomyolysis [33]

Gastrointestinal/Hepatic
Hepatotoxicity [3]
Nausea (15%)
Vomiting (7%)

Respiratory
Cough (>2%) [3]
Dyspnea (26%)
Sinusitis (>2%)

Endocrine/Metabolic
Mastodynia (>2%)

Genitourinary
Urinary tract infection [2]

Otic
Tinnitus (>2%)

Local
Injection-site bleeding (5%)
Injection-site erythema (2%) [2]
Injection-site edema [2]

GESTRINONE

See: www.drugeruptIData.com/drug/id/1397

GLATIRAMER

Synonym: copolymer-1
Trade names: Copaxone (Teva), Glatopa (Novartis)
Indications: Multiple sclerosis
Class: Immunomodulator
Half-life: N/A
Clinically important, potentially hazardous interactions with: Hemophilus B vaccine
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Acneform eruption (>2%)

Anaphylactoid reactions/Anaphylaxis [3]
Cyst (2%)
Diaphoresis (15%)
Ecchymoses (8%)
Eczea (8%)
Edema (8%)
Erythema (4%)
Facial edema (6%)
Herpes simplex (4%)
Hydrophobia (15%)
Hypersensitivity (3%)
Lipoatrophy [3]
Nicolau syndrome [3]
Nodular eruption (2%) [2]
Pancreatitis (35%)
Peripheral edema (7%)
Pruritus (4%) [2]
Purpura (8%)
Rash (18%)

Hair
Alopecia (>2%)

Nails
Nail changes (>2%)

Mucosal
Oral vesiculation (6%)
Xerostomia (>2%)

Cardiovascular
Chest pain (13%) [2]
Flushing [5]
Pallpation (7%) [6]
 Vasodilation (20%) [2]

Central Nervous System
Anxiety (13%) [3]
Chills (4%)
Depression (>2%)
Dysgeusia (taste perversion) (>2%)
Fever (6%)
Hyperalgesia (>2%)
Migraine (4%)
Pain (28%) [2]
Paresthesias (>2%) [2]
Vertigo (dizziness) (>2%)

Neuromuscular/Skeletal
Arthralgia (24%)
Asthme (fatigue) (19%)
Methylprednisolone [5]
Myalgia/Myalgia (33%)
Rhabdomyolysis [33]

Gastrointestinal/Hepatic
Hepatotoxicity [3]
Nausea (15%)
Vomiting (7%)

Respiratory
Cough (>2%) [3]
Dyspnea (26%)
Sinusitis (>2%)

Endocrine/Metabolic
Mastodynia (>2%)

Genitourinary
Urinary tract infection [2]

Otic
Tinnitus (>2%)

Local
Injection-site bledding (5%)
Injection-site erythema (2%) [2]
Injection-site edema [2]
Injection-site erythema (66%) [4]
Injection-site induration (13%) [3]
Injection-site inflammation (49%) [2]
Injection-site lipatrophy/hypertrrophy
Injection-site pain (73%) [3]
Injection-site pruritus (40%) [3]
Injection-site reactions (667%) [15]
Injection-site urticaria (5%) [2]

**Other**

Adverse effects [5]
Infection (50%) [2]

**GLECAPREVIR & PIBRENTASVIR**

**Trade name:** Mavyret (AbbVie)

**Indications:** Chronic HCV genotype 1–6 infection

**Class:** Direct-acting antiviral, Hepatitis C virus NS3/4A protease inhibitor (glecaprevir), Hepatitis C virus NSSA inhibitor (pibrentasvir)

**Half-life:** 6 hours (glecaprevir); 13 hours (pibrentasvir)

Clinically important, potentially hazardous interactions with: atazanavir, atorvastatin, carbamazepine, cyclosporine, darunavir, efavirenz, lopinavir, lovastatin, oral contraceptives, rifampin, ritonavir, simvastatin, St John’s wort

Pregnancy category: N/A (Insufficient evidence to inform drug-associated risk)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Glecaprevir is a piperazinyl polypeptide and can be absorbed systemically. Pibrentasvir can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome

Avandaryl is glimepiride and rosiglitazone.

**Central Nervous System**

- Headache [4]
- Vertigo (dizziness) [2]

**Neuromuscular/Skeletal**

- Arthralgia [2]

**Gastrointestinal/Hepatic**

- Diarrhea [5]
- Nausea [4]
- Pancreatitis [2]

**Endocrine/Metabolic**

- Hypoglycemia [8]
- Weight gain [3]

**Genitourinary**

- Genital mycotic infections [3]
- Urinary tract infection [3]

**Other**

Adverse effects [5]

**GLIMEPIRIDE**

**Trade names:** Amaryl (Sanofi-Aventis), Avandaryl (GSK)

**Indications:** Non-insulin dependent diabetes Type II

**Class:** Sulfonylurea

**Half-life:** 59 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Glimepiride is a sulfonylurea and can be absorbed systemically. Glimepiride and rosiglitazone can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome

Avandaryl is glimepiride and rosiglitazone.

**Central Nervous System**

- Hyperesthesia (<3%)
- Paresthesias (<3%)

**Neuromuscular/Skeletal**

- Myalgia/Myopathy (<3%)

**Endocrine/Metabolic**

- Hypoglycemia [3]

**GLIPIZIDE**

**Trade names:** Glucotrol (Pfizer), Metaglip (Bristol-Myers Squibb)

**Indications:** Non-insulin dependent diabetes Type II

**Class:** Sulfonylurea

**Half-life:** 24 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Glipizide is a sulfonylurea and can be absorbed systemically. Sulfonylureas can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

**Skin**

- Photosensitivity (<10%)
- Pruritus (<3%)
- Rash (<10%)
- Urticaria (<10%)

**Central Nervous System**

- Asthenia (fatigue) (9%) [2]
- Depression (6%)

**Neuromuscular/Skeletal**

- Myalgia/Myopathy (9%) [2]

**Gastrointestinal/Hepatic**

- Diarrhea [5]
- Dyspepsia [2]

**Glipizide is a sulfonamide and can be absorbed systemically. Sulfonylureas can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.
Other
Adverse effects (6%) [4]
Allergic reactions (4%) [2]

GLYBURIDE

Synonyms: glibenclamide; glybenclamide
Trade names: Diabeta (Sanofi-Aventis),
Glucovance (Bristol-Myers Squibb), Glynase
(Pfizer), Micronase (Pfizer)
Indications: Non-insulin dependent diabetes
Type II
Class: Sulfonylurea
Half-life: 5-6 hours
Clinically important, potentially hazardous
interactions with: bosentan, colesevelam,
norfloxacin
Pregnancy category: C
Note: Glyburide is a sulfonamide and can be
absorbed systemically. Sulfonamides can produce
severe, possibly fatal, reactions such as toxic
epidermal necrolysis and Stevens-Johnson
syndrome.
Glucovance is glyburide and metformin.

Skin
Erythema (<5%)
Exanthems (<5%) [3]
Linear IgA bullous dermatosis [2]
Pemphigus [2]
Photosensitivity (<10%) [5]
Pruritus (<10%) [3]
Psoriasis [2]
Purpura [2]
Rash (<10%)
Urticaria (<5%) [4]
Vasculitis [5]
Cardiovascular
Flushing [2]
Endocrine/Metabolic
Hypoglycemia [2]
Weight gain [2]
Other
Adverse effects [2]

GLYCOPYRRROLATE

Synonym: glycopyrronium bromide
Trade names: Cuvox (Shionogi), Robinul
(Forte), Seebri Neohaler (Novartis), Utibron
Neohaler (Novartis)
Indications: Duodenal ulcer, irritable bowel
syndrome, hyperhidrosis
Class: Anticholinergic, Muscarinic antagonist,
Non-depolarizing muscle relaxant
Half-life: N/A
Clinically important, potentially hazardous
interactions with: anticholinergics, antihistamines,
dihydropyridines, propranolol, quinidine,
rifampicin, tricyclic antidepressants
Pregnancy category: C
Important contra-indications noted in the
prescribing guidelines for: nursing mothers;
pediatric patients
Note: Utibron Neohaler is glycopyrrolate and
indacaterol.

Skin
Photosensitivity (<10%)
Xerosis (>10%)
Cardiovascular
Flushing (30%)
Endocrine/Metabolic
Hypoglycemia [2]
Weight gain [2]
Other
Adverse effects [2]

GOLIMUMAB

Trade name: Simponi (Centocor)
Indications: Rheumatoid arthritis, psoriatic
arthritis, ankylosing spondylitis, ulcerative colitis
Class: Disease-modifying antirheumatic drug
(DMARD), Monoclonal antibody, TNF inhibitor
Half-life: 2 weeks
Clinically important, potentially hazardous
interactions with: abatacept, anakinra, live
vaccines
Pregnancy category: B
Important contra-indications noted in the
prescribing guidelines for: nursing mothers;
pediatric patients
Note: TNF inhibitors should be used in patients
with heart failure only after consideration of other
treatment options. TNF inhibitors are contra-
indicated in patients with a personal or family
history of multiple sclerosis or demyelinating
disease. TNF inhibitors should not be
administered to patients with moderate to severe
heart failure (New York Heart Association
Functional Class III/IV).
Warning: SERIOUS INFECTIONS AND
MALIGNANCY

Skin
Lupus erythematosus [3]
Malignancies [5]
Psoriasis [2]
Rash [3]
Cardiovascular
Hypertension [2]

Central Nervous System
Headache [7]
Neuromuscular/Skeletal
Arthralgia [3]
Anesthesia (fatigue) [2]
Gastrointestinal/Hepatic
Colitis [2]
Diarrhea [4]
Nausea [6]
Respiratory
Cough [2]
Pulmonary toxicity [2]
Vomiting [40%]

Endocrine/Metabolic
ALT increased [4]
AST increased [3]
Genitourinary
Urinary tract infection [2]
Hematologic
Sepsis [4]
Local
Injection-site erythema [7]
Injection-site reactions (6%) [7]
Other
Adverse effects [12]
Death [3]
Infection (28%) [16]

GOSERELIN

See: www.drugeruptiondata.com/drug/id/328

GRANISETRON

See: www.drugeruptiondata.com/drug/id/329

GRANULOCYTE COLONY-STIMULATING FACTOR
(G-CSF)

See: www.drugeruptiondata.com/drug/id/330

GREPAFLOXACIN

See: www.drugeruptiondata.com/drug/id/331
### GRISEOFULVIN

**Trade names:** Fulvicin (Schering), Grifulvin V (Ortho), Gris-PEG (Pedinol)

**Indications:** Fungal infections of the skin, hair and nails

**Class:** Antifungal

**Half-life:** 924 hours

**Clinically important, potentially hazardous interactions with:** alcohol, levonorgestrel, liraglutide, midazolam, thalidomide, ulipristal

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

#### Skin
- Angioedema [3]
- Bullous dermatitis [2]
- Cold urticaria [2]
- Erythema multiforme [6]
- Exanthems [6]
- Exfoliative dermatitis [2]
- Fixed eruption [7]
- Lichenoid eruption [2]
- Lupus erythematosus [14]
- Petechiae [2]
- Photosensitivity (<10%) [18]
- Pruritus [4]
- Rash (>10%)
- Serum sickness-like reaction [3]
- Stevens-Johnson syndrome [3]
- Toxic epidermal necrolysis [4]

#### Mucosal
- Oral candidiasis (<10%)

#### Central Nervous System
- Dysgeusia (taste perversion) [3]

#### Endocrine/Metabolic
- Gynecomastia [2]
- Porphyria [12]

#### Other
- Adverse effects [2]
- Allergic reactions (<5%)

### GUANABENZ


### GUANADREL


### GUANETHIDINE

See: [www.drugeruptiondata.com/drug/id/335](http://www.drugeruptiondata.com/drug/id/335)

### GUANFACINE


### GUSELKUMAB *

**Trade name:** Tremfya (Janssen Biotech)

**Indications:** Plaque psoriasis

**Class:** Interleukin-23 inhibitor, Monoclonal antibody

**Half-life:** 15–18 days

**Clinically important, potentially hazardous interactions with:** live vaccines

**Pregnancy category:** N/A (Insufficient evidence to inform drug-associated risk)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

#### Central Nervous System
- Headache (5%) [3]

#### Neuromuscular/Skeletal
- Arthralgia (3%)
- Back pain [2]

#### Gastrointestinal/Hepatic
- Diarrhea (2%)
- Hepatotoxicity (3%)

#### Respiratory
- Nasopharyngitis [5]
- Upper respiratory tract infection (14%) [4]

#### Local
- Injection-site reactions (5%)

#### Other
- Infection [3]
HALCINONIDE
See: www.drugeruptiondata.com/drug/id/1083

Vaccine
20 hours
2018 by Taylor & Francis Group, LLC 131

HALOBETASOL
See: www.drugeruptiondata.com/drug/id/1097

HALOFANTRINE
See: www.drugeruptiondata.com/drug/id/1327

Antiemetic, Antipsychotic

HALOMETASONE
See: www.drugeruptiondata.com/drug/id/1098

Vaccine

Hemophilus B immunization

A higher incidence of bleeding has been reported in patients over 60 years of age, especially women. Contra-indicated in patients with severe thrombocytopenia.

Skin

Anaphylactoid reactions/Anaphylaxis [4]
Bullous dermatitis [4]
Dermatitis [6]
Ecchymoses [3]
Erythema [2]
Exantheme [2]
Hypersensitivity [17]
Lesions [2]
Livedo reticularis [2]
Necrosis [56]
Petechiae [2]
Purpura (>10%)
Toxic epidermal necrolysis [2]
Urticaria [6]
Vasculitis [6]

Hair

Alopecia [2]

Mucosal

Gingivitis (>10%)

Genitourinary

Priapism [3]
Urinary retention [3]

Other

Injection-site reactions [3]

HALOPERIDOL

Trade name: Haldol (Ortho-McNeil)
Indications: Schizophrenia, Tourette’s disorder
Class: Antienetic, Antipsychotic
Half-life: 20 hours

Clinically important, potentially hazardous interactions with:
- acenocoumarol, aliskiren, azathioprine, basiliximab, corticosteroids, cyclosporine, daliluzumab, glatiramer, mycophenolate, sirolimus, tacrolimus
- nilotinib, oxybutynin, propranolol, quinine, lithium, meloxicam, methotrexate, moxifloxacin, fluoxetine, itraconazole, lisdexamfetamine, benztropine, citalopram, clozapine, darifenacin, defibrotide, desvenlafaxine, iloprost, nadroloxone, nicotine, nitroglycerin, palifermin, piperacillin/tazobactam, salicylates, tirofiban, warfarin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; pediatric patients

Warning: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

Skin

Cellulitis [2]
Diaphoresis [2]
Photosensitivity [3]
Seborrhoeic dermatitis [2]

Hair

Alopecia areata [2]

Mucosal

Xerostomia [4]

Cardiovascular

Arrhythmias [2]
QT prolongation [22]
Torsades de pointes [12]

Central Nervous System

Agitation [4]
Akathisia [9]
Delirium [3]
Extrapyramidal symptoms [9]
Insomnia [3]
Neuroleptic malignant syndrome [36]
Parkinsonism [8]
Sedation [3]
Somnolence (drowsiness) [5]
Tardive dyskinesia (<37%) [5]
Tremor [7]

Vertigo (dizziness) [2]
Neuromuscular/Skeletal
Dystonia [3]
Myoclonus [2]
Rhabdomyolysis [7]
Gastrointestinal/Hepatic
Constipation [2]
Pancreatitis [2]
Respiratory
Pneumonia [2]
Endocrine/Metabolic
Galactorrhea [4]
Hyperprolactinemia [2]
Hypoglycemia [2]
SIADH [3]
Weight gain [2]
Genitourinary
Priapism [3]
Urinary retention [3]
Local
Injection-site reactions [3]

Other

Adverse effects [4]
Death [7]

HALOTHANE
See: www.drugeruptiondata.com/drug/id/338

Hemophilus B Vaccine

Trade names: ActHIB (Sanofi-Aventis), Comvax (Merck), HibTITER (Lederle), OmnIHB (GSK), PedvaxHIB (Merck), ProHIBIT (Connaught)

Indications: Hemophilus B immunization
Class: Vaccine
Half-life: N/A

Clinically important, potentially hazardous interactions with:
- azathioprine, basiliximab, corticosteroids, cyclosporine, daliluzumab, glatiramer, mycophenolate, sirolimus, tacrolimus

Pregnancy category: C

Skin

Erythema [2]

HEPATITIS A VACCINE

Trade names: Avaxim (Sanofi Pasteur), Havrix (GSK), Vaqta (Merck)

Indications: Hepatitis A immunization
Class: Vaccine
Half-life: >2 years

Pregnancy category: C

Skin

Rash (<10%)

Central Nervous System

Anorexia (<10%)
Chills (<10%)
Fever (>10%) [2]
Guillain–Barre syndrome [2]
Headache (>10%) [3]
Somnolence (drowsiness) (>10%)

Neuromuscular/Skeletal

Arm pain (<10%)
HEPATITIS A VACCINE

Asthenia (fatigue) (<10%)
Back pain (<10%)
Gastrointestinal/Hepatic
Constipation (<10%)
Diarrhea (<10%)
Nausea (<10%)
Vomiting (<10%)
Respiratory
Cough (<10%)
Nasopharyngitis (<10%)
Pharyngitis (<10%)
Upper respiratory tract infection (<10%)
Otic
Otitis media (<10%)
Ocular
 Conjunctivitis (<10%)
Local
Injection-site erythema [2]
Injection-site pain (<10%) [7]
Injection-site reactions [5]
Other
 Adverse effects [2]

HEPATITIS B VACCINE

| Trade names: | Comvax (Merck), Engerix B (GSK), Pediatrix (GSK), Recombivax HB (Merck), Twinrix (GSK) |
| Other common trade names: | Heptavax-B |
| Indications: | For immunization of infection caused by all known subtypes of hepatitis B virus |
| Class: | Vaccine |
| Half-life: | N/A |
| Clinically important, potentially hazardous interactions with: | none known |
| Pregnancy category: | B (category D if used for prolonged period or in high doses) |

Skin
 Anaphylactoid reactions/Anaphylaxis [6]
Churg-Strauss syndrome [2]
Dermatomyositis [2]
Erythema multiforme [2]
Erythema nodosum [3]
Gianotti-Crosti syndrome [2]
Granuloma annulare [2]
Lichen planus [17]
Lichenoid eruption [3]
Lupus erythematosus [9]
Pemphigus [2]
Pseudolymphoma [2]
Purpura [6]
Raynaud’s phenomenon [2]
Urticaria [3]
Vasculitis [11]

Hair
 Alopecia [2]
Cardiovascular
Polyarteritis nodosa [5]
Central Nervous System
Guillain-Barré syndrome [4]
Neurotoxicity [2]
Neuromuscular/Skeletal
Arthralgia [4]

Ocular
 Optic neuropathy [3]
Uveitis [2]
Local
Injection-site edema [2]
Injection-site pain (22%) [3]
Other
Adverse effects [2]
Death [2]

HEROIN

Synonym: diacetylmorphine
Indications: Substance abuse drug
Class: Opiate agonist
Half-life: N/A
Clinically important, potentially hazardous interactions with: immunosuppressants
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Mucosal
Oropharyngeal pain (3%)
Central Nervous System
Cognitive impairment [2]
Fever (13%) [4]
Headache (28%) [8]
Myelitis [2]
Vertigo (dizziness) (<4%) [2]
Neuromuscular/Skeletal
Asthenia (fatigue) [5]

Gastrointestinal/Hepatic
Diarrhea (3–4%)
Nausea (2–7%) [2]
Vomiting (<2%)
Respiratory
Cough (2%)
Nasopharyngitis (3%)
Upper respiratory tract infection (2%) Local
Injection-site bruising (3%)
Injection-site edema (14–25%) [2]
Injection-site erythema (17–25%) [2]
Injection-site pain (61–84%) [4]
Injection-site pruritus (3%)
Injection-site reactions [4]
Other
 Adverse effects [4]
Toothache (2%)

HUMAN PAPILLOMAVIRUS (HPV) VACCINE

Synonym: HPV4
Trade names: Gardasil (Merck), Silgard (Merck)
Indications: For prevention of HPV genital warts, cervical cancers and vulvar dysplasias (against Types 6, 11, 16 and 18 human papillomavirus)
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: immunosuppressants
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Mucosal
Oropharyngeal pain (3%)
Central Nervous System
Cognitive impairment [2]
Fever (13%) [4]
Headache (28%) [8]
Myelitis [2]
Vertigo (dizziness) (<4%) [2]
Neuromuscular/Skeletal
Asthenia (fatigue) [5]

Gastrointestinal/Hepatic
Diarrhea (3–4%)
Nausea (2–7%) [2]
Vomiting (<2%)
Respiratory
Cough (2%)
Nasopharyngitis (3%)
Upper respiratory tract infection (2%)
Local
Injection-site bruising (3%)
Injection-site edema (14–25%) [2]
Injection-site erythema (17–25%) [2]
Injection-site pain (61–84%) [4]
Injection-site pruritus (3%)
Injection-site reactions [4]
Other
 Adverse effects [4]
Toothache (2%)

HUMAN PAPILLOMAVIRUS VACCINE
(BIVALENT)

Trade name: Cervarix (GSK)
Indications: Prevention of human papillomavirus (HPV) types 16 and 18 in females aged 10–25 years old
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: immunosuppressants
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Mucosal
Oropharyngeal pain (3%)
Central Nervous System
Cognitive impairment [2]
Fever (13%) [4]
Headache (28%) [8]
Myelitis [2]
Vertigo (dizziness) (<4%) [2]
Neuromuscular/Skeletal
Asthenia (fatigue) [5]

Gastrointestinal/Hepatic
Diarrhea (3–4%)
Nausea (2–7%) [2]
Vomiting (<2%)
Respiratory
Cough (2%)
Nasopharyngitis (3%)
Upper respiratory tract infection (2%)
Local
Injection-site bruising (3%)
Injection-site edema (14–25%) [2]
Injection-site erythema (17–25%) [2]
Injection-site pain (61–84%) [4]
Injection-site pruritus (3%)
Injection-site reactions [4]
Other
 Adverse effects [4]
Toothache (2%)

HISTRELIN

See: www.drugeruptiondata.com/drug/id/1111
HYALURONIC ACID

Synonym: hyaluronidase

Trade names: Euflexxa (Ferring), Hylan (Sanofi-Aventis), Hylan G-F 20 (Synvisc), Restylane Fine Lines (Medicis), Vitrase (ISTA Pharma), Juvederm (Allergan), Perlane (Q-Med AB)

Indications: Oral

Class: Food supplement, Glycoaminoglycan

Half-life: 2.55.5 minutes

Clinically important, potentially hazardous interactions with: furosemide, local anesthetics, NSAIDs, oral anticoagulants

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Most reported reactions relate to orthopedic use.

HYDRAZINE

Trade names: Aprezide (Novartis), Apresoline (Novartis), Ser-Ap-Es (Novartis)

Indications: Vasodilator

Class: Oral

Half-life: 37 hours

Clinically important, potentially hazardous interactions with: acebutolol, alfuzosin, captopril, cilazapril, diodoceran, enalapril, fosinopril, levodopa, levomepromazine, lisinopril, meloxicam, olmesartan, quinapril, ramipril, trandolapril, triamcinolone, trifluoperazine, zidovudine

Pregnancy category: C

Note: Aprezide is hydralazine and hydrochlorothiazide; Ser-Ap-Es is hydralazine, reserpine and hydrochlorothiazide.

HYDRAZINE

Trade names: Accuretic (Pfizer), Aldactazide (Pfizer), Aldoril (Merck), Atacand HCT (AstraZeneca), Avalide (Bristol-Myers Squibb), Capozide (Par), Diovan HCT (Novartis), Dysazide (GSK), Hyzaar (Merck), Inderide (Wyeth), Lopressor (Novartis), Lotensin (Novartis), Losartan HCT (Novartis), Micardis (Boehringer Ingelheim), Microzide (Watson), Moduretic (Merck), Prinzide (Merck), Tekturna HCT (Novartis), Teveten HCT (Biovail), Uniretic (Schwarz), Vasetric (Bioval), Zestoretic (AstraZeneca), Ziac (Barr)

Indications: Edema

Class: Diuretic, thiazide

Half-life: 5.64 hours

Clinically important, potentially hazardous interactions with: digoxin, doxofluridine, lithium, zinc

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin

Acneform eruption (<29%)

Anaphylactoid reactions/Anaphylaxis [2]

Angioedema [6]

Churg-Strauss syndrome [12]

Dermatitis (24%)

Eccymoses [3]

Edema [8]

Erythema [6]

Erythema multiforme [2]

Facial edema [2]

Granulomatous reaction [2]

Hematoma [2]

Herpes simplex [2]

Hypersensitivity [6]

Induration [2]

Inflammation [7]

Necrosis [3]

Nodular eruption [2]

Pruritus [4]

Cardiovascular

Arterial occlusion [2]

Hypertension [4%]

Central Nervous System

Pain [3]

Peripheral edema [5%]

Urticaria [2]

Other

Adverse effects [2]

Injection-site reactions [5]

Injection-site pain (92%) [9]

Injection-site nodules [3]

Injection-site granuloma [2]

Injection-site erythema (47%) [8]

Injection-site bruises [3]

Injection-site ecchymoses [2]

Injection-site bruising [3]

Injection-site nodules [3]

Injection-site pain (84%) [16]

Injection-site reactions (<11%) [12]

Other

Adverse effects [14]

Injection [2]

HYDROCHLOROTHIAZIDE

Mucosal

Oral ulceration [2]

Orogenital ulceration [2]

Cardiovascular

Flushing (>10%)

Gastrointestinal/Hepatic

Hepatotoxicity [2]

Respiratory

Alveolar hemorrhage (pulmonary) [2]

Renal

Glomerulonephritis [5]
HYDROCHLOROTHIAZIDE

Cardiovascular
Hypotension [5]

Central Nervous System
Headache [7]
Vertigo (dizziness) [8]

Neuromuscular/Skeletal
Asthenia (fatigue) [3]

Gastrointestinal/Hepatic
Diarrhea [2]
Nausea [2]
Pancreatitis [4]

Respiratory
Upper respiratory tract infection [3]

Endocrine/Metabolic
Hypopituitarism [3]
Serum creatinine increased [2]

Other
Adverse effects [5]
Death [2]

HYDROCODONE

Trade names: Durataus (UCB), Entex HC (Andrx), Hyco tus (Endo), Hydromet (Actavis), Hysingla ER (Purdue), Lortab (UCB), Maxidone (Watson), Norco (Watson), Tussonex (Celltech), Vicodin (AbbVie), Vicoprofen (AbbVie), Zohydro ER (Pernix), Zydone (Endo)

Indications: Acute pain, coughing
Class: Opiate agonist

Half-life: 3.8 hours

Clinically important, potentially hazardous interactions with: alcohol, buprenorphine, butorphanol, CYP3A4 inhibitors or inducers, MAO inhibitors, nalbuphine, pentazocine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: OROS hydromorphone prolonged release (Jurnista) is a once-daily formulation of hydromorphone that utilizes OROS (osmotic-controlled release oral delivery system) technology to deliver the drug at a near constant rate.

Warning: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; ACCIDENTAL INGESTION; NEONATAL OPIOID WITHDRAWAL SYNDROME; and INTERACTION WITH ALCOHOL

Skin
Pruritus (<11%) [12]

Mucosal
Xerostomia (<10%)

Cardiovascular
Chest pain (<10%)

Central Nervous System
Fever (<10%)
Headache [2]
Migraine (<10%)
Paresthesias (<10%)
Somnolence (drowsiness) (<5%) [3]
Tremor (3%)
Vertigo (dizziness) (2-3%) [4]

Neuromuscular/Skeletal
Arthralgia (<10%)
Asthenia (fatigue) (<4%)
Back pain (<4%) [2]
Bone or joint pain (<10%)
Muscle spasm (<3%)
Myalgia/Myopathy (<10%)
Neck pain (<10%)
Pain in extremities (<10%)

Gastrointestinal/Hepatic
Abdominal pain (2-3%)
Constipation (8–11%) [7]
Gastroesophageal reflux (<10%)
Nausea (7–10%) [9]
Vomiting [8]

Respiratory
Cough (<10%)
Dyspnea (<10%)
Upper respiratory tract infection (<3%)

Endocrine/Metabolic
Dehydration (<10%)

Genitourinary
Urinary tract infection (<5%)

HYDROCORTISONE

See: www.drugerupti ondata.com/drug/id/1103

HYDROFLUMETHIAZIDE

See: www.drugerupti ondata.com/drug/id/344

HYDROMORPHONE

Trade names: Dilaudid (AbbVie), Exalgo (Mallinckrodt), Jurnista (Janssen-Cilag), Palladone (Taro)

Indications: Opiate agonist
Class: Opiate agonist

Half-life: 1-3 hours; 2 hours (IV)

Clinically important, potentially hazardous interactions with: alcohol, alvimopan, ammonium chloride, amphetamines, anticholinergics, anxiolytics and hypnotics, buprenorphine, butorphanol, cimetidine, CNS depressants, desmopressin, domperidone, droperidol, linezolid, MAO inhibitors, metoclopramide, moclubemide, nalbuphine, pentazocine, phenothiazines, sodium oxybate, SSRIs, St John's wort, sucinylcholine, thiazide diuretics

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: OROS hydromorphone prolonged release (Jurnista) is a once-daily formulation of hydromorphone that utilizes OROS (osmotic-controlled release oral delivery system) technology to deliver the drug at a near constant rate.

Warning: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; ACCIDENTAL INGESTION; NEONATAL OPIOID WITHDRAWAL SYNDROME; and INTERACTION WITH ALCOHOL

Skin
Pruritus (<11%) [12]

Mucosal
Xerostomia (<10%)

Cardiovascular
Chest pain (<10%)

Central Nervous System
Fever (<10%)
Headache [2]
Migraine (<10%)
Paresthesias (<10%)
Somnolence (drowsiness) (<5%) [3]
Tremor (3%)
Vertigo (dizziness) (2-3%) [4]

Neuromuscular/Skeletal
Arthralgia (<10%)
Asthenia (fatigue) (<4%)
Back pain (<4%) [2]
Bone or joint pain (<10%)
Muscle spasm (<3%)
Myalgia/Myopathy (<10%)
Neck pain (<10%)
Pain in extremities (<10%)

Gastrointestinal/Hepatic
Abdominal pain (2-3%)
Constipation (8–11%) [7]
Gastroesophageal reflux (<10%)
Nausea (7–10%) [9]
Vomiting [8]

Respiratory
Cough (<10%)
Dyspnea (<10%)
Upper respiratory tract infection (<3%)

Endocrine/Metabolic
Dehydration (<10%)

Genitourinary
Urinary tract infection (<5%)

HYDROQUINONE

Trade names: Ambi (Johnson & Johnson), Lustra (Taro)

Indications: Ultraviolet induced dyschromia and discoloration resulting from the use of oral contraceptives, pregnancy, hormone replacement therapy, or skin trauma

Class: Depigmentation agent

Half-life: N/A

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Skin
- Acneiform eruption [2]
- Burning [2]
- Contact dermatitis (localized) [2]
- Depigmentation [2]
- Erythema [4]
- Ochronosis [15]
- Peeling [2]
- Pigmentation [3]
- Pruritus [2]
- Scaling [2]
- Striae [2]
- Xerosis [2]

Other
- Adverse effects [3]

HYDROXYCHLOROQUINE

Trade name: Plaquenil (Sanofi-Aventis)
Indications: Malaria, lupus erythematosus, rheumatoid arthritis
Class: Antimalarial, Antiprotozoal, Disease-modifying antirheumatic drug (DMARD)
Half-life: 32–50 days
Clinically important, potentially hazardous interactions with: chloroquine, cholestyramine, dapsona, droperidol, ethosuximide, lactosamide, lanthanum, moxifloxacin, neostigmine, oxcarbazepine, penicillamine, tiagabine, typhoid vaccine, vigabatrin, yellow fever vaccine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- AGEP [22]
- Bullous dermatitis [2]
- DRESS syndrome [2]
- Erythema annulare centrifugum [3]
- Erythema multiforme [2]
- Erythrodema [3]
- Exanths (<5%) [4]
- Exfoliative dermatitis [3]
- Lichenoid eruption [3]
- Photosensitivity [6]
- Phototoxicity [3]
- Pigmentation (<10%) [19]
- Pruritus (>10%) [13]
- Psoriasis (exacerbation) [13]
- Rash (<10%) [4]
- Thrombocytopenic purpura [2]
- Toxic epidermal necrolysis [3]
- Urticaria [2]

Hair
- Alopecia [2]
- Hair pigmentation (bleaching) (<10%) [8]

Nails
- Nail pigmentation [3]

Mucosal
- Oral pigmentation [7]
- Stomatitis [2]

Cardiovascular
- Cardiomyopathy [8]
- Cardiotoxicity [4]

Hydroxyzine

Synonym: hydroxyzine hydrochloride
Trade names: Atarax (Pfizer), Vistaril (Pfizer)
Indications: Anxiety and tension, pruritus
Class: Histamine H1 receptor antagonist, Muscarinic antagonist
Half-life: 37 hours
Clinically important, potentially hazardous interactions with: alcohol, barbiturates, CNS depressants, efavirenz, lurasidone, narcotics, non-narcotic analgesics
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
- AGEP [3]
- Anaphylactoid reactions/anaphylaxis [2]
- Angioedema [3]
- Erythema multiforme [2]
- Exanths [3]
- Fixed eruption [3]
- Urticaria [4]

Mucosal
- Xerostomia (12%) [4]

Central Nervous System
- Somnolence (drowsiness) [5]

Gastrointestinal/Hepatic
- Vomiting [2]
HYOSCYAMINE

Trade names: IB-Stat (InKline), Levbid (Schwarz), Levisin (Schwarz), Levisin/SL (Schwarz), Levisnex (Schwarz), Nulev (Schwarz)

Indications: Treatment of gastrointestinal tract disorders caused by spasm, adjunctive therapy for peptic ulcers, cystitis, Parkinsonism, biliary and renal colic

Class: Anticholinergic, Muscarinic antagonist

Half-life: N/A

Clinically important, potentially hazardous interactions with: anticholinergics, arbutamine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly, nursing mothers; pediatric patients

Skin
- Photosensitivity (<10%)
- Xerosis (>10%)

Mucosal
- Xerostomia (>10%)

Cardiovascular
- Tachycardia [2]

Local
- Injection-site inflammation (>10%)
**IBANDRONATE**

**Synonym:** ibandronic acid  
**Trade names:** Bondronat (Roche), Boniva (Roche)  
**Indications:** Postmenopausal osteoporosis  
**Class:** Bisphosphonate  
**Half-life:** 37–157 hours  
**Clinically important, potentially hazardous interactions with:** alcohol, aminoglycosides, antacids, calcium salts, food, magnesium salts, NSAIDs, oral iron  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

| Skin | Rash (<2%) |
| Cardiovascular | Hypertension (6–7%) |
| Central Nervous System | Fever (~9%) [4]  
| | Headache (3–7%)  
| | Vertigo (dizziness) (<4%) |
| Neuromuscular/Skeletal | Arthralgia (3–6%) [2]  
| | Asthenia (fatigue) (4%) [3]  
| | Back pain (4–14%)  
| | Bone or joint pain [3]  
| | Cramps (2%)  
| | Joint disorder (4%)  
| | Myalgia/Myopathy (<6%)  
| Gastrointestinal/Hepatic | Abdominal pain (5–8%)  
| | Constipation (3–4%)  
| | Diarrhea (4–7%) [2]  
| | Dyspepsia (6–12%) [4]  
| | Gastritis (2%)  
| | Gastrointestinal disorder [3]  
| | Nausea (5%) [4]  
| | Vomiting (3%) [4] |
| Respiratory | Bronchitis (3–10%)  
| | Flu-like syndrome (<4%) [7]  
| | Nasopharyngitis (4%)  
| | Pharyngitis (3%)  
| | Pneumonia (6%)  
| | Upper respiratory tract infection (2–34%) |
| Endocrine/Metabolic | Hypercholesterolemia (5%)  
| | Hypocalcemia [3]  
| | Hyperphosphatemia [2] |
| Genitourinary | Urinary tract infection (2–6%) |
| Other | Adverse effects [5]  
| | Allergic reactions (3%)  
| | Infection (4%)  
| | Tooth disorder (4%) |

**IBRUTINIB**

**Trade name:** Imbruvica (Pharmacyclics)  
**Indications:** Mantle cell lymphoma  
**Class:** Bruton’s tyrosine kinase (BTK) inhibitor  
**Half-life:** 4–6 hours  
**Clinically important, potentially hazardous interactions with:** carabamazepine, clarithromycin, grapefruit juice, itraconazole, ketoconazole, phenytoin, posaconazole, rifampin, St John’s wort, strong or moderate CYP3A inhibitors or inducers, telithromycin, voriconazole  
**Pregnancy category:** D  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

| Skin | Cellulitis [3]  
| | Eczematoses (30%) [4]  
| | Panniculitis [2]  
| | Peripheral edema (35%) [3]  
| | Petechiae (11%)  
| | Rash (25%) [5]  
| | Toxicity (14%) [3]  
| | Tumor lysis syndrome [2] |
| Cardiovascular | Epistaxis (nosebleed) (11%)  
| | Stomatitis (17%) |
| Gastrointestinal/Hepatic | Fever (18%) [5]  
| | Headache (13%) [2]  
| | Peripheral neuropathy [2]  
| | Vertigo (dizziness) (14%) |
| Central Nervous System | Fever (18%) [5]  
| | Headache (13%) [2]  
| | Peripheral neuropathy [2]  
| | Vertigo (dizziness) (14%) |
| Neuromuscular/Skeletal | Arthralgia (11%) [3]  
| | Asthenia (fatigue) (14–41%) [19]  
| | Bone or joint pain (37%)  
| | Muscle spasm (14%) [2] |
| Gastrointestinal/Hepatic | Abdominal pain (24%)  
| | Constipation (25%)  
| | Diarrhea (11%–12%) [23]  
| | Dyspepsia (11%)  
| | Hepatotoxicity [2]  
| | Nausea (31%) [14]  
| | Vomiting (24%) [3] |
| Respiratory | Cough (19%) [3]  
| | Dyspnea (27%)  
| | Pneumonia (14%) [7]  
| | Sinusitis (13%) [2]  
| | Upper respiratory tract infection (34%) [6] |
| Endocrine/Metabolic | Appetite decreased (21%)  
| | Dehydration (12%) [2]  
| | Hyperuricemia (15%)  
| | Hypokalemia [2] |
| Genitourinary | Urinary tract infection (14%) [2] |
| Hematologic | Anemia [11]  
| | Bleeding [11]  
| Other | Bleeding [3]  
| | Anemia [11]  
| | Hypertension [4]  
| | Aseptic meningitis [16]  
| | Headache [3]  

**IBUPROFEN**

**Trade names:** Advil (Wyeth), Motrin (McNeil), Vicoprofen (AbbVie)  
**Indications:** Arthritis, pain  
**Class:** Non-steroidal anti-inflammatory (NSAID)  
**Half-life:** 24 hours  
**Clinically important, potentially hazardous interactions with:** aspirin, ciprofibrate, diuretics, methotrexate, methyl salicylate, NSAIDs, oxycodone hydrochloride, salicylates, tacrine, tacrolimus, urorokinase, voriconazole  
**Pregnancy category:** D  
**Note:** NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

| Skin | AGEP [5]  
| | Anaphylactoid reactions/Anaphylaxis [5]  
| | Angioedema [8]  
| | Bullous dermatitis [3]  
| | Bullous pemphigoid [2]  
| | Dermatitis [5]  
| | DRESS syndrome [4]  
| | Erythema multiforme [11]  
| | Erythema nodosum (<5%)  
| | Exanthems [9]  
| | Fixed eruption [15]  
| | Hypersensitivity [5]  
| | Lupus erythematosus [5]  
| | Nicolau syndrome [2]  
| | Peripheral edema [2]  
| | Photosensitivity [6]  
| | Pruritus (<5%) [5]  
| | Psoriasis (palms) [2]  
| | Rash (>10%) [2]  
| | Stevens-Johnson syndrome [10]  
| | Toxic epidermal necrolysis [8]  
| | Urticaria (<10%) [10]  
| | Vasculitis [8]  
| | Vesiculobullous eruption [2] |
| Hair | Alopecia [2] |
| Cardiovascular | Cardiotoxicity [2]  
| | Hypertension [4]  
| | Central Nervous System | Aseptic meningitis [16]  
| | | Headache [3]  
| | Neuromuscular/Skeletal | Arthralgia [2]  
| | | Back pain [2]
IBUPROFEN

Rhabdomyolysis [3]

Gastrointestinal/Hepatic
Abdominal pain [6]
Constipation [4]
Diarrhea [4]
Dyspepsia [5]
Gastroesophageal reflux [2]
Gastrointestinal bleeding [2]
Gastrointestinal disorder [2]
Hepatotoxicity [3]
Nausea [7]
Pancreatitis [2]
Vanishing bile duct syndrome [2]
Vomiting [5]

Respiratory
Influenza [2]
Sinusitis [2]
Upper respiratory tract infection [2]

Endocrine/Metabolic
Pseudoporphyria [2]

Genitourinary
Urinary tract infection [2]

Renal
Nephrotoxicity [4]

Hematologic
Thrombocytopenia [5]

Otic
Hearing loss [2]
Tinnitus [2]

Ocular
Amblyopia [2]
Optic neuritis [2]
Periocular edema [3]
Visual disturbances [2]

Other
Adverse effects [13]
Kousi syndrome [3]

IBUTILIDE

Trade name: Corvert (Pfizer)
Indications: Atrial fibrillation and flutter
Class: Antiarrhythmic, Antiarrhythmic class III
Half-life: 2-12 hours
Clinically important, potentially hazardous interactions with: degarelix
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Cardiovascular
Bradycardia [4]
Hypotension [2]
QT prolongation [5]
Tachycardia [3]
Torsades de pointes [10]
Ventricular arrhythmia [4]
Ventricular tachycardia [6]

Central Nervous System
Headache (4%)

Gastrointestinal/Hepatic
Nausea (2%) [3]

ICATIBANT

See: www.drugeruptiondata.com/drug/id/1368

ICODEXTRIN

See: www.drugeruptiondata.com/drug/id/1072

IDARUBICIN

Synonyms: 4-demethoxydaunorubicin; 4-DMDR
Trade name: Idamycin (Pfizer)
Indications: Acute myeloid leukemia
Class: Antibiotic, anthracycline
Half-life: 1435 hours (oral)
Clinically important, potentially hazardous interactions with: aledeleukin
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Rash (>10%) [4]
Urticaria (>10%)

Hair
Alopecia (77%) [8]

Mucosal
Mucositis (50%) [5]
Stomatitis (>10%)

Gastrointestinal/Hepatic
Diarrhea [3]
Hepatotoxicity [2]
Nausea [2]
Vomiting [2]

Hematologic
Febrile neutropenia [2]
Neutropenia [2]

Other
Infection [2]

IDARUCIZUMAB

Trade name: Praxbind (Boehringer Ingelheim)
Indications: Reversal of the anticoagulant effects of dabigatran in patients requiring emergency or urgent surgery or with life-threatening or uncontrolled bleeding
Class: Monoclonal antibody, Reversal agent for dabigatran
Half-life: 10 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (No data available)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Risk of serious adverse reactions in patients with hereditary fructose intolerance due to sorbitol excipient.

Skin
Irritation [2]

ICATIBANT
See: www.drugeruptiondata.com/drug/id/1368

ICODEXTRIN
See: www.drugeruptiondata.com/drug/id/1072

IDARUBICIN
Synonyms: 4-demethoxydaunorubicin; 4-DMDR
Trade name: Idamycin (Pfizer)
Indications: Acute myeloid leukemia
Class: Antibiotic, anthracycline
Half-life: 1435 hours (oral)
Clinically important, potentially hazardous interactions with: aledeleukin
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Rash (>10%) [4]
Urticaria (>10%)

Hair
Alopecia (77%) [8]

Mucosal
Mucositis (50%) [5]
Stomatitis (>10%)

Gastrointestinal/Hepatic
Diarrhea [3]
Hepatotoxicity [2]
Nausea [2]
Vomiting [2]

Hematologic
Febrile neutropenia [2]
Neutropenia [2]

Other
Infection [2]

IDARUCIZUMAB
Trade name: Praxbind (Boehringer Ingelheim)
Indications: Reversal of the anticoagulant effects of dabigatran in patients requiring emergency or urgent surgery or with life-threatening or uncontrolled bleeding
Class: Monoclonal antibody, Reversal agent for dabigatran
Half-life: 10 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (No data available)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Risk of serious adverse reactions in patients with hereditary fructose intolerance due to sorbitol excipient.

Skin
Irritation [2]

Central Nervous System
Deltirium (7%)
Fever (6%)
Headache [2]

Neuromuscular/Skeletal
Back pain [2]

Gastrointestinal/Hepatic
Constipation [7%]

Respiratory
Nasopharyngitis [2]
Pneumonia (6%)

Endocrine/Metabolic
Hypokalemia (7%)

IDEBENONE

See: www.drugeruptiondata.com/drug/id/1062

IDELALISIB

Trade name: Zydelig (Gilead)
Indications: Relapsed chronic lymphocytic leukemia (with rituximab), follicular B-cell non-Hodgkin lymphoma, small lymphocytic lymphoma
Class: Phosphoinositide 3-kinase (PI3K) inhibitor
Half-life: 8 hours
Clinically important, potentially hazardous interactions with: carbamazepine, copanlisib, midostaurin, neratinib, phenytoin, rifampin, St john’s wort, strong CYP3A inducers and substrates
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: FATAL AND SERIOUS TOXICITIES: HEPATIC, SEVERE DIARRHEA, COLITIS, PNEUMONITIS, AND INTESTINAL PERFORATION

Skin
Diaphoresis (12%)
Peripheral edema (10%)
Rash (21%) [7]
Toxicity [2]

Central Nervous System
Chills [5]
Fever [9]
Headache (11%)
Insomnia (12%)

Neuromuscular/Skeletal
Asthenia (fatigue) (30%) [8]

Gastrointestinal/Hepatic
Abdominal pain (26%)
Colitis [6]
Constipation [2]
Diarrhea (47%) [15]
Gastrointestinal perforation [2]
Hepatotoxicity [8]
Nausea (29%) [8]
Vomiting (15%) [3]

Respiratory
Cough (29%) [5]
Dyspnea (17%)
Pneumonia (25%) [9]
IMATINIB

Trade name: Gleevec (Novartis)

Indications: Chronic myeloid leukemia

Class: Tyrosine kinase inhibitor

Half-life: 18 hours

Clinically important, potentially hazardous interactions with: acetaminophen, amlodipine, anisindione, anticoagulants, aprepitant, atorvastatin, barbiturates, benzodiazepines, butobarbital, carbamazepine, chloridiazepoxide, clarithromycin, clonazepam, clorazepate, corticosteroids, cyclosporine, dexamethasone, diazepam, dicumarol, efavirenz, erythromycin, ethinyl-estrogen, efavirenz, flurazepam, fluvoxamine, felodipine, furosemide, itraconazole, ketoconazole, mifepristone, neratinib, nicardipine, nifedipine, nilotinib, olaparib, oxazepam, oxcarbazepine, phenytoin, pimozide, pravastatin, primidone, quazepam, rifampin, rifapentine, safinamide, saquinavir, saquinavir, simvastatin, St John’s wort, temazepam, voriconazole, warfarin

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
- Acneform eruption [2]
- AGEP [7]
- Dihydropyrimidinase (13%) [2]
- DRESS syndrome [3]
- Edema (<5%) [35]
- Erythema (<10%) [5]
- Erythema multiforme [2]
- Erythromelalgia [3]
- Exanthems [9]
- Exfoliative dermatitis [4]
- Facial edema (<10%) [3]
- Hand-foot syndrome [3]
- Hypomelanosis [5]
- Lichen planus [5]
- Lichen planus [5]
- Mycosis fungoides [2]
- Neutrophilic eccrine hidradenitis [3]
- Panniculitis [3]
- Peripheral edema (<10%) [5]
- Photosensitivity (<10%) [3]
- Pigmentation [12]
- Pityriasis rosea [5]
- Pruritus (6–10%) [3]
- Pseudolymphoma [3]
- Psoiasis [3]
- Rash (32–39%) [26]
- Squamous cell carcinoma [2]
- Stevens-Johnson syndrome [13]
- Sweet’s syndrome [3]
- Toxicity [9]
- Urticaria [3]
- Vasculitis [2]
- Xeroderma (<10%) [2]

Hair
- Alopecia (10–15%) [2]
- Follicular mucinosis [2]

Other adverse effects [2]

Other side effects [2]

Thrombocytopenia [4]

Other
- Allergic reactions (<10%)
- Death [2]
- Infection [2]

IOLOPROST

See: www.drugeruptiondata.com/drug/id/1132

Thrombocytopenia [4]

Other adverse effects [2]

Other side effects [2]

Thrombocytopenia [4]

Other
- Allergic reactions (<10%)
- Death [2]
- Infection [2]

IOLOPERIDONE

Trade name: Fanapt (Vanda)

Indications: Schizophrenia

Class: Antipsychotic

Half-life: 18–33 hours

Clinically important, potentially hazardous interactions with: alcohol, dextromethorphan, dextropropoxyphene, fluoxetine, haloperidol, lorazepam, mescaline, methylphenidate, modafinil, nortriptyline, oxcarbazepine, polystyrene sulfonate, propoxyphene, quetiapine, risperidone, tiapride, trazodone, tramadol, tramadol, trazodone, valproic acid, zaleplon, zolpidem

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: elderly patients, pediatric patients

Skin
- Rash (2%) [2]
- Mucosal
- Nasal congestion (8%) [2]
- Xeroformia (10%) [3]

Cardiovascular
- Hypotension (3%)
- Orthostatic hypotension (3%)
- QT prolongation (8)
- Tachycardia (12%) [4]

Central Nervous System
- Akathisia (2%) [3]
- Anxiety [2]
- Headache [3]
- Insomnia (18%) [3]
- Sedation [3]
- Somnolence (drowsiness) (15%) [8]
- Tremor (3%)
- Vertigo (dizziness) (20%) [11]

Neuromuscular/Skeletal
- Arthralgia (3%)
- Asthenia (fatigue) (6%) [2]
- Arthralgia (3%)
- Asthenia (fatigue) (6%) [2]

Gastrointestinal/Hepatic
- Diarrhea (7%)
- Dyspepsia [3]
- Nausea (10%) [2]

Respiratory
- Dryness (2%)
- Nasopharyngitis (3%)
- Upper respiratory tract infection (3%)

Endocrine/Metabolic
- Weight gain (9%) [10]

Genitourinary
- Ejaculatory dysfunction (2%) [2]

IDURSULFASE

See: www.drugeruptiondata.com/drug/id/1185

IFOSFAMIDE

Trade name: Ifex (Bristol-Myers Squibb)

Indications: Cancers, sarcomas, leukemias, lymphomas

Class: Alkylating agent

Half-life: 415 hours

Clinically important, potentially hazardous interactions with: aldolase, aprepitant, dextropropoxyphene, dextromethorphan, dextropropoxyphene, haloperidol, lorazepam, mescaline, methylphenidate, modafinil, nortriptyline, oxcarbazepine, polystyrene sulfonate, propoxyphene, quetiapine, risperidone, tiapride, trazodone, tramadol, tramadol, trazodone, valproic acid, zaleplon, zolpidem

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
- Dermatitis (<10%)
- Pigmentation (<10%) [2]
- Toxicity [2]
- Hair
- Alopecia (50–100%) [4]
- Nails
- Ridding (<10%) [2]

Cardiovascular
- Phlebitis (2%)

Central Nervous System
- Confusion [2]
- Delirium [2]
- Encephalopathy [10]
- Neurotoxicity [11]
- Seizures [2]

Neuromuscular/Skeletal
- Osteomalacia [2]

Gastrointestinal/Hepatic
- Hepatotoxicity [2]
- Nausea [6]
- Pancreatitis [2]
- Vomiting [6]

Endocrine/Metabolic
- SIADH [2]

Renal
- Fanconi syndrome [4]
- Nephrotoxicity [34]

Hematologic
- Anemia [3]
- Febrile neutropenia [2]
- Leukopenia [2]
- Myelosuppression [2]
- Neutropenia [4]

Thrombocytopenia [4]

Other
- Allergic reactions (<10%)
- Death [2]
- Infection [2]

Pneumonitis [5]

Upper respiratory tract infection (12%) [3]

Endocrine/Metabolic
- ALT increased (50%) [8]
- Appetite decreased (16%) [2]
- AST increased (41%) [8]

Hematologic
- Anemia [6]
- Febrile neutropenia [6]
- Neutropenia [8]
- Thrombocytopenia [6]

Other
- Adverse effects [2]
- Side effects [2]

Related Psychosis

Elderly patients with dementia-

Warning:

Important contra-indications noted in the prescribing guidelines for:

Other adverse effects [2]

Other side effects [2]

Thrombocytopenia [4]

Other
- Allergic reactions (<10%)
- Death [2]
- Infection [2]

Related psychotic episodes in elderly patients

Important contra-indications noted in the prescribing guidelines for:

Other adverse effects [2]

Other side effects [2]

Thrombocytopenia [4]

Other
- Allergic reactions (<10%)
- Death [2]
- Infection [2]

Pneumonitis [5]

Upper respiratory tract infection (12%) [3]
Nails
Nail dystrophy [2]

Mucosal
Mucositis [2]
Oral lichenoid eruption [3]
Oral pigmentation [3]
Oral ulceration [3]

Cardiovascular
Cardiotoxicity [2]
Congestive heart failure [2]
QT prolongation [2]

Central Nervous System
Anorexia [4]
Chills (11%) [2]
Depression (15%) [2]
Fever (13–41%) [2]
Headache (19–37%) [4]
Hypothalasia (<10%) [2]
Insomnia (10–19%) [2]
Subdural hemorrhage [2]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Arthralgia (21–26%) [4]
Anesthesia (fatigue) (29–75%) [20]
Bone or joint pain (11–31%) [13]
Muscle spasm [9]
Myalgia/Myopathy (16–62%) [11]

Gastrointestinal/Hepatic
Abdominal pain [5]
Ascites [2]
Constipation (9–16%) [2]
Diarrhea (22–59%) [17]
Duressa [2]
Gastrointestinal bleeding [5]
Hepatotoxicity (6–12%) [18]
Nauses (42–73%) [15]
Vomiting (23–58%) [13]

Respiratory
Cough (11–27%) [2]
Dyspnea (21%) [2]
Nasopharyngitis (10–31%) [12]
Pharyngitis (10–15%) [2]
Pleural effusion [3]
Pneumonitis (4–13%) [2]
Pulmonary toxicity [2]
Rhinitis (17%) [2]
Upper respiratory tract infection (3–21%) [2]

Endocrine/Metabolic
Creatine phosphokinase increased [2]
Gynecomastia [2]
Hypoglycemia [2]
Hypothyroidism [2]
Ketoacidosis [2]

Renal
Fanconi syndrome [2]
Nephrotoxicity [2]
Renal failure [2]

Hematologic
Anemia [10]
Febrile neutropenia [2]
Hemototoxicity [4]
Leukopenia [3]
Myelosuppression [2]
Neutropenia [13]
Thrombocytopenia [11]

Otic
Hearing loss [4]

Ocular
Epiphora (25%) [2]
Eyelid edema [2]
Optic edema [2]
Periorbital edema (33%) [11]

Other
Adverse effects [14]
Death [3]
Side effects [2]

IMIDAPRIL
See: www.drugeruptiondata.com/drug/id/1265

IMIGLUCERASE
See: www.drugeruptiondata.com/drug/id/1028

IMIPENEM/CILASTATIN
See: www.drugeruptiondata.com/drug/id/353

IMIPRAMINE

Cardiovascular
QT prolongation [3]
Tachycardia [2]

Central Nervous System
Dysgeusia (taste perversion) (metallic taste) (>10%) [2]
Parkinsonism (<10%) [2]

Neuromuscular/Skeletal
Anesthesia (fatigue) [2]

Endocrine/Metabolic
SIADH [4]

Otic
Tinnitus [4]

IMIQUIMOD

IMATINIB
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Skin
Angioedema [2]
burning (93%) [7]
Crust [3]
Depigmentation [3]
Eczema (<10%) [2]
Edema (1/217%) [2]
Erosions (1/032%) [5]
Erythema (3385%) [14]
Erythema multiforme [2]
Excoriations (1/25%) [2]
Flaking (1/967%) [3]
Fungal dermatis (<10%) [2]
Herpes simplex (<10%) [2]
Hypermelanosia [2]
Induration (5%) [2]
Lichen planus [3]
Lupus erythematosus [3]
Lymphadenopathy (2%) [2]
Pemphigus [4]
Pemphigus foliacius [3]

Other
Aldara (3M), Zyclara (Graceway)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Fever (<10%) [2]  Headache (<10%) [3]  Neurotoxicity [3]  Pain (21%) [6]  Rigors (<10%)  Vertigo (dizziness) (<10%)  **Neuromuscular/Skeletal**  Asthenia (fatigue) (<10%) [2]  Back pain (<10%)  Myalgia/Myopathy (<10%)  **Gastrointestinal/Hepatic**  Nausea (<10%) [2]  Vomiting (<10%)  **Respiratory**  Cough (<10%)  Flu-like syndrome (<3%)  Pharyngitis (<10%)  Rhinitis (<10%)  Sinusitis (<10%)  Upper respiratory tract infection (<10%)  **Genitourinary**  Urinary tract infection (<10%)  **Local**  Application-site burning (<10%)  Application-site edema (<10%) [4]  Application-site erythema (<10%) [3]  Application-site pruritus (<10%) [4]  Application-site reactions [9]  **Other**  Adverse effects [6]  **IMMUNE GLOBULIN (EQUINE)**  See: www.drugeruptiondata.com/drug/id/2597  **IMMUNE GLOBULIN IV**  Synonyms: IGIV, IVIG  **Trade names:** Gamimune (Bayer), Gammagard (Baxter), Gammar PIV (ZLB Behring), Gamnumex (Bayer), Ivecagam (Baxter), Venoglobulin (Alpha Therapeutics)  **Indications:** Immunodeficiency in patients unable to produce sufficient amounts of IgG antibodies  **Class:** Immunomodulator  **Half-life:** N/A  **Clinically important, potentially hazardous interactions with:** live vaccines  **Pregnancy category:** C  **Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  **Warning:** THROMBOSIS, RENAL DYSFUNCTION and ACUTE RENAL FAILURE  **Skin**  Anaphylactoid reactions/Anaphylaxis [3]  Eczema [3]  Lichenoid eruption [2]  Porphyry [3]  Rash [2]  Vasculitis [4]  **Cardiovascular**  Flushing [2]  Hypertension [3]  **IMMUNE GLOBULIN SC**  **Synonym:** SCIG  **Trade names:** Cuvitru (Shire), Hizentra (CSL Behring), Vivaglobin (CSL Behring)  **Indications:** Primary immune deficiency  **Class:** Immunomodulator  **Half-life:** N/A  **Clinically important, potentially hazardous interactions with:** none known  **Pregnancy category:** C  **Warning:** THROMBOSIS  **Skin**  Pruritus [2]  Rash (<3%)  **Mucosal**  Oropharyngeal pain (17%)  **Cardiovascular**  Tachycardia (<3%)  **Central Nervous System**  Fever (<3%) [2]  Headache (2-32%) [3]  **Neuromuscular/Skeletal**  Asthenia (fatigue) (<5%)  **Gastrointestinal/Hepatic**  Gastrointestinal disorder (<5%)  Nausea (<11%)  **Respiratory**  Bronchitis [2]  Cough (10%)  Local  Injection-site reactions (49-92%) [5]  **Other**  Allergic reactions (11%)  **INACTIVATED POLIO VACCINE**  See: www.drugeruptiondata.com/drug/id/1408  **INAMRINONE**  See: www.drugeruptiondata.com/drug/id/355  **INDACATEROL**  **Trade names:** Arcapta Neohaler (Novartis), Onbrez Breezhaler (Novartis), Utibron Neohaler (Novartis)  **Indications:** Long term, once-daily maintenance bronchodilator treatment of airflow obstruction in chronic obstructive pulmonary disease (COPD), including chronic bronchitis and/or emphysema  **Class:** Beta-2 adrenergic agonist, Bronchodilator  **Half-life:** 40-56 hours  **Clinically important, potentially hazardous interactions with:** acetazolamide, adrenergics, aminophylline, arsenic, corticosteroids, diuretics, erythromycin, ketoconazole, MAO inhibitors, pazopanib, QT prolonging agents, ritonavir, steroids, telavancin, theophylline, tricyclic antidepressants, verapamil, xanthine derivatives  **Pregnancy category:** C  **Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  **Note:** Studies in asthma patients showed that long-acting beta-adrenergic agonists may increase the risk of asthma-related death. Contra-indicated in patients with asthma without use of a long-term asthma control medication. Utibron Neohaler is indacaterol and glycopyrrolate.  **Warning:** ASTHMA-RELATED DEATH  **Mucosal**  Oropharyngeal pain [2]  **Central Nervous System**  Headache (5%) [3]  Pain (oropharyngeal) (2%)  **Gastrointestinal/Hepatic**  Nausea (2%)  **Respiratory**  Asthma [2]  COPD (exacerbation) [7]  Cough (7%) [9]  **Other**  Allergic reactions (11%)  **Litt’s Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC**
INDACATEROL

Upper respiratory tract infection [3]

Other

Adverse effects [6]

INDAPAMIDE

Trade name: Lozol (Sanofi-Aventis)

Indications: Edema

Class: Diuretic, thiazide

Half-life: 1418 hours

Clinically important, potentially hazardous interactions with: digoxin, lithium, zidovudine, indinavir

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Indapamide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin

Angioedema [3]

Erythema multiforme [2]

Pemphigus foliaceus [2]

Peripheral edema (<5%) [2]

Rash (<5%) [4]

Toxic epidermal necrolysis [3]

Urticaria (<5%) [2]

Vasculitis (<5%)

Mucosal

Xerostomia (<5%) [2]

Cardiovascular

Flushing (<5%)

QT prolongation [5]

Central Nervous System

Paresthesias (<5%) [2]

Vertigo (dizziness) [2]

Endocrine/Metabolic

Hypokalemia [2]

Hyponatremia [2]

INDINAVIR

Trade name: Crixivan (Merck)

Indications: HIV infection

Class: Antiretroviral, CYP3A4 inhibitor, HIV-1 protease inhibitor

Half-life: ~1.8 hours

Clinically important, potentially hazardous interactions with: abiraterone, alfuzosin, almotriptan, alosetron, amiodarone, amoxapine, antacid, antihistaminics, antifungal agents, artemether/lumefantrine, azatidine, azithromycin, atorvastatin, atovaquone, avapro, avaplexan, bepridil, bortezomib, bosentan, bimatoprost, brinzolamide, cabazitaxel, cabazitaxil, calcifediol, calcium channel blockers, carbamazepine, chloroquine, ciclesonide, cisapride, clarithromycin, clonazepam, clorazepate, colchicine, convivapan, copenhagen, corticosteroids, crizotinib, cyclophosphamide, CYP3A4 inducers and substrates, darifenacin, derunavir, dasatinib, debafloxmac, delavirdine, dexamethasone, denogest, digoxin, dihydroergotamine, dromedrine, dantrolene, efavirenz, enfuvirtide, eplerenone, ergot derivatives, erogotamine, estazolam, estrone, etravirine, everolimus, felodipine, fentanyl, fosfoterol, flubanserin, flurazepam, fluactacone propionate, food, fudic acid, grapefruit juice, guanfacine, H2-antagonists, halazepam, halofantrine, HMG-CoA reductase inhibitors, itraconazole, ixabepilone, ketoconazole, lapatinib, lidocaine, lomipatide, lopinavir, lovastatin, maraviroc, meperidine, metylergonovine, methylprednisolone, methysergide, midazolam, midostaurin, mifepristone, mometasone, nefazodone, nelfinavir, nevirapine, nicardipine, nifedipine, nilotinib, nisoldipine, olaparib, P-glycoprotein inhibitors and inducers, paclitaxel, palbociclib, pantoprazole, paricalcitol, pazopanib, PEG-interferon, phenobarbital, phenoxytoin, pimavanserin, pimecrolimus, pimozone, ponatinib, prasugrel, protease inhibitors, proton pump inhibitors, quazepam, quindine, quinine, ranolazine, ribociclib, rifabutin, rifampin, rifapentine, nilvirepine, rivanoxan, romipredoxin, rosvastatin, ruxolitinib, salmeterol, saxaglipitin, sildenafil, silodosin, simvastatin, sirolimus, sunitinib, telaprevir, tobramycin, tretinoin, tamoxifen, telithromycin, tenofovir disoproxil, theophylline, ticagrelor, tolvaptan, trazodone, trazodone, trilamine, tricyclic antidepressants, valproic acid, vardenaf, vemurafenib, venlafaxine, vorapaxar, zidovudine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Protease inhibitors cause dyslipidemia which includes elevated triglycerides and cholesterol and redistribution of body fat centrally to produce the so-called ‘protease paunch’, breast enlargement, facial atrophy and ‘buffalo hump’.

Skin

Bromhidrosis (<2%)

Dermatitis (<2%)

Diaphoresis (<2%)

Foliculitis (<2%)

Herpes simplex (<2%)

Herpes zoster (<2%)

Jaundice (2%)

Lipodystrophy [8]

Lipomatosis [2]

Pruritus [2]

Rash [2]

Seborrhea (<2%)

Stevens-Johnson syndrome [2]

Xerosis [2]

Hair

Alopecia [5]

Nails

Onychocytesis [2]

Paronychia [5]

Pyogenic granuloma [3]

Mucosal

Aphthous stomatitis (<2%)

Chelitis [4]

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Gingivitis (<2%)

Cardiovascular

Flushing (<2%)

Central Nervous System

Anorexia (3%)

Dysesthesia (<2%)

Dysgesia (taste perversion) (3%)

Fever (2%)

Headache (5%)

Hyperesthesia (<2%)

Paresthesias (<2%)

Somnolence (drowsiness) (2%)

Vertigo (dizziness) (3%)

Neuromuscular/Skeletal

Asthenia (fatigue) (2%)

Back pain (8%)

Myalgia/Myopathy with lovastatin or simvastatin (<2%)

Gastrointestinal/Hepatic

Abdominal pain (<17%) [2]

Diarrhea (3%)

Dyspepsia (2%)

Nausea (12%)

Vomiting (8%)

Respiratory

Cough (2%)

Endocrine/Metabolic

ALT increased (5%)

Appetite increased (2%)

AST increased (4%)

Creatine phosphokinase increased [2]

Diabetes mellitus [2]

Gynecomastia [4]

Porphyria (acute) [2]

Genitourinary

Crystalluria [2]

Dysuria (2%)

Renal

Nephrolithiasis (9%) [4]

Nephrotoxicity (13%)

Ocular

Eyelid edema (<2%)

Other

Bruxism (<2%)

INDOMETHACIN

Synonym: indomethacin

Indications: Arthritis

Class: Non-steroidal anti-inflammatory (NSAID)

Half-life: 4.5 hours

Clinically important, potentially hazardous interactions with: aldosterone, aspirin, atenolol, cyclosporine, difluazal, diuretics, methotrexate, NSAIDs, prednisolone, prednisone, sermorelin, sulfolone, torsemide, triamterene, urokinase

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Gingivitis (<2%)

Cardiovascular

Flushing (<2%)

Central Nervous System

Anorexia (3%)

Dysesthesia (<2%)

Dysgesia (taste perversion) (3%)

Fever (2%)

Headache (5%)

Hyperesthesia (<2%)

Paresthesias (<2%)

Somnolence (drowsiness) (2%)

Vertigo (dizziness) (3%)

Neuromuscular/Skeletal

Asthenia (fatigue) (2%)

Back pain (8%)

Myalgia/Myopathy with lovastatin or simvastatin (<2%)

Gastrointestinal/Hepatic

Abdominal pain (<17%) [2]

Diarrhea (3%)

Dyspepsia (2%)

Nausea (12%)

Vomiting (8%)

Respiratory

Cough (2%)

Endocrine/Metabolic

ALT increased (5%)

Appetite increased (2%)

AST increased (4%)

Creatine phosphokinase increased [2]

Diabetes mellitus [2]

Gynecomastia [4]

Porphyria (acute) [2]

Genitourinary

Crystalluria [2]

Dysuria (2%)

Renal

Nephrolithiasis (9%) [4]

Nephrotoxicity (13%)

Ocular

Eyelid edema (<2%)

Other

Bruxism (<2%)

INDOMETHACIN
Warning: RISK OF SERIOUS CARDIOVASCULAR AND GASTROINTESTINAL EVENTS

Skin
Angioedema [2]
Bullous dermatitis [2]
Dermatitis [5]
Dermatitis herpetiformis (exacerbation) [2]
Edema (3%) [28]
Exanthems (<5%) [7]
Fixed eruption [2]
Pruritus (<10%) [3]
Psoriasis [7]
Purpura [5]
Rash (>10%) [3]
Toxic epidermal necrolysis [6]
Urticaria [7]
Vasculitis [5]

Mucosal
Oral lesions (<7%) [2]
Oral ulceration [4]

Central Nervous System
Psychosis [3]

Gastrointestinal/Hepatic
Gastrointestinal bleeding [2]
Gastrointestinal perforation [3]
Gastrointestinal ulceration [3]
Pancreatitis [2]

Otic
Tinnitus [2]

Ocular
Periorbital edema [2]

Other
Adverse effects [8]

INDORAMIN

See: www.drugeruptiondata.com/drug/id/1341

INFLIXIMAB

Trade names: Inflectra (Celltrion) ((Remsima)), Remicade (Centocor), Remiflexis (Samsung Bioepis)

Indications: Crohn's disease, ulcerative colitis, rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, plaque psoriasis

Class: Cytokine inhibitor, Disease-modifying antirheumatic drug (DMARD), Monoclonal antibody, TNF inhibitor

Half-life: 8–10 days

Clinically important, potentially hazardous interactions with: abatacept, anakinra, live vaccines, methotrexate, tocilizumab

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Note: TNF inhibitors should be used in patients with heart failure only after consideration of other treatment options.

Contra-indicated in patients with a personal or family history of multiple sclerosis or demyelinating disease. TNF inhibitors should not be administered to patients with moderate to severe heart failure (New York Heart Association Functional Class III/IV).

Warning: SERIOUS INFECTIONS and MALIGNANCY

Skin
Abscess [4]
Acneiform eruption [6]
AGEP [2]
Anaphylactoid reactions/Anaphylaxis [10]
Angioedema [2]
Candidiasis (5%) [4]
Cellulitis [5]
Dermatitis [4]
Eczema [5]
Edema [3]
Erythema multiforme [2]
Exanthems [4]
Folliculitis [2]
Hand-foot syndrome [2]
Herpes [2]
Herpes simplex [4]
Herpes zoster [11]
Hypersensitivity [11]
Leukocytoclastic vasculitis [2]
Lichen planus [2]
Lichenoid eruption [3]
Lupus erythematosus [33]
Lupus syndrome [11]
Lymphoma [9]
Malignancies [2]
Molluscum contagiosum [2]
Neoplasms [2]
Nevi [2]
Palmar–plantar pustulosis [3]
Pityriasis lichenoides chronicum [2]
Pruritus (7%) [8]
Pseudolymphoma [2]
Psoriasis [56]
Pustules [5]
Rash (10%) [13]
Sarcoidosis [5]
Serum sickness [2]
Serum sickness-like reaction (<3%) [5]
Toxic epidermal necrolysis [2]
Toxicity [2]
Urticaria [6]
Vasculitis [18]
Vitiligo [4]

Hair
Alopecia [6]
Alopecia areata [3]

Cardiovascular
Cardiotoxicity [2]
Chest pain [4]
Flushing [2]
Hypertension (7%) [3]
Palpitation [2]
Pericarditis [2]
Tachycardia [2]

Central Nervous System
Aseptic meningitis [2]
Chills (59%) [2]
Demyelination [3]
Fever (7%) [10]
Headache (18%) [11]
Leukoencephalopathy [2]
Neurotoxicity [8]
Pain (8%) [3]
Paresthesias (<4%) [2]
Peripheral neuropathy [7]
Seizures [2]
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Arthralgia (<8%) [15]
Asthenia (fatigue) [99%] [4]
Back pain (8%)
Myalgia/Myalgia [5%] [7]
Polymyositis [2]

Gastrointestinal/Hepatic
Abdominal pain (<12%) [3]
Crohn's disease (26%)
Diarrhea (12%)
Dyspepsia (10%)
Hepatitis [11]
Hepatotoxicity [16]
Nausea (21%) [3]
Pancreatitis [2]

Respiratory
Bronchitis (10%)
Cough (12%) [3]
Dyspnea (6%) [3]
Pharyngitis (12%) [12]
Pneumonia [12]
Pulmonary toxicity [6]
Rhinitis (8%)
Sinusitis (14%) [4]
Tuberculosis [13]
Upper respiratory tract infection (32%) [6]

Endocrine/Metabolic
ALT increased [2]

Genitourinary
Cystitis [2]
Urinary tract infection (8%) [2]

Renal
Nephrotoxicity [2]

Hematologic
Neutropenia [5]
Sepsis [2]
Thrombocytopenia [5]

Ocular
Optic neuritis [3]
Uveitis [2]

Local
Application-site reactions (mild) (<4%) [6]
Infusion-related reactions [20]
Infusion-site reactions (20%) [12]
Injection-site reactions (6%) [9]

Other
Adverse effects [43]
Allergic reactions [8]
Death [13]
Infection (36%) [58]
Nocardiosis [3]
Side effects [2]
Systemic reactions [2]

Pain <8% [4]

**INFLUENZA VACCINE**

**Trade names:** Afluria (Seqirus), Agrippal (Chiron), Comvax (Merck), Fluarix (Novartis), Fluarix (GSK), Flu疫苗 (Medimmune) (Wyeth), Flurix (GSK), Fluvir (Shire), Inflexal V (Berna Biotech), Invivac (Solvay), Vaqtrix (Sanofi-Aventis)

**Indications:** Influenza prevention

**Class:** Vaccine

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** aminophylline, carbamazepine, cyclosporine, mercaptopyrurine, phenobarbital, phenytin, prednisone, vincristine, warfarin

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** pediatric patients

**Note:** Inactivated influenza vaccine should not be given to persons with anaphylactic hypersensitivity to eggs or other components of the vaccine. For current data on influenza in the USA consult the Centers for Disease Control and Prevention website (www.cdc.gov/flu).

**Skin**
- Anaphylactoid reactions (rare) [3]
- Henoch-Schönlein purpura [2]
- Linear IgA bullous dermatosis [2]
- Purpura [2]
- Rash [3]
- Serum sickness-like reaction [2]
- Vasculitis [10]

**Central Nervous System**
- Fever [13]
- Headache [9]
- Seizures [3]

**Neuromuscular/Skeletal**
- Arthralgia [2]
- Asthenia (fatigue) [7]
- Myalgia/Myopathy [11]
- Polymyositis [4]

**Gastrointestinal/Hepatic**
- Abdominal pain [2]

**Respiratory**
- Asthma [2]
- Cough [2]

**Hematologic**
- Thrombocytopenia [2]

**Ocular**
- Oculorespiratory syndrome [15]
- Optic neuritis [2]

**Local**
- Injection-site edema [4]
- Injection-site erythema [7]
- Injection-site induration [5]
- Injection-site inflammation [3]
- Injection-site pain (2028%) [15]
- Injection-site reactions [3]

**Other**
- Adverse effects [7]
- Side effects [4]
- Systemic reactions (injection site) [5]

**INGENOL MEBUTATE**

**Trade name:** Picato (Leo Pharma)

**Indications:** Actinic keratosis

**Class:** Cell death inducer

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** pediatric patients

**Skin**
- Crusting [4]
- Erythema [4]
- Flaking [4]
- Scaling [3]

**Central Nervous System**
- Headache (2%) [4]

**Respiratory**
- Nasopharyngitis (2%) [2]

**Ocular**
- Eyelid edema [2]
- Periorbital edema (3%) [2]

**Local**
- Application-site erythema [2]
- Application-site infection (3%) [2]
- Application-site pain (2–15%) [6]
- Application-site pruritus (8%) [4]
- Application-site reactions [3]

**INOSITOL**

**See:** www.drugeruptiondata.com/drug/id/1376

**INOTUZUMAB OZOGAMICIN**

**Trade name:** Besponsa (Wyeth)

**Indications:** Relapsed or refractory B-cell precursor acute lymphoblastic leukemia

**Class:** Antibody drug conjugate (ADC), CD22-directed antibody-drug-conjugate

**Half-life:** 12 days

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Hypersensitivity (2%)

**Mucosal**
- Stomatitis (13%)

**Cardiovascular**
- Hypotension [2]
- Veno-occlusive disease (23%) [4]

**Central Nervous System**
- Chills (11%)
- Fever (32%) [4]
- Headache (28%) [2]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (35%) [2]

**Gastrointestinal/Hepatic**
- Abdominal distension (6%)
- Abdominal pain (23%)
- Ascites (4%)
- Constipation (16%)
- Diarrhea (17%)
- Hepatotoxicity (14%) [3]
- Nausea (31%) [4]
- Vomiting (15%)

**Respiratory**
- Pneumonia [2]

**Endocrine/Metabolic**
- ALP increased (13%)
- ALT increased (≥10%) [2]
- Appetite decreased (12%)
- AST increased (≥10%) [3]
- GGT increased (21%)
- Hyperbilirubinemia (21%) [5]

**Hematologic**
- Anemia (36%)
- Febrile neutropenia (26%) [2]
- Hemorrhage (33%)
- Hyperlipasemia (9%)
- Leukopenia (35%)[3]
- Lymphopenia (18%) [4]
- Myelosuppression (≥10%) Neutropenia (49%) [9]
- Pancytopenia (2%)
- Thrombocytopenia (51%) [9]

**Local**
- Infusion-related reactions (2%)

**Other**
- Infection (48%) [2]

**INSULIN**

**See:** www.drugeruptiondata.com/drug/id/361

**INSULIN ASPART**

**Trade names:** NovoLog (Novo Nordisk), NovoRapid (Novo Nordisk), Ryzodeg (Novo Nordisk)

**Indications:** Diabetes mellitus

**Class:** Hormone, polypeptide

**Half-life:** 81 minutes

**Clinically important, potentially hazardous interactions with:** ACE inhibitors, alcohol, atypical antipsychotics, beta blockers, clonidine, corticosteroids, danazol, disopyramide, diuretics, epinephrine, estrogens, fribates, fluoxetine, isoniazid, isoniazid, lithium salts, MAO inhibitors, niacin, octreotide, oral contraceptives, pentamidine, phenothiazine derivatives, pramipexole, propoxyphene, salbutamol,
INSULIN GLARGINE

Trade names: Basaglar (Lilly), Lantus (Sanofi-Aventis), Soliqua (Sanofi-Aventis)

Indications: Diabetes (Type I or II)

Class: Hormone analog, polypeptide

Half-life: N/A

Clinically important, potentially hazardous interactions with: ACE inhibitors, albuterol, alcohol, beta blockers, clonidine, clozapine, corticosteroids, danazol, disopyramide, diuretics, epinephrine, estrogens, fibrates, fluoxetine, glucagon, guanethidine, isoniazid, lithium, MAO inhibitors, niacin, olanzapine, oral antidiabetic products, oral contraceptives, pentamidine, pentoxifylline, phenothiazine derivatives, pramlintide, propranolol, protease inhibitors, reserpine, salicylates, somatostatin analogs, somatropin, sulfonamide antibiotics, terbutaline, thyroid hormones

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Soliqua is insulin glargine and lixisenatide; various forms of insulin are available - see other insulin profiles for reaction details.

**Skin**
- Lipoatrophy (>5%)
- Peripheral edema (>5%)

**Nails**
- Onychomycosis (10%)

**Cardiovascular**
- Chest pain (5%)

**Central Nervous System**
- Headache (12%) [2]
- Hyperreflexia (11%)

**Gastrointestinal/Hepatic**
- Abdominal pain (5%)
- Diarrhea (5%)
- Nausea (7%)

**Respiratory**
- Nasopharyngitis [2]
- Sinusitis (5%)

**Endocrine/Metabolic**
- Diabetic ketoacidosis [2]
- Hypoglycemia [9]

**Ocular**
- Retinopathy [2]

**Local**
- Injection-site reactions (4%) [6]

**Other**
- Adverse effects [4]

**INSULIN DETEMIR**

Trade name: Levemir (Novo Nordisk, Tresiba (Novo Nordisk), Xultophy (Novo Nordisk))

Indications: Diabetes analog, long-acting

Class: Human insulin analog, long-acting

Half-life: 25 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, albuterol, alcohol, beta blockers, clonidine, clozapine, corticosteroids, danazol, DDVP-4 inhibitors, disopyramide, diuretics, epinephrine, estrogens, fibrates, fluoxetine, GLP-1 receptor agonists, glucagon, guanethidine, isoniazid, lithium, MAO inhibitors, nioqin, octreotide, olanzapine, oral contraceptives, pentamidine, pentoxifylline, phenothiazine derivatives, pramlintide, propranolol, protease inhibitors, reserpine, salicylates, somatostatin analogs, somatropin, sulfonamide antibiotics, terbutaline, thyroid hormones

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Various forms of insulin are available - see other insulin profiles for reaction details.

**Skin**
- Hypersensitivity [2]
- Peripheral edema (<3%)

**Central Nervous System**
- Headache (9–12%) [10]

**Gastrointestinal/Hepatic**
- Diarrhea (6%) [6]
- Gastroenteritis (5%)
- Nausea [7]
- Vomiting [2]

**Respiratory**
- Nasopharyngitis (13–24%) [11]
- Sinusitis (5%)
- Upper respiratory tract infection (8–12%) [3]

**Endocrine/Metabolic**
- Diabetic ketoacidosis [2]
- Hypoglycemia [9]

**Ocular**
- Retinopathy [2]

**Local**
- Injection-site reactions (4%) [6]

**Other**
- Adverse effects [4]
INSULIN GLARGINE

Trade name: Apidra (Sanofi-Aventis)
Indications: Diabetes
Class: Insulin analog
Half-life: 13-42 minutes

Clincially important, potentially hazardous interactions with: ACE inhibitors, albuterol, alcohol, anisypychotics, beta blockers, clonidine, clozapine, corticosteroids, danazol, disopyramide, diuretics, epinephrine, fribates, fluoxetine, glucagon, guanethidine, isoniazid, lithium, MAO inhibitors, niacin, oral antidiabetic agents, oral contraceptives, pentamidine, pentoxifylline, phenothiazine derivatives, pramipexole, pramlintide, protease inhibitors, ribavirin, theophylline, theophylline derivatives, zafirlukast, zidovudine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Many of the adverse reactions depend on the nature of the disease being treated. Either hairy cell leukemia [L] or AIDS-related Kaposis's sarcoma [K].

Skin
- Angioedema [3]
- Bullous dermatitis [4]
- Dermatitis [6%
- Eczema [6]
- Edema [L] (11%) [2]
- Erythema [2]
- Exanthems [3]
- Herpes simplex [2]
- Kaposis’s sarcoma [2]
- Lichen planus [8]
- Linear IgA bullous dermatosis [3]
- Livedo reticularis [2]
- Lupus erythematosus [17]
- Lupus syndrome [2]
- Necrosis [6]
- Pemphigus [2]
- Photosensitivity [2]
- Pigmentation [3]
- Pruritus [13% [L] 5-7% [K] (13%) [4]
- Psoriasis [22]
- Purpura [2]
- Rash 44% [L] 11% [K] [5]
- Raynaud’s phenomenon [11]
- Sarcoidosis [47]
- Seborrhieic dermatitis [2]
- Sjogren’s syndrome [4]
- Thrombocytopenic purpura [2]
- Toxicity [4]
- Ultraviolet (UV) light [K] (<3% [3]
- Vasculitis [7]
- Vitiligo [9]

Hair
- Alopecia (23%) [16]
- Hair pigmentation [3]
- Hypertrichosis [3]
- Straight hair [2]

Mucosal
- Aphthous stomatitis [2]
- Oral lichen planus [7]
- Stomatitis (<10%)
- Xerostomia (>10%) [4]

INTERFERON ALFA

Synonyms: IFN; INF
Trade names: Interferon (Imune), Intron A (Schering), Rebeteron (Schering), Roferon-A (Roche)

Indications: Chronic hepatitis C virus infection, hairy cell leukemia
Class: Biologic, Immunomodulator, Interferon
Half-life: 2 hours

Clinically important, potentially hazardous interactions with: aldeleukin, amitriptyline, captopril, gemfibrozil, metaxalone, methadone, ribavirin, telbivudine, theophylline, theophylline derivatives, zafirlukast, zidovudine

Pregnancy category: C (pregnancy category will be X when used in combination with ribavirin)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Many of the adverse reactions depend on the nature of the disease being treated. Either hairy cell leukemia [L] or AIDS-related Kaposis’s sarcoma [K].

Cardiovascular
- Cardiotoxicity [2]
- Hypertension [3]
- Hypotension [2]

Central Nervous System
- Ageusia (taste loss) [2]
- Anorexia [4]
- Anosmia [4]
- Anxiety [2]
- Chills (4]
- Depression (51%) [24]
- Dysgeusia (taste perversion) [K] (25%) [2]
- Fever (37%) [6]
- Headache (54%) [5]
- Insomnia (19%) [2]
- Irritability [2]
- Neurotoxicity [4]
- Paresthesias 8% [L] (12%) [2]
- Parkinsonism [3]
- Restless legs syndrome [2]
- Rigors (35%)
- Seizures [2]
- Suicidal ideation [6]
- Tremor [2]
- Vertigo (dizziness) (16%) [2]

Neuromuscular/Skeletal
- Arthralgia (28%) [4]
- Asthenia (fatigue) (56%) [11]
- Back pain (9%)
- Myalgia/Myopathy 69% [L] 71% [K] [10]
- Myasthenia gravis [11]
- Rhabdomyolysis [3]

Gastrointestinal/Hepatic
- Abdominal pain (15%) [11]
- Constipation [2]
- Diarrhea (24%) [5]
- Nausea (24%) [7]
- Pancreatitis [7]
- Vomiting [5]

Respiratory
- Cough [2]
- Dyspnea (13%) [2]
- Flu-like syndrome (>10%) [10]
- Pulmonary hypertension [2]

Endocrine/Metabolic
- ALT increased [2]
- AST increased [2]
- Hyperglycemia [2]
- Hyperthyroidism [3]
- Thyroid dysfunction [3]
- Thyroiditis [2]
- Weight loss (16%) [5]

Genitourinary
- Impotence [2]

Renal
- Nephrotoxicity [3]
- Proteinuria [2]

Hematologic
- Anemia (1%) [7]
- Febrile neutropenia [2]
- Hemolytic uremic syndrome [6]
- Leukopenia [5]
- Lymphopenia (14%)
- Neutropenia (21%) [5]
- Thrombocytopenia [7]

Otic
- Tinnitus [4]
INTERFERON BETA

**Trade names:** Avonex (Biogen), Betaferon (Bayer), Betaseron (Bayer), Plegridy (Biogen), Rebif (Merck)

**Indications:** Relapsing multiple sclerosis, cancers

**Class:** Immunomodulator, Interferon

**Half-life:** 10 hours

**Clinically important, potentially hazardous interactions with:** theophylline, theophylline derivatives, zidovudine

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:**
- nursing mothers;
- pediatric patients

**Skin**
- Cyst (4%)
- Diaphoresis (23%)
- Edema (generalized) (8%)
- Herpes simplex (3%)
- Herpes zoster (3%)
- Hypersensitivity (3%)
- Lipoatrophy (3%)
- Lupus erythematosus (3%)
- Nevi (3%)
- Nicolau syndrome (2%)
- Rash [2]
- Raynaud’s phenomenon (2%)
- Sarcoïdosis (2%)
- Thrombocytopenic purpura (3%)
- Urticaria (3%)
- Vasculitis (3%)

**Hair**
- Alopecia (4%)

**Mucosal**
- Mucosal bleeding (1238%)

**Cardiovascular**
- Capillary leak syndrome (3%)

**Central Nervous System**
- Chills (21%)
- Depression (8%)
- Fever [4]
- Headache [4]
- Multiple sclerosis [2]
- Pain (52%)
- Paresthesias [2]
- Psychosis (2%)
- Seizures (2%)[2]
- Vertigo (dizziness) (35%)

**Neuromuscular/Skeletal**
- Arthralgia (2%)
- Myalgia/Myopathy (44%)
- Myasthenia (fatigue) (2%)
- Rhabdomyolysis (2%)

**Gastrointestinal/Hepatic**
- Hepatotoxicity (5%)
- Hepatitis (3%)
- Nausea (10%)
- Vomiting (13%)

**Respiratory**
- Flu-like syndrome (61%) [14]
- Upper respiratory tract infection (31%)

**Endocrine/Metabolic**
- Hyperthyroidism (7%)
- Thyroid dysfunction (4%)

**Genitourinary**
- Vaginitis (4%)

**Renal**
- Nephrotoxicity (2%)

**Hematologic**
- Hemolytic uremic syndrome (3%)
- Thrombotic microangiopathy (4%)

**Ocular**
- Retinopathy (3%)

**Local**
- Injection-site ecchymoses (2%)
- Injection-site inflammation (3%)
- Injection-site necrosis (3%)
- Injection-site purpura (2%)
- Injection-site reactions (4%) [9]

**Other**
- Adverse effects [6]
- Death [4]
- Infection (11%) [3]

**INTERFERON GAMMA**

**Trade name:** Actimmune (Horizon)

**Indications:** Chronic granulomatous disease, severe malignant osteopetrosis

**Class:** Immunomodulator, Interferon

**Half-life:** 6 hours

**Clinically important, potentially hazardous interactions with:**
- Tasonermin
- Typhoid vaccine

**Pregnancy category:** N/A (May cause fetal toxicity based on findings in animal studies)

**Important contra-indications noted in the prescribing guidelines for:**
- nursing mothers;
- pediatric patients

**Skin**
- Dermatitis (12%) [12]
- Dermatomyositis (2%)
- Erythema (3%)
- Exanthems [5]
- Granulomas [3]
- Lymphadenopathy (2%)
- Pruritus (21-31%) [22]
- Rash (19-29%) [28]
- Sarcoïdosis (4%)
- Stevens-Johnson syndrome [3]
Toxic epidermal necrolysis [3]
Toxicity [3]
Urticaria [2%] [2]
Vitiligo [3]

Hair
Alopecia [3]

Cardiovascular
Atrial fibrillation [2]
Myocarditis [3]
Pericarditis [2]

Central Nervous System
Anorexia [3]
Chills [2]
Encephalitis [2]
Encephalopathy [4]
Fever [4]
Guillain–Barré syndrome [5]
Headache (14%) [3]
Neurotoxicity [5]

Neuromuscular/Skeletal
Arthralgia [4]
Asthena (fatigue) (34–41%) [11]
Myalgia/Myopathy [3]
Myasthenia gravis [5]
Rhabdomyolysis [2]

Gastrointestinal/Hepatic
Abdominal pain [3]
Colitis (5–8%) [48]
Constipation [2]
Diarrhea (32–37%) [44]
Enterocolitis (7%) [6]
Gastrointestinal perforation [5]
Hepatitis [15]
Hepatotoxicity (<2%) [19]
Nausea [4]
Pancreatitis [4]
Vomiting [2]

Respiratory
Dyspnea [2]
Pneumonia [5]
Pneumonitis [9]

Endocrine/Metabolic
Adren al insufficiency [3]
ALT increased [11]
AST increased [9]
Hyperglycemia [3]
Hypernatremia [3]
Hypophysitis [34]
Hypopituitarism (<4%)
Hypothyroidism [10]
Thyroid dysfunction [4]
Thyroiditis [12]
Weight loss [2]

Renal
Nephrotoxicity [7]
Renal failure [4]

Hematologic
Anemia [3]
Hyperlipidemia [2]
Neutropenia [6]
Thrombocytopenia [6]

Ocular
Iridocyclitis [3]
Orbital inflammation [3]
Retinitis [2]
Uveitis [8]
Xerophthalmia [2]

Local
Infusion-related reactions [4]
Inj ection-site reactions [2]

Other
Adverse effects [28]
Death [12]

IPDATE
See: www.drugeruptiondata.com/drug/id/364

IPRATROPIUM
Trade names: Atrovent (Boehringer Ingelheim), Combivent (Boehringer Ingelheim), Duoneb (Mylan Specialty), Ipratropium Steri-Neb (Ivax), Rinatec (Boehringer Ingelheim)

Indications:
Respiratory
Bronchospasm
Hypertension, diabetic nephropathy

Class:
Anticholinergic, Muscarinic antagonist

Half-life: 2 hours

Clinically important, potentially hazardous interactions with: anticholinergics

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Note: Combivent is ipratropium and albuterol.

Mucosal
Oral lesions (<5%)
Oral ulceration [2]
Xerostomia (3%) [3]

Central Nervous System
Dysgeusia (taste perversion) [2]
Trembling (<10%)

Ocular
Mydriasis [2]

Other
Adverse effects [2]

IRBESARTAN
Trade names: Aprovel (Bristol-Myers Squibb), Avalide (Bristol-Myers Squibb), Avapro (Sanofi-Aventis)

Indications:
Hypertension, diabetic nephropathy

Class: Angiotensin II receptor antagonist (blocker), Antihypertensive

Half-life: 1115 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, adrenergic neurone blockers, alcohol, aldesleukin, aldososterone antagonists, alikiren, alpha blockers, alprostadil, amifostine, antihypertensives, antipsychotics, anxiolytics and hypnotics, baclofen, beta blockers, calcium channel blockers, carvedilol, clonidine, corticosteroids, cyclosporine, CYP2C8 and CYP2C9 substrates, diazoxide, diuretics, eplerenone, fluconazole, general anesthetics, heparins, hypnotics, levodopa, lithium, MAO inhibitors, methyldopa, methylphenidate, moxisylyte, moxonidine, nitrates, NSAIDs, pentoxyfiline, phosphodiesterase 5 inhibitors, potassium salts, prostacyclin analogues, rifamycin derivatives, rituximab, tacrolimus, tizanidine, tolvaptan, trimethoprim

Pregnancy category: D (category C in first trimester; category D in second and third trimesters)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Avalide is irbesartan and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide which can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Warning: FETAL TOXICITY

Skin
Angioedema [3]
Edema (<10%)
Peripheral edema [2]
Rash (<10%)

Gastrointestinal/Hepatic
Pancreatitis [2]

Respiratory
Cough [2]

IRINOTECAN
Trade names: Camptosar (Pfizer), Onivyde (Merrimack)

Indications:
Metastatic colorectal carcinoma (Camptosar), metastatic adenocarcinoma of the pancreas (Onivyde - in combination with fluorouracil and leucovorin), metastatic adenocarcinoma of the pancreas (Onivyde - in combination with fluorouracil and leucovorin), metastatic colorectal carcinoma (Camptosar), metastatic adenocarcinoma of the pancreas (Onivyde - in combination with fluorouracil and leucovorin)

Class: Antineoplastic, Topoisomerase I inhibitor

Half-life: 610 hours

Clinically important, potentially hazardous interactions with: aprepitant, atazanavir, bevacizumab, ketoconazole, lapatinib, safinamide, sorafenib, St John's wort, strong CYP3A4 inhibitors, voriconazole

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: DIARRHEA and SEVERE NEUTROPENIA and SEVERE DIARRHEA (Onivyde)

Skin
Acneform eruption [4]
Exfoliative dermatitis (14%) [6]
Hand-foot syndrome [6]
Pruritus [4]
Rash (46%) [7]
Toxicity [3]

Hair
Alopecia (1361%) [24]

Mucosal
Mucositis (30%) [2]
Stomatitis (<14%) [5]

Cardiovascular
Bradyarrhythmia [2]
Flushing (11%) [8]
Hypotension (5%)  
Thrombophlebitis (<10%)  
Vasodilation (6%)  

**Central Nervous System**  
Anorexia (44%) [18]  
Chills (14%)  
Confusion (3%)  
Dysarthria [2]  
Fever (44%) [3]  
Insomnia [2]  
Neurotoxicity [5]  
Pain (23%)  
Somnolence (drowsiness) (9%)  
Vertigo (dizziness) (21%)  

**Gastrointestinal/Hepatic**  
Abdominal pain (68%) [3]  
Constipation (32%) [2]  
Diarrhea (83%) [41]  
Hepatotoxicity [3]  
Nausea (82%) [20]  
Vomiting (63%) [17]  

**Respiratory**  
Cough (20%)  
Dyspnea (22%)  
Pneumonia (4%) [4]  

**Endocrine/Metabolic**  
Dehydration [4]  

**Skin**  
Dermatitis (<5%)  
Erythema (<5%)  
Exfoliative dermatitis (<5%)  
Hypersensitivity (<5%)  
Peripheral edema (15%)  
Petechiae (<5%)  
Pruritus (8%)  
Rash (9%)  
Urticaria (<5%)  

**Hair**  
Alopecia (<5%)  

**Cardiovascular**  
Atrial fibrillation (<5%)  
Atrial flutter (<5%)  
Bradycardia (<5%)  
Cardiac arrest (<5%)  
Chest pain (9%)  
Extrasystoles (<3%)  
Hypotension (8%)  
Palpitation (<5%)  
QT interval shortening (<5%)  
Thrombophlebitis (<5%)  

**Central Nervous System**  
Anxiety (8%)  
Chills (<5%)  
Confusion (<5%)  
Delirium (9%)  
Depression (<5%)  
Dysgeusia (taste perversion) (<5%)  
Encephalopathy (<5%)  
Gait instability (<5%)  
Hallucinations (<5%)  
Headache (17%)  
Hypoesthesia (<5%)  
Hypokalemia (19%)  
Insomnia (11%)  
Insomnia (11%)  
Migraine (<5%)  
Paresthesias (<5%)  
Peripheral neuropathy (<5%)  
Seizures (<5%)  
Somnolence (drowsiness) (<5%)  
Stupor (<5%)  
Syncope (<5%)  
Tremor (<5%)  
Vertigo (dizziness) (<5%)  

**Neuromuscular/Skeletal**  
Asthenia (fatigue) (11%)  
Back pain (10%)  
Bone or joint pain (<5%)  
Myalgia/Myopathy (<5%)  
Neck pain (<5%)  

**Gastrointestinal/Hepatic**  
Abdominal distension (<5%)  
Abdominal pain (17%)  
Cholecystitis (<5%)  
Cholelithiasis (gallstones) (<5%)  
Constipation (14%) [3]  
Diarrhea (24%) [13]  
Dyspepsia (6%)  
Gastritis (<5%)  
Gastrointestinal failure (<5%)  
Hepatomegaly (<5%)  
Hepatotoxicity (17%)  
Nausea (28%) [3]  
Vomiting (25%)  

**Respiratory**  
Bronchospasm (<5%)  
Dyspnea (17%)  
Respiratory failure (7%)  
Tachypnea (<5%)  

**Endocrine/Metabolic**  
Appetite decreased (<5%)  
Hypoalbuminemia (<5%)  
Hypoglycemia (<5%)  
Hypokalemia (19%)  
Hypomagnesemia (5%)  
Hypophosphatemia (<5%)  

**Genitourinary**  
Hematuria (<5%)  
Renal  
Proteinuria (<5%)  
Renal failure (10%)  

**Hematologic**  
Agranulocytosis (<5%)  
Leukopenia (<5%)  
Pancytopenia (<5%)  

**Otic**  
Tinnitus (<5%)  

**Ocular**  
Optic neuropathy (<5%)  

**Local**  
Injection-site reactions (6%)  

**Other**  
Adverse effects [3]  

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**ISAVUCONAZONIUM SULFATE**  
Trade name: Cresemba (Astellas)  
Indications: Invasive aspergillosis, mucormycosis  
Class: Antifungal, azole  
Half-life: 130 hours  
Clinically important, potentially hazardous interactions with: carbamazepine, ketoconazole, rifampin, ritonavir, St John’s wort, strong CYP3A4 inducers or inhibitors  

Pregnancy category: C  
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients  
Note: Contra-indicated in patients with familial short QT syndrome.  

**Skin**  
Dermatitis (<5%)  
Erythema (<5%)  
Exfoliative dermatitis (<5%)  
Hypersensitivity (<5%)  
Peripheral edema (15%)  
Petechiae (<5%)  
Pruritus (8%)  
Rash (9%)  
Urticaria (<5%)  

**Hair**  
Alopecia (<5%)  

**Cardiovascular**  
Atrial fibrillation (<5%)  
Atrial flutter (<5%)  
Bradycardia (<5%)  
Cardiac arrest (<5%)  
Chest pain (9%)  
Extrasystoles (<3%)  
Hypotension (8%)  
Palpitation (<5%)  
QT interval shortening (<5%)  
Thrombophlebitis (<5%)  

**Central Nervous System**  
Anxiety (8%)  
Chills (<5%)  
Confusion (<5%)  
Delirium (9%)  
Depression (<5%)  
Dysgeusia (taste perversion) (<5%)  
Encephalopathy (<5%)  
Gait instability (<5%)  
Hallucinations (<5%)  
Headache (17%)  
Hypoesthesia (<5%)  
Hypokalemia (19%)  
Insomnia (11%)  
Migraine (<5%)  
Paresthesias (<5%)  
Peripheral neuropathy (<5%)  
Seizures (<5%)  
Somnolence (drowsiness) (<5%)  
Stupor (<5%)  
Syncope (<5%)  
Tremor (<5%)  
Vertigo (dizziness) (<5%)  

**Neuromuscular/Skeletal**  
Asthenia (fatigue) (11%)  
Back pain (10%)  
Bone or joint pain (<5%)  
Myalgia/Myopathy (<5%)  
Neck pain (<5%)  

**Gastrointestinal/Hepatic**  
Abdominal distension (<5%)  
Abdominal pain (17%)  
Cholecystitis (<5%)  
Cholelithiasis (gallstones) (<5%)  
Constipation (14%) [3]  
Diarrhea (24%) [13]  
Dyspepsia (6%)  
Gastritis (<5%)  
Gastrointestinal failure (<5%)  
Hepatomegaly (<5%)  
Hepatotoxicity (17%)  
Nausea (28%) [3]  
Vomiting (25%)  

**Respiratory**  
Bronchospasm (<5%)  
Dyspnea (17%)  
Respiratory failure (7%)  
Tachypnea (<5%)  

**Endocrine/Metabolic**  
Appetite decreased (<5%)  
Hypoalbuminemia (<5%)  
Hypoglycemia (<5%)  
Hypokalemia (19%)  
Hypomagnesemia (5%)  
Hypophosphatemia (<5%)  

**Genitourinary**  
Hematuria (<5%)  
Renal  
Proteinuria (<5%)  
Renal failure (10%)  

**Hematologic**  
Agranulocytosis (<5%)  
Leukopenia (<5%)  
Pancytopenia (<5%)  

**Otic**  
Tinnitus (<5%)  

**Ocular**  
Optic neuropathy (<5%)  

**Local**  
Injection-site reactions (6%)  

**Other**  
Adverse effects [3]  

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ISOCARBOXAZID  
See: www.drugeruptiondata.com/drug/id/368  

ISOETHARINE  
See: www.drugeruptiondata.com/drug/id/369  

ISOFLURANE  
See: www.drugeruptiondata.com/drug/id/950  

ISONIAZID  
Synonym: INH  
Trade names: Rifamate (Sanofi-Aventis), Rifater (Sanofi-Aventis)  
Indications: Tuberculosis  
Class: Antibiotic, Antimycobacterial  
Half-life: <4 hours  
Clinically important, potentially hazardous interactions with: acetaminophen, betamethasone, ethosoximide, insulin aspart, insulin degludec, insulin detemir, insulin glargine, insulin glulisine, itraconazole, levodopa, metformin, phenytoin, prednisolone, propranolol, rifampin, rifapentine, safinamide, triamcinolone  
Pregnancy category: C  

**Skin**  
Acneform eruption [7]  
AGEP [2]  
Angioedema [2]  
Bullous dermatitis [2]  
Dermatitis [3]  
Respiratory failure (7%)  
Tachypnea (<5%)  

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ISONIAZID

See: www.drugeruptiondata.com/drug/id/371

ISONPROTERENOL

See: www.drugeruptiondata.com/drug/id/371

ISOSORBIDE

Indications: Acute angle-closure glaucoma
Class: Diuretic
Half-life: 59.5 hours
Clinically important, potentially hazardous interactions with: sildenafil
Pregnancy category: C
Note: Various forms of isosorbide are available – see other isosorbide profiles for reaction details.

Central Nervous System
Headache [10]

ISOTRETINOIN

Synonym: 13-cis-retinoic acid
Trade names: Accutane (Roche), Amnesteem (Genpharm), Claravis (Barr), Roaccutane (Roche)
Indications: Cystic acne
Class: Retinoid
Half-life: 21–24 hours
Clinically important, potentially hazardous interactions with: acitretin, alcohol (ethylic), antacids, bexarotene, carbamazepine, cholesterol, co-trimoxazole, corticosteroids, dairy products, minocycline, oral contraceptives, phenytoin, retinoids, St John’s wort, tetracycline, tetracyclines, vitamin A
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Oral retinoids can cause birth defects, and women should avoid isotretinoin when pregnant or trying to conceive.

Skin
Abscess [3]
Acneform eruption [19]
Angioedema [3]
Desquamation (palms and soles) (5%) [3]
Diaphoresis [2]
Edema (subcutaneous, recurrent) [2]
Erythema nodosum [3]
Exfoliative dermatitis (<10%)
Facial edema (<10%)
Facial erythema [3]
Fragility [3]
Granulation tissue [4]
Keloid [5]
Pallor (<10%)
Photosensitivity (<10%) [7]
Pigmentation [2]
Pityriasis rosea [2]
Pruritus (<5%) [4]
Pyoderma gangrenosum [3]
Rash [3]
Sweet’s syndrome [2]
Urticaria [2]
Vasculitis [4]
Xanthomas [2]
Xerosis (>10%) [12]

Hair
Alopecia (16%) [3]
Curly hair [3]

Nails
Brittle nails [2]
Elkonyx [2]
Median canaliform dystrophy [3]
Onycholysis [3]
Paronychia [4]
Pyogenic granuloma [8]

Mucosal
Cheilitis (>90%) [16]
Epistaxis (nosebleed) [2]
Mucositis [2]
Mucositis [2]
Nursing mothers;

Central Nervous System
Depression [7]
Headache [7]
Pseudotumor cerebri [4]

Neuromuscular/Skeletal
Arthralgia [4]
Ashtenia (fatigue) [2]
Myalgia/Myopathy [8]
Rhabdomyolysis [2]
Sacroiliitis [3]
Still’s person syndrome [2]

Gastrointestinal/Hepatic
Abdominal pain [3]
Hepatotoxicity [3]
Pancreatitis [3]

Endocrine/Metabolic
Amenorrhea [2]
Gynecomastia [2]
Hypercholesterolemia [2]
**Calcium channel blocker**

**Antibiotic, triazole, Antifungal, azole, Hypertension**

8 hours

CONGESTIVE HEART FAILURE, 2 hours

Chronic stable angina pectoris 21 hours

Onychomycosis, deep mycoses, Contra-indicated in patients with evidence of ventricular dysfunction such as congestive heart failure 8 hours

**ISOXSUPRINE**

See: www.drugeruptiondata.com/drug/id/376

**ISRADIPINE**

Trade name: DynaCirc (Reliant)

Indications: Hypertension

Class: Calcium channel blocker

Half-life: 8 hours

Clinically important, potentially hazardous interactions with: ampicillin, delavirdine, clarithromycin, clopidogrel, clorazepate, cilostazol, cimetidine, cinacalcet, cisapride, clarithromycin, clopidogrel, clotiazepate, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, cotrimoxazole, colchicine, conivaptan, coxta, corticosteroids, coumarins, crizotinib, cyclophosphamide, cyclopentolate, cyclosporine, cyproterone, dabigatran, darifenac, dasatinib, dexamethasone, diazepam, dicumarol, didanosine, digoxin, dihydroergotamine, diltiazem, discopyramide, doxetaxel, doxetidil, droperidol, efavirenz, eliprolast, elozatine, eplerenone, ergotamine, erlotinib, erythromycin, estradiol, ethinyl, everolimus, felodipine, fentanyl, fesoterodine, filbanserin, flutacoxene propionate, fosamprenavir, fosphenytoin, gefitinib, grapefruit juice, halofantrine, haloperidol, histamine H₂ antagonists, HMG-CoA reductase inhibitors, ibritinib, iloperidone, imatinib, indinavir, irinotecan, isoniazid, ivabradine, ibapine, lapatinib, lercanidipine, levonethazol, leomiptide, lopinavir, lovastatin, lurisdione, mephenytoin, methandione, methylergonoavine, methylprednisolone, methysergide, micafungin, midazolam/oral, midostaurin, mifepristone, mizolastine, naldemedine, neratinib, nevirapin, nilotinib, nisoldipine, olaparib, omeprazole, oral hypoglycemics, osimertinib, paclitaxel, palbociclib, paliperidone, pantoprazole, pazopanib, phenobarbital, phenytoin, pivamethanserin, pimelicromol, pimonade, ponatinib, prednisolone, psedinsone, proton pump inhibitors, quetiapine, quinapril, ranolazine, ranitidine, reboxetine, regorafenib, regorafenib, rifabutin, rifampin, rifipvirine, rimonaban, ritonavir, rivaoxaban, rolapin, ruoxolinib, saquinavir, sildenafil, alisodol, simprevir, simvastatin, sirolimus, solifenac, soniagib, sunitinib, tacrolimus, taladafil, telaprevir, telithromycin, temsirrolimus, tefenadine, ticagrelor, tolundine, tolvaptan, triamcinolone, trazolam, trimetrexate, ultirol, valbenzine, vardena, vemurafenib, venetocox, vinblastine, vincristine, vinylflavin, vinorelvin, vorapaxar, warfarin

Pregnancy category: C

**Skin**

Edema (7%) [6]

Exanthems (2%) [2]

Mucosal

Oral lesions (6%)

Cardiovascular

Flushing (29%) [9]

GT elongation (2%) [2]

**Central Nervous System**

Headache (9%)

Vertigo (dizziness) (9%)

**ITRACONAZOLE**

Trade names: Onmel (Merz), Sporano (Janssen)

Indications: Onychomycosis, deep mycoses, oropharyngeal candidiasis (oral solution only)

Class: Antibiotic, triazole, Antifungal, azole, CYP3A4 inhibitor

Half-life: 21 hours

Clinically important, potentially hazardous interactions with: abiraterone, atenolol, alfentanil, alfaxosin, aliskiren, alprazolam, amphotericin B, ampicillin, ansindione, antacids, apiretan, aripiprazole, arteether, amiodarone, astenazol, atenolol, avertatamin, avanafil, bocogepre, bosentan, brigitinib, budesonide, busipone, busufan, cabaazetaxel, caborazminib, calcifediol, calcium channel blockers, carbamezapine, cervaastatin, ciclesonide, ciglotazol, cimepine, cinacalcet, clospride, clarithromycin, clopidogrel, clorazepate, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir, conivaptan, coxta, corticosteroids, coumarins, crizotinib, cyclophosphamide, cyclopentolate, cyclosporine, cyproterone, dabigatran, darifenac, dasatinib, dexamethasone, diazepam, dicumarol, didanosine, digoxin, dihydroergotamine, diltiazem, discopyramide, doxetaxel, doxetidil, droperidol, efavirenz, eliprolast, elozatine, eplerenone, ergotamine, erlotinib, erythromycin, estradiol, ethinyl, everolimus, felodipine, fentanyl, fesoterodine, filbanserin, flutacoxene propionate, fosamprenavir, fosphenytoin, gefitinib, grapefruit juice, halofantrine, haloperidol, histamine H₂ antagonists, HMG-CoA reductase inhibitors, ibritinib, iloperidone, imatinib, indinavir, irinotecan, isoniazid, ivabradine, ibapine, lapatinib, lercanidipine, levonethazol, leomiptide, lopinavir, lovastatin, lurisdione, mephenytoin, methandione, methylergonoavine, methylprednisolone, methysergide, micafungin, midazolam/oral, midostaurin, mifepristone, mizolastine, naldemedine, neratinib, nevirapin, nilotinib, nisoldipine, olaparib, omeprazole, oral hypoglycemics, osimertinib, paclitaxel, palbociclib, paliperidone, pantoprazole, pazopanib, phenobarbital, phenytoin, pivamethanserin, pimelicromol, pimonade, ponatinib, prednisolone, psedinsone, proton pump inhibitors, quetiapine, quinapril, ranolazine, ranitidine, reboxetine, regorafenib, regorafenib, rifabutin, rifampin, rifipvirine, rimonaban, ritonavir, rivaoxaban, romidepin, ruoxolinib, saquinavir, sildenafil, alisodol, simprevir, simvastatin, sirolimus, solifenac, soniagib, sunitinib, tacrolimus, taladafil, telaprevir, telithromycin, temsirrolimus, tefenadine, ticagrelor, tolundine, tolvaptan, triamcinolone, trazolam, trimetrexate, ultirol, valbenzine, vardena, vemurafenib, venetocox, vinblastine, vincristine, vinylflavin, vinorelvin, vorapaxar, warfarin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Note: Contra-indicated in patients with evidence of ventricular dysfunction such as congestive heart failure (CHF) or a history of CHF except for the treatment of life-threatening or other serious infections.

Warning: CONGESTIVE HEART FAILURE, CARDIAC EFFECTS AND DRUG INTERACTIONS

**Skin**

AGEP [3]

Diaphoresis [3]

Edema (<4%) [11]

Exanthems (<6%) [7]

Perioral edema (4%) [4]

Photosensitivity [2]

Pruritus (<3%) [8]

Rash (8%) [10]

Urticaria [3]

**Hair**

Alopecia [3]

**Mucosal**

Xerostomia [3]

**Cardiovascular**

Cardiac arrest [2]

Cardiac failure [4]

Congestive heart failure [4]

Hypertension (3%) [3]

QT prolongation [5]

Torsades de pointes [2]

**Central Nervous System**

Fever [2]

Headache (4%) [3]

Neurotoxicity [5]

Peripheral neuropathy [4]

Seizures [2]

Tremor [2]

Vertigo (dizziness) [2]

**Neuromuscular/Skeletal**

Asthenia (fatigue) [3]

Back pain [2]

Rhabdomyolysis [7]

**Gastrointestinal/Hepatic**

Abdominal pain (2-6%) [5]

Constipation [2]

Diarrhea [4]

Hepatitis [2]

Hepatotoxicity [7]

Nausea (5-7%) [8]

Pancreatitis [2]

Vomiting [3]

**Respiratory**

Cough (4%) [5]

Dyspnea (2%) [7]

Flu-like syndrome [2]

Pneumonia (2%) [5]

**Endocrine/Metabolic**

ALT increased [2]

AST increased [2]

Hyberlipidinemia [2]

Hypoglycemia [6]

**Renal**

Renal failure [2]

**Hematologic**

Leukopenia [2]

Thrombocytopenia [2]

**Other**

Adverse effects [8]

Death [3]

Side effects [2]

**IVABRADINE**

Trade names: Corlanor (Amgen), Procoralan (Servier)

Indications: Chronic stable angina pectoris

Class: Cardiotonic agent, HCN channel blocker

Half-life: 2 hours

Clinically important, potentially hazardous interactions with: azole antifungals, clarithromycin, CYP3A4 inducers, diltiazem, grapefruit juice, itraconazole, ketoconazole, macrolide antibiotics, nesfazodone, neflavin, pentamidine, phenytoin, rifampin, ritaonavir, sotalol, St John's wort, strong or moderate CYP3A4 inhibitors, telithromycin, verapamil
Cystic fibrosis in patients aged 6 years and older who have a G551D mutation in the CFTR gene

Indications:
- Treatment of cystic fibrosis

Trade name: IVACAFTOR (Vertex)

Half-life: 1635 hours

Class: CFTR potentiator

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Note: See separate profile for lumacaftor/ivacaftor.

Skin
- Acneform eruption (4–7%)
- Rash (13%) [6]

Mucosal
- Nasal congestion (20%) [7]
- Oropharyngeal pain (22%) [7]

Central Nervous System
- Fever [2]
- Headache (24%) [8]
- Vertigo (dizziness) (9%) [4]

Neuromuscular/Skeletal
- Arthralgia (4–7%)
- Myalgia/Myopathy (4–7%)

Gastrointestinal/Hepatic
- Abdominal pain (16%) [4]
- Diarrhea (13%) [6]
- Hapatotoxicity [3]
- Nausea (12%) [3]
- Vomiting [2]

Respiratory
- Cough [5]
- Hemoptysis [2]

Gastrointestinal/Hepatic
- Abdominal pain (16%) [4]
- Diarrhea (13%) [6]
- Hapatotoxicity [3]
- Nausea (12%) [3]

Endocrine/Metabolic
- Hyperglycemia [4]
- Hyponatremia [5]
- Hypokalemia [2]

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

IXAZOMIB

Trade name: Ninlaro (Millennium)

Indications:
- Multiple myeloma (in combination with lenalidomide and dexamethasone) in patients who have received at least one prior therapy

Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

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Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255

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Class: Proteasome inhibitor

Half-life: 10 days

Skin
- Acneform eruption [3]
- Erythema [4]
- Erythema multiforme [2]
- Exanthems [8]

Other
- Adverse effects [4]

IXABEPILONE

See: www.drugeruptiondata.com/drug/id/1255
Ocular
Conjunctivitis (6%)
Vision blurred (6%)
Xerophthalmia (5%)

Other
Adverse effects [4]

IXEKIZUMAB

Trade name: Taltz (Lilly)
Indications: Plaque psoriasis
Class: Interleukin-17A (IL-17A) antagonist, Monoclonal antibody
Half-life: 13 days
Clinically important, potentially hazardous interactions with: live vaccines

Pregnancy category: N/A (Insufficient evidence to inform drug-associated risk)
Important contra-indications noted in the prescribing guidelines for: pediatric patients

Skin
Hypersensitivity [4]
Peripheral edema [2]
Urticaria [2]

Central Nervous System
Headache [7]

Gastrointestinal/Hepatic
Crohn's disease [2]
Nausea (2%)

Respiratory
Nasopharyngitis [9]

Upper respiratory tract infection (14%) [9]

Hematologic
Neutropenia (11%) [3]
Thrombocytopenia (3%)

Otic
Ear infection (2%)

Local
Injection-site erythema [2]
Injection-site reactions (17%) [7]

Other
Infection [3]
JAPANESE ENCEPHALITIS VACCINE

Trade name: Ixiaro (Novartis)
Indications: Active immunization against Japanese encephalitis for adults
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: immunosuppressants

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Edema (4%)
- Pruritus (4%)
- Rash (<10%)

Central Nervous System
- Fever [5]
- Headache (28%) [5]
- Seizures [2]

Neuromuscular/Skeletal
- Asthenia (fatigue) (11%)
- Myalgia/Myopathy (16%)

Gastrointestinal/Hepatic
- Diarrhea (<10%)
- Nausea (<10%)
- Vomiting (<10%)

Respiratory
- Flu-like syndrome (12%)

Local
- Injection-site edema (<10%)
- Injection-site erythema (<10%)
- Injection-site induration (<10%)
- Injection-site pain (33%) [3]
- Injection-site pruritus (<10%)

Other
- Adverse effects [5]

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KANAMYCIN

Indications: Various infections caused by susceptible organisms
Class: Antibiotic, aminoglycoside
Half-life: 24 hours
Clinically important, potentially hazardous interactions with: aminoglycosides may cause neurotoxicity and/or nephrotoxicity.
Pregnancy category: D

Skin
Edema (>10%)
Pruritus (<10%)
Renal
Nephrotoxicity [2]
Otic
Otoscopy [8]

KETAMINE

Trade name: Ketalar (Monarch)
Indications: Induction of anesthesia
Class: Anesthetic
Half-life: 23 hours
Clinically important, potentially hazardous interactions with: memantine, mivacurium

Skin
Edema (>10%)
Pruritus [3]
Rash (<10%)
Renal
Nephrotoxicity [2]
Otic
Otoscopy [8]

KETOCONAZOLE

Trade name: Nizoral (Janssen)
Indications: Fungal infections
Class: Antibiotic, imidazole, Antifungal,azole, CYP3A4 inhibitor
Half-life: initial: 2 hours; terminal: 8 hours
Clinically important, potentially hazardous interactions with: abamectin, abiraterone, afatinib, alcohol, aflatoxin, aliskiren, altretinoine, almotriptan, alprazolam, amphotericin B, astemizole, atracon, ciprofibrate, cimetidine, cinacalcet, cisapride, clopidogrel, clotrimazol, clotrimazole, clotrimazol, clotrimazole, clotrimazole, clotrimazol, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, clotrimazole, 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KETOPROFEN

Trade names: Orudis (Sanofi-Aventis), Oruvail (Wyeth)
Indications: Arthritis
Class: Non-steroidal anti-inflammatory drug
Half-life: 1.54 hours
Clinically important, potentially hazardous interactions with: aspirin, caffeine, methotrexate, probenecid

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Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Note:** NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

**Skin**
- Anaphylactoid reactions/Anaphylaxis [4]
- Contact dermatitis [5]
- Dermatitis [29]
- Eczema [3]
- Erythema [4]
- Exanthems [3]
- Peripheral edema (<3%)
- Photoallergic reaction [2]
- Photocontact dermatitis [5]
- Photosensitivity [35]
- Pruritus (<10%) [4]
- Rash (>10%)
- Urticaria [6]

**Gastrointestinal/Hepatic**
- Abdominal pain (3–9%) [2]
- Constipation [2]
- Diarrhea (3–9%) [2]
- Gastrointestinal bleeding [2]
- Nausea (3–9%) [2]
- Pancreatitis [3]

**Endocrine/Metabolic**
- Pseudoporphyria [2]

**Renal**
- Renal function abnormal (3–9%)

**Local**
- Application-site reactions [2]

**Other**
- Adverse effects [11]
- Allergic reactions [2]

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**KETOROLAC**

**Trade names:** Acular (Allergan), Toradol (Roche)

**Indications:** Pain, relief of inflammation following cataract surgery (ophthalmic solution)

**Class:** Analgesic, non-opioid, Non-steroidal anti-inflammatory (NSAID)

**Half-life:** 28 hours

**Clinically important, potentially hazardous interactions with:** aspirin, buprenorphine, dabigatran, diclofenac, enoxaparin, meloxicam, methotrexate, probenecid, rivaroxaban, salicylates, tiagabine, tinzaparin

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Warning:** GASTROINTESTINAL, CARDIOVASCULAR, RENAL, AND BLEEDING RISK

**Skin**
- Anaphylactoid reactions/Anaphylaxis [3]
- Dermatitis (39%)
- Diaphoresis (<10%) [2]
- Edema (<10%)
- Exanthems (39%)
- Hematoma [2]
- Hypersensitivity [2]
- Pruritus (<10%)
- Purpura (<10%)
- Rash (<10%)

**Mucosal**
- Stomatitis (<10%)
- Xerostomia [2]

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**Cardiovascular**
- Hypertension (<10%)

**Central Nervous System**
- Headache (>10%) [4]
- Sonnolenzne (drowsiness) [3]
- Vertigo (dizziness) [4]

**Gastrointestinal/Hepatic**
- Abdominal pain (>10%)
- Constipation (<10%)
- Diarrhea (7%) [2]
- Dyspepsia (>10%)
- Flatulence (<10%)
- Gastrointestinal bleeding [6]
- Gastrointestinal ulceration (<10%) [2]
- Nausea (>10%) [12]
- Vomiting (<10%) [8]

**Renal**
- Renal function abnormal (<10%)

**Hematologic**
- Anemia (<10%)
- Prothrombin time increased (<10%)

**Otic**
- Tinnitus (<10%)

**Ocular**
- Corneal melting [4]
- Ocular burning [2]

**Local**
- Injection-site pain (<10%)

**Other**
- Adverse effects [10]
- Death [2]
- Side effects [2]

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**KETOTIFEN**

See: www.drugeruptiondata.com/drug/id/385

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**KETOPROFEN**

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L-CARNITINE
See: www.drugeruptiondata.com/drug/id/914

L-METHYLFOLATE
See: www.drugeruptiondata.com/drug/id/1299

Labetalol
Trade name: Trandate (Prometheus)
Indications: Hypertension
Class: Adrenergic beta-receptor antagonist, Antiarrhythmic class II
Half-life: 38 hours
Clinically important, potentially hazardous interactions with: cimetidine, halothane, imipramine, iobenguane, tricyclic antidepressants
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Cautious side effects of beta-receptor blockers are clinically polymorphous. They apparently appear after several months of continuous therapy.

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Exantheme (<5%) [4]
Lichenoid eruption [4]
Lupus erythematosus [4]
Pyriasis rubra pilaris [2]
Pruritus (<10%) [3]
Psoriasis (exacerbation) [3]
Scalp tingling [3]
Cardiovascular
Flushing (19%)
Hypotension [4]
Central Nervous System
Dysgeusia (taste perversion) (<10%)
Paresthesias (7%) [2]
Gastrointestinal/Hepatic
Diarrhea (4%)
Gastrointestinal/Hepatic
Dysgeusia (taste perversion) (<10%)
Neuromuscular/Skeletal
Myalgia/Myopathy [4]
Other
Side effects (6%) [2]

Lacosamide
Trade name: Vimpat (UCB Pharma)
Indications: Partial-onset seizures
Class: Anticonvulsant, Antiepileptic
Half-life: 13 hours
Clinically important, potentially hazardous interactions with: alcohol, antipsychotics, carbamazepine, chloroquine, fosphenytoin, hydroxychloroquine, lamotrigine, MAO inhibitors, mefloquine, orlistat, phenobarbital, phenytoin, pregabalin, SSRIs, St John's wort, tricyclic antidepressants

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Angioedema [2]
Pruritus (2%)
Rash [2]
Cardiovascular
Atrial fibrillation [3]
Hypotension [2]
Central Nervous System
Balance disorder (4%)
Depression (2%) [2]
Gait instability (2%) [4]
Headache (13%) [14]
Incoodination [2]
Irritability [2]
Memory loss (2%)
Sedation [3]
Seizures [4]
Somnolence (drowsiness) (7%) [10]
Tremor (7%) [4]
Vertigo (dizziness) (3%) [34]
Neuromuscular/Skeletal
Asthenia (fatigue) (2–9%) [8]
Ataxia (8%) [9]
Gastrointestinal/Hepatic
Diarrhea (4%)
Gastrointestinal/Hepatic
Dysgeusia (taste perversion) (<10%)
Neuromuscular/Skeletal
Myalgia/Myopathy [4]
Other
Adverse effects [8]

Lactulose
See: www.drugeruptiondata.com/drug/id/1360

Lamivudine
Synonym: 3TC
Trade names: Combivir (ViiV), Epivir (ViiV), Epivir-HV (ViiV), Triomix (ViiV), Trizivir (ViiV)
Indications: HIV progression
Class: Antiretroviral, Nucleoside analog reverse transcriptase inhibitor
Half-life: 57 hours
Clinically important, potentially hazardous interactions with: cobicistat/elvitegravir/ emtricitabine/tenofovir disoproxil, emtricitabine, trimethoprim

Pregnancy category: C
Note: Combivir is lamivudine and zidovudine; Epivir is lamivudine and abacavir; Triomix is abacavir, dolutegravir and lamivudine; Trizivir is lamivudine, abacavir and zidovudine.

Skin
Angioedema [2]
Exantheme [2]
Hypersensitivity [4]
Jaundice [2]
Pigmentation [2]
Pruritus [3]
Rash (9%) [10]
Stevens-Johnson syndrome [2]
Toxic epidermal necrolysis [2]

Hair
Alopecia [3]
Central Nervous System
Abnormal dreams [2]
Chills (<10%)
Headache [6]
Insomnia [3]
Neurotoxicity [2]
Parethesias (>10%)
Peripheral neuropathy [3]
Vertigo (dizziness) [4]

Neuromuscular/Skeletal
Asthenia (fatigue) [5]
Myalgia/Myopathy (8%)
Rhabdomyolysis [3]
Gastrointestinal/Hepatic
Abdominal pain [4]
Diarrhea [4]
Hepatotoxicity [3]
Nausea [6]
Pancreatitis [4]
Vomiting [2]
Respiratory
Upper respiratory tract infection [2]
Endocrine/Metabolic
Acidosis [3]
Hematologic
Anemia [2]
Other
Adverse effects [9]

Lamotrigine
Trade name: Lamictal (GSK)
Indications: Epilepsy
Class: Anticonvulsant, Antiepileptic, Mood stabilizer
Half-life: 24 hours
Clinically important, potentially hazardous interactions with: eslicarbazepine, lacosamide, oral contraceptives, rifampin
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers
Warning: SERIOUS SKIN RASHES

Skin
Angioedema (<10%)
**LAMOTRIGINE**

Anticonvulsant hypersensitivity syndrome [17]
DRESS syndrome [17]
Erythema (<10%) [2]
Erythema multiforme [4]
Exanthems (<10%) [18]
Hot flashes (<10%)
Hypersensitivity (<10%) [29]
Lupus erythematosus [4]
Photosensitivity [2]
Pruritus (3%) [3]
Rash (1020%) [53]
Stevens-Johnson syndrome (<10%) [49]
Toxic epidermal necrolysis [51]

**Hair**
Alopecia [2]

**Mucosal**
Xerostomia (6%)

**Central Nervous System**
Agitation [2]
Aseptic meningitis [4]
Fever [2]
Hallucinations [3]
Headache [6]
Insomnia (5–10%)
Nervousness [2]
Neuroleptic malignant syndrome [2]
Pain (5%)
Seizures [9]
Somnolence (drowsiness) (9%) [7]
Suicidal ideation [2]
Tic disorder [2]
Tremor [4]
Vertigo (dizziness) [8]

**Neuromuscular/Skeletal**
Asthenia (fatigue) (8%) [2]
Ataxia (2-5%) [3]
Rhabdomyolysis [3]

**Gastrointestinal/Hepatic**
Abdominal pain (6%)
Hepatotoxicity [4]
Nausea [4]

**Respiratory**
Cough (5%)
Flu-like syndrome (7%)
Pharyngitis (5%)
Rhinitis (7%)

**Endocrine/Metabolic**
SIADH [2]

**Genitourinary**
Urinary frequency (<5%)
Vaginitis (4%)

**Renal**
Nephrotoxicity [3]

**Hematologic**
Agranulocytosis [3]

**Ocular**
Abnormal vision (2-5%)
Diplopia [5]
Hallucinations, visual [2]
Nystagmus (2–3%)

**Other**
Adverse effects [7]
Allergic reactions [2]
Death [6]
Multorgan failure [2]

**Side effects [2]**
Teratogenicity [6]

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**Pregnancy category:** C
Important contra-indications noted in the prescribing guidelines for: nursing mothers

**Skin**
Anaphylactoid reactions/Anaphylaxis [6]
Erythema multiforme [2]
Facial edema [2]
Hypersensitivity [3]
Lupus erythematosus [3]
Peripheral edema [2]
Pruritus (310%)
Rash (310%)
Toxic epidermal necrolysis [4]
Urticaria [3]

**Mucosal**
Stomatitis [2]

**Central Nervous System**
Dysgeusia (taste perversion) [3]
Headache (3%) [4]
Vertigo (dizziness) [2]

**Gastrointestinal/Hepatic**
Abdominal pain [2]
Colitis [2]
Constipation [2]
Diarrhea (<5%) [6]
Hepatitis [2]
Nausea [2]

**Endocrine/Metabolic**
Gynecomastia [2]

**Other**
Death [2]

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**LANREOTIDE**

**Trade names:** Somatuline Autogel (Ipsen), Somatuline Depot (Ipsen), Somatuline LA (Ipsen)

**Indications:** Acromegaly, carcinoid syndrome, thyrotoxic adenoma

**Class:** Somatostatin analog

**Half-life:** 2 hours (immediate release) 5 days (sustained release).

**Clinically important, potentially hazardous interactions with:** antidiabetics, bromocriptine, cyclosporine, insulin, metformin, regapinide, sulfonyleureas

**Pregnancy category:** C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Hair**
Alopecia [2]

**Cardiovascular**
Bradycardia (518%)
Hypertension (5%)

**Central Nervous System**
Headache (7%)
Pain (7%)

**Neuromuscular/Skeletal**
Arthralgia (7%) [2]

**Gastrointestinal/Hepatic**
Abdominal pain (719%) [6]
Cholelithiasis (gallstones) (2–17%) [2]
Constipation (8%)
Diarrhea (31–65%) [6]
Flatulence (6–14%) [3]
Loose stools (6%)
Nausea (11%) [3]
Steatorrhea [2]
Vomiting (7%)

**Endocrine/Metabolic**
Diabetes mellitus (7%)
Hyperglycemia (7%)
Hypoglycemia (7%)
Weight loss (511%)

**Hematologic**
Anemia (5–14%)

**Local**
Injection-site induration [3]
Injection-site pain (4%) [4]
Injection-site reactions (622%) [2]

**Other**
Adverse effects [2]

See: www.drugeruptiondata.com/drug/id/1113

**LAPATINIB**

**Trade name:** Tykerb (Novartis)

**Indications:** Breast cancer

**Class:** Antineoplastic, Biologic, Epidermal growth factor receptor (EGFR) inhibitor, Tyrosine kinase inhibitor

**Half-life:** 24 hours

**Clinically important, potentially hazardous interactions with:** afuzosin, artemether/ lumefantrine, atazanavir, carbamazepine, chloroquine, ciprofloxacin, clarithromycin, clozapine, colchicine, conivaptan, CYP3A4 substrates, CYP3A4 inhibitors or inducers, dabigatran, deferasirox, dexmethasone, digoxin, docetaxel, drenedaron, efavirenz, eplerenone, everolimus, fentanyl, food, gadobutrol, grapefruit juice, histamine H2-antagonists, indinavir, irinotecan, itraconazole, ketoconazole, nefazodone, nefilinavir, nilotinib, onaprazole, P-glycoprotein inducers, paclitaxel, pantoprazole, pazopanib, phenobarbital, phenytoin, pimecrolimus, pimozide, posaconazole, proton pump inhibitors, QT prolonging agents, quinine, repaglinide, rifabutin, rifampin, rifapentin, ritonavir, rivaroxaban, safinamide, salmeterol, saxagliptin, silodosin, St John’s wort, telithromycin, tetrabenazine, thioridazine, tolvaptan, topotecan, voriconazole, azpsridone

**Pregnancy category:** C

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**LANTHANUM**

See: www.drugeruptiondata.com/drug/id/1113

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Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Lapitinib is used in conjunction with capecitabine.

Warning: HEPATOXICITY

**Skin**
- Acneform eruption (90%) [4]
- Depigmentation (21%) [4]
- Hand-foot syndrome (53%) [9]
- Inflammation (15%)
- Pruritus [3]
- Rash (28%) [26]
- Toxicity [6]
- Xerosis (10%)

**Hair**
- Alopecia [2]

**Nails**
- Paronychia [3]

**Mucosal**
- Mucosal inflammation (15%)
- Mucositis [2]
- Stomatitis [9]

**Central Nervous System**
- Anorexia (24%) [2]
- Insomnia (10%)

**Neuromuscular/Skeletal**
- Aspiration (10%) [2]
- Back pain (11%)
- Bone or joint pain [2]
- Pain in extremities (12%)
- Abdominal pain (15%)
- Diarrhea (65%) [44]
- Dyspepsia (11%)
- Nausea (44%) [9]
- Vomiting (26%) [7]

**Respiratory**
- Dyspnea (12%) [2]

**Endocrine/Metabolic**
- ALT increased (37%) [5]
- AST increased (49%) [4]
- Hyperbilirubinemia [3]

**Hematologic**
- Anemia [5]
- Febrile neutropenia [2]
- Leukopenia [4]
- Lymphopenia [2]
- Neutropenia [8]

**Otic**
- Tinnitus (14%) [2]

**Other**
- Adverse effects [11]
- Death [2]

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**LATANOPROST**

**Trade name:** Xalatan (Pfizer)

**Indications:** Reduction of elevated intraocular pressure in open angle glaucoma or ocular hypertension

**Class:** Prostaglandin analog

**Half-life:** 17 minutes

**Clinically important, potentially hazardous interactions with:** thimerosal

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Pigmentation [2]
- Pruritus [2]
- Rash (<10%)

**Cardiovascular**
- Angina (<10%)

**Central Nervous System**
- Headache [3]
- Vertigo (dizziness) [2]

**Neuromuscular/Skeletal**
- Arthralgia (<10%)
- Back pain (<10%)
- Myalgia/Myopathy (<10%)

**Respiratory**
- Flu-like syndrome (<10%)
- Upper respiratory tract infection (<10%)

**Ocular**
- Conjunctival hyperemia [19]
- Deepening of upper lid sulcus [5]
- Eyelashes – hypertrichosis [15]
- Eyelashes – pigmentation [9]
- Eyelid edema (<4%)
- Eyelid erythema (<4%)
- Eyelid pain (<10%)
- Eyelid pigmentation [4]
- Eyelid pruritus [2%]
- Foreign body sensation [5]
- Iris pigmentation [7]
- Keratitis [3]
- Macular edema [7]
- Ocular adverse effects [7]
- Ocular hyperemia [4]
- Ocular itching [8]
- Ocular pigmentation (5%) [12]
- Periorbital oedema [2]
- Uveitis [5]
- Vision blurred [3]
- Xerophthalmia (<10%)

**Other**
- Allergic reactions (<10%)

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**LEDIPASVIR & SOFOSBUVIR**

**Trade name:** Harvoni (Gilead)

**Indications:** Hepatitis C

**Class:** Hepatitis C virus NS5A inhibitor (ledipasvir), Hepatitis C virus nucleotide analog NS5B polymerase inhibitor (sofosbuvir)

**Half-life:** 47 hours (ledipasvir); <27 hours (sofosbuvir)

**Clinically important, potentially hazardous interactions with:** amiodarone, carbamazepine, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, oxcarbazepine, phenobarbital, phenytoin, rifabutin, rifampin, rifapentine, ritonavir, rosuvastatin, simprevir, St John’s wort, tenofovir disoproxil

**Pregnancy category:** N/A (Insufficient evidence to inform drug-associated risk; contra-indicated in pregnancy when given with ribavirin)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Pruritus [6]
- Rash [5]

**Cardiovascular**
- Bradycardia [3]

**Central Nervous System**
- Headache (11–17%) [32]
- Insomnia (3-6%) [11]
- Irritability [5]
- Vertigo (dizziness) [3]

**Neuromuscular/Skeletal**
- Arthralgia [3]
- Muscle spasm [2]
- Myalgia/Myopathy [3]

**Respiratory**
- Cough [3]
- Dyspnea [3]

**Neurological**
- Cerebellum ataxia [3]
- Dementia [3]
- Dizziness [3]
- Headache [3]
- Hypertension [3]
- Intracranial pressure increased [3]
- Sleepwalking [3]

**Gastrointestinal/Hepatic**
- Abdominal pain (15%)
- Diarrhea (3–7%) [12]
- Nausea (6–9%) [20]

**Renal**
- Nephrotoxicity [3]

**Hematologic**
- Anemia [7]

**Other**
- Adverse effects [5]
- Infection [2]

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**LEFLUNOMIDE**

See: www.drugeruptiondata.com/drug/id/391
LENALIDOMIDE

**Trade name:** Revlimid (Celgene)

**Indications:** Transfusion-dependent anemia due to myeloplastic syndromes, multiple myeloma (in combination with dexamethasone)

**Class:** Biologic, Immunomodulator, Thalidomide analog

**Half-life:** 3–5 hours

**Clinically important, potentially hazardous interactions with:** abatacept, anakinra, canakinumab, certolizumab, denosumab, dexamethasone, digoxin, erythropoietin stimulating agents, estrogen containing therapies, leflunomide, natalizumab, pimecrolimus, rilpuezel-T, tacrolimus, trastuzumab, vemurafenib

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Warning:** FETAL RISK, HEMATOLOGIC TOXICITY, and DEEP VEIN THROMBOSIS AND PULMONARY EMBOLISM

### Skin
- Cellulitis (5%)
- DRESS syndrome [2]
- Ecchymoses (5–8%)
- Edema (10%)
- Erythema (5%)
- Exantheme (3]
- Folliculitis [2]
- Graft-versus-host reaction [2]
- Hyperhidrosis (7%) [2]
- Malignancies (secondary) [6]
- Peripheral edema (26%) [4]
- Pigmentation [2]
- Pruritus (42%) [3]
- Rash (36%) [16]
- Stevens-Johnson syndrome [5]
- Sweet’s syndrome [3]
- Toxicity [6]
- Tumor lysis syndrome [3]
- Tumors [5]
- Xerosis (14%) [2]

### Mucosal
- Epistaxis (nosebleed) (15%)
- Xerostomia (7%)

### Cardiovascular
- Chest pain (5%) (in combination with everolimus)
- Hypertension (6%)
- Palpitation (5%)
- Thromboembolism [5]
- Venous thromboembolism [13]

### Central Nervous System
- Anorexia (10%)
- Depression (5%)
- Dysesthesia (taste perversion) (6%)
- Fever (21%) [3]
- Headache (20%) (in combination with everolimus)
- Hypoesthesia (7%)
- Insomnia (10%) [4]
- Neurotoxicity (7%) [8]
- Pain (7%)
- Peripheral neuropathy (5%) [12]
- Rigors (6%)
- Somnolence (drowsiness) [2]
- Tremor (21%)

### Respiratory
- Cough (24%)
- Dysphonia (31%) [2]

LENVATINIB

**Trade name:** Lenvima (Eisai)

**Indications:** Differentiated thyroid cancer, renal cell cancer (in combination with everolimus)

**Class:** Tyrosine kinase inhibitor

**Half-life:** 28 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### Skin
- Exantheme (21%)
- Hand–foot syndrome (32%) [2]
- Hyperkeratosis (7%)
- Peripheral edema (21%) [3]
- Rash (21%)
- Toxicity [2]

### Hair
- Alopecia (12%)

### Mucosal
- Aphthous stomatitis (41%)
- Epistaxis (nosebleed) (12%)
- Gingivitis (10%)
- Glossitis (41%)
- Glossodynia (25%)
- Mucosal inflammation (41%)
- Oral ulceration (41%)
- Oropharyngeal pain (25%)
- Parotitis (10%)
- Stomatitis (41%) [3]
- Xerostomia (17%)

### Cardiovascular
- Hypertension (73%) [18]
- Hypotension (9%)
- QT prolongation (9%)

### Central Nervous System
- Anorexia [3]
- Dysesthesia (taste perversion) (18%)
- Headache (38%) [4]
- Insomnia (12%)
- Vertigo (dizziness) (15%)

### Neuroumucosal/Skeletal
- Arthralgia (62%)
- Anemia (31%) [25]
- Cytopenia [3]
- Febrile neutropenia (5%) [8]
- Hemotoxicity [12]
- Leukopenia (8%) [11]
- Lymphopenia (5%) [8]
- Myelosuppression [6]
- Neutropenia (59%) [58]
- Thrombocytopenia (62%) [50]
- Thrombosis [4]

### Ocular
- Vision blurred (17%)

### Local
- Infusion-related reactions [2]
- Injection-site reactions [2]

### Other
- Adverse effects [13]
- Cancer [2]
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LEUCOVORIN

Trade name: Femara (Novartis)
Indications: Breast cancer
Class: Aromatase inhibitor
Half-life: ~2 days
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: X

Skin
Exanthems (5%)
Hot flashes (6%) [8]
Hyperhidrosis (<5%)
Psoriasis (5%)
Rash (<10%) [5]
Vesiculation (5%)

Hair
Alopecia (<5%) [3]

Cardiovascular
Hypertension (6)
Central Nervous System
Anorexia [3]
Depression [3]
Fever [2]
Headache [3]
Insomnia [2]
Mood changes [2]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Arthralgia [10]
Anesthesia (fatigue) [9]
Back pain [3]
Bone or joint pain [3]
Myalgia/Myalgia [7]
Osteoporosis [7]

Gastrointestinal/Hepatic
Constipation [2]
Diarrhea [7]
Nausea [8]
Vomiting [4]

Respiratory
Dyspnea [3]

Endocrine/Metabolic
Hypercholesterolemia [3]
Hyperglycemia [3]

Genitourinary
Vaginal dryness [4]

Hematologic
Anemia [9]
Febrile neutropenia [3]
Leukopenia [6]
Neutropenia [24]
Thrombocytopenia [6]

Other
Adverse effects [2]
Infection [2]

LEPIRUDIN

See: www.drugeruptiondata.com/drug/id/2145

LESINURAD

Trade names: Duzallo (AstraZeneca), Zurampic (AstraZeneca)
Indications: Gout-associated hyperuricemia (in combination with a xanthine oxidase inhibitor)
Class: Urate inhibitor
Half-life: 5 hours
Clinically important, potentially hazardous interactions with: amiodarone, carbamazepine, CYP3A inducers or inhibitors, CYP3A substrates, fluconazole, rifampin
Pregnancy category: N/A (No available data)

Skin
Hand–foot syndrome [3]
Rash [5]
Toxicity [2]

Hair
Alopecia [2]

Mucosal
Mucositis [6]
Stomatitis [5]

Cardiovascular
Hypertension [6]

Central Nervous System
Anorexia [5]
Neurotoxicity [5]
Peripheral neuropathy [4]

Neuromuscular/Skeletal
Asthenia (fatigue) [8]

Gastrointestinal/Hepatic
Abdominal pain [2]
Diarrhea [22]
Nausea [13]
Vomiting [11]

Endocrine/Metabolic
ALP increased [2]

Renal
Proteinuria [3]

Hematologic
Anemia [9]

Other
Adverse effects [2]
Infection [2]
LEUPROLIDE

**Trade names:** Eligard (Sanofi-Aventis), Lupron (TAP), Lupron Depot-Ped (AbbVie), Vialudr (Bayer)
**Indications:** Prostate carcinoma, endometriosis
**Class:** Gonadotropin-releasing hormone (GnRH) agonist
**Half-life:** 34 hours
**Clinically important, potentially hazardous interactions with:** none known
**Pregnancy category:** X
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

### Skin
- Anaphylactoid reactions/Anaphylaxis [3]
- Dermatitis (5%)
- Dermatitis herpetiformis [2]
- Ecchymoses (<5%)
- Edema (<10%)
- Granulomas [2]
- Hot flashes (12%) [6]
- Peripheral edema (412%)
- Pigmentation (<5%)
- Pruritus (<5%)
- Rash (<10%)
- Vasculitis [2]
- Xerosis (<5%)

### Hair
- Alopecia (<5%)

### Cardiovascular
- Flushing (61%) [2]
- Thrombophlebitis (2%)

### Central Nervous System
- Dysgeusia (taste perversion) (<5%)
- Paresthesias (<5%)

### Neuromuscular/Skeletal
- Myalgia/Myopathy [2]
- Mastodynia (7%)

### Ocular
- Diplopia [2]

### Local
- Injection-site granuloma [6]
- Injection-site inflammation (2%)<n
- Injection-site pain [2]
- Injection-site reactions (24%)

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LEVALBUTEROL

See: [www.drugeruptiondata.com/drug/id/876](www.drugeruptiondata.com/drug/id/876)

LEVAMISOLE


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LEVETRACETAM

**Trade names:** Elepsia XR (Sun Pharma), Keppra (UCB)
**Indications:** Partial onset seizures
**Class:** Anticonvulsant
**Half-life:** 7 hours
**Clinically important, potentially hazardous interactions with:**
- carbamazepine
- eslicarbazepine
**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:**
- the elderly; nursing mothers; pediatric patients

### Skin
- Dress syndrome [7]
- Erythema [2]
- Erythema multiforme [2]
- Rash [3]
- Stevens-Johnson syndrome [3]
- Toxic epidermal necrolysis [2]
- Urticaria [2]

### Central Nervous System
- Aggression [7]
- Agitation [5]
- Anorexia [2]
- Behavioral disturbances [4]
- Compulsions [2]
- Depression [8]
- Encephalopathy [4]
- Fever [2]
- Headache (25%) [12]
- Irritability [9]
- Nervousness [2]
- Neurotoxicity [3]
- Paresthesias (2%) [2]
- Psychosis [3]
- Seizures [4]
- Sleep related disorder [2]
- Somnolence (drowsiness) [17]
- Suicidal ideation [4]
- Vertigo (dizziness) (918%) [20]

### Neuromuscular/Skeletal
- Myalgia/Myopathy [2]
- Osteoporosis [2]
- Rhabdomyolysis [3]

### Gastrointestinal/Hepatic
- Abdominal pain [2]
- Diarrhea [2]
- Hepatotoxicity [3]
- Nausea [4]
- Vomiting [4]

### Respiratory
- Febrile illness [2]
- Nasopharyngitis (6%) [2]

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LEVODOPA

**Synonyms:** L-dopa; carbidopa
**Trade names:** Duopa (AbbVie), Rytary (Impax), Sinemet (Bristol-Myers Squibb), Stalevo (Oriion)
**Indications:** Parkinsonism
**Class:** Dopamine precursor
**Half-life:** 13 hours
**Clinically important, potentially hazardous interactions with:**
- ACE inhibitors, acebutolol, alfuzosin, alpha blockers, amisulpride, ampicillin, angiotensin II receptor antagonists, anti-hypertensives, antimuscarinics, antipsychotics, baclofen, benzodiazepines, beta blockers, bupropion, calcium channel blockers, captopril,
chloramphenicol, cholestyramine, cilazapril, clofazimine, clonidine, darifenacin, diazoxide, diuretics, dopamine D₂ receptor antagonists, enalapril, erythromycin, fosinopril, hydralazine, irbesartan, iron salts, isoniazid, levomepromazine, linezolid, lisinopril, MAO inhibitors, memantine, methylphenidate, metoclopramide, minoxidil, moclobemide, moxonidine, nitrates, olanzapine, olmesartan, oral iron, oxybutynin, paliperidone, papaverine, pericystine, phenelzine, phenytoin, probenecid, pyridoxine, quetiapine, rilpiril, ramipril, rifampin, risperidone, saquinavir, selegiline, sodium nitroprusside, sulpiride, tetrabenazine, tiotropium, trandolapril, tranylcypromine, tricyclic antidepressants, trosiptum, volatile liquid general anesthetics, ziprasidone, zuclopenthixol, zuclopenthixol acetate, zuclopenthixol decanoate, zuclopenthixol dihydrcloro.

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:**

- nursing mothers; pediatric patients

**Note:** Levodopa is always used in conjunction with carbidopa. Stalevo is levodopa, carbidopa and entacapone. Contra-indicated in patients with narrow-angle glaucoma or those with a history of melanoma.

### Skin
- Chromhidrosis (<10%)<sup>2</sup>
- Edema<sup>2</sup>
- Exanthems<sup>2</sup>
- Lupus erythematosus<sup>2</sup>
- Melanoma<sup>28</sup>
- Rash<sup>3</sup>

### Hair
- Hair pigmentation<sup>2</sup>

### Nails
- Nail growth<sup>2</sup>

### Mucosal
- Xerostomia (<10%)<sup>2</sup>

### Cardiovascular
- Hypotension<sup>2</sup>
- Orthostatic hypotension<sup>4</sup>

### Central Nervous System
- Agitation<sup>2</sup>
- Anosmia<sup>2</sup>
- Anxiety<sup>2</sup>
- Confusion<sup>3</sup>
- Delusions<sup>2</sup>
- Depression<sup>3</sup>
- Dyskinesia<sup>44</sup>
- Gait instability<sup>3</sup>
- Hallucinations<sup>12</sup>
- Insomnia<sup>6</sup>
- Narcolepsy<sup>2</sup>
- Neuroleptic malignant syndrome<sup>7</sup>
- Neurotoxicity<sup>3</sup>
- Psychosis<sup>6</sup>
- Restless legs syndrome<sup>5</sup>
- Somnolence (drowsiness)<sup>5</sup>
- Suicidal ideation<sup>2</sup>
- Tardive dyskinesia<sup>2</sup>
- Vertigo (dizziness)<sup>4</sup>

### Neuromuscular/Skeletal
- Arthralgia<sup>2</sup>
- Asthenia (fatigue)<sup>2</sup>

### Gastrointestinal/Hepatic
- Abdominal pain<sup>2</sup>
- Constipation<sup>4</sup>
- Diarrhea<sup>2</sup>
- Hepatotoxicity<sup>2</sup>
- Nausea<sup>9</sup>
- Vomiting<sup>4</sup>

### Ocular
- Hallucinations, visual<sup>2</sup>
- Ocular adverse effects<sup>2</sup>

### Other
- Adverse effects<sup>2</sup>
- Hiccups<sup>2</sup>

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### LEVOFLOXACIN

**Trade names:**
- Iiquix (Santen)
- Levaquin (Ortho-McNeil)
- Quixin (Johnson & Johnson)

**Indications:**
- Intracellular pathogens, inhalational anthrax (post exposure)

**Class:**
- Antibiotic, fluoroquinolone

**Half-life:**
- 68 hours

**Clinically important, potentially hazardous interactions with:**
- Aflatoxin, aminophylline, amiodarone, antacids, antibiotics, arsenic, artemether/1umefantrine, BCG vaccine, chloroquine, ciprofloxacin, corticosteroids, cyclosporine, didanosine, dronedarone, gadoxetate, insulin, lanthanum, myophenolate, nilotinib, NSAIIDs, oral iron, oral typhoid vaccine, phe陋indone, pimozide, probenecid, QT prolonging agents, quinine, streptomycin, tetracycline, sulf了一遍ate, sulfonamides, tetrabenazine, thioridazine, vitamin K antagonists, warfarin, zinc, ziprasidone, zolmitriptan

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:**

- the elderly; nursing mothers

**Note:** Fluoroquinolones are associated with an increased risk of tendinitis and tendon rupture in all ages. This risk is further increased in older patients usually over 60 years of age, in patients taking corticosteroid drugs, and in patients with kidney, heart or lung transplants. Fluoroquinolones may exacerbate muscle weakness in persons with myasthenia gravis.

**Warning:**
- SERIOUS ADVERSE REACTIONS INCLUDING TENDINITIS, TENDON RUPTURE, PERIPHERAL NEUROPATHY, CENTRAL NERVOUS SYSTEM EFFECTS and EXACERBATION OF MYASTHENIA GRAVIS

### Skin
- Anaphylactoid reactions/Anaphylaxis<sup>6</sup>
- Erythema<sup>2</sup>
- Erythema nodosum (<3%)
- Exanthems<sup>2</sup>
- Hypersensitivity<sup>5</sup>
- Photosensitivity<sup>3</sup>
- Phototoxicity<sup>5</sup>
- Pruritus (<2%)<sup>3</sup>
- Purpura<sup>2</sup>

**Radiation recall dermatitis**
- Rash (<2%)<sup>2</sup>
- Stevens-Johnson syndrome<sup>2</sup>

**Toxic epidermal necrolysis**
- Vasculitis<sup>3</sup>

**Cardiovascular**
- Myocardial infarction<sup>2</sup>
- Palpitation<sup>2</sup>
- QT prolongation<sup>5</sup>
- Torsades de pointes<sup>6</sup>

**Central Nervous System**
- Anorexia<sup>2</sup>
- Delirium<sup>5</sup>
- Depression<sup>2</sup>
- Dysgeusia (taste perversion)<sup>2</sup>
- Headache (6%)<sup>6</sup>
- Insomnia (4%)<sup>3</sup>
- Peripheral neuropathy<sup>3</sup>
- Psychosis<sup>2</sup>
- Seizures<sup>9</sup>
- Vertigo (dizziness)<sup>6</sup>

**Neuromuscular/Skeletal**
- Arthralgia<sup>4</sup>
- Myalgia/Myopathy<sup>3</sup>
- Myasthenia gravis exacerbation<sup>3</sup>
- Rhabdomyolysis<sup>4</sup>
- Tendinitis<sup>2</sup>
- Tendinopathy/Tendon rupture<sup>35</sup>

**Gastrointestinal/Hepatic**
- Abdominal pain<sup>3</sup>
- Constipation<sup>3</sup>
- Diarrhea<sup>5%</sup><sup>4</sup>
- Hepatotoxicity<sup>4</sup>
- Nausea<sup>7% <sup>6</sup></sup>
- Vomiting<sup>3</sup>

**Endocrine/Metabolic**
- ALT increased<sup>3</sup>
- AST increased<sup>3</sup>
- Hypoglycemia<sup>3</sup>

**Renal**
- Nephrotoxicity<sup>5</sup>

**Hematologic**
- Thrombocytopenia<sup>5</sup>

**Other**
- Adverse effects<sup>13</sup>
- Death<sup>5</sup>
- Side effects<sup>2</sup>

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### LEVOLEUCOVORIN

See: [www.drugeriptiondata.com/drug/id/1297](http://www.drugeriptiondata.com/drug/id/1297)

### LEVOMEPRAMINE

See: [www.drugeriptiondata.com/drug/id/2175](http://www.drugeriptiondata.com/drug/id/2175)
LEVOMILNACIPRAN

Trade name: Fetzima (Forest)
Indications: Major depressive disorder
Class: Antidepressant, Serotonin-norepinephrine reuptake inhibitor
Half-life: 12 hours

Clinically important, potentially hazardous interactions with: ketocazole, MAO inhibitors, NSAIDs

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: SUICIDAL THOUGHTS AND BEHAVIORS

Skin
Hyperhidrosis (9%) [8]
Pruritus (<2%)
Urticaria (<2%)
Xerosis (<2%)

Mucosal
Xerostomia [4]

Cardiovascular
Angina (<2%)
Extrasytoles (<2%)
Hypertension (3%) [2]
Hypotension (3%)
Palpitation (5%) [4]
Tachycardia (6%) [8]

Central Nervous System
Aggression (<2%)
Agitation (<2%)
Extrapyramidal symptoms (<2%)
Headache [5]
Insomnia [3]
Migraine (<2%)
Panic attack (<2%)
Paresthesias (<2%)
Vertigo (dizziness) [4]
Yawning (<2%)

Gastrointestinal/Hepatic
Abdominal pain (<2%)
Constipation (9%) [8]
Flatulence (<2%)
Nausea (17%) [9]
Vomiting (5%) [4]

Respiratory
Upper respiratory tract infection [2]

Endocrine/Metabolic
Appetite decreased (3%)

Genitourinary
Ejaculatory dysfunction (5%) [3]
Erectile dysfunction (6%) [6]
Hematuria (<2%)
Pollakiuria (<2%)
Testicular pain (4%)
Urinary hesitancy (4%) [3]

Renal
Proteinuria (<2%)

Ocular
Conjunctival hemorrhage (<2%)
Vision blurred (<2%)
Xerophthalmia (<2%)

Other
Adverse effects [2]
Bruxism (<2%)

LEVONORGESTREL

Trade names: Kyleena (Bayer), Mirena (Bayer), Plan B (Duramed)

Indications: Intrauterine contraception, treatment of heavy menstrual bleeding, emergency contraception

Class: Hormone, Progestogen
Half-life: 17 hours

Pharmacokinetics: Absorption, Distribution, Metabolism, Excretion

Central Nervous System
Headache (17%) [5]
Vertigo (dizziness) (41%)

Neuromuscular/Skeletal
Asthenia (fatigue) (17%)

Gastrointestinal/Hepatic
Abdominal pain (18%)
Diarrhea (5%)
Nausea (23%) [6]
Vomiting (6%) [3]

Endocrine/Metabolic
Amenorrhea [3]

Other
Adverse effects [2]

LEVOTHYROXINE

Synonyms: L-thyroxine sodium; T4
Trade names: Levothyroid (Forest), Levoxyl (Monarch), Synthroid (AbbVie), Unithroid (Watson)

Indications: Hypothyroidism
Class: Thyroid hormone, synthetic
Half-life: 67 days

Clinically important, potentially hazardous interactions with: amiodarone, armprenavir, antihypertamolics, azazaniv, cinetidine, cobicistat/elvitegravir/tenofovir alafenamide, cobicistat/elvitegravir/tenofovir disoproxil, darunavir, delavirdine, fosamprenavir, indinavir, lopinavir, mivacurium, nevirapine, nilutamide, oprenolol, propranolol, telaprevir

Pregnancy category: A

Skin
Angioedema [3]
Dermatitis [27]
Eczema [3]
Edema [2]
Urticaria [5]

Cardiovascular
Bradyarrhythmia [2]

Central Nervous System
Hosnain’s syndrome [2]
Seizures [14]
Shivering (<10%)

Hematologic
Aneostrophioblstenia [4]

Otic
Tinnitus [3]

Local
Application-site erythema [2]
Injection-site reactions [3]

LIDOCAINE

Synonyms: lignocaine; xylolcaine
Trade names: Anamandle HC (Doak), ELA-Max (Ferndale), EMLA (AstraZeneca), Lidoderm (Endo), Xylocaine (AstraZeneca)

Indications: Ventricular arrhythmias, topical anesthetic

Class: Anesthetic, local, Antiarrhythmic, Antiarrythmic class Ib
Half-life: terminal: 1.52 hours

Pharmacokinetics: Absorption, Distribution, Metabolism, Excretion
### LIFITEGRAST

**Trade name:** Xiidra (Shire)  
**Indications:** Ophthalmic solution for dry eye  
**Class:** Antibiotic, oxazolidinone  
**Indications:** Scabies, pediculosis capitis, pediculosis pubis  
**Contra-indicated in patients with known sensitivity:** N/A  
**PREGNANCY RISK:** N/A

### LINAGLIPTIN

**Trade name:** Glyxambi (Boehringer Ingelheim), Tradjenta (Boehringer Ingelheim)  
**Indications:** Type II diabetes mellitus  
**Class:** Antidiabetic, Dipeptidyl peptidase-4 (DPP-4) inhibitor  
**Half-life:** 12 hours  
**Clinically important, potentially hazardous interactions with:** efavirenz, rifampin  
**Pregnancy category:** B  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### LINACLOTIDE

**Trade name:** Linzess (Forest)  
**Indications:** Irritable bowel syndrome with constipation and chronic idiopathic constipation  
**Class:** Amino acid, Guanylate cyclase-C agonist  
**Half-life:** 45 hours  
**Clinically important, potentially hazardous interactions with:** oil-based hair dressings, benzene hexachloride, gamma benzene hexachloride  
**Pregnancy category:** N/A  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### LINEZOLID

**Trade name:** Zyvox (Pfizer)  
**Indications:** Various infections caused by susceptible organisms  
**Class:** Antibiotic, oxazolidinone  
**Half-life:** 43 hours  
**Clinically important, potentially hazardous interactions with:** alcohol, alpha blockers, atretamine, amitriptyline, oxamoxine, amphetamines, anilidopiperidine opioids, anithypertensives, atomoxetine, beta blockers, buprenorphine, bupropion, buspirone, caffeine, cambazapine, clomipramine, cyclobenzaprine, desipramine, desvenlafaxine, dexamethasone, dextromethorphan, diethylpropion, doxapram, doxepin, fluoxetine, fluvoxamine, hydromorphone, imipramine, levodopa, lithium, MAO inhibitors, maprotiline, meperidine, methadone, methyldopa, mirtazapine, nortriptyline, oral typhoid vaccine, paroxetine, hydrochloride, prazopine, protriptyline, reserpine, rifampin, salmamid, serotonin 5-HT1D receptor antagonists, Xanomeline.

### LINDANE

**Synonyms:** hexachlorocyclohexane; gamma benzene hexachloride  
**Indications:** Scabies, pediculosis capitis, pediculosis pubis  
**Class:** Chemical, Scabicide  
**Half-life:** 1722 hours  
**Clinically important, potentially hazardous interactions with:** oil-based hair dressings  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### Other

**Adverse effects [3]**  
- Death [3]

### Gastroesophageal reflux (<2%)  
### Vomiting (<2%)  
### Respiration  
### Sinusitis (3%)  
### Upper respiratory tract infection (5%)  

### Cardiovascular

- Cardiotoxicity [3]  
- Hypertension [2]  

### Central Nervous System

Dysgeusia (taste perversion) (5–25%) [3]  
Headache (<5%)  
Respiratory  
Sinusitis (<5%)  
Ocular  
Conjunctival hyperemia (<5%)  
Lacrimation (<5%)  
Ocular adverse effects [2]  
Ocular burning [2]  
Ocular discharge (<5%)  
Ocular pruritus (<5%)  
Reduced visual acuity (5–25%) [2]  
Vision blurred (<5%)  
Xerophthalmia [2]

### Local

Application-site reactions [3]

### LINCOMYCIN

**Trade name:** Lincocin (Pfizer)  
**Indications:** Various infections caused by susceptible organisms  
**Class:** Antibiotic, lincosamide  
**Half-life:** 211.5 hours  
**Clinically important, potentially hazardous interactions with:** mivacurium

### Other

**Adverse effects [4]**  
- Death [19]

**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### Skin

- Dermatitis [5]  
- Erythema (2%) [2]  
- Pruritus [2%] [5]  
- Toxicity [2]  
- Urticaria [2]

### Litt's Drug Eruption & Reaction Manual

**LIREP**

**NURSING MOTHERS:** No data available  
**Pediatric patients**

**Adverse effects [4]**

- Death [3]

**Skin**

- Dermatitis [5]  
- Erythema (2%) [2]  
- Pruritus [2%] [5]  
- Toxicity [2]  
- Urticaria [2]

### Central Nervous System

Neurotoxicity [3]  
Pseudotumor cerebri [2]  
Seizures [11]

### Neuromuscular/Skeletal

Rhabdomyolysis [3]  

### Other

Adverse effects [4]  
- Death [19]

**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**

- Dermatitis [5]  
- Erythema (2%) [2]  
- Pruritus [2%] [5]  
- Toxicity [2]  
- Urticaria [2]

**Central Nervous System**

Neurotoxicity [3]  
Pseudotumor cerebri [2]  
Seizures [11]

**Neuromuscular/Skeletal**

Rhabdomyolysis [3]  

**Other**

Adverse effects [4]  
- Death [19]

**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**

- Dermatitis [5]  
- Erythema (2%) [2]  
- Pruritus [2%] [5]  
- Toxicity [2]  
- Urticaria [2]

**Central Nervous System**

Neurotoxicity [3]  
Pseudotumor cerebri [2]  
Seizures [11]

**Neuromuscular/Skeletal**

Rhabdomyolysis [3]  

**Other**

Adverse effects [4]  
- Death [19]
serotonin/norepinephrine reuptake inhibitors, sertraline, sibutramine, SSRI's, tapentadol, tetrabenazine, tetratydrozoline, tramadol, trazodone, tricyclic antidepressants, trimipramine, tryptophan, verlafaxine

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
Cellulitis [2]
Edema (2%)
Fungal dermatitis (2%)
Pruritis [2]
Rash (<7%) [3]

Mucosal
Black tongue [2]

Central Nervous System
Dysgeusia (taste perversion) (<2%)
Fever (2–14%)
Headache (<11%) [4]
Insomnia (3%)
Neurotoxicity [5]
Peripheral neuropathy [12]
Seizures (3%)
Serotonin syndrome [27]
Vertigo (dizziness) (2%)

Gastrointestinal/Hepatic
Abdominal pain (<2%)
Constipation (2%) [2]
Diarrhea (3–11%) [9]
Gastrointestinal bleeding (2%)
Gastrointestinal disorder [3]
Loose stools (<2%)
Nausea (3–10%) [9]
Vomiting (<10%) [4]

Respiratory
Apnea (2%)
Cough (<2%)
Dyspnea (3%)
Pneumonia (3%)
Upper respiratory tract infection (4%)

Endocrine/Metabolic
Acidosis [5]
ALP increased (<4%)
ALT increased (2–10%)
AST increased (2–5%)
Hypoglycemia [2]
Hypokalemia (3%)
Hypoponatemira [2]

Genitourinary
Candidal vaginitis (<2%)

Renal
Nephrotoxicity [2]

Hematologic
Anemia (<6%) [6]
Leukopenia [2]
Myelosuppression [7]
Pancytopenia [4]
Sepsis (8%)
Thrombocytopenia (<5%) [19]

Ocular
Optic neuropathy [14]

Local
Injection-site reactions (3%)

Other
Adverse effects (4%) [15]

Allergic reactions (4%)
Death [2]

LIOTHYRONINE

Synonym: T3 sodium
Trade names: Cytomel (Pfizer), Triostat (Par)
Indications: Hypothyroidism
Class: Thyroid hormone, synthetic
Half-life: 1649 hours
Clinically important, potentially hazardous interactions with: anticoagulants, dicumarol, warfarin

Pregnancy category: A

Skin
Urticaria [3]

LIRAGLUTIDE

Trade names: Saxenda (Novo Nordisk), Victoza (Novo Nordisk), Xultophy (Novo Nordisk)
Indications: To improve glycemic control in adults with Type II diabetes mellitus (Victoza), adjunct to diet and exercise for chronic weight management (Saxenda)
Class: Glucagon-like peptide-1 (GLP-1) receptor agonist
Half-life: 13 hours
Clinically important, potentially hazardous interactions with: acetaminophen, atorvastatin, cannabinoids, carbonic anhydrase inhibitors, chlorpromazine, epinephrine, ethosuximide, haloperidol, iobenguane, lithium, MAO inhibitors, meperidine, methenamine, phenobarbital, phenytin, propoxyphene, sympathomimetics, tricyclic antidepressants, urinary alkalinizing agents

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with a personal or family history of medullary thyroid carcinoma or in patients with multiple endocrine neoplasia syndrome Type 2. Xultophy is liraglutide and insulin degludec.

Warning: RISK OF THYROID C-CELL TUMORS

Cardiovascular
Cardiotoxicity [2]
Hypertension (3%)

Central Nervous System
Headache (~5%) [7]
Vertigo (dizziness) (6%) [2]

Neuromuscular/Skeletal
Asthenia (fatigue) [3]
Back pain (5%) [3]

Gastrointestinal/Hepatic
Abdominal pain [3]
Cholelithiasis (gallstones) [3]
Constipation (10%) [12]
Diarrhea (17%) [31]
Dyspepsia [3]
Gastrointestinal disorder [3]
Nausea (28%) [61]
Pancreatitis [10]
Vomiting (11%) [30]

Respiratory
Influenza (7%)
Nasopharyngitis (5%) [6]
Sinusitis (6%)

Upper respiratory tract infection (10%) [3]
Endocrine/Metabolic
Appetite decreased [6]
Hypoglycemia [10]
Weight loss [6]

Genitourinary
Urinary tract infection (6%)

Local
Injection-site reactions (2%) [3]

Other
Adverse effects [13]
Malignant neoplasms (11%)

LISDEXAMFETAMINE

Trade name: Vyvanse (Shire)
Indications: Attention-deficit hyperactivity disorder (ADHD)
Class: CNS stimulant, Dextroamphetamine prodrug
Half-life: 1 hour
Clinically important, potentially hazardous interactions with: acetazolamide, ammonium chloride, analgesics, antacids, antihistamines, antihypertensives, antipsychotics, atorvastatin, cannabinoids, carbonic anhydrase inhibitors, chlorpromazine, epinephrine, ethosuximide, haloperidol, iobenguane, lithium, MAO inhibitors, meperidine, methenamine, phenobarbital, phenytin, propoxyphene, sympathomimetics, tricyclic antidepressants, urinary alkalinizing agents

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: ABUSE AND DEPENDENCE

Skin
Hyperhidrosis (3%)
Rash (3%)

Mucosal
Xerostomia (4–26%) [20]

Cardiovascular
Hypertension (3%)
Tachycardia [3]

Central Nervous System
Agitation (3%)
Anorexia (5%) [3]
Anxiety [8]
Fever (2%) [29]
Headache [29]
Insomnia (13–23%) [28]
Irritability (10%) [19]
Restlessness (3%)
Somnolence (drowsiness) (2%) [2]
Tic disorder (2%) [2]
Vertigo (dizziness) (5%) [6]

Neuromuscular/Skeletal
Asthenia (fatigue) [3]
Back pain [2]

Gastrointestinal/Hepatic
Abdominal pain (12%) [12]
Constipation [2]
Diarrhea (7%)

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Hypertension, as adjunctive therapy
Prinzide and Zestoretic are lisinopril and LITHIUM

12 hours
18–24 hours
Angiotensin-converting enzyme (ACE)
inhibitor
or idiopathic angioedema.
an ACE inhibitor and in patients with hereditary
reactions such as toxic epidermal necrolysis and
sulfonamide and can be absorbed systemically.

Hydantoin, hypotensives, insulin,
corticosteroids, cyclosporine, diazoxide,
calcium channel blockers, clonidine,
aprotinin, azathioprine, baclofen, beta blockers,
antipsychotics, anxiolytics and hypnotics,
antacids, antidiabetics, antihypertensives,
interactions with:
Clinically important, potentially hazardous
Half-life:
Class:
Trade names:
LITHIUM

Nausea (6–7%) [10]
Vomiting (9%) [3]
Respiratory
Dyspnea (2%)
Influenza [2]
Nasopharyngitis [5]
Sinusitis [2]
Upper respiratory tract infection [11]
Endocrine/Metabolic
Appetite decreased (27–39%) [27]
Libido decreased (<2%)
Weight loss (9%) [9]
Genitourinary
Erectile dysfunction (<2%)
Other
Adverse effects [6]

LISINOPRIL

Trade names: Prinivil (Merck), Prinzide (Merck), Zestoretic (AstraZeneca), Zestril (AstraZeneca)
Indications: Hypertension, as adjunctive therapy in the management of heart failure, short-term treatment following myocardial infarction in hemodynamically stable patients
Class: Angiotensin-converting enzyme (ACE) inhibitor
Half-life: 12 hours
Clinically important, potentially hazardous interactions with:

alcohol, aldesleukin, allopurinol, alpha blockers, albprostadil, amifostine, amiloride, angiotensin II receptor antagonists, antacids, antidote to toxic anticoagulants, antihypertensives, antipsychotics, anxiolytics and hypnotics, aprotinin, azathioprine, baclofen, beta blockers, calcium channel blockers, clonidine, corticosteroids, cyclopiazonic, diazoxide, diuretics, eplerenone, estrogen, everolimus, general anesthetics, gold & gold compounds, hepatitis, hydralazine, hypotensives, insulin, levodopa, liraglutide, lithium, MAO inhibitors, metformin, methylphosphonic, minoxidil, moxisylyte, moxonidine, nitrates, nitropustulan, NSAIDs, pentoxifylline, phosphodiesterase 5 inhibitors, potassium salts, prostacyclin analogues, rituximab, salicylates, sirolimus, spironolactone, sulfonpyrazone, tensirolimus, tizanidine, tolvanatan, triamterene, trimethoprim, yohimbine
Pregnancy category: D (category C in first trimester; category D in second and third trimesters)
Important contra-indications noted in the prescribing guidelines for:
nursing mothers; pediatric patients
Note: Prinzide and Zestoretic are lisinopril and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.
Contra-indicated in patients with a history of angioedema related to previous treatment with an ACE inhibitor and in patients with hereditary or idiopathic angioedema. Warning: FETAL TOXICITY

Skin
Angioedema [43]
Edema of lip [2]
Exanethems (3%) [4]
Exfoliative dermatitis [2]
Kaposi’s sarcoma [2]
Lichenoid eruption [2]
Pemphigus foliaceus [2]
Pityriasis rosea [2]
 Purpura [2]
 Rash (2%) [5]
 Urticaria [2]
 Mucosal
 Tongue edema [2]
 Cardiovascular
 Flushing [2]
 Hypotension (<4%) [3]
 Central Nervous System
 Headache (4–6%)
 Vertigo (dizziness) (5–12%)
 Neur muscular/Skeletal
 Asthenia (fatigue) (3%) [2]
 Gastrointestinal/Hepatic
 Pancreatitis [10]
 Respiratory
 Cough (4–9%) [15]
 Upper respiratory tract infection (<2%)
 Endocrine/Metabolic
 Hyperkalemia [3]
 Other
 Death [3]

SKIN

| Pregnancy category: D |

| Skin |
| Acneiform eruption [20] |
| Angioedema [2] |
| Atopic dermatitis (3%) |
| Darier’s disease [3] |
| Dermatitis [4] |
| Dermatitis herpetiformis [3] |
| Edema [3] |
| Erythema [2] |
| Exanethems [11] |
| Exfoliative dermatitis [3] |
| Follicular keratosis [3] |
| Folliculitis [5] |
| Hidradenitis [3] |
| Ichthyosis [2] |
| Keratosis pilaris [2] |
| Linear IgA bullous dermatosis [4] |
| Lupus erythematosus [5] |
| Myxedema [10] |
| Papulo-nodular lesions (elbows) [2] |
| Priuritis [9] |
| Psoriasis (2%) [58] |
| Purpura [2] |
| Pustules [2] |
| Rash (<10%) |
| Seborrheic dermatitis [3] |
| Toxicity [2] |
| Ulcerations (lower extremities) [5] |
| Urticaria [3] |
| Vasculitis [4] |
| Hair |
| Alopecia (1019%) [17] |
| Alopecia areata (2%) [3] |
| Nails |
| Nail dystrophy [2] |
| Mucosal |
| Lichenoid stomatitis [3] |
| Oral ulceration [4] |
| Sialorrhea [4] |
| Stomatitis [2] |
| Xerostomia [5] |
| Cardiovascular |
| Brugada syndrome [5] |
| QT prolongation [4] |
| Central Nervous System |
| Annesia [2] |
| Coma [2] |
| Dysequisia (taste perversion) (>10%) |
| Hallucinations [2] |
| Neuroleptic malignant syndrome [7] |
| Neurotoxicity [3] |
| Parkinsonism [8] |
| Pseudohallucinations [2] |
| Restless legs syndrome [4] |
| Serotonin syndrome [5] |
| Somnambulism [3] |
| Tardive dyskinesia [2] |
| Tremor [3] |
| Neuromuscular/Skeletal |
| Myasthenia gravis [2] |
| Rhabdomyolysis [3] |
| Endocrine/Metabolic |
| Diabetes insipidus [4] |
| Hypercalcemia [3] |
| Hyperparathyroidism [5] |
| Hyperthyroidism [2] |

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**LIXISENATIDE**

**Trade names:** Adlyxin (Sanofi-Aventis), Lyxumia (Sanofi-Aventis), Soliqua (Sanofi-Aventis)

**Indications:** To improve glycemic control in adults with Type II diabetes mellitus

**Class:** Glucagon-like peptide-1 (GLP-1) receptor agonist

**Half-life:** 3 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Warning:** RISK OF HEPATOTOXICITY

- **Mucosal**
  - Nasal congestion (10%)

- **Cardiovascular**
  - Angina (10%)
  - Chest pain (24%)

- **Palpitation (10%)**

**Central Nervous System**

- Fever (10%)

- **Vertigo (dizziness) (10%)**

**Neuromuscular/Skeletal**

- Asthenia (fatigue) (17%)

- Back pain (14%)

**Gastrointestinal/ Hepatic**

- Abdominal pain (21–34%)

- Constipation (21%)

- Defecation (urgency) (10%)

**Diarrhea (79%) [3]**

- Dyspepsia (38%) [3]

- Flatulence (21%)

- Gastroenteritis (14%)

- Gastroesophageal reflux (10%)

- Hepatotoxicity [5]

- Nausea (65%) [2]

- Tenesmus (10%)

- Vomiting (34%) [3]

**Respiratory**

- Influenza (21%)

- Nasopharyngitis (17%)

Endocrine/Metabolic

- Hypoglycemia (3%) [7]

**Local**

- Injection-site reactions (4%) [2]

**Other**

- Adverse effects [3]

- Allergic reactions [2]

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**LOMIEFLOXACIN**

See: www.drugeruptiondata.com/drug/id/407

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**LOMUSTINE**

See: www.drugeruptiondata.com/drug/id/408

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Rash (<10%) [5]
Hair
Alopecia [3]
Central Nervous System
Vertigo (dizziness) [2]
Neuromuscular/Skeletal
Asthenia (fatigue) (<10%) [2]
Gastrointestinal/Hepatic
Diarrhea (>10%) [5]
Flatulence (<10%)
Nausea (<10%) [4]
Pancreatitis [2]
Vomiting (<10%) [3]
Renal
Nephrolithiasis [2]

LORACARBEF
See: www.drugeruptiondata.com/drug/id/410

LORATADINE
Trade names: Alavert (Wyeth), Claritin (Schering), Claritin-D (Schering)
Indications: Allergic rhinitis, urticaria
Class: Histamine H1 receptor antagonist
Half-life: 320 hours
Clinically important, potentially hazardous interactions with: amiodarone
Pregnancy category: B
Skin
Anaphylactoid reactions/Anaphylaxis (>2%)
Angioedema (>2%)
Dermatitis (>2%)
Diaphoresis (>2%)
Fixed eruption [3]
Peripheral edema (>2%)
Photosensitivity (>2%)
Pruritus (>2%) [2]
Purpura (>2%)
Rash (>2%)
Urticaria (>2%)
Xerosis (>2%)
Hair
Alopecia (>2%)
Dry hair (>2%)
Mucosal
Sirolithra (>2%)
Stomatitis (>2%)
Xerostomia (>10%) [9]
Cardiovascular
Flushing (>2%)
QT prolongation [2]
Torsades de pointes [4]
Central Nervous System
Dysgeusia (taste perversion) (>2%)
Headache (12%) [3]
Hyperesthesia (>2%)
Paresthesias (>2%)
Somnolence (drowsiness) [2]
Neuromuscular/Skeletal
Asthenia (fatigue) (4%) [2]

Myalgia/Myopathy (>2%)
Respiratory
Pharyngitis [2]
Endocrine/Metabolic
Gynecomastia (>2%)
Mastodynia (<10%)
Gonorrhea (<2%)
Genitourinary
Vaginosis (<2%)

LORAZEPAM
Trade name: Ativan (Valeant)
Indications: Anxiety, depression
Class: Benzodiazepine
Half-life: 1020 hours
Clinically important, potentially hazardous interactions with: alcohol, amprenavir,
barbiturates, chlorpheniramine, clarithromycin, clozapine, CNS depressants, cobicistat/
elvitegravir/emtricitabine/tenofovir alafenamide, efavirenz, erythromycin, esomeprazole,
eszopiclone, imatinib, MAO inhibitors, narcotics, nelfinavir, phenothiazines, valproate
Pregnancy category: D
Skin
Dermatitis (<10%)
Diaphoresis (>10%)
Pseudolymphoma [2]
Rash (>10%)
Mucosal
Nasal congestion (<10%)
Sialopenia (>10%)
Xerostomia (>10%)
Cardiovascular
Hypotension [2]
Central Nervous System
Agitation [2]
Akathisia (<10%)
Amenia (<10%) [18]
Catatonia [2]
Confusion (<10%)
Delirium [2]
Depression (<10%)
Hallucinations [2]
Headache (<10%)
Somnolence (drowsiness) (<10%) [3]
Tremor (<10%)
Vertigo (dizziness) (<10%) [2]
Respiratory
Apnea (<10%)
Hyperventilation (<10%)
Ocular
Visual disturbances (<10%)
Local
Injection-site pain (>10%)
Injection-site phlebitis (>10%)
Other
Adverse effects [2]

LORCASERIN
Trade name: Belviq (Arena)
Indications: Obesity in adults who have at least one weight-related health condition, such as high blood pressure, Type II diabetes, or high cholesterol
Class: Serotonin receptor agonist
Half-life: ~1 hour
Clinically important, potentially hazardous interactions with: antipsychotics, bupropion,
dextromethorphan, lithium, MAO inhibitors, SNRIs, SSRIs, St John's wort, tramadol, tricyclic antidepressants, triptans
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Skin
Perineal edema (5%)
Rash (2%)
Mucosal
Nasal congestion (3%)
Oropharyngeal pain (4%)
Xerostomia (5%) [2]
Cardiovascular
Hypertension (5%)
Valvulopathy (2-3%) [5]
Central Nervous System
Anxiety (4%)
Cognitive impairment (2%) [2]
Depression (2%) [2]
Euphoria [2]
Headache (15-17%) [11]
Insomnia (4%)
Vertigo (dizziness) (7-9%) [9]
Neuromuscular/Skeletal
Asthenia (fatigue) (7%) [3]
Back pain (6-12%) [2]
Bone or joint pain (2%) Muscular (5%)
Gastrointestinal/Hepatic
Constitution (6%)
Diarrhea (7%)
Gastroenteritis (3%)
Nausea (8-9%) [9]
Vomiting (4%)
Respiratory
Cough (4%)
Nasopharyngitis (11-13%) [2]
Upper respiratory tract infection (14%)
Endocrine/Metabolic
Appetite decreased (2%)
Diabetes mellitus (exacerbation) (3%)
Hypoglycemia (29%) [3]
Genitourinary
Urinary tract infection (7-9%)
Other
Toothache (3%)
Hypertension

B

HMG-CoA reductase inhibitor, Statin

BRONCHOSPASM and INCREASED Psychoses

USE IN PREGNANCY

Hypercholesterolemia

Antipsychotic, tricyclic

Interdigital tinea pedis, tinea cruris, 1219 hours (terminal)

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www.drugeruptiondata.com/drug/id/2847

Epidermophyton floccosum

Chloride channel activator

Constipation, irritable bowel

Contra-indicated in patients with known

Hyzaar is losartan and

12 hours

2 hours

170 Litt's Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC

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**LUMACAFTOR/IVACAFTOR**

**Trade name:** Orkambi (Vertex)

**Indications:** Cystic fibrosis in patients aged 12 years and older who are homozygous for the F508del mutation in the CFTR gene

**Class:** CFTR potentiator, CYP3A4 inducer

**Half-life:** 26 hours

**Clinically important, potentially hazardous interactions with:** rifampin, St John's wort

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** See also separate profile for ivacaftor.

**Skin**
- Rash (7%) [2]

**Mucosal**
- Rhinorrhea (6%)

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (9%)

**Gastrointestinal/Hepatic**
- Diarrhea (12%)
- Flatulence (7%)
- Nausea (13%)

**Respiratory**
- Dyspnea (13%) [3]
- Influenza (5%)
- Nasopharyngitis (13%)
- Upper respiratory tract infection (10%)

**Endocrine/Metabolic**
- Creatine phosphokinase increased (7%)
- Menstrual irregularities (10%)

**Other**
- Adverse effects [2]

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**LUMIRACOXIB**

See: [www.drugeruptiondata.com/drug/id/1245](http://www.drugeruptiondata.com/drug/id/1245)

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**LURASIDONE**

**Trade name:** Latuda (Sunovion)

**Indications:** Schizophrenia, depressive episodes associated with bipolar I disorder

**Class:** Antipsychotic

**Half-life:** 18 hours

**Clinically important, potentially hazardous interactions with:** alcohol, amphetamines, CNS depressants, dasabuvir/ombitasvir/paritaprevir/ritonavir, dasatinib, deferasirox, deltamethrin, disopyramide, dopamine, dopamine agonists, droperidol, efavirenz, epinephrine, hydroxyzine, ketoconazole, levomepromazine, lithium, MAO inhibitors, methylphenidate, metoclopramide, ombitasvir/paritaprevir/ritonavir, pimozide, procainamide, quinagolide, quinidine, rifampin, strong CYP3A4 inducers or inhibitors, tetrabenazine, toclozumab

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Warning:** INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

**Skin**
- Rash (7%) [2]

**Mucosal**
- Sialorrhea (2%)

**Central Nervous System**
- Agitation (5%)
- Akathisia (13%) [19]
- Anxiety (5%)
- Extrapyramidal symptoms [2]
- Insomnia (10%) [2]
- Parkinsonism (10%) [5]
- Restlessness (2%) [2]
- Sedation [8]
- Somnolence (drowsiness) (17%) [13]
- Vertigo (dizziness) (4%) [3]

**Neuromuscular/Skeletal**
- Dystonia (5%)

**Gastrointestinal/Hepatic**
- Dyspepsia (6%)
- Nausea (10%) [11]
- Vomiting (8%) [3]

**Endocrine/Metabolic**
- Hyperprolactinemia [2]
- Weight gain (5%) [3]

**Other**
- Adverse effects [3]

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**LUTROPIN ALFA**

See: [www.drugeruptiondata.com/drug/id/1148](http://www.drugeruptiondata.com/drug/id/1148)

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**LYMECYCLINE**

See: [www.drugeruptiondata.com/drug/id/1359](http://www.drugeruptiondata.com/drug/id/1359)
MACITENTAN
Trade name: Opsumit (Actelion)
Indications: Pulmonary arterial hypertension
Class: Endothelin receptor (ETR) antagonist
Half-life: 16 hours
Clinically important, potentially hazardous interactions with: ketoconazole, rifampin, ritonavir, strong CYP3A4 inducers or inhibitors
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in pregnancy.
Warning: EMBRYO-FETAL TOXICITY

Skin
Peripheral edema [3]

Central Nervous System
Headache (14%) [6]

Gastrointestinal/Hepatic
Hepatotoxicity [5]

Respiratory
Bronchitis (12%) [2]
Influenza (6%)
Nasopharyngitis (20%) [6]
Pharyngitis (20%)
Upper respiratory tract infection [2]

Genitourinary
Urinary tract infection (9%)

Hematologic
Anemia (13%) [8]

MAFENIDE
See: www.drugeruptiondata.com/drug/id/931

MAPROTILINE
See: www.drugeruptiondata.com/drug/id/416

MARAVIROC
Trade names: Celsentri (ViiV), Selzentry (ViiV)
Indications: HIV infection
Class: Antiretroviral, CCR5 co-receptor antagonist
Half-life: 1418 hours
Clinically important, potentially hazardous interactions with: atazanavir, clarithromycin, conivaptan, CYP3A4 inhibitors or inducers, darunavir, dasatinib, deferasirox, delavirdine, efavirenz, eravirenz, indinavir; ketoconazole, lopinavir; nelfinavir, oxcarbazepine, rifampin, rifabutin, ritonavir, saquinavir; St John’s wort, telithromycin, voriconazole
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Warning: HEPATOTOXICITY

Skin
Dermatitis (5%)

Central Nervous System
Amnesia (2%)
Confusion (2%)
Depression (37%) [14]
Hallucinations (4%)
Headache (2)
Hyperthermia (3)
Memory loss (3)
Neuroleptic malignant syndrome (4)
Neurotoxicity (5)
Parkinsonism (4)
Psychosis (4)
Seizures (3)
Serotonin syndrome (6)

Cardiovascular
Cardiotoxicity [2]
Myocardial infarction [2]

Gastrointestinal/Hepatic
Abdominal pain (14%)
Diarrhea [2]
Hepatotoxicity [2]

Respiratory
Cough (22%) [2]
Flu-like syndrome (3%)
Nasopharyngitis [2]

Genitourinary
Urinary tract infection (4%)

Other
Adverse effects [6]

MARIHUANA
Synonyms: marijuana; grass; hashish; pot; cannabis
Indications: Nausea and vomiting, substance abuse drug
Class: Antiemetic, Cannabinoid, Hallucinogen
Half-life: N/A
Clinically important, potentially hazardous interactions with: atazanavir
Pregnancy category: N/A
Note: Marihuana is the popular name for the dried flowering leaves of the hemp plant, cannabis sativa. It contains tetrahydrocannabinols.

Cardiovascular
Cardiotoxicity [4]
Myocardial infarction [2]

Central Nervous System
Annesia [2]
Hallucinations [2]
Neurotoxicity [2]
Schizophrenia [3]
Seizures [2]
Stroke [2]

Gastrointestinal/Hepatic
Pancreatitis [2]

Genitourinary
Priapism [2]

Ocular
Hallucinations, visual [2]

Other
Adverse effects [2]

MAZINDOL
See: www.drugeruptiondata.com/drug/id/418

MDMA
Synonyms: 3,4-methylenedioxymethamphetamine; ecstasy; E; X; molly; club drug
Indications: N/A
Class: Amphetamine
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known

Skin
Diaphoresis [4]

Mucosal
Xerostomia [5]

Cardiovascular
Cardiotoxicity [2]
Myocardial infarction [2]

Central Nervous System
Amnesia (2)
Confusion (2)
Depression (37%) [14]
Hallucinations [4]
Headache (2)
Hyperthermia (3)
Memory loss (3)
Neuroleptic malignant syndrome [4]
Neurotoxicity [5]
Parkinsonism [4]
Psychosis [4]
Seizures (3)
Serotonin syndrome [6]

Neuromuscular/Skeletal
Myalgia/Myopathy [2]
Rhabdomyolysis [34]

Gastrointestinal/Hepatic
Hepatitis [2]
Hepatotoxicity [4]
Nausea [2]

Endocrine/Metabolic
Hyponatremia [5]
SIADH [8]

Genitourinary
Priapism [2]

Hematologic
Coagulopathy [2]

Ocular
Hallucinations, visual [2]

Other
Bruxism [8]
Death [47]
Dipsia (thirst) [2]
Multiorgan failure [2]
MEASLES, MUMPS & RUBELLA (MMR) VIRUS VACCINE

Trade name: M-M-R II (Merck)
Indications: Protection against measles (rubeola), mumps and rubella (German measles)
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated for pregnant females; patients who have had anaphylactic or anaphylactoid reactions to neomycin; febrile respiratory illness or other active febrile infection; patients receiving immunosuppressive therapy or with blood dyscrasias, leukemia, lymphomas of any type, or other malignant neoplasms affecting the bone marrow or lymphatic systems; primary and acquired immunodeficiency states, or individuals with a family history of congenital or hereditary immunodeficiency, until the immune competence of the potential vaccine recipient is demonstrated.

Skin
Henoch–Schönlein purpura [2]
Rash [4]

Central Nervous System
Fever [7]
Seizures [3]

Neuromuscular/Skeletal
Asthenia (fatigue) [2]

Gastrointestinal/Hepatic
Vomiting [2]

Local
Injection-site erythema [2]
Injection-site pain [2]
Injection-site reactions [3]

Other
Adverse effects [5]
Infection [2]

MEBENDAZOLE

Trade name: Vermox (Janssen)
Indications: Parasitic worm infestations
Class: Anthelmintic, Antibiotic, imidazole
Half-life: 112 hours

Clinically important, potentially hazardous interactions with: aminophylline
Pregnancy category: C

Skin
Stevens-Johnson syndrome [2]
Hair
Alopecia [3]

Central Nervous System
Headache [2]
Vertigo (dizziness) [2]

Skin
Acneform eruption (<5%)
Chloasma (<10%)
Diaphoresis (<31%)
Edema (>10%)
Melasma (<10%)
Pruritus (<10%)
Rash (<5%)

Hair
Alopecia (<5%)

Cardiovascular
Flushing (12%)
Thrombophlebitis (<10%)

Neuromuscular/Skeletal
Osteoporosis [2]

Endocrine/Metabolic
Amenorrhea [3]
Galactorrhea [2]
Mastodynia (<5%)
Weight gain [3]

Genitourinary
Vaginitis (<5%)

Local
Injection-site pain (>10%)

MEFENAMIC ACID

Trade name: Ponstel (First Horizon)
Indications: Pain, dysmenorrhea
Class: Non-steroidal anti-inflammatory (NSAID)
Half-life: 3.5 hours

Clinically important, potentially hazardous interactions with: methotrexate
Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Warning: CARDIOVASCULAR AND GASTROINTESTINAL RISK

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Erythema multiforme [2]
Fixed eruption [12]
Pruritus (<10%)
Rash (>10%)
Toxic epidermal necrolysis [2]
MEFENAMIC ACID

Cardiovascular
Myocardial infarction [2]

Central Nervous System
Seizures [2]

Gastrointestinal/Hepatic
Hepatotoxicity [2]

Renal
Renal failure [2]

Ocular
Glaucoma [2]

Gastrointestinal/Hepatic
Abdominal pain [4]
Diarrhea [4]
Nausea [8]
Vomiting [14]

Otic
Tinnitus (<10%)

Ocular
Maculopathy [2]

Other
Adverse effects [2]
Death [3]

MEFLOQUINE

Trade name: Lariam (Roche)

Indications: Malaria

Class: Antimalarial, Antiprotozoal

Half-life: 2122 days

Clinically important, potentially hazardous interactions with: acebutolol, artemether/ lumefantrine, ethosuximide, halofantrine, lacosamide, moxifloxacin, oxcarbazepine, quinine, tiagabine, typhoid vaccine, vigabatrin

Important contra-indications noted in the Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Warning: NEUROPSYCHIATRIC ADVERSE REACTIONS

Skin
Anaphylactic reactions/Anaphylaxis [2]
Erythema [2]
Exanthems (30%)
Pruritus (410%) [2]
Psoriasis [2]
Rash (<10%)
Stevens-Johnson syndrome [2]
Toxic epidermal necrolysis [2]
Vasculitis [3]

Cardiovascular
Palpitation [3]
Tachycardia [2]

Central Nervous System
Abnormal dreams [3]
Aggression [2]
Amnesia [2]
Anorexia [2]
Anxiety [5]
Chills (<10%)
Confusion [2]
Drowsiness [2]
Depression [7]
Fever (<10%) [2]
Hallucinations [3]
Headache (<10%) [5]
Insomnia [3]
Mania [4]
Neurotoxicity [8]
Psychosis [8]
Seizures [6]
Sleep disturbances [2]
Suicidal ideation [2]
Vertigo (dizziness) (<10%) [20]

Neuromuscular/Skeletal
Arthralgia [2]
Asthenia (fatigue) (<10%) [2]
Myalgia/Myopathy (<10%) [2]

Other
Hypersensitivity [2]
Photosensitivity (<2%)
Pruritus (<2%)
Purpura (<2%)
Rash (<3%) [3]
Stevens-Johnson syndrome (<2%)
Toxic epidermal necrolysis (<2%)
Urticaria (<2%) [4]
Vasculitis (<2%)

Hair
Alopecia (<2%)

Mucosal
Ulcerative stomatitis (<2%)
Xerostomia (<2%)

Cardiovascular
Angina (<2%)
Arrhythmias (<2%)
Cardiac failure (<2%)
Hypertension (<2%)
Hypotension (<2%)
Myocardial infarction (<2%)
Pulmonary hypertension (<2%)
Tachycardia (<2%)

Central Nervous System
Abnormal dreams (<2%)
Anxiety (<2%)
Confusion (<2%)
Depression (<2%)
Dysgeusia (taste perversion) (<2%)
Fever (<2%)
Headache (2-6%) [2]
Insomnia (<4%) 
Nervousness (<2%)
Pain (4%)
Paresthesias (<2%)
Seizures (<2%)
Somnolence (drowsiness) (<2%)
Tremor (<2%)
Vertigo (dizziness) (<3%)

Neuromuscular/Skeletal
Arthralgia (<5%)
Asthenia (fatigue) [2]
Back pain (<3%)
Bone or joint pain (2%)

Gastrointestinal/Hepatic
Abdominal pain (2-5%) [2]
Black stools (<2%)
Colitis (<2%)
Constipation (<3%) [2]
Diarrhea (2-6%) [2]
Dyspepsia (4–10%) [2]
Erectile dysfunction (<2%)
Esophagitis (<2%)
Flatulence (<3%)
Gastritis (<2%)
Gastroesophageal reflux (<2%)
Gastrointestinal bleeding [2]
Gastrointestinal perforation (<2%)
Gastrointestinal ulceration (<2%) [3]
Hematemesis (<2%)
Hepatitis (<2%)
Hepatotoxicity [6]
Nausea (3–7%) [4]
Pancreatitis (<2%)
Vomiting (<3%)

Respiratory
Asthma (<2%)

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Bronchospasm (<2%)
Cough (<2%)
Dyspnea (<2%)
Flu-like syndrome (2-3%)
Upper respiratory tract infection (<8%)

Endocrine/Metabolic
ALT increased (<2%)
Appetite increased (<2%)
AST increased (<2%)
Dehydration (<2%)
GGT increased (<2%)
Weight gain (<2%)
Weight loss (<2%)

Genitourinary
Albuminuria (<2%)
Hematuria (<2%)
Urinary frequency (<2%)
Urinary tract infection (<7%)

Renal
Nephrotoxicity [2]
Renal failure (<2%)

Hematologic
Anemia (<4%)
Leukopenia (<2%)

Otic
Tinnitus (<2%)

Ocular
Abnormal vision (<2%)
Conjunctivitis (<2%)

Other
Adverse effects (18%) [6]
Allergic reactions (<2%)

MELPHALAN

Trade names: Alkeran (GSK), Evomela (Spectrum)
Indications: Multiple myeloma, carcinomas
Class: Alkylating agent
Half-life: 90 minutes
Clinically important, potentially hazardous interactions with: aldesleukin, PEG-interferon, tasonermin

Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Angioedema [2]
Dermatitis [2]
Exanthes (4%) [4]
Hypersensitivity (<10%)
Pruritus (<10%)
Rash (<10%)
Toxicity [3]
Urticaria [3]
Vasculitis (<10%)
Vesiculation (<10%)

Hair
Alopecia (<10%) [2]

MENINGOCOCCAL GROUP B VACCINE

Trade names: Bexsero (Novartis), Trumenba (Wyeth)
Indications: Immunization to prevent invasive disease caused by Neisseria meningitidis serogroup B
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known

Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Central Nervous System
Chills (18–30%)
Fever (2–8%) [3]
Headache (41–57%)

Neuromuscular/Skeletal
Arthralgia (16–22%)
Asthenia (fatigue) (44–65%)
Myalgia/Myopathy (35–41%)

Gastrointestinal/Hepatic
Diarrhea (9–15%)
Vomiting (2–8%)

Respiratory
Upper respiratory tract infection [2]

Local
Injection-site edema (18–22%)
Injection-site erythema (15–20%)
Injection-site pain (85–93%) [2]

MENADIONE

See: www.drugerupiondata.com/drug/id/1961

MEMANTINE

Trade names: Ebixa (Lundbeck), Namenda (Forest)
Indications: Alzheimer’s disease, vascular dementia
Class: Adamantane, NMDA receptor antagonist
Half-life: 6080 hours

Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Peripheral edema (>2%)

Central Nervous System
Agitation [2]
Confusion [3]
Depression (>2%)
Gait instability [3]
Headache (6%) [3]
Vertigo (dizziness) (7%) [6]

Neuromuscular/Skeletal
Arthralgia (>2%)
Asthenia (fatigue) (2%) Back pain (3%)
Myoclonus [2]

Gastrointestinal/Hepatic
Constipation [2]
Diarrhea [2]
Vomiting [2]

Respiratory
Cough (4%)
Sneezing (>2%)
Nasopharyngitis [2]
MENINGOCOCCAL GROUPS C & Y & HAEMOPHILUS B TETANUS TOXOID CONJUGATE VACCINE

Synonym: HibMenCY
Trade name: Menhibrix (GSK)
Indications: Immunization to prevent invasive disease caused by Neisseria meningitidis serogroups C and Y and Haemophilus influenzae Type B
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: immunosuppressants
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: pediatric patients

Central Nervous System
Fever (11–26%)
Irritability (62–71%)
Sedation (49–63%)

Endocrine/Metabolic
Appetite decreased (30–34%)

Local
Injection-site edema (15–25%)
Injection-site erythema (21–36%)
Injection-site pain (<10%)

MEPHENYTOIN
See: www.drugeruptiondata.com/drug/id/430

MEPHOBARBITAL
See: www.drugeruptiondata.com/drug/id/431

MEPIVACAINE
See: www.drugeruptiondata.com/drug/id/1781

MEPOLIZUMAB
Trade name: Nucala (GSK)
Indications: Adjunctive treatment for severe eosinophilic asthma
Class: Interleukin-5 antagonist, Monoclonal antibody
Half-life: 16–22 days
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Insufficient evidence to inform drug-associated risk)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Eczema (3%)
Pruritus (3%)
Rash (3%)

Mucosal
Xerostomia (<10%)

Central Nervous System
Fever (>3%)
Headache (19%) [4]
Vertigo (dizziness) (>3%)

Neuromuscular/Skeletal
Asthenia (fatigue) (5%) [2]
Bone or joint pain (>3%)
Muscle spasm (3%)

Gastrointestinal/Hepatic
Abdominal pain (3%)
Gastroenteritis (>3%)
Nausea (>3%) [2]
Vomiting (>3%)

Respiratory
Asthma [2]
Bronchitis (>3%) [2]
Dyspnea (>3%)

Influenza (3%)
Nasopharyngitis (>3%) [3]
Pharyngitis (>3%)
Rhinitis (>3%)
Sinusitis [2]
Upper respiratory tract infection [2]

Genitourinary
Cystitis (>3%)
Urinary tract infection (3%)

Otic
Ear infection (>3%)

Other
Infection (>3%)
Toothache (>3%)

MEPENZOLATE
See: www.drugeruptiondata.com/drug/id/1029

MEPERIDINE
Synonym: pethidine
Trade name: Demerol (Sanofi-Aventis)
Indications: Pain
Class: Opiate agonist
Half-life: 34 hours
Clinically important, potentially hazardous interactions with: acyclovir, alcohol, amphetamines, barbiturates, CNS depressants, darunavir, duloxetine, fluoxetine, furazolidone, general anesthetics, glycopyrrolate, glycopyronium, indinavir, isocarboxazid, linezolid, lisdexamfetamine, lithium, MAO inhibitors, moclobemide, phenelzine, phenobarbital, phenothiazines, phenytoin, rasagiline, ritonavir, safinamide, selegiline, sibutramine, SSRIs, tipranavir, tranquilizers, valacyclovir
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Pruritus [3]

Hair
Alopecia [2]

Mucosal
Mucositis (<10%)

Central Nervous System
Fever [3]

Gastrointestinal System
Influenza (3%)
Nasopharyngitis (>3%) [3]
Pharyngitis (>3%)
Rhinitis (>3%)
Sinusitis [2]
Upper respiratory tract infection [2]

Genitourinary
Cystitis (>3%)
Urinary tract infection (3%)

Otic
Ear infection (>3%)

Other
Infection (>3%)
Toothache (>3%)

MEPHENYTOIN
See: www.drugeruptiondata.com/drug/id/430

MEPHOBARBITAL
See: www.drugeruptiondata.com/drug/id/431

MEPIVACAINE
See: www.drugeruptiondata.com/drug/id/1781

MEPOLIZUMAB
Trade name: Nucala (GSK)
Indications: Adjunctive treatment for severe eosinophilic asthma
Class: Interleukin-5 antagonist, Monoclonal antibody
Half-life: 16–22 days
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Insufficient evidence to inform drug-associated risk)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Eczema (3%)
Pruritus (3%)
Rash (>3%)

Mucosal
Xerostomia (<10%)

Central Nervous System
Catatonia [2]
Delirium [2]
Seizures [2]
Serotonin syndrome [7]

Local
Injection-site erythema [2]
Injection-site pain (<10%)

MEPHENYTOIN
See: www.drugeruptiondata.com/drug/id/430

MEPHOBARBITAL
See: www.drugeruptiondata.com/drug/id/431

MEPIVACAINE
See: www.drugeruptiondata.com/drug/id/1781

MEPOLIZUMAB
Trade name: Nucala (GSK)
Indications: Adjunctive treatment for severe eosinophilic asthma
Class: Interleukin-5 antagonist, Monoclonal antibody
Half-life: 16–22 days
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Insufficient evidence to inform drug-associated risk)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Eczema (3%)
Pruritus (3%)
Rash (3%)

Mucosal
Xerostomia (<10%)

Central Nervous System
Fever (>3%)
Headache (19%) [4]
Vertigo (dizziness) (>3%)

Neuromuscular/Skeletal
Asthenia (fatigue) (5%) [2]
Bone or joint pain (>3%)
Muscle spasm (3%)

Gastrointestinal/Hepatic
Abdominal pain (3%)
Gastroenteritis (>3%)
Nausea (>3%) [2]
Vomiting (>3%)

Respiratory
Asthma [2]
Bronchitis (>3%) [2]
Dyspnea (>3%)

Influenza (3%)
Nasopharyngitis (>3%) [3]
Pharyngitis (>3%)
Rhinitis (>3%)
Sinusitis [2]
Upper respiratory tract infection [2]

Genitourinary
Cystitis (>3%)
Urinary tract infection (3%)

Otic
Ear infection (>3%)

Other
Infection (>3%)
Toothache (>3%)

MEPROBAMATE
See: www.drugeruptiondata.com/drug/id/432

MEPTAZINOL
See: www.drugeruptiondata.com/drug/id/1340

MERCAPTOPURINE
Synonyms: 6-mercaptopurine; 6-MP
Trade name: Purinethol (Gate)
Indications: Leukemias
Class: Antimetabolite, Antineoplastic
Half-life: triphasic: 45 minutes; 2.5 hours; 10 hours
Clinically important, potentially hazardous interactions with: aldesleukin, allopurinol, balsalazide, febuxostat, influenza vaccine, mycophenolate, natalizumab, olsalazine, trimethoprim, typhoid vaccine, vaccines, yellow fever vaccine
Pregnancy category: D

Skin
Dermatitis (2%)
Hand-foot syndrome [3]
Hypersensitivity [2]
Neoplasms [2]
Peripheral edema [2]
Photosensitivity [2]
Pigmentation (<10%) [3]
Rash (<10%) [2]

Other
Inflammation (>3%) [3]
Nasopharyngitis (>3%) [3]
Pharyngitis (>3%)
Sinusitis [2]
Upper respiratory tract infection [2]
**Hematologic**
Leukopenia [2]
Myelosuppression [2]
Myelotoxicity [3]

**Other**
Death [2]

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**MEROPENEM**

**Trade name:** Meronem (AstraZeneca)

**Indications:** Aerobic and anaerobic infections, febrile neutropenia

**Class:** Antibiotic, carbapenem, Thienamycin

**Half-life:** 46 hours

**Clinically important, potentially hazardous interactions with:** oral contraceptives, probenecid, valproic acid

**Pregnancy category:** B

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**Skin**
AGEP [2]
Hypersensitivity [3]
Rash (2%) [6]

**Central Nervous System**
Headache (2%)
Seizures [7]

**Gastrointestinal/Hepatic**
Diarrhea [4]
Hepatotoxicity [3]
Nausea [2]
Vomiting [2]

**Endocrine/Metabolic**
ALT increased [3]
AST increased [3]

**Local**
Injection-site reactions (4%)
Injection-site phlebitis (4%)

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**MESALAMINE**

**Synonyms:** 5-aminosalicylic acid; 5-ASA; 5-ASA; mesalamine

**Trade name:** Asacol (Procter & Gamble), Canasa (Aptalis), Lialda (Shire), Pentasa (Shire), Rowasa (Solvay)

**Indications:** Ulcerative colitis

**Class:** Aminosalicylate

**Half-life:** 0.5–1.5 hours

**Clinically important, potentially hazardous interactions with:** azathioprine, NSAIDs, pantoprazole

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

**Skin**
Diaphoresis (3%)
Exanthems [3]
Hypersensitivity [8]
Lupus erythematosus [2]
Photosensitivity [3]
Rash (3%) [6]

**Hair**
Alopecia [6]

**Cardiovascular**
Cardiotoxicity [2]
Myocarditis [6]
Pericarditis [5]

**Central Nervous System**
Fever (<6%) [6]
Headache (2–25%) [5]
Pain (14%)
Vertigo (dizziness) (2–8%)

**Neuromuscular/Skeletal**
Myalgia/Myopathy (3%)

**Gastrointestinal/Hepatic**
Abdominal pain (<18%) [6]
Colitis (ulcerative / exacerbation) [3]
Diarrhea (2–8%) [4]
Eructation (belching) (16%)
Flatulence (<6%) [2]
Nausea (3–13%) [3]
Pancreatitis [20]
Vomiting (<5%) [2]

**Respiratory**
Eosinophilic pneumonia [4]
Pharyngitis (11%)
Pneumonia [5]
Pneumonitis [2]
Pulmonary toxicity [9]

**Renal**
Nephrotoxicity [6]

**Hematologic**
Anemia [2]

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**MEROPENEM & VABORBACTAM**

**Trade name:** Vabomere (Rempex)

**Indications:** Complicated urinary tract infections caused by susceptible bacteria

**Class:** Antibiotic, carbapenem (meropenem), Beta-lactamase inhibitor (vaborbactam)

**Half-life:** 1–2 hours

**Clinically important, potentially hazardous interactions with:** probenecid, valproic acid

**Pregnancy category:** N/A (Potential risk to fetus based on animal studies)

**Important contra-indications noted in the prescribing guidelines for:** pediatric patients

**Note:** Contra-indicated in patients with known tendency to drug-induced, hemolytic, or other anemias, or significantly impaired renal or hepatic function.

**Skin**
Hypersensitivity (2%)

**Central Nervous System**
Fever (2%)
Headache (9%)

**Gastrointestinal/Hepatic**
Diarrhea (3%)

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**MESNA**


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**MESORIDAZINE**


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**METAMIZOLE**

See: [www.drugeruptiondata.com/drug/id/1131](http://www.drugeruptiondata.com/drug/id/1131)

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**METAXALONE**

**Trade name:** Skelaxin (Elan)

**Indications:** Muscle spasm

**Class:** Central muscle relaxant

**Half-life:** 4–14 hours

**Clinically important, potentially hazardous interactions with:** alcohol, barbiturates, conivaptan, droperidol, interferon alfa, levomepromazine, St John's wort, tricyclic antidepressants

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with known tendency to drug-induced, hemolytic, or other anemias, or significantly impaired renal or hepatic function.

**Cardiovascular**
Tachycardia [2]

**Central Nervous System**
Agitation [2]
Serotonin syndrome [2]
Somnolence (drowsiness) [3]
Vertigo (dizziness) [3]

**Gastrointestinal/Hepatic**
Nausea [2]
Vomiting [2]

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**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with known tendency to drug-induced, hemolytic, or other anemias, or significantly impaired renal or hepatic function.

**Cardiovascular**
Tachycardia [2]

**Central Nervous System**
Agitation [2]
Serotonin syndrome [2]
Somnolence (drowsiness) [3]
Vertigo (dizziness) [3]

**Gastrointestinal/Hepatic**
Nausea [2]
Vomiting [2]
Lactic acidosis is a rare, but serious, metabolic complication that can occur due to metformin accumulation. Metformin is a biguanide antidiabetic drug that decreases hepatic glucose production and improves insulin sensitivity in peripheral tissues. It is used to treat type 2 diabetes mellitus, with or without metformin, and to improve glycemic control in type 2 diabetic patients who are also taking sulfonylureas. Metformin is also used in conjunction with other glucose-lowering agents in the management of type 2 diabetes mellitus. Metformin is a first-line medication for the management of type 2 diabetes mellitus. It is well tolerated and has a low risk of hypoglycemia. Metformin is available in several formulations, including tablets, capsules, and a sustained-release tablet. Metformin is a Pregnancy Category B drug. Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients. Note: Lactic acidosis is a rare, but serious, metabolic complication that can occur due to metformin accumulation. Avandamet is metformin and rosiglitazone; Glucovance is metformin and glyburide; Avandamet is metformin and rosiglitazone; metformin accumulation.

**METFORMIN**

**Trade names:** Avandamet (GSK), Fortamet (Andrx), Glucophage (Merck Serono), Glucovance (Merck Serono), Invokamet (Janssen), Janumet (Merck Sharpe & Dohme), Syndiary (Boehringer Ingelheim), Xigduo XR (AstraZeneca)

**Indications:** Diabetes

**Class:** Antidiabetic, Biguanide

**Half-life:** 6 hours

**Clinically important, potentially hazardous interactions with:** ACE inhibitors, acetylsalicylic, alcohol, amiloride, anabolic steroids, beta blockers, calcium channel blockers, captopril, cephalaxin, clarapril, cimetidine, corticosteroids, diazoxide, diclofenac, digoxin, disopyramide, diuretics, enalapril, estrogens, fosinopril, iodinated contrast agents, ivermectin, ketotifen, lanreotide, lisinopril, luteinizing hormone releasing hormone analogs, MAO inhibitors, morphine, nitric acid, octreotide, oral contraceptives, pegvisomant, phenothiazines, phenytoin, procainamide, prazosin, quinapril, quinidine, quinine, ramipril, ranitidine, somatropin, spironolactone, tetracyclines, tramadol, trandolapril, triamterene, trimethoprim, trospium, vancomycin, zonisamide

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Lactic acidosis is a rare, but serious, metabolic complication that can occur due to metformin accumulation. Avandamet is metformin and rosiglitazone; Glucovance is metformin and glyburide; Invokamet is metformin and canagliflozin; Janumet is metformin and sitagliptin; Syndiary is metformin and empagliflozin; Xigduo XR is metformin and dapagliflozin.

**Warning:** LACTIC ACIDOSIS

**Skin**
- Angioedema [2]
- Bullous pemphigoid [2]
- Erythema (transient) [3]
- Fixed eruption [2]
- Lichenoid eruption [2]
- Photosensitivity (<10%) [5]
- Rash (<10%) [4]
- Rash (10–35%) [10]
- Vertigo (dizziness) [<10%] [6]

**Central Nervous System**
- Anorexia [2]
- Appetite decreased [5]
- Depression [2]
- Dermatitis [2]
- Dizziness (<10%) [6]
- Gastrointestinal tract infection (<10%) [2]
- Headache (6%) [10]
- Hypersensitivity [6]
- Insomnia [2]

**Mucocutaneous**
- Arthralgia [5]
- Asthenia (fatigue) (9%) [2]
- Back pain [5]

**Gastrointestinal/Hepatic**
- Abdominal pain (6%) [5]
- Constipation [3]
- Diarrhea (10–35%) [11]
- Dyspepsia [5]
- Flatulence [2]
- Gastroenteritis [2]
- Hepatotoxicity [6]
- Nausea (7–26%) [25]
- Pancreatitis [5]
- Vomiting (7–26%) [12]

**Respiratory**
- Bronchitis [3]
- Dyspnea (<10%) [2]
- Infection [2]
- Nausea (7–26%) [25]
- Parotitis [5]
- Pneumonitis [6]
- Respiratory tract infection (<10%) [2]
- Sinusitis [2]
- Upper respiratory tract infection [6]

**Endocrine/Metabolic**
- Acidosis [22]
- Appetite decreased [5]
- Hypoglycemia [15]
- Weight gain [2]
- Weight loss [5]

**Genitourinary**
- Genital mycotic infections [8]
- Pollakiuria [3]
- Urinary tract infection [11]

**Renal**
- Nephrotoxicity [5]

**Hematologic**
- Anemia [2]

**Other**
- Adverse effects [24]
- Death [2]
- Vitamin B-12 deficiency [5]

**METHAMPHETAMINE**

**Trade name:** Desoxyn (Recordati)

**Indications:** Attention deficit disorder, obesity

**Class:** Amphetamine

**Half-life:** 45 hours

**Clinically important, potentially hazardous interactions with:** fluoxetine, fluvoxamine, MAO inhibitors, paroxetine hydrochloride, phenelzine, sertraline, tranylcypromine

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Warning:** POTENTIAL FOR ABUSE

**Skin**
- Diaphoresis (<10%)

**Mucosal**
- Xerostomia (<10%)

**Cardiovascular**
- Hypertension [3]
- Torsades de pointes [27]

**Central Nervous System**
- Hallucinations [2]
- Hyperalgesia [2]
- Neurotoxicity [2]
- Serotonin syndrome [2]
- Somnolence (drowsiness) [2]

**Neuromuscular/Skeletal**
- Dystonia [11]

**Respiratory**
- Respiratory depression [3]

**Genitourinary**
- Sexual dysfunction [2]

**Local**
- Injection-site pain (<10%)

**Other**
- Adverse effects [2]
- Death [14]

**METHADONE**

**Trade names:** Dolophine (Roxane), Methadone (Mallinckrodt)

**Indications:** Pain, narcotic addiction

**Class:** Opiate agonist

**Half-life:** 1525 hours

**Clinically important, potentially hazardous interactions with:** abacavir, amneppareiv, bocaprevir, citalopram, darunavir, delavirdine, dexamethasone, efavirenz, erythromycin, fluconazole, fluoxetine, interferon alfa, ketoconazole, linezolid, lopinavir, nelfinavir, nifedipine, paroxetine hydrochloride, PEG-interferon, quetiapine, ribociclib, rilpivirine, rilpivirine, safinamide, St John’s wort, tipranavir, voriconazole, zidovudine, zuclopenthixol

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: pediatric patients

**Note:** Methadone is not licensed for use in children though it can be employed for the management of neonatal opiate withdrawal syndrome.

**Skin**
- Diaphoresis (<48%) [4]
- Pruritus [2]
METHOTREXATE

Synonyms: amethopterin; MTX
Trade names: Rasuvo (Medac), Rheumatrex (Sada)

Indications: Carcinomas, leukemias, lymphomas, psoriasis, rheumatoid arthritis
Class: Antimetabolite, Disease-modifying antirheumatic drug (DMARD), Folic acid antagonist

Half-life: 310 hours
Clinically important, potentially hazardous interactions with: amines, acetylsalicylic acid, amiodarone, amoxicillin, ampicillin, aspirin, bacampicillin, bismuth, barbiturates, benzodiazepines, chloroquine, ciprofloxacin, clindamycin, clomethiazole, co-trimoxazole, cyclophosphamide, dapsone, dexamethasone, diclofenac, dicloxacillin, doxycycline, echinacea, etodolac, etoricoxib, famotidine, folic acid, fluoxetine, fluorquinolones, fluvoxamine, furosemide, gabapentin, ganciclovir, gentamicin, granisetron, hydrocortisone, ibuprofen, indomethacin, insulin, itraconazole, ketoprofen, ketorolac, leflunomide, leuprolide, linaclotide, loperamide, mephenytoin, meperidine, mesna, metoclopramide, metronidazole, mezipatin, methotrexate, methoxsalen, methylprednisolone, mizolastine, naproxen, natalizumab, NSAIDs, ondansetron, omeprazole, oxacillin, oxaprozin, oxetacillin, piperacillin, piperacillin/tazobactam, piroxicam, piritramide, pravastatin, propranolol, pristinamycin, probenecid, procarbazine, prilocaine, propafenone, progesterone, proton pump inhibitors, pyrazinamide, quinolones, ranitidine, ramipril, rifampin, rifaximin, rituximab, rituximab, salsalate, saquinavir, saxagliptin, sevelamer, sirolimus, sulfadiazine, sulfamethoxazole, sulindac, sulfonylureas, sunscreens, sucralfate, tamoxifen, tamsulosin, tazosartan, ticagrelor, ticlopidine, tolbutamide, tol AZ, tolvaptan, tosylamine, tocainide, tetracyclines, thalidomide, theophylline, thimerosal, thiopurines, tigecycline, trimethoprim, trimetrexate, trolamine, troleandomycin, trimeprazine, triptans, trimethoprim/sulfamethoxazole, trimethoprim-sulfamethoxazole, tropicamide, trospium, trospium chloride, tryptophan, usual treatment, vancomycin, varenicline, vedolizumab, verapamil, vildagliptin, vinblastine, vinorelbine, voriconazole, warfarin

Pregnancy category: D
Skin
Aplasia cutis congenita [4]
Exanthems (<15%) [5]
Hypersensitivity [2]
Lupus erythematosus (<10%) [10]
Pruritus (<5%) [4]
Rash (>10%) [2]
Vasculitis [6]

Central Nervous System
Ageusia (<10%) [9]
Neoplasms [2]
Pigmentation (<10%) [8]
Photosensitivity (5%) [9]
Warning: SEVERE TOXIC REACTIONS, INCLUDING EMBRYOFETAL TOXICITY AND DEATH

Skull
Abscess (peritoneal) [2]
Acral erythema [13]
Anaphylactoid reactions/Anaphylaxis (<10%) [9]
Bullous acral erythema [2]
Bullous dermatitis [4]
Capillaria [2]
Carcinoma [2]
Dermatitis [2]
Edema [2]
Erosion of psoriatic plaques [8]
Erythema (>10%) [9]
Erythema multiforme [4]
Erythrodema [2]
Exanthems (15%) [5]
Folliculitis [2]
Hand-foot syndrome [3]
Herpes simplex [2]
Herpes zoster [7]
Hypersensitivity [4]
Lymphoma [5]
Malignant lymphoma [4]
Molluscum contagiosum [2]
Necrosis [6]
Neoplasms [2]
Nodal erosion [15]
Non-Hodgkin's lymphoma [2]
Photosensitivity (5%) [9]
Pigmentation (<10%) [8]
Pruritus (<5%) [8]
Pseudolymphoma [10]
Radiation recall dermatitis [7]
Rash (<3%) [11]
Squamous cell carcinoma [2]
Stevens-Johnson syndrome [4]
Sunburn (activation) [6]
Toxic epidermal necrolysis [8]

Cardiovascular
Hypertension [2]
Pericardial effusion [2]
Pericarditis [3]

Central Nervous System
Encephalopathy [5]
Fever [5]
Headache [16]
Leukoencephalopathy [61]
Malignant [2]
Neurotoxicity [11]
Vertigo (dizziness) [2]

Gastrointestinal/Hepatic
Abdominal pain [9]
Colitis [2]
Diarrhea [12]
Dyspepsia [3]
Gastroenteritis [2]
Hepatic steatosis [2]
Hepatitis [3]
Hepatotoxicity [54]
Nausea [28]
Vomiting [12]

Respiratory
Cough [3]
Nasopharyngitis [6]
Pharyngitis [2]
Pneumonia [6]

Other
Bone or joint pain [2]
Dysgeusia [13]
Hypoglycemia [4]
Mouth ulceration [5]
Nasopharyngitis [6]
Cough [3]
METHOTREXATE

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Pneumonitis [8]
Pulmonary toxicity [9]
Upper respiratory tract infection [8]

Endocrine/Metabolic
ALT increased [7]
AST increased [3]
Diabetes mellitus [2]
Gynecomastia [8]
Hypoaalbuminemia [2]
Weight gain [2]

Genitourinary
Urinary tract infection [4]

Renal
Nephrotoxicity [25]
Renal failure [2]

Hematologic
Anemia [8]
Febrile neutropenia [3]
Hemototoxicity [2]
Leukopenia [10]
Myelosuppression [6]
Myelotoxicity [4]
Neutropenia [9]
Pancytopenia [9]
Thrombocytopenia [9]

Ocular
Cotton wool spots [2]
Optic neuropathy [2]

Local
Injection-site reactions [2]

Other
Adverse effects [38]
Death [14]
Hodgkin’s disease (nodular sclerosing) [2]
Infection [23]
Side effects [3]
Teratogenicity [3]

METHOXSALLEN

Trade name: Oxsoralen (Valeant)
Indications: Psoriasis, vitiligo
Class: CYP1A2 inhibitor, Psoralen, Repigmenting agent
Half-life: 1.1 hours

Clinically important, potentially hazardous interactions with: caffeine, chloroquine, cyclosporine, fluoroquinolones, phenothiazines, sulfonamides

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: pediatric patients
Note: Potential hazards of long-term therapy include the possibilities of carcinogenicity and cataractogenicity.

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Basal cell carcinoma [3]
Bullous dermatitis (with UVA) [4]
 Burning (<10%) [3]
Carcinoma [5]
Dermatitis [4]
Edema (<10%)
Ephelides (<10%) [5]
Erythema (<10%)
Exanths [2]
Herpes zoster [2]
Hypomelanosis (<10%)
Lupus erythematosus [3]
Photosensitivity [9]
Photototoxicity [7]
Pigmentation [3]
Porokeratosis (actinic) [3]
Pruritus (>10%)
Rash (<10%)
Squamous cell carcinoma [4]
Tumors [2]
Vitiligo [2]

Hair
Hypertrichosis [3]

Nails
Nail pigmentation [5]
Photo-onycholysis [5]

Mucosal
Cheilitis (<10%)

Central Nervous System
Pain [2]

METHOXYFLURANE
See: www.drugeruptiondata.com/drug/id/881

METHSUXIMIDE
See: www.drugeruptiondata.com/drug/id/450

METHYCLOTHIAZIDE
See: www.drugeruptiondata.com/drug/id/451

METHYL SALICYLATE
See: www.drugeruptiondata.com/drug/id/2055

METHYLDOPA

Trade name: Aldoril (Merck)
Indications: Hypertension
Class: Adrenergic alpha-receptor agonist
Half-life: 1.7 hours

Clinically important, potentially hazardous interactions with: acetebolol, alfluzosin, bromocriptine, captopril, cilazapril, cyclophosphiazide, diclofenac, enalapril, ephedrine, fosinopril, irbesartan, levodopa, leomevopromazine, linezolid, lisinopril, meloxicam, olmesartan, quinapril, ramipril, risperidone, rotigotine, trandolapril, triamcinolone, zucloptentixil

Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: Aldoril is methyldopa and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin
Eczema [3]
Erythema multiforme [2]
Exanths (3%) [3]
Lichen planus [3]
Lichenoid eruption [9]
Lupus erythematosus [14]
Peripheral edema (>10%)
Photosensitivity [2]
Pigmentation [3]
Seborrheic dermatitis [3]
Urticaria [2]

Mucosal
Oral lichenoid eruption [3]
Oral ulceration [6]
Xerostomia (<10%)

Central Nervous System
Anxiety (<10%)
Depression (<10%)
Dyskinesia [2]
Fever (<10%)
Headache (<10%)
Nightmares (<10%)
Parkinsonism [2]

Gastrointestinal/Hepatic
Hepatitis [2]
Hepatotoxicity [8]

Endocrine/Metabolic
Amenorrhea [2]
Galactorrhea [4]

Hematologic
Hemolytic anemia [2]

METHYLERGONOVINE
See: www.drugeruptiondata.com/drug/id/1871

METHYLNALTREXONE
See: www.drugeruptiondata.com/drug/id/2907

METHYLPHENIDATE

Trade names: Concerta (Janssen), Metadate CD (Celltech), Methylin (Mallinckrodt), Ritalin (Novartis)
Indications: Attention deficit disorder, narcolepsy
Class: Amphetamine
Half-life: 24 hours

Clinically important, potentially hazardous interactions with: amitriptyline, benazepril, bupropion, captopril, cilostamide, cyclophosphamide, enalapril, escitalopram, irbesartan, linezolid, lisinopril, lurasidone, MAO inhibitors, olmesartan, paliperidone, pantoprazole, paroxetine hydrochloride, phenylbutazone, pimozide, quinapril, safinamide, ziprasidone

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Warning: ABUSE AND DEPENDENCE
Arthralgias, asthma, dermatoses, 2.5–3.5 hours
Hypogonadism, impotence, Vascular (migraine) headaches 10 hours
Hallucinogen, Psychotomimetic
Corticosteroid, systemic 2018 by Taylor & Francis Group, LLC 181
12–36 hours; 2–4 hours (plasma)
Androgen

Other
Ocular
Endocrine/Metabolic
Respiratory
Gastrointestinal/Hepatic
Neuromuscular/Skeletal
Central Nervous System
Cardiovascular
Mucosal
Skin

Litt's Drug Eruption & Reaction Manual METHYSERGIDE

Skin
Angioedema [2]
Exanthema [2]
Exfoliative dermatitis [9]
Hypersensitivity (<10%)
Leukoderma [2]

Mucosal
Xerostomia [7]

Cardiovascular
Cardiotoxicity [3]
Pallpitation [4]
QT prolongation [2]
Tachycardia [5]

Central Nervous System
Agitation [2]
Anorexia [7]
Anxiety [7]
Compulsions [2]
Depression [2]
Fever [2]
Hallucinations [6]
Headache [12]
Insomnia [14]
Irritability [6]
Mood changes [2]
Nervousness [2]
Neurotoxicity [3]
Seizures [3]
Somnolence (drowsiness) [3]
Suicidal ideation [2]
Tic disorder [6]
Tremor [2]
Vertigo (dizziness) [5]

Neuromuscular/Skeletal
Asthenia (fatigue) [2]
Dystonia [2]

Gastrointestinal/Hepatic
Abdominal pain [12]
Nausea [7]
Vomiting [5]

Respiratory
Cough [3]
Nasopharyngitis [4]
Upper respiratory tract infection [3]

Endocrine/Metabolic
Appetite decreased [15]
Weight loss [9]

Genitourinary
Priapism [5]

Ocular
Hallucinations, visual [6]

Other
Adverse effects [7]
Bruxism [2]

METHYL-PREDNISOLONE

Trade names: Advantan (Intendis), Medrol (Pharmacia), Solu-Medrol (Pharmacia)
Indications: Arthralgia, asthma, dermatoses, inflammatory ocular conditions, rhinitis
Class: Corticosteroid, systemic
Half-life: 12–36 hours; 2–4 hours (plasma)
Clinically important, potentially hazardous interactions with: aminophylline, aprepitant, aspirin, carbamazepine, clarithromycin, conivaptan, cyclosporine, daclizumab, darunavir, delavirdine, erythromycin, indinavir, itraconazole, ketoconazole, live vaccines, oral contraceptives, phenobarbital, phenytoin, rifampin, telaprevir, telithromycin, troleandomycin, voriconazole, warfarin

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis [15]
Dermatitis [5]
Hypersensitivity [3]
Pruritus [2]
Rash [2]
Urticaria [5]

Cardiovascular
Arrhythmias [2]
Bradycardia [6]
Flushing [2]
Hypertension [6]
Myocardial infarction [2]
Myocardial toxicity [2]

Central Nervous System
Depression [5]
Dysgeusia (taste perversion) [4]
Neurotoxicity [2]
Psychosis [3]
Seizures [3]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Arthralgia [2]
Myalgia/Myopathy [4]
Osteonecrosis [9]
Osteoporosis [2]
Tendinopathy/Tendon rupture [2]

Gastrointestinal/Hepatic
Abdominal pain [3]
Gastrointestinal bleeding [2]
Hepatotoxicity [8]

Respiratory
Dysphonia [2]

Endocrine/Metabolic
Hyperglycemia [4]

Ocular
Cataract [3]
Glaucoma [2]

Other
Adverse effects [7]
Allergic reactions [3]
Death [2]

Hiccups [2]
Infection [7]

METHYL-TESTOSTERONE

Trade names: Androgel (Valleant), Estratest (Solvay), Testred (Valeant)
Indications: Hypogonadism, impotence, metastatic breast cancer
Class: Androgen
Half-life: 2.5–3.5 hours
Clinically important, potentially hazardous interactions with: anticoagulants, cyclosporine, warfarin

Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Acneform eruption (>10%) [12]
Edema (>10%)

Hair
Alopecia [2]
Hirsutism (in females) (<10%) [9]

Cardiovascular
Flushing (<5%)

Endocrine/Metabolic
Mastodynia (10%)

Genitourinary
Priapism (>10%)

METHYSERGIDE

Trade name: Sansert (Novartis)
Indications: Vascular (migraine) headaches
Class: Hallucinogenic, Psychotomimetic
Half-life: 10 hours
Clinically important, potentially hazardous interactions with: acetylsalicylic acid, almotriptan, amperozide, azithromycin, chlorotetracycline, clarithromycin, delavirdine, demeclocycline, doxycycline, efavirenz, elterix, erythromycin, firostratin, indinavir, iraconazole, lymecycline, minocycline, naratriptan, nelfinavir, oxytetracycline, ritonavir, rizatriptan, saquinavir, sibutramine, sumatriptan, telithromycin, tetracycline, tigecycline, troleandomycin, voriconazole, zolmitriptan

Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Lupus erythematosus [2]
Peripheral edema (<10%)
Rash (<10%)
Scleroderma [4]

Hair
Alopecia [4]

Cardiovascular
Valvulopathy [3]
METIPRANOLOL
See: www.drugeruptiondata.com/drug/id/998

METOCLOPRAMIDE
See: www.drugeruptiondata.com/drug/id/456

METOLAZONE
See: www.drugeruptiondata.com/drug/id/457

METOPROLOL
Trade names: Lopressor (Novartis), Toprol XL (AstraZeneca)
Indications: Hypertension, angina pectoris
Class: Adrenergic beta-receptor agonist, Antiarrhythmic class II
Half-life: 34 hours
Clinically important, potentially hazardous interactions with: cinacalcet, clonidine, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, dronedarone, epinephrine, mirabegron, paroxetine hydrochloride, propoxyphene, tadalafil, telithromycin, tipranavir, verapamil
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; pediatric patients
Note: Cutaneous side effects of beta-receptor blockers are clinically polymorphous. They apparently appear after several months of continuous therapy.

Skin
Eczema [2]
Erythroderma [2]
Lichenoid eruption [4]
Pruritus (<5%) [3]
Raynaud’s phenomenon [3]

Cardiovascular
Arrhythmias [2]
Bradyarrhythmia [8]
Hypotension [4]

Central Nervous System
Delirium [3]
Hallucinations [2]
Sleep disturbances [2]

Neuromuscular/Skeletal
Asthenia (fatigue) [2]

Gastrointestinal/Hepatic
Gastrointestinal disorder [2]

Genitourinary
Peyronie’s disease [5]

Ocular
Hallucinations, visual [3]

METRONIDAZOLE
Trade names: Flagyl (Pfizer), Metrocream (Galderma), MetroGel (Galderma), Metrolotion (Galderma), Noritate (Dermik), Vandazole (Upsher-Smith)
Indications: Various infections caused by susceptible organisms, rosacea
Class: Antibacterial, Antibiotic, nitroimidazole
Half-life: 612 hours
Clinically important, potentially hazardous interactions with: alcohol, anisindone, anticoagulants, astemizole, barbiturates, busulfan, cimetidine, dicumarol, disulfiram, dronabinol, fluorocein, lidocaine, lignocaine, ropinar, salicylates, simvastatin, sulphasalazine, trichomoniasis, warfarin
Pregnancy category: B (in patients with trichomoniasis, metronidazole is contra-indicated during the first trimester of pregnancy)
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
AGEP [2]
Dermatitis [2]
Exanthems (<5%) [2]
Fixed eruption [14]
Pruritus (<10%) [6]
Stevens-Johnson syndrome [4]
Toxic epidermal necrolysis [2]
Urticaria [4]

Mucosal
Glossitis [2]
Tongue furry [2]

Cardiovascular
Flushing [2]
Hypertension [2]
Torsades de pointes [2]

Central Nervous System
Cerebellar syndrome [6]
Dysgeusia (taste perversion) [8]
Encephalopathy [22]
Fever [7]
Headache (7%) [7]
Neurotoxicity [13]
Peripheral neuropathy [2]
Psychosis [3]

Neuromuscular/Skeletal
Ataxia [2]
Gastrointestinal/Hepatic
Abdominal pain (5%) [9]
Diarrhea [15]
Hepatotoxicity [5]
Nausea [19]
Pancreatitis [6]
Vomiting [14]

Endocrine/Metabolic
ALT increased [2]
AST increased [2]

Genitourinary
Vulvovaginal candidiasis [2]

Hematologic
Anemia [2]
Bleeding [2]

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OTC
Hearing loss [2]

OCULAR
Vision loss [2]

OTHER
Adverse effects [12]
Death [3]
Infection (fungal) (12%)

MEXILETINE
See: www.drugeruptiondata.com/drug/id/460

MEZLOCILLIN
See: www.drugeruptiondata.com/drug/id/461

MIANSERIN
See: www.drugeruptiondata.com/drug/id/1270

MICAFUNGIN
Trade name: Mycamine (Astellas)
Indications: Invasive candidiasis, esophageal candidiasis
Class: Antifungal
Half-life: 11–21 hours
Clinically important, potentially hazardous interactions with: anagrelide, amphotericin B, conivaptan, cyclosporine, itraconazole, nifedipine, sirolimus
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Peripheral edema (7%)
Pruritus (6%)
Urticaria (6%)

Mucosal
Epistaxis (nosebleed) (6%)
Mucosal inflammation (14%)

Cardiovascular
Bradyarrhythmia (3%)
Hypertension (7%)
Hypotension (9%)
Phlebitis (6%)
Tachycardia (8%)

Central Nervous System
Anorexia (6%)
Anxiety (6%)
Fever (20%) [6]
Headache (16%) [3]
Insomnia (10%)
Rigors (9%)
Shock (8%)

MICAFUNGIN
Trade name: Mycamine (Astellas)
Indications: Invasive candidiasis, esophageal candidiasis
Class: Antifungal
Half-life: 11–21 hours
Clinically important, potentially hazardous interactions with: anagrelide, amphotericin B, conivaptan, cyclosporine, itraconazole, nifedipine, sirolimus
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Peripheral edema (7%)
Pruritus (6%)
Urticaria (6%)

Mucosal
Epistaxis (nosebleed) (6%)
Mucosal inflammation (14%)

Cardiovascular
Bradyarrhythmia (3%)
Hypertension (7%)
Hypotension (9%)
Phlebitis (6%)
Tachycardia (8%)

Central Nervous System
Anorexia (6%)
Anxiety (6%)
Fever (20%) [6]
Headache (16%) [3]
Insomnia (10%)
Rigors (9%)
Shock (8%)

Neuromuscular/Skeletal
Asthenia (fatigue) [6]
Back pain (5%)
MIDOSTAURIN

Trade name: Rydapt (Novartis)

Indications: Aggressive systemic mastocytosis, systemic mastocytosis with associated hematological neoplasm, or mast cell leukemia, acute myeloid leukemia (FLT3 mutation-positive) in combination with cytarabine and daunorubicin induction and cytarabine consolidation

Class: Multikinase inhibitor

Half-life: 21 hours

Clinically important, potentially hazardous interactions with: boceprevir, carbamazepine, clarithromycin, cobicistat, conivaptan, danoprevir, dasabuvir/ombitasvir/paritaprevir/ritonavir, diltiazem, elvitegravir, enalapril, grapefruit juice, indinavir, irinotecan, ketoconazole, lopinavir, mitotane, nefazodone, nevirapine, ombitasvir/paritaprevir/ritonavir, phenytoin, posaconazole, rifampin, ritonavir, saquinavir, St John’s wort, stong CYP3A inducers and inhibitors, tipranavir, trofonealnodinyc, voriconazole

Pregnancy category: N/A (May cause fetal toxicity based on findings in animal studies)

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Cellulitis (5%) Edema (40%) Erysipelas (5%) Hematoma (6%) Herpes zoster (10%) Hypersensitivity (4%) Rash (14%)

Mucosal
Epistaxis (nosebleed) (12%) Oropharyngeal pain (4%)

Cardiovascular
Cardiac failure (6%) Cardiotoxicity [2] Hypotension (9%) Myocardial infarction (4%) Myocardial ischemia (4%) Pulmonary edema (3%) QT prolongation (11%) [3]

Central Nervous System
Altered mental status (4%) Chills (5%) Fever (27%) Headache (26%) Impaired concentration (7%) Insomnia (11%) Tremor (6%) Vertigo (dizziness) (13%)

Neuromuscular/Skeletal
Arthralgia (19%) Asthenia (fatigue) (34%) [4] Bone or joint pain (35%)

Gastrointestinal/Hepatic
Abdominal pain (34%)
**MIFOSTAT**

**Trade name:** Korlym (Corcept), Mifeprex (Danco)

**Indications:** Medical termination of intrauterine pregnancy (Mifeprex), Cushing’s syndrome in patients with Type II diabetes (Korlym)

**Class:** Corticosteroid antagonist, CYP3A4 inhibitor, Progestogen antagonist

**Half-life:** 85 hours

**Clinically important, potentially hazardous interactions with:** amprosul, aprepitant, azathioprine, beceprevir, buspirone, carbamazepine, ciclesonide, ciprofloxacin, clarithromycin, conivaptan, cyclosporine, darunavir, diltiazem, efavirenz, ergotamine, erythromycin, fentanyl, fluconazole, fosamprenavir, grapefruit juice, imatinib, indinavir, iraconazole, lopinavir, lovastatin, mifepristone, nefazodone, neflinavir, NSAIDs, oral contraceptives, phenobarbital, phenytoin, pimozone, posaconazole, quinidine, repaglinide, rifabutin, rifampin, rilpamidine, ritonavir, ritonavir, saquinavir, simvastatin, sirolimus, St John’s wort, tacrolimus, telaprevir, telithromycin, tenoxicam, triamcinolone, verapamil, voriconazole, warfarin

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in pregnancy, with concurrent use of simvastatin or lovastatin and CYP3A substrates with narrow therapeutic range or long-term corticosteroid use, and in women with a history of unexplained vaginal bleeding or with endometrial hyperplasia with atypia or endometrial carcinoma.

**Warning:** TERMINATION OF PREGNANCY

**Skin**
- Edema (5–10%)
- Peripher edema (26%)
- Pruritis (4%)
- Rash (4%)

**Mucosal**
- Xerostomia (18%)

**Cardiovascular**
- Chest pain (5–10%)
- Hypertension (24%)

**Central Nervous System**
- Anorexia (10%)
- Anxiety (10%)
- Chills (338%)
- Fever (4%)
- Headache (2–44%)
- Insomnia (5–10%)
- Pain (14%)
- Somnolence (drowsiness) (10%)
- Vertigo (dizziness) (<22%)

**Neuromuscular/Skeletal**
- Arthralgia (30%)
- Asthenia (fatigue) (<48%)
- Back pain (9–16%)
- Myalgia/Myopathy (14%)
- Pain in extremities (12%)

**Gastrointestinal/Hepatic**
- Abdominal pain (5–89%) [2]
- Constipation (10%)
- Diarrhea (12–20%)
- Gastroesophageal reflux (5–10%)
- Nausea (43–61%)
- Vomiting (16–26%)

**Respiratory**
- Dyspnea (16%)
- Nasopharyngitis (12%)
- Sinusitis (14%)

**Endocrine/Metabolic**
- Adrenal insufficiency (4%)
- Appetite decreased (20%)
- Hypoglycemia (5–10%)
- Hypokalemia (44%) [2]

**Genitourinary**
- Metrorrhagia (5–10%)
- Uterine pain (83%)
- Vaginal bleeding (5–10%)
- Vaginitis (3%)

**Other**
- Dipia (thirst) (5–10%)

**MIGLITOL**

See: www.drugeruptiondata.com/drug/id/466

**MIGLUSTAT**

See: www.drugeruptiondata.com/drug/id/1006

**MILNACIPRAN**

**Trade name:** Savella (Forest)

**Indications:** Fibromyalgia

**Class:** Antidepressant, Selective norepinephrine reuptake inhibitor

**Half-life:** 6–8 hours

**Clinically important, potentially hazardous interactions with:** alcohol, alpha / beta agonists, antipsychotics, aspirin, clomipramine, clonidine, CNS-active drugs, digoxin, droperidol, epinephrine, levomepromazine, lithium, MAO inhibitors, norepinephrine, NSAIDs, serotonergic drugs, sibutramine, St John’s wort, tryptophan, vitamin K antagonists

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with uncontrolled narrow-angle glaucoma.

**Warning:** SUICIDALITY AND ANTIDEPRESSANT DRUGS

**Skin**
- Hot flashes (12%)
- Hyperhidrosis (9%) [6]
- Pruritis (2%)
- Rash (4%)

**Mucosal**
- Xerostomia (5%)

**Cardiovascular**
- Chest pain (2%)
- Flushing (4%)
- Hypertension (4%) [4]
- Palpitation (7%)
- Tachycardia (2%) [2]

**Central Nervous System**
- Anxiety (3%)
- Chills (2%)
- Headache (17%) [7]
- Hypoesthesia (2%)
- Insomnia (12%) [2]
- Migraine (4%)
- Moxifloxacin (3%)
- Serotonin syndrome [2]
- Tremor (2%)
- Vertigo (dizziness) (10%) [3]

**Gastrointestinal/Hepatic**
- Abdominal pain (3%) [2]
- Constipation (15%) [6]
- Nausea (39%) [17]
- Vomiting (7%)
Respiratory
Dyspnea (2%)
Upper respiratory tract infection (6%)
Endocrine/Metabolic
Appetite decreased (2%)
Genitourinary
Dysuria (>2%) [2]
Ejaculatory dysfunction (>2%) [2]
Ocular
Vision blurred (2%)
Other
Adverse effects [3]

**MILRINONE**

Trade name: Primacor (Sanofi-Aventis)
Indications: Severe congestive heart failure unresponsive to conventional maintenance therapy, acute heart failure, including low output states following cardiac surgery
Class: Phosphodiesterase inhibitor
Half-life: 2.3 hours
Clinically important, potentially hazardous interactions with: anagrelide
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Cardiovascular
Hypotension (<10%) [3]
Supraventricular arrhythmias (<10%) Vasodilation [2]
Ventricular tachycardia (<10%)
Central Nervous System
Headache (<10%)

**MILTEFOSINE**

See: www.drugeruptiondata.com/drug/id/1336

**MINOCYCLINE**

Trade names: Dynacin (Medicis), Minocin (Wyeth), Solodyn (Medicis)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, tetracycline, Disease-modifying antirheumatic drug (DMARD)
Half-life: 1123 hours
Clinically important, potentially hazardous interactions with: acitretin, aluminum, amoxicillin, ampicillin, antacids, bacampicillin, BCG vaccine, bismuth, carbenicillin, cloxacillin, coumarins, digoxin, ergotamine, estradiol, estrogens, isoretinoin, kaolin, magnesium salts, methotrexate, methoxyflurane, methylergide, mezlocillin, nafcillin, oral iron, oral typhoid vaccine, oxacillin, penicillin G, penicillin V, penicillins, phenindione, pipercillin, quinapril, retinoids, St John's wort, strontium ranelate, sucralfate, sulfonyleurea, ticarcillin, tripotassium dicitratobismuthate, vitamin A, zinc

**Pregnancy category:** D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis [3]
Angioedema [2]
Candidiasis [2]
Cellulitis [2]
DRESS syndrome [14]
Erythema multiforme [2]
Erythema nodosum [2]
Exanthems [5]
Exfoliative dermatitis [3]
Fixed eruption [8]
Folliculitis [2]
Hypersensitivity [25]
Livedo reticularis [3]
Lupus erythematosus [50]
Photosensitivity (<10%) [9]
Pigmentation [123]
Pruritus [7]
Rash [9]
Raynaud’s phenomenon [2]
Serum sickness [4]
Serum sickness-like reaction (35%) [6]
Stevens-Johnson syndrome [2]
Sweet’s syndrome [4]
Urticaria [9]
Vasculitis [13]

Hair
Alopecia [2]

Nails
Nail pigmentation (<5%) [19]

Mucosal
Black tongue [2]
Gingival pigmentation (8%) [2]
Oral pigmentation (7%) [22]

Cardiovascular
Polyarteritis nodosa [12]

Central Nervous System
Fever [2]
Headache [6]
Intracranial pressure increased [4]
Pseudotumor cerebri [14]
Vertigo (dizziness) [8]

Neuromuscular/Skeletal
Arthralgia [6]
Asthenia (fatigue) [4]
Black bone disease [6]
Musculature [Myopathy] [7]

Gastrointestinal/Hepatic
Abdominal pain [2]
Diarrhea [2]
Hepatitis [10]
Hepatotoxicity [20]
Nausea [5]
Pancreatitis [2]
Vomiting [3]

Respiratory
Eosinophilic pneumonia [5]
Pneumonitis [2]

Endocrine/Metabolic
Black thyroid syndrome [4]
Galactorrhea (black) [2]
Thyroid dysfunction [2]

Otic
Tinnitus [2]

Ocular
 Conjunctival pigmentation [2]
Diplopia [2]
Papilledema [2]
Scleral pigmentation [5]

Other
Adverse effects [4]
Tooth pigmentation (primarily in children) (>10%) [22]

**MINOXIDIL**

Trade name: Loniten (Par), Rogaine (Pfizer) (topical)
Indications: Hypertension, androgenetic alopecia
Class: Vasodilator
Half-life: 4.2 hours
Clinically important, potentially hazardous interactions with: acebutolol, alcohol, alfluzosin, captopril, cilazapril, didofenac, enalapril, fosinopril, gauethidine, levodopa, levomepromazine, lisinopril, meloxicam, olmesartan, quinapril, ramipril, trandolapril, triamcinolone, trifluoperazine
Pregnancy category: C
Note: Topical [T].

Skin
Bullous dermatitis [2]
Dermatitis (T) (7%) [17]
Ecema [2]
Edema (T) (>10%) [2]
Exanthems [4]
Lupus erythematosus [3]
Peripheral edema (7%) Pruritus [T] [10]
Stevens-Johnson syndrome [2]

Hair
Alopecia [T] [2]

Nails
Nail pigmentation [22]

Mucosal
Black tongue [2]

Cardiovascular
Fever [2]
Headache [6]
Intracranial pressure increased [4]
Pseudotumor cerebri [14]
Vertigo (dizziness) [8]

Neuromuscular/Skeletal
Asthenia (fatigue) [4]
Black bone disease [6]

Gastrointestinal/Hepatic
Abdominal pain [2]
Diarrhea [2]
Hepatitis [10]

Respiratory
Eosinophilic pneumonia [5]
Pneumonitis [2]

Endocrine/Metabolic
Black thyroid syndrome [4]
MIRABEGRON

Trade name: Myrbetriq (Astellas)
Indications: Overactive bladder
Class: Beta-3 adrenergic agonist
Half-life: 50 hours

Clinically important, potentially hazardous interactions with: antimuscarinics, desipramine, digoxin, flecainide, metoprolol, propafenone, thioridazine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Mucosal
Xerostomia (3%) [3]

Cardiovascular
Hypertension (8–11%) [7]
Tachycardia (<2%) [3]

Central Nervous System
Headache (2–4%) [4]
Vertigo (dizziness) (3%) [3]

Neuromuscular/Skeletal
Arthralgia (<2%)
Back pain (3%)

Gastrointestinal/Hepatic
Constipation (2–3%) [4]
Diarrhea (<2%) [3]
Gastrointestinal disorder [2]

Respiratory
Influenza [3]
Nasopharyngitis (4%) [2]
Influenza (3%)

Other
Adverse effects [3]

MIRTAZAPINE

Trade name: Remeron (Organon)
Indications: Depression
Class: Adrenergic alpha-receptor agonist, Antidepressant, tetracyclic
Half-life: 2040 hours

Clinically important, potentially hazardous interactions with: linezolid, tapentadol, venlafaxine

Pregnancy category: C

Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
Diaphoresis [2]
Edema (<10%) [2]
Peripheral edema (<10%) [2]
Pigmentation [2]
Rash (<10%)

Mucosal
Glossitis (<10%)
Xerostomia (23%) [3]

Central Nervous System
Abnormal dreams (4%)
Anorexia (<10%)
Cognitive impairment [2]
Headache [2]
Mania [2]
Neurotoxicity [3]
Nightmares [2]
Restless legs syndrome [9]
Sedation [3]
Seizures [3]
Serotonin syndrome [7]
Somnolence (drowsiness) (54%) [10]
Tremor (<10%) [2]
Vertigo (dizziness) (7%) [2]

Neuromuscular/Skeletal
Arthralgia [4]
Asystenlia (fatigue) [7]
Myalgia/Myopathy (<10%)
Rhabdomyolysis [4]

Gastrointestinal/Hepatic
Abdominal pain (<10%)
Constipation (<10%) [2]
Hepatotoxicity [3]
Pancreatitis [2]
Vomiting (<10%)

Respiratory
Flu-like syndrome (<10%)

Endocrine/Metabolic
ALT increased (2%)
Appetite increased (12%) [2]
Galactorrhea [2]
Gynecomastia [2]

Other
Adverse effects [2]

MISOPROSTOL

Trade names: Arthrotec (Pfizer), Cytotec (Pfizer)
Indications: Prevention of NSAID-induced ulcer
Class: Corticosteroid antagonist, Progestogen antagonist
Half-life: 2040 minutes

Clinically important, potentially hazardous interactions with: none known

Pregnancy category:

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Arthrotec is diclofenac and misoprostol.

Skin
Anaphylactoid reactions/Anaphylaxis [2]

Central Nervous System
Chills [7]
Dysgeusia (taste perversion) [2]
Fever [13]
Headache (2%) Shivering (17%) [8]

Gastrointestinal/Hepatic
Abdominal pain (7%) [7]
Diarrhea (13%)
Dyspepsia (2%)
Flatulence (3%)
Nausea (3%) [4]

MITOMYCIN

Synonyms: mitomycin-C; MTC
Trade name: Mutamycin (Bristol-Myers Squibb)
Indications: Carcinomas
Class: Alkylating agent, Antibiotic, anthracycline
Half-life: 2378 minutes

Clinically important, potentially hazardous interactions with: aldesleukin

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Dermatitis [9]
Erythema multiforme [2]
Exanthems [7]

Nails
Nail pigmentation (purple) (<10%)

Mucosal
Oral lesions (28%) [4]
Oral ulceration (14%)
Stomatitis (10%)

Cardiovascular
Congestive heart failure (3–15%)

Central Nervous System
Anorexia (14%)
Fever (14%)
Paresthesias (<10%)

Neuromuscular/Skeletal
Asthenia (fatigue) [2]

Gastrointestinal/Hepatic
Nausea (14%)
Vomiting (14%)

Respiratory
Cough (7%)

Renal
Neutropenia [2]

Hematologic
Anemia (19–24%)

Ocular
Epiphora [2]
Keratitis [2]

Local
Injection-site cellulitis (>10%)
Injection-site necrosis (>10%) [3]

MITOTANE

See: www.drugeruptiondata.com/drug/id/473
**MITOXANTRONE**

**Trade name:** Novantrone (OSI)

**Indications:** Acute myelogenous leukemia, multiple sclerosis, prostate cancer

**Class:** Antibiotic, anthracycline, Antineoplastic

**Half-life:** median terminal: 75 hours

**Clinically important, potentially hazardous interactions with:** aldesleukin, safinamide

**Pregnancy category:** D

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

<table>
<thead>
<tr>
<th>Skin</th>
<th>Diaphoresis (&lt;10%)</th>
<th>Ecchymoses (7%)</th>
<th>Edema (&gt;10%)</th>
<th>Fungal dermatitis (&gt;15%)</th>
<th>Peripheral edema [2]</th>
<th>Petechiae (&gt;10%)</th>
<th>Purpura (&gt;10%)</th>
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<tbody>
<tr>
<td>Hair</td>
<td>Alopecia (2060%) [6]</td>
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**Cardiovascular**

Cardiac failure [2]

**Central Nervous System**

Chills (<10%)

**Gastrointestinal/Hepatic**

Diarrhea [2]

Nausea [6]

Vomiting [3]

**Endocrine/Metabolic**

Amenorrhea [4]

Menstrual irregularities [2]

**Genitourinary**

Urinary tract infection [2]

**Hematologic**

Anemia [2]

Febrile neutropenia [2]

Leukemia [4]

Leukopenia [4]

Neutropenia [6]

Thrombocytopenia [2]

**Other**

Death [2]

Infection (>66%) [3]

---

**MOCLOBEMIDE**

See: www.drugerupiondata.com/drug/id/1275

**MODAFINIL**

**Trade name:** Provigil (Cephalon)

**Indications:** Narcolepsy

**Class:** Analeptic, CNS stimulant, CYP1A2 inducer, CYP3A4 inducer

**Half-life:** ~15 hours

**Clinically important, potentially hazardous interactions with:** elbasvir & grazoprevir, enzalutamide, neratinib, olaparib, oral contraceptives, palbociclib, sonidegib, thalidomide, venetoclax

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

<table>
<thead>
<tr>
<th>Skin</th>
<th>Fixed eruption [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mucosal</td>
<td>Xerostomia (5%)</td>
</tr>
</tbody>
</table>

**Central Nervous System**

Agitation [2]

Chills (2%) [2]

Hallucinations [2]

Headache [4]

Irritability [2]

Neuropathy [5]

Nightmares [2]

Sleep disturbances [3]

Suicidal ideation [2]

**Gastrointestinal/Hepatic**

Abdominal pain [2]

Hepatotoxicity [3]

**Respiratory**

Cough [2]

Flu-like syndrome (<10%) [2]

**Other**

Adverse effects [3]

---

**MORICIZINE**

See: www.drugerupiondata.com/drug/id/478

**MORPHINE**

**Trade names:** Avinza (Ligand), Duramorph (Baxter) (Elkins-Sinn), Infumorph (Baxter), Kadian (saiPharma), Morphabond (Inpirion), MS Contin (Purdue), MSIR Oral (Purdue), Roxanol (saiPharma)

**Indications:** Severe pain, acute myocardial infarction

**Class:** Opiate agonist

**Half-life:** 24 hours

**Clinically important, potentially hazardous interactions with:** buprenorphine, cimetidine, furazolidone, MAO inhibitors, metformin, mianserin, pentazocine, rifapentine, trolepine

**Skin**

Angioedema [3]

Churg-Strauss syndrome [27]

Rash (2%) [2]

Urticaria (2%)

**Central Nervous System**

Aggression [3]

Anxiety [2]

Depression [2]

Hallucinations [2]

Headache [4]

Irritability [2]

Neuropathy [5]

Nightmares [2]

Sleep disturbances [3]

Suicidal ideation [2]

**Gastrointestinal/Hepatic**

Abdominal pain [2]

Hepatotoxicity [3]

**Respiratory**

Cough [2]

Flu-like syndrome (<10%) [2]

**Other**

Adverse effects [3]
MOXISYLYTE

See: www.drugeruptiondata.com/drug/id/1350

MOXONIDINE

See: www.drugeruptiondata.com/drug/id/1392

MUPIROCIN

See: www.drugeruptiondata.com/drug/id/935

MUROMONAB-CD3

See: www.drugeruptiondata.com/drug/id/1251

MYCOPHENOLATE

Synonyms: mycophenolate mofetil, mycophenolate sodium

Trade names: CellCept (Roche), Myfortic (Novartis)

Indications: Prophylaxis of organ rejection

Class: Immunosuppressant

Half-life: 18 hours

Clinically important, potentially hazardous interactions with: antacids, azathioprine, basiliximab, belatacept, cholestyramine, ciprofloxacin, corticosteroids, cyclophosphamide, cyclosporine, daclizumab, gemifloxacin, Hemophilus B vaccine, levofloxacin, mercaptopurine, metronidazole, moxifloxacin, norfloxacin, ofloxacin, pantoprazole, rifampicin, sevelamer, tacrolimus, vaccines

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: EMBRYOFETAL TOXICITY, MALIGNANCIES AND SERIOUS INFECTIONS
Leukoencephalopathy [4]
Neurotoxicity [2]
Pain (>20%)
Tremor (11%)

Neuromuscular/Skeletal
Arthralgia [4]
Asthenia (fatigue) [6]
Back pain (6%)
Myalgia/Myopathy [4]

Gastrointestinal/Hepatic
Abdominal distension [2]
Abdominal pain [6]
Colitis [3]
Diarrhea [13]
Hepatotoxicity [5]

Nausea [5]
Vomiting [5]

Respiratory
Bronchitis [2]
Cough [2]
Upper respiratory tract infection [3]

Endocrine/Metabolic
Hyperglycemia [4]
Hyperlipidemia [3]

Genitourinary
Urinary tract infection [2]
Renal
Nephrotoxicity [3]

Hematologic
Anemia (>20%)
Bone marrow suppression [2]
Dyslipidemia [2]
Leukopenia [4]
Lymphopenia [3]
Myelotoxicity [2]
Neutropenia [4]
Thrombocytopenia [4]

Other
Adverse effects [19]
Death [2]
Infection (1220%) [18]
Teratogenicity [4]
**NABILONE**

Trade name: Cesamet (Valeant)

Indications: Nausea and vomiting

Class: Antiemetic, Cannabinoid

Half-life: 2 hours

Clinically important, potentially hazardous interactions with: CNS depressants

Pregnancy category: C

Mucosal
- Xerostomia [6]

Cardiovascular
- Hypotension [8]

Central Nervous System
- Dyskinesia [3]
- Somnolence (drowsiness) [2]
- Vertigo (dizziness) [15]

Neuromuscular/Skeletal
- Asthenia (fatigue) [5]

**NABUMETONE**

Trade name: Relafen (GSK)

Indications: Arthritis

Class: Non-steroidal anti-inflammatory (NSAID)

Half-life: 22.530 hours

Clinically important, potentially hazardous interactions with: methotrexate

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Warning: CARDIOVASCULAR AND GASTROINTESTINAL RISKS

**NADOLOL**

Trade name: Corzide (Monarch)

Indications: Hypertension, angina pectoris

Class: Adrenergic beta-receptor antagonist, Antiarrhythmic class II

Half-life: 1024 hours

Clinically important, potentially hazardous interactions with: clonidine, epinephrine, verapamil

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Corzide is nadolol and bendroflumethiazide. Cutaneous side effects of beta-receptor blockers are clinically polymorphous. They appear to appear after several months of continuous therapy. Contra-indicated in patients with bronchial asthma, sinus bradycardia and greater than first degree conduction block, cardiogenic shock, and overt cardiac failure.

Skin
- Edema (<5%)
- Paresthesia [4]
- Raynaud’s phenomenon (2%) [2]

Cardiovascular
- Bradycardia (2%)

Central Nervous System
- Hypoesthesia (fingers and toes) (>5%)
- Paresthesias (5%)
- Vertigo (dizziness) (2%)

Neuromuscular/Skeletal
- Asthenia (fatigue) (2%)

Other
- Adverse effects [4]

**NALBUPHINE**

Trade name: Nubain (Endo)

Indications: Moderate to severe pain

Class: Opiate agonist

Half-life: 5 hours

Clinically important, potentially hazardous interactions with: CNS depressants, diazepam, hydrocodone, hydromorphone, oxymorphone, pentobarbital, promethazine, tapentadol

Pregnancy category: B

Note: Nalbuphine contains sulfites.

Skin
- Clamy skin (9%)
- Diaphoresis (9%)

Mucosal
- Xerostomia (4%)

Central Nervous System
- Vertigo (dizziness) (5%)

Local
- Injection-site pain [4]

**NALDEMEDINE * **

Trade name: Symproic (Shionogi)

Indications: Opioid-induced constipation in adult patients with chronic non-cancer pain

Class: Opioid antagonist

Half-life: 11 hours

Clinically important, potentially hazardous interactions with: amiodarone, aripiprazol, atazanavir, captopril, carbamazepine, clarithromycin, cyclosporine, diltiazem, erythromycin, fluconazole, itraconazole, ketoconazole, moderate or strong CYP3A inhibitors, other opioid antagonists, P-gp inhibitors, phenytoin, quercetin, quinidine, rifampin, ritonavir, saquinavir, St John’s wort, strong CYP3A inducers, verapamil

Pregnancy category: N/A (Potential for opioid withdrawal in fetus)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with known or suspected gastrointestinal obstruction. Opioid withdrawal symptoms have occurred in patients treated with naldemedine.

Skin
- Hypersensitivity (<2%)
- Rash (<2%)

Gastrointestinal/Hepatic
- Abdominal pain (8–11%)
- Diarrhea (7%) [2]
- Gastroenteritis (2–3%)
- Nausea (4–6%)
- Vomiting (3%)

Respiratory
- Bronchospasm (<2%)

Other
- Adverse effects [3]
NALIDIXIC ACID

See: www.drugerupationdata.com/drug/id/486

NALMEFENE

See: www.drugerupationdata.com/drug/id/1303

NALOXEGOL

Trade name: Movantik (AstraZeneca)
Indications: Opioid-induced constipation
Class: Opioid receptor antagonist
Half-life: 6–11 hours
Clinically important, potentially hazardous interactions with: diltiazem, erythromycin, grapefruit juice, verapamil
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with known or suspected gastrointestinal obstruction, patients at increased risk of recurrent gastrointestinal obstruction, and patients concomitantly using strong CYP3A4 inhibitors.

Skin
Hyperhidrosis (<3%)

Central Nervous System
Headache (4%) [3]

Gastrointestinal/Hepatic
Abdominal pain (12–21%) [5]
Diarrhea (6–9%) [5]
Flatulence (3–6%) [2]
Nausea (7–8%) [5]
Vomiting (3–5%)

Other
Adverse effects [2]

NALOXONE

Trade names: Suboxone (Reckitt Benckiser), Talwin-NX (Sanofi-Aventis), Targiniq (Purdue)
Indications: Narcotic overdose
Class: Opioid antagonist
Half-life: <1.5 hours
Clinically important, potentially hazardous interactions with: cobicistat/elvitegravir/emertricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emertricitabine/tenofovir disoproxil, thioridazine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: Suboxone contains buprenorphine; Targiniq is naloxone and oxycodone.

Skin
Diaphoresis (<10%)
Pruritus [2]
Rash (<10%)

Mucosal
Xerostomia [2]

Cardiovascular
Arrhythmias [2]
Bradycardia [2]
Hypertension [8]
Hypotension [2]
Pulmonary edema [2]

Central Nervous System
Seizures [5]

Neuromuscular/Skeletal
Asthenia (fatigue) [3]
Myoclonus [2]

Gastrointestinal/Hepatic
Constipation [6]
Nausea [3]
Vomiting [2]

Other
Adverse effects [4]
Death [2]

NALTREXONE

Trade names: Contrave (Takeda), Depade (Mallinckrodt), Naloxer (Bristol-Myers Squibb), Opizone (Genus), ReVia (Meda), Troxyca (Pfizer), Vivitrex (Alkermes), Vivitrol (Alkermes)
Indications: Substance abuse, opioid dependence, alcohol dependence
Class: Opioid antagonist
Half-life: 4 hours
Clinically important, potentially hazardous interactions with: opioid analgesics, opioid containing medications
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Naltrexone has the capacity to cause hepatocellular injury when given in excessive doses. Troxyca is naltrexone and oxycodone. Contra-indicated in acute hepatitis or liver failure; patients receiving opioid analgesics, with current physiologic opioid dependence, or in acute opioid withdrawal.

Skin
Pruritus [2]
Rash (<10%)

Cardiovascular
Hypertension [3]

Central Nervous System
Compulsions [2]
Depression [2]
Insomnia [3]
Seizures [2]

Neuromuscular/Skeletal
Constipation [5]

Gastrointestinal/Hepatic
Hepatotoxicity [5]

NAPROXEN

Trade names: Aleve (Bayer), Naprosyn (Roche), Synflex (Roche)
Indications: Pain, arthritis
Class: Non-steroidal anti-inflammatory (NSAID)
Half-life: 15 hours
Clinically important, potentially hazardous interactions with: methotrexate, methyl salicylate, prednisolone
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Note: NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Angioedema [5]
Bullous dermatitis [5]
Diaphoresis (<3%) [3]
DRESS syndrome [4]

NAPHAZOLINE

See: www.drugerupationdata.com/drug/id/2195

NAPROXEN

Trade names: Aleve (Bayer), Naprosyn (Roche), Synflex (Roche)
Indications: Pain, arthritis
Class: Non-steroidal anti-inflammatory (NSAID)
Half-life: 15 hours
Clinically important, potentially hazardous interactions with: methotrexate, methyl salicylate, prednisolone
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Note: NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Skin
Anaphylactoid reactions/Anaphylaxis [2]
Angioedema [5]
Bullous dermatitis [5]
Diaphoresis (<3%) [3]
DRESS syndrome [4]
NAPROXEN


Hair
Alopecia [3]

Mucosal
Stomatitis (<3%) Xerostomia [2]

Cardiovascular

Central Nervous System
Somnolence (drowsiness) [2] Vertigo (dizziness) [6]

Neuromuscular/Skeletal
Leg cramps [2]

Gastrointestinal/Hepatic

Respiratory
Nasopharyngitis [2]

Endocrine/Metabolic
Pseudohyperparathyroidism [29]

Renal
Nephrotoxicity [3]

Hematologic
Thrombocytopenia [2]

Otic
Tinnitus [2]

Other

NARATRIPTAN

See: www.drugeruptiondata.com/drug/id/489

NATALIZUMAB

Synonym: antegren
Trade name: Tysabri (Biogen)
Indications: Multiple sclerosis, Crohn's disease
Class: Immunomodulator, Monoclonal antibody
Half-life: 11 days

Clinically important, potentially hazardous interactions with: abatacept, alefacept, azacitidine, azathioprine, betamethasone, cabazitaxel, cetuximab, corticosteroids, cyclosporine, denileukin, docetaxel, fingolimod, gefitinib, leflunomide, lenalidomide, mercaptopurine, methotrexate, oxaliplatin, pazopanib, pemetrexed, rilonacept, temsirolimus, tramcinolone, vedolizumab

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients who have or have had progressive multifocal leukoencephalopathy.

Warning: PROGRESSIVE MULTIFOCAI LEUKOENCEPHALOPATHY

Skin
Dermatitis (6%) Herpes simplex [2] Hypersensitivity [6] Pruritus (4%) Rash (9%)

Central Nervous System
Depression (17%) Headache (35%) [3] Leukoencephalopathy [77] Tremor (3%)

Neuromuscular/Skeletal
Asthenia (fatigue) (24%) [4]

Gastrointestinal/Hepatic
Hepatotoxicity [4]

Genitourinary
Vaginitis (8%)

Local
Application-site reactions (22%) Infusion-related reactions [3] Infusion-site reactions [2]

Other

Respiratory
Flu-like syndrome (4%)

NEBIVOLOL

Trade names: Bystolic (Forest), Byvalson (Forest), Nebilet (Menarini)
Indications: Hypertension
Class: Adrenergic beta-receptor antagonist, Beta blocker
Half-life: 8 hours

Clinically important, potentially hazardous interactions with: beta blockers, cinacalcet, clonidine, CYPI3D6 inhibitors, delavirdine, digitals glycosides, duloxetine, terbinafine, tipranavir

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Byvalson is nebivolol and valsartan.

Warning: Byvalson: Fetal toxicity

Cardiovascular
Bradyarrhythmia [3]

Central Nervous System
Headache (6–9%) [9] Vertigo (dizziness) (2–4%) [5]

Neuromuscular/Skeletal
Asthenia (fatigue) (2–5%) [4]

Gastrointestinal/Hepatic
Diarrhea (<2%) Nausea (<3%)

Respiratory
Nasopharyngitis [3] Upper respiratory tract infection (3)

Other
Adverse effects [3]

NECITUMUMAB

Trade name: Portrazza (Lilly)
Indications: Metastatic squamous non-small cell lung cancer (in combination with cisplatin and gemcitabine)
Class: Epidermal growth factor receptor (EGFR) inhibitor, Monoclonal antibody
Half-life: 14 days

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: N/A (Can cause fetal harm)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: See separate entries for cisplatin and gemcitabine.

Warning: Cardiopulmonary arrest and Hypomagnesemia

Skin
Acneform eruption (9–15%) Fissures (5%) Hypersensitivity (2%) Pruritus (7%) [2] Rash (44%) [9] Toxicity (8%) [2]
**NEOFENAC**

- **Skin**
  - Anaphylactoid reactions/Anaphylaxis [2]
  - Contact dermatitis (<10%) [72]
  - Eczema [2]
  - Exanthems [2]
  - Rash (<10%)
  - Toxic epidermal necrolysis [2]
  - Urticaria (<10%)

- **Otic**
  - Hearing loss [3]

**NEOSTIGMINE**

- **Trade name:** Prostigmin (Valeant)
- **Indications:** Myasthenia gravis
- **Class:** Acetylcholinesterase inhibitor, Cholinesterase inhibitor, Parasympathomimetic
- **Half-life:** 52 minutes
- **Clinically important, potentially hazardous interactions with:** aminoglycosides, antiarrhythmics, anticholinergics, chloroquine, clindamycin, hydroxychloroquine, kanamycin, lithium, local and general anesthetics, neomycin, non-depolarising muscle relaxants, polypeptides, propafenone, propranolol, streptomycin, succinylcholine
- **Pregnancy category:** C
- **Anticholinesterase drugs may cause uterine irritability and induce premature labor when given intravenously to pregnant women near term**
- **Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients
- **Note:** Neostigmine bromide is given orally; neostigmine methylsulfate is given parenterally. Contra-indicated in patients with a previous history of reaction to bromides, or those with peritonitis or mechanical obstruction of the intestinal or urinary tract.

**Skin**

- Anaphylactoid reactions/Anaphylaxis [2]
- Contact dermatitis (<10%) [72]
- Eczema [2]
- Exanthems [2]
- Rash (<10%)
- Toxic epidermal necrolysis [2]
- Urticaria (<10%)

**Otic**

- Hearing loss [3]

**NEOFENAC**

- **Skin**
  - Anaphylactoid reactions/Anaphylaxis [2]
  - Contact dermatitis (<10%) [72]
  - Eczema [2]
  - Exanthems [2]
  - Rash (<10%)
  - Toxic epidermal necrolysis [2]
  - Urticaria (<10%)

- **Otic**
  - Hearing loss [3]

**NEOSTIGMINE**

- **Trade name:** Prostigmin (Valeant)
- **Indications:** Myasthenia gravis
- **Class:** Acetylcholinesterase inhibitor, Cholinesterase inhibitor, Parasympathomimetic
- **Half-life:** 52 minutes
- **Clinically important, potentially hazardous interactions with:** aminoglycosides, antiarrhythmics, anticholinergics, chloroquine, clindamycin, hydroxychloroquine, kanamycin, lithium, local and general anesthetics, neomycin, non-depolarising muscle relaxants, polypeptides, propafenone, propranolol, streptomycin, succinylcholine
- **Pregnancy category:** C
- **Anticholinesterase drugs may cause uterine irritability and induce premature labor when given intravenously to pregnant women near term**
- **Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients
- **Note:** Neostigmine bromide is given orally; neostigmine methylsulfate is given parenterally. Contra-indicated in patients with a previous history of reaction to bromides, or those with peritonitis or mechanical obstruction of the intestinal or urinary tract.

**Skin**

- Anaphylactoid reactions/Anaphylaxis [2]
- Contact dermatitis (<10%) [72]
- Eczema [2]
- Exanthems [2]
- Rash (<10%)
- Toxic epidermal necrolysis [2]
- Urticaria (<10%)

**Otic**

- Hearing loss [3]
### Neratinib

**Trade name:** Nerlynx (Puma)

**Indications:** Early stage HER2-overexpressed/ampified breast cancer, to follow adjuvant trastuzumab-based therapy

**Class:** Kinase inhibitor

**Half-life:** 7–17 hours

**Clinically important, potentially hazardous interactions with:** aprepitant, beceprevir, bosentan, carbamazepine, cinetidine, ciraparoxin, clarithromycin, clotrimazole, cobicistat, conivaptan, crizotinib, cyclosporine, dabigatran, dasabuvir/ombitasvir/paritaprevir/ritonavir, digoxin, diltiazem, dronedarone, efavirenz, enalaprilat, efavirenz, etravirine, fexofenadine, fluconazole, fluvoxamine, grapefruit juice, H2-receptor antagonists, indinavir, itraconazole, ketoconazole, lansoprazole, lopinavir, mitotane, modafinil, nelfinavir, omeprazole, risperidone, ritonavir, phenothiazine, posaconazole, rifampin, ritonavir, saquinavir, St John’s wort, strong or moderate CYP3A4 inhibitors or inducers, tipranavir, tofosfamide, trolenadomycin, verapamil, voriconazole

**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

#### Skin
- Fissures (2%)
- Rash (18%)
- Xerosis (6%)

#### Nails
- Nail disorder (8%)

#### Mucosal
- Epistaxis (nosebleed) (5%)
- Stomatitis (14%)
- Xerostomia (3%)

#### Cardiovascular
- Cardiotoxicity (2%)

#### Central Nervous System
- Anorexia (4%)
- Peripheral neuropathy (2%)

#### Neuromuscular/Skeletal
- Asthenia (fatigue) (27%)
- Asthenia (fatigue) (4–8%)
- Muscle spasm (11%)

#### Gastrointestinal/Hepatic
- Abdominal distention (5%)
- Abdominal pain (36%)
- Diarrhea (95%) [13]
- Dyspepsia (10%)
- Hepatotoxicity (<2%)
- Nausea (43%) [8]
- Vomiting (26%) [5]

#### Endocrine/Metabolic
- ALT increased (9%)
- Appetite decreased (12%)
- AST increased (7%)
- Dehydration (4%)
- Weight loss (5%)

#### Genitourinary
- Urinary tract infection (5%)

### Nesiritide

**Synonym:** NEPA

**Trade name:** Akynzeo (Helsinn)

**Indications:** Acute and delayed nausea and vomiting associated with cancer chemotherapy

**Class:** Neurokinin 1 receptor antagonist (netupitant), Serotonin type 3 receptor antagonist (palonosetron)

**Half-life:** 40 hours

**Clinically important, potentially hazardous interactions with:** rifampin

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Erythema (3%)

**Central Nervous System**
- Headache (9%) [7]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (4-8%)

**Gastrointestinal/Hepatic**
- Constipation (3%) [6]

**Other**
- Adverse effects [7]
- Hiccups [2]

### Netupitant & Palonosetron

**Synonym:** NEPA

**Trade name:** Akynzeo (Helsinn)

**Indications:** Acute and delayed nausea and vomiting associated with cancer chemotherapy

**Class:** Neurokinin 1 receptor antagonist (netupitant), Serotonin type 3 receptor antagonist (palonosetron)

**Half-life:** 40 hours

**Clinically important, potentially hazardous interactions with:** rifampin

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Erythema (3%)

**Central Nervous System**
- Headache (9%) [7]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (4-8%)

**Gastrointestinal/Hepatic**
- Constipation (3%) [6]

**Other**
- Adverse effects [7]
- Hiccups [2]

### Nevirapine

**Trade name:** Viramune (Boehringer Ingelheim)

**Indications:** HIV infection

**Class:** Antiretroviral, CYP3A4 inducer, Non-nucleoside reverse transcriptase inhibitor

**Half-life:** 45 hours

**Clinically important, potentially hazardous interactions with:** amiodarone, ampranavir, azidanavir, carbamazepine, caspofungin, clarithromycin, clonazepam, cyclosporine, diltiazem, disopyramide, efavirenz, ethoxysuximide, etravirine, fentanyl, fluconazole, fosamprenavir, indinavir, iraconazole, ketoconazole, levonorgestrel, lidocaine, lopinavir, midazolam, nifedipine, rifampin, rilpivirine, simprevir, St John’s wort, verapamil

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

**Warning:** LIFE-THREATENING (INCLUDING FATAL) HEPATOTOXICITY and SKIN REACTIONS

### Niacin

**Synonym:** nicotinic acid; vitamin B3

**Trade names:** Advicor (Kos), Niacinor (Upsher-Smith), Niidal (Merck), Simcor (AbbVie), Slo-Niacin (Upsher-Smith)

**Indications:** Hyperlipidemia

**Class:** Vitamin

**Half-life:** 45 minutes

**Clinically important, potentially hazardous interactions with:** antihypertensives, atorvastatin, bile acid sequestrants, insulin aspart, insulin glargine, insulin glulisine, pitavastatin, rosvastatin, selenium

**Pregnancy category:** C (Where niacin is co-administered with a statin, refer to the pregnancy category for the statin)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with active liver or peptic ulcer disease, or arterial bleeding. Simcor is niacin and simvastatin.

**Skin**
- Acanthosis nigricans (8%) [14]
- Exanthems (<3%)
- Pruritus (<5%) [9]

**Central Nervous System**
- Flushing (<30%) [31]

**Neuromuscular/Skeletal**
- Myalgia/Myopathy (<10%) [2]

**Gastrointestinal/Hepatic**
- Hepatic failure [2]

**Other**
- Adverse effects [7]

### Nikethamide

**Synonym:** ethyl eugenol

**Trade names:** Econamide (Eli Lilly), Nikethamide (Eli Lilly)

**Indications:** N/A

**Class:** Respiratory stimulant

**Half-life:** 3–17 hours

**Clinically important, potentially hazardous interactions with:** alcohol, antihistamines

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Erythema (14%)

**Central Nervous System**
- Headache (28%)

**Neuromuscular/Skeletal**
- Muscular weakness (4%)

**Gastrointestinal/Hepatic**
- Diarrhea (26%)

**Other**
- Adverse effects [2]
- Pulmonary edema [2]

### Nimesulide

**Synonym:** N/A

**Trade name:** Nimesulide (Boehringer Ingelheim)

**Indications:** N/A

**Class:** Nonsteroidal anti-inflammatory drug

**Half-life:** 2–3 hours

**Clinically important, potentially hazardous interactions with:** alcohol, antihistamines

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Erythema (25%)

**Central Nervous System**
- Headache (16%)

**Neuromuscular/Skeletal**
- Muscle spasm (5%)

**Gastrointestinal/Hepatic**
- Diarrhea (37%)

**Other**
- Adverse effects [7]

### Nipride

**Synonym:** nitroprusside

**Trade name:** Nipride (Boehringer Ingelheim)

**Indications:** N/A

**Class:** Phosphodiesterase inhibitor

**Half-life:** 1 minute

**Clinically important, potentially hazardous interactions with:** alcohol, antihistamines, aspirin, digitalis

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Erythema (10%)

**Central Nervous System**
- Headache (6%)

**Neuromuscular/Skeletal**
- Muscle spasm (10%)

**Gastrointestinal/Hepatic**
- Diarrhea (12%)

**Other**
- Adverse effects [9]

### Nitrazepam

**Synonym:** nitrazepam; nitrazepam (Eli Lilly, AstraZeneca)

**Trade name:** Relaxo (Sandoz), Sernox (Bristol-Myers Squibb)

**Indications:** N/A

**Class:** Benzodiazepine

**Half-life:** 45–180 minutes

**Clinically important, potentially hazardous interactions with:** alcohol, antihistamines, aspirin, barbiturates

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Erythema (10%)

**Central Nervous System**
- Headache (6%)

**Neuromuscular/Skeletal**
- Muscle spasm (10%)

**Gastrointestinal/Hepatic**
- Diarrhea (12%)

**Other**
- Adverse effects [9]
NICOTINAMIDE

Synonyms: nicotinamide, vitamin B3
Indications: Prophylaxis and treatment of pellagra
Class: Vitamin
Half-life: 45 minutes
Clinically important, potentially hazardous interactions with: atorvastatin, pravastatin, rosuvastatin
Pregnancy category: A (the pregnancy category will be C if used in doses above the RDA)

Skin
Pruritus (<5%) [2]

Central Nervous System
Paresthesias (<10%)

Hematologic
Thrombocytopenia [2]

NICARDIPINE

Trade name: Cardene (Roche)
Indications: Angina, hypertension
Class: Calcium channel blocker
Half-life: 24 hours
Clinically important, potentially hazardous interactions with: amiodarone, atazanavir, bupropion, cabergoline, clopidogrel, cyclosporine, delavirdine, efavirenz, emtricitabine/tenofovir, elvitegravir/cobicistat/ritonavir, etravirine, fentanyl, fluoxetine, grapefruit juice, hydroxyurea, indinavir, insulin, loperamide, milnsartan, mirtazapine, naltrexone, nefazodone, nelfinavir, nelumbo, nefopam, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfinavir, nelfin...
NILOTINIB

Trade name: Tasigna (Novartis)
Indications: Chronic myelogenous leukemia
Class: Antineoplastic, Epidermal growth factor receptor (EGFR) inhibitor, Tyrosine kinase inhibitor
Half-life: 17 hours
Clinically important, potentially hazardous interactions with: amiodarone, amitriptyline, armodafinil, arsenic, astemizole, bepridil, carbamazepine, chloroquine, cisapride, citralopram, clarithromycin, clozapine, conivaptan, darunavir, dasatinib, degarelix, delavirdine, digoxin, dihydroergotamine, disopyramide, doxazosin, efavirenz, ergotamine, grapefruit juice, halofantrine, haloperidol, indinavir, irinotecan, ketoconazole, lapatinib, levofloxacin, lopinavir, methadone, midazolam, moxifloxacin, oxcarbazepine, pazopanib, phenobarbital, phenytoin, pimozide, procainamide, quinidine, rifampin, rifapentine, ritonavir, sotalol, St John’s wort, telavancin, telithromycin, ticagrelor, tizanidine, voriconazole, ziprasidone

Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Skin
Acneform eruption (<10%) 
Dermatitis (<10%) 
Eczema (<10%) 
Erythema (<10%) [2]
Exanthems [2]
Folliculitis (<10%) 
Hemolysis (<10%) 
Hyperhidrosis (<10%) 
Peripheral edema (<10%) 
Pruritus (<10%) [13]
Rash (<10%) [16]
Sweet’s syndrome [3]
Toxicity [7]
Urticaria (<10%) 
Xerosis [2]

Hair
Alopecia (<10%) [4]

Cardiovascular
Angina (<10%) 
Arrhythmias (<10%) [2]
Arterial occlusion [3]
Atrial fibrillation (<10%) 
Atrioventricular block (<10%) 
Bradyarrhythmia (<10%) 
Cardio toxicity [4]
Chest pain (<10%) 
Extravascular fibrillation (<10%) 
Flushing (<10%) 
Hypertension (<10%) 
Myocardial infarction [2]
Pallitation (<10%) 
QT prolongation (<10%) [8]

Central Nervous System
Anorexia (<10%) 
Depression (<10%) [2]
Fever (<10%) [2]
Headache (~10%) [13]
Hypoaesthesia (<10%) 
Insomnia (<10%) 
Pain [2]
Paresthesias (<10%) 
Stroke [2]
Vertigo (dizziness) (<10%)

Neuromuscular/Skeletal
Arthralgia (<10%) [3]
Asthenia (fatigue) (<10%) [9]
Bone or joint pain (<10%) 
Muscle spasm [3]
Myalgia/Myopathy (<10%) [5]
Neck pain (<10%)

Gastrointestinal/Hepatic
Abdominal distension (<10%) 
Abdominal pain (<10%) [2]
Constipation (~10%) [2]
Diarrhea (~10%) [4]
Dyspepsia (<10%) 
Flatulence (<10%) 
Hepatotoxicity [3]
Nausea (~10%) [8]
Pancreatitis (<10%) [4]
Vomiting (~10%)

Respiratory
Cough (<10%) 
Dysphonia (<10%) 
Dyspnea (<10%) 
Nasopharyngitis [2]
Pleural effusion [2]
Pulmonary hypertension [2]

Endocrine/Metabolic
ALT increased (4%) [3] 
AST increased (4%) [3]
Diabetes mellitus (<10%) 
Hyperamylasemia [2]
Hyperbilirubinemia [6]
Hypercalcemia (<10%) 
Hypercholesterolemia (<10%) 
Hyperglycemia (6-12%) [5]
Hyperlipidemia (<10%) 
Hypocalcemia (<10%) 
Hypoglycemia (<10%) 
Hypomagnesemia (<10%)
Hypophosphatemia (5–17%) [3]
Hypothyroidism [2]
Weight gain (<10%)
Weight loss (<10%)

Genitourinary
Pollakiuria (<10%)

Hematologic
Anemia (4-27%) [8] 
Febrile neutropenia (<10%) 
Hyperlipidemia [3] 
Lymphopenia (<10%) 
Neutropenia (12-42%) [8]
Pancytopenia (<10%)
Thrombocytopenia (10-40%) [9]

Ocular
Conjunctivitis (<10%) 
Ocular hemorrhage (<10%)
Periorbital edema (<10%) 
Xerophthalmia (<10%)

Other
Adverse effects [3]
Death [3] 
Side effects [3]

NILOTINIB Over 100 updates per week on www.drugeruptiondata.com

NILUTAMIDE

See: www.drugeruptiondata.com/drug/id/1212

NIMESULIDE

See: www.drugeruptiondata.com/drug/id/1228

NIMODIPINE

See: www.drugeruptiondata.com/drug/id/500

NINTEDANIB

Trade name: Ofev (Boehringer Ingelheim)
Indications: Idiopathic pulmonary fibrosis
Half-life: 9.5 hours
Clinically important, potentially hazardous interactions with: anticoagulants, carbamazepine, erythromycin, phenytoin, St John’s wort

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Hand-foot syndrome [2]

Hair
Alopecia [2]

Mucosal
Epistaxis (nosebleed) [2]

Cardiovascular
Cardiotoxicity [2] 
Hypertension (5%) [7]
Myocardial infarction (2%) 

Central Nervous System
Anorexia [6]
Headache (8%)
Peripheral neuropathy [2]

Neuromuscular/Skeletal
Asthenia (fatigue) [15]

Gastrointestinal/Hepatic
Abdominal pain (15%) [6]
Diarrhea (62%) [28]
Gastrointestinal disorder [4]
Hepatotoxicity (14%) [10]
Nausea (24%) [21]
Vomiting (12%) [18]

Respiratory
Bronchitis [3]
Cough [3]
Dyspnea [4]
### NIRAPARIB *

**Trade name:** Zejula (Tesaro)  
**Indications:** Maintenance treatment of adult patients with recurrent epithelial ovarian, fallopian tube, or primary peritoneal cancer who are in a complete or partial response to platinum-based chemotherapy  
**Class:** Poly (ADP-ribose) polymerase (PARP) inhibitor  
**Half-life:** 36 hours  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** N/A  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### Skin  
- Peripheral edema (<10%)  
- Rash (21%)  

### Mucosal  
- Epistaxis (nosebleed) (<10%)  
- Mucositis (20%)  
- Stomatitis (20%)  
- Xerostomia (10%)  

### Cardiovascular  
- Hypertension (20%)  
- Palpitation (10%)  
- Tachycardia (<10%)  

### Central Nervous System  
- Anxiety (11%)  
- Depression (<10%)  
- Dysgeusia (taste perversion) (10%)  
- Headache (26%)  
- Insomnia (27%)  
- Vertigo (dizziness) (18%)  

### Neuromuscular/Skeletal  
- Arthralgia (13%)  
- Asthenia (fatigue) (57%)  
- Back pain (18%)  
- Myalgia/Myopathy (19%)  

### Gastrointestinal/Hepatic  
- Abdominal distension (33%)  
- Abdominal pain (33%)  
- Constipation (40%)  
- Diarrhea (20%)  

### Respiratory  
- Bronchitis (<10%)  
- Dyspnea (20%)  
- Nasopharyngitis (23%)  

### Hematologic  
- Anemia [3]  
- Bleeding (10%) [3]  
- Leukopenia [2]  
- Neutropenia [4]  
- Thrombocytopenia [2]  

### Other  
- Adverse effects [5]  
- Death [3]  

### NIRAPARIB *

**Trade name:** Zejula (Tesaro)  
**Indications:** Maintenance treatment of adult patients with recurrent epithelial ovarian, fallopian tube, or primary peritoneal cancer who are in a complete or partial response to platinum-based chemotherapy  
**Class:** Poly (ADP-ribose) polymerase (PARP) inhibitor  
**Half-life:** 36 hours  
**Clinically important, potentially hazardous interactions with:** none known  
**Pregnancy category:** N/A  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### Skin  
- Peripheral edema (<10%)  
- Rash (21%)  

### Mucosal  
- Epistaxis (nosebleed) (<10%)  
- Mucositis (20%)  
- Stomatitis (20%)  
- Xerostomia (10%)  

### Cardiovascular  
- Hypertension (20%)  
- Palpitation (10%)  
- Tachycardia (<10%)  

### Central Nervous System  
- Anxiety (11%)  
- Depression (<10%)  
- Dysgeusia (taste perversion) (10%)  
- Headache (26%)  
- Insomnia (27%)  
- Vertigo (dizziness) (18%)  

### Neuromuscular/Skeletal  
- Arthralgia (13%)  
- Asthenia (fatigue) (57%)  
- Back pain (18%)  
- Myalgia/Myopathy (19%)  

### Gastrointestinal/Hepatic  
- Abdominal distension (33%)  
- Abdominal pain (33%)  
- Constipation (40%)  
- Diarrhea (20%)  

### Respiratory  
- Bronchitis (<10%)  
- Dyspnea (20%)  
- Nasopharyngitis (23%)  

### Hematologic  
- Anemia [3]  
- Bleeding (10%) [3]  
- Leukopenia [2]  
- Neutropenia [4]  
- Thrombocytopenia [2]  

### Other  
- Adverse effects [5]  
- Death [3]  

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**NITROFURANTOIN**

**Trade names:** Furadantin (First Horizon), Macrodant (Procter & Gamble), Macrodantin (Procter & Gamble)  
**Indications:** Various urinary tract infections caused by susceptible organisms  
**Class:** Antibiotic  
**Half-life:** 1–2 minutes  
**Clinically important, potentially hazardous interactions with:** norfloxacin  
**Pregnancy category:** B  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

### Skin  
- Anaphylactoid reactions/Anaphylaxis [2]  
- Angioedema [4]  
- Dermatitis [3]  
- Eczema [2]  
- Erythema multiforme [3]  
- Exanthems (<5%) [9]  
- Exfoliative dermatitis [3]  
- Lupus erythematosus [8]  
- Purpura [2]  
- Rash [2]  
- Stevens-Johnson syndrome [2]  
- Toxic epidermal necrolysis [5]  
- Urticaria [8]  

### Hair  
- Alopecia [5]  

### Central Nervous System  
- Neurotoxicity [2]  
- Paresthesias (<10%)  

### Gastrointestinal/Hepatic  
- Hepatitis [2]  
- Hepatotoxicity [14]  

### Respiratory  
- Pneumonitis [3]  
- Pulmonary toxicity [8]  

### Other  
- Adverse effects [3]  
- Death [3]  

**NITROFURAZONE**

See: www.drugerupiondata.com/drug/id/1022

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**NITROFURAZONE**

See: www.drugerupiondata.com/drug/id/1262

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**NITROFURAZONE**

See: www.drugerupiondata.com/drug/id/1022

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**NITROFURAZONE**

See: www.drugerupiondata.com/drug/id/1022
**NITROGLYCERIN**

**Synonyms:** glyceryl trinitrate; nitroglycerol; NTG

**Trade names:** Minitrin (3M), Nitroduro (Schering) (Key), Nitrolingual (First Horizon), Nitrostab (Pfizer)

**Indications:** Acute angina

**Class:** Nitrate, Vasodilator

**Half-life:** 14 minutes

**Clinically important, potentially hazardous interactions with:** acetylsalicylic acid, alteplase, heparin, sildenafil, tacrolimus, valproic acid

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Dermatitis (to topical systems) [25]
- Eczema [2]
- Exfoliative dermatitis (<10%) [2]
- Purpura [2]
- Rash (<10%) [2]
- Urticaria [2]

**Cardiovascular**
- Bradycardia [2]
- Flushing (>10%) [2]
- Hypotension [2]

**Central Nervous System**
- Headache [14]
- Migraine [2]

**Gastrointestinal/Hepatic**
- Abdominal pain (16%) [2]
- Colitis [20]
- Constipation (24%) [2]
- Diarrhea (18%) [26]
- Hepatitis [9]
- Hepatotoxicity [12]
- Nausea (29%) [13]
- Pancreatitis [4]
- Vomiting [19%] [2]

**Respiratory**
- Bronchitis (<10%)
- Cough (17-32%) [2]
- Dyspnea (38%) [3]
- Pneumonia (10%) [4]
- Pneumonitis [27]
- Pulmonary toxicity [2]

**Endocrine/Metabolic**
- Adrenal insufficiency [2]
- ALP increased (14-22%) [14]
- ALT increased (12-16%) [5]
- Appetite decreased (35%) [9]
- AST increased (16-28%) [4]
- Diabetes mellitus (10)
- Hypercalcaemia (20%) [2]
- Hyperkalaemia (15-18%) [9]
- Hyperparathyroidism [9]
- Hypocalcaemia (18%) [2]
- Hypokalaemia (20%) [9]
- Hypomagnesaemia (20%) [2]
- Oliguria [2]

**Hematologic**
- Anemia (28%) [4]
- Hemolytic anemia [4]
- Hyperleukocytosis [4]
- Lymphopenia (47%) [3]
- Neutropenia [6]
- Thrombocytopenia (14%) [5]

**Ocular**
- Iridocyclitis (<10%) [2]
- Ocular irritation [2]

**Other**
- Adverse effects [25]
- Death [11]

**Side effects** [2]

**NITROPRUSSIDE**

See: www.drugeruptiondata.com/drug/id/1214

**NIVOLUMAB**

**Trade name:** Opdivo (Bristol-Myers Squibb)

**Indications:** Metastatic squamous non-small cell lung cancer with progression on or after platinum-based chemotherapy, unresectable or metastatic melanoma and disease progression following ipilimumab and, if BRAF V600 mutation positive, a BRAF inhibitor, advanced renal cell carcinoma with prior anti-angiogenic therapy, Hodgkin lymphoma that has relapsed or progressed after autologous hematopoietic stem cell transplantation and post-transplantation brentuximab vedotin

**Class:** Monoclonal antibody, Programmed death receptor-1 (PD-1) inhibitor

**Half-life:** 27 days

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Bullous pemphigoid [5]
- Dermatitis [3]

**NIZATIDINE**

See: www.drugeruptiondata.com/drug/id/504

**NORFLOXACIN**

**Trade names:** Chibroxin (Merck), Noroxin (Merck)

**Indications:** Various urinary tract infections caused by susceptible organisms, conjunctivitis

**Class:** Antibiotic, fluoroquinolone, CYP3A4 inhibitor

**Half-life:** 3-4 hours

**Clinically important, potentially hazardous interactions with:** aminophylline, amiodarone, aracids, arsenic, arteether/lumefantrine, bepridil, betablockers, caffeine, ciprofloxacin, clobazam, cyclosporine, dairy products, didanosine, disopyramide, erythromycin, gliburide, lanthanum, mycoplalon, nitrofurantoin, NSAIDs, oral iron, oral typhoid vaccine, oxytetracycline, phenothiazines, probenecid, procainamide, quinidine, ropinirole, sotalol, stromium ranelate, succinate, tacrine, tamoxifen, tizanidine, tricyclic antidepressants, warfarin, zinc, zolmitriptan

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Fluoroquinolones are associated with an increased risk of tendinitis and tendon rupture in all ages. This risk is further increased in older patients usually over 60 years of age, in patients taking corticosteroid drugs, and in patients with kidney, heart or lung transplants. Fluoroquinolones may exacerbate muscle weakness in persons with myasthenia gravis.
Skin
- Exanthems [2]
- Fixed eruption [3]
- Phototoxicity [4]
- Toxic epidermal necrolysis [2]

Nails
- Photo-onycholysis [2]

Neuromuscular/Skeletal
- Rhabdomyolysis [2]
- Tendinopathy/Tendon rupture [4]

Other
- Adverse effects [2]

NORTRIPTYLINE

Trade names: Aventyl (Ranbaxy), Pamelor (Mallinckrodt)

Indications: Depression

Class: Antidepressant, tricyclic

Half-life: 2831 hours

Clinically important, potentially hazardous interactions with: amperanavir, arbutamine, clonidine, cobicistat/elvitegravr/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravr/emtricitabine/tenofovir disoproxil, epinephrine, fluoxetine, formoterol, guanethidine, isocarboxazid, linezolid, MAO inhibitors, phenelzine, quinolones, sparflaxacin, tranylcypromine

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: pediatric patients

Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
- Diaphoresis (<10%)
- Photosensitivity [2]

Mucosal
- Xerostomia (>10%) [9]

Central Nervous System
- Dysgeusia (taste perversion) (>10%)
- Parkinsonism (<10%)
- Vertigo (dizziness) [2]

Other
- Adverse effects [2]

NUSINERSEN *

Trade name: Spinraza (Biogen)

Indications: Spinal muscular atrophy

Class: Survival motor neuron-2 (SMN2)-directed antisense oligonucleotide

Half-life: 63–87 days (in plasma)

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
- AGEP [5]
- Dermatitis [12]
- Eczema [2]
- Fixed eruption [2]

Central Nervous System
- Headache (50%)

Neuromuscular/Skeletal
- Back pain (41%)
- Scoliosis (5%)

Gastrointestinal/Hepatic
- Constipation (30%)

Respiratory
- Bronchitis (>5%)
- Upper respiratory tract infection (39%)

Otic
- Ear infection (5%)

NYSTATIN

Trade names: Mycology-II (Bristol-Myers Squibb), Mycostatin (Bristol-Myers Squibb)

Indications: Candidiasis

Class: Antifungal

Half-life: ~2–3 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
- AGEP [5]
- Dermatitis [12]
- Eczema [2]
- Fixed eruption [2]
OBETICHLIC ACID

**Trade name:** Ocaliva ( Intercept )

**Indications:** Primary biliary cholangitis

**Class:** Farnesoid X receptor (FXR) agonist

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** aminophylline, tizanidine, warfarin

**Pregnancy category:** N/A ( Insufficient evidence to inform drug-associated risk )

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with complete biliary obstruction.

**Skin**
- Eczema (3–6%)
- Peripheral edema (3–7%)
- Pruritus (56–70%) [4]
- Rash (7–10%)
- Urticaria (<10%)

**Mucosal**
- Oropharyngeal pain (7–8%)

**Cardiovascular**
- Palpitation (3–7%)

**Central Nervous System**
- Fever (<7%)
- Syncope (<7%)
- Vertigo (dizziness) (7%)

**Neuromuscular/Skeletal**
- Arthralgia (6–10%)
- Asthenia (fatigue) (19–25%)

**Gastrointestinal/Hepatic**
- Abdominal pain (10–19%)
- Constipation (7%)

**Endocrine/Metabolic**
- Thyroid dysfunction (4–6%)

**OBINUTUZUMAB**

**Trade name:** Gazyva ( Genentech )

**Indications:** Chronic lymphocytic leukemia (in combination with chlorambucil), follicular lymphoma (firstly with bendamustine then as monotherapy)

**Class:** CD20-directed cytolytic monoclonal antibody, Monoclonal antibody

**Half-life:** 28 days

**Clinically important, potentially hazardous interactions with:** live vaccines

**Pregnancy category:** N/A ( Insufficient evidence to inform drug-associated risk )

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Warning:** HEPATITIS B VIRUS REACTIVATION AND PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY

**Skin**
- Tumor lysis syndrome [5]

**Central Nervous System**
- Fever (10%) [4]
- Headache [2]

**Leukopenia** [2]

**Gastrointestinal/Hepatic**
- Nausea [3]

**Respiratory**
- Cough (10%) [2]

**Endocrine/Metabolic**
- ALP increased (16%)
- AST increased (25%)
- Hyperkalemia (31%)
- Hypoalbuminemia (22%)
- Hypocalcemia (32%)
- Hypokalemia (13%)

**Hematologic**
- Anemia (12%) [4]
- Leukopenia (7%)
- Neutropenia (40%) [12]
- Thrombocytopenia (15%) [7]

**Local**
- Infusion-related reactions (69%) [15]

**Other**
- Infection (38%) [8]

**OCRELIZUMAB**

**Trade name:** Ocrevus ( Genentech )

**Indications:** Relapsing or primary progressive forms of multiple sclerosis

**Class:** CD20-directed cytolytic monoclonal antibody, Monoclonal antibody

**Half-life:** 26 days

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A ( May cause fetal toxicity based on findings in animal studies )

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in active hepatitis B virus infection.

**Central Nervous System**
- Depression (8%)

**Neuromuscular/Skeletal**
- Back pain (6%)
- Pain in extremities (5%)

**Respiratory**
- Upper respiratory tract infection (40–49%) [2]

**Hematologic**
- Neutropenia (13%)

**Local**
- Infusion-related reactions (34–40%) [6]

**Other**
- Infection (58%) [3]

**OCRIPLASMIN**

**Trade name:** Jetrea ( ThromboGenics )

**Indications:** Symptomatic vitreomacular adhesion

**Class:** Enzyme

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Ocular**
- Cataract (2–4%)
- Conjunctival hemorrhage (5–20%)
- Conjunctival hyperemia (2–4%)
- Dry eye (2%)
- Blurred vision (2%)
- Iris (4%)

**Cardiovascular**
- Angina (2–4%)
- Bradycardia (2–4%)
- Hypertension (12%)
- Arrhythmias (3–9%)
- Chest pain (20%) [4]
- Flushing (<1%)
- Hypertension (13%) [3]
- QT prolongation [2]
- Thrombophlebitis (<4%)

**Central Nervous System**
- Anorexia (4–6%)
- Headache [3]
- Pain (4–6%)
- Rigors (5–15%)
Vertigo (dizziness) [2]

**Neuromuscular/Skeletal**
Arthralgia (5–15%)
Asthenia (fatigue) [4]
Myalgia/Myopathy (5–15%) [2]

**Gastrointestinal/Hepatic**
Abdominal pain (5–61%) [4]
Diarrhea (34–58%) [4]
Flatulence (38%)
Hepatotoxicity [3]
Loose stools [2]
Nausea (5–61%) [6]
Pancreatitis [2]
Vomiting (4–21%)

**Respiratory**
Cough (5–15%)
Pharyngitis (5–15%)
Rhinitis (5–15%)
Sinusitis (5–15%)

**Endocrine/Metabolic**
Galactorrhea (<4%)
Gynecomastia (<4%)
Hyperglycemia [6]
Hypothyroidism (12%)

**Genitourinary**
Vaginitis (<4%)

**Hematologic**
Anemia (15%)
Neutropenia [2]
Thrombocytopenia [3]

**Otic**
Ear pain (5–15%)

**Local**
Injection-site pain (<10%) [2]
Injection-site granuloma [2]

### OFATUMUMAB

**Trade name:** Arzerra (Novartis)
**Indications:** Chronic lymphocytic leukemia
**Class:** CD20-directed cytolytic monoclonal antibody
**Half-life:** 14 days
**Clinically important, potentially hazardous interactions with:** live vaccines
**Pregnancy category:** N/A (May cause fetal B-cell depletion)
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients
**Warning:** HEPATITIS B VIRUS REACTIVATION AND PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY

**Skin**
Herpes (6%)
Hyperhidrosis (5%)
Peripheral edema (9%)
Rash (14%) [2]
Toxicity [3]
Urticaria (8%)

**Cardiovascular**
Angina [2]
Hypertension (5%)
Hypotension (5%)
Tachycardia (5%)

**Central Nervous System**
Chills (8%)
Fever (20%) [2]
Headache (6%)
Insomnia (7%)
Peripheral neuropathy [2]

**Neuromuscular/Skeletal**
Asthenia (fatigue) (15%) [4]
Back pain (8%)

**Gastrointestinal/Hepatic**
Diarrhea (18%) [2]
Nausea (11%) [3]

**Respiratory**
Bronchitis (11%)
Cough (19%)
Dyspnea (14%)
Nasopharyngitis (8%)
Pneumonia (23%)
Pulmonary toxicity [3]
Upper respiratory tract infection (11%)

**Hematologic**
Anemia (16%) [4]
Hemolytic anemia [2]
Leukopenia [2]
Lymphopenia [2]
Neutropenia (>10%) [11]
Sepsis (8%)
Thrombocytopenia [5]

**Local**
Infusion-related reactions [10]
Infusion-site reactions [2]

**Other**
Adverse effects [2]
Infection (70%) [10]

### OFLOXACIN

**Trade names:** Floxin (Ortho-McNeil), Ocuflox (Allergan), Tarivid (Sanofi-Aventis)
**Indications:** Various infections caused by susceptible organisms
**Class:** Antibiotic, fluoroquinolone
**Half-life:** 48 hours
**Clinically important, potentially hazardous interactions with:** aminophylline, amiodarone, antacids, arsenic, artemether/lumefantrine, BCG vaccine, bendamustine, bepridil, bretylium,布地奈德, clozapine, corticosteroids, cyclosporine, CYP1A2 substrates, didanosine, disopyramide, erythromycin, insulin, lanthanum, magnesium salts, metronidazole, NSAIDs, oral iron, oral typhoid vaccine, oxophylline, phenothiazines, probenecid, procainamide, quinapril, quinidine, sevelamer, sotalol, St John’s wort, strontium ranelate, sucralfate, sulfonureas, tricyclic antidepressants, vitamin K antagonists, warfarin, zinc, zolmitriptan
**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients
**Note:** Fluoroquinolones are associated with an increased risk of tendinitis and tendon rupture in all ages. This risk is further increased in older patients usually over 60 years of age, in patients taking corticosteroid drugs, and in patients with kidney, heart or lung transplants.

**Warning:** SERIOUS ADVERSE REACTIONS INCLUDING TENDINITIS, TENDON RUPTURE, PERIPHERAL NEUROPATHY, CENTRAL NERVOUS SYSTEM EFFECTS AND EXACERBATION OF MYASTHENIA GRAVIS

**Skin**
Anaphylactic reactions/Anaphylaxis [4]
Angioedema [3]
Exanthems [3]
Fixed eruption [4]
Hypersensitivity [2]
Photosensitivity [8]
Phototoxicity [3]
Pruritus (<3%) [5]
Pruritus ani et vulvae (<3%) [5]
Rash (<10%) [5]
Stevens-Johnson syndrome [4]
Toxic epidermal necrolysis [3]
Urticaria [3]
Vasculitis [4]

**Nails**
Photo-onycholysis [2]

**Mucosal**
Oral mucosal eruption [3]
Xerostomia (<3%)

**Cardiovascular**
QT prolongation [3]

**Central Nervous System**
Dysgeusia (taste perversion) (<3%) [2]
Hallucinations [2]
Headache [3]
Insomnia [2]
Peripheral neuropathy [2]
Psychosis [2]
Seizures [2]
Vertigo (dizziness) [3]

**Neuromuscular/Skeletal**
Arthralgia [2]
Antiphospholipid antibodies [2]
Asthenia (fatigue) [2]
Myalgia/Myopathy [2]
Rhabdomyolysis [2]
Tendinopathy/Tendon rupture [7]

**Gastrointestinal/Hepatic**
Abdominal pain [3]
Diarrhea [2]
Nausea [4]
Vomiting [2]

**Genitourinary**
Vaginitis (<10%)

**Local**
Injection-site pain (<10%)

**Other**
Adverse effects [10]
Death [2]
Side effects [2]
OLANZAPINE

Trade names: Symbyax (Lilly), Zyprexa (Lilly), Zyprexa Relprevv (Lilly)

Indications: Schizophrenia, bipolar I disorder

Class: Antipsychotic, Muscarinic antagonist

Half-life: 2154 hours

Clinically important, potentially hazardous interactions with: alcohol, antihypertensive agents, carbamazepine, ciprofloxacin, CNS acting drugs, diazepam, dopamine agonists, eszopiclone, fluoxetine, fluvoxamine, insulin degludec, insulin detemir, insulin glargine, levodopa, lithium, tetrabenazine, valproic acid

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Can cause DRESS and other serious skin reactions.

Symbyax is olanzapine and fluoxetine; Zyprexa Relprevv is olanzapine pamoate.

Warning: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

POST-INJECTION DELIRIUM/SEDATION SYNDROME (Zyprexa Relprevv)

Skin
- Angioedema [2]
- Edema [3]
- Hypersensitivity [2]
- Peripheral edema (<10%) [5]
- Psoriasis [2]
- Purpura (<10%)
- Rash (>2%)
- Vesiculobullous eruption (2%)
- Xanthomas [2]

Hair
- Alopecia [3]

Mucosal
- Epistaxis (nosebleed) (<10%)
- Sialorrhea [4]
- Xerostomia (13%) [11]

Cardiovascular
- Hypertension (<10%)
- Hypotension (<10%) [4]
- Orthostatic hypotension [2]
- QT prolongation [6]
- Tachycardia (<10%)
- Torsades de pointes [3]

Central Nervous System
- Akathisia (<10%) [7]
- Annesia [2]
- Compulsions [2]
- Confusion [2]
- Delirium [6]
- Extrapyramidal symptoms [3]
- Fever [2]
- Hallucinations [2]
- Headache (17%) [3]
- Insomnia (12%) [3]
- Neuroleptic malignant syndrome [35]
- Parkinsonism (<10%) [6]
- Psychosis [2]
- Restless legs syndrome [7]
- Restlessness [2]

Sedation [17]
- Seizures [8]
- Serotonin syndrome [2]
- Somnolence (drowsiness) (20–39%) [11]
- Suicidal ideation [2]
- Tardive dyskinesia [5]
- Tremor (<10%) [5]
- Twitching (2%)
- Vertigo (dizziness) [5]

Neuromuscular/Skeletal
- Asthenia (fatigue) (8–20%) [4]
- Back pain (<10%)
- Dystonia [6]
- Myalgia/Myalgia/Myopathy [2]
- Rhabdomyolysis [9]

Gastrointestinal/Hepatic
- Abdominal pain (<10%)
- Constipation (9–11%) [2]
- Diarrhea (<10%)
- Dyspepsia (7–11%)
- Flatulence (<10%)
- Hepatotoxicity [4]
- Nausea (<10%)
- Pancreatitis [7]
- Vomiting (<10%)

Respiratory
- Cough (<10%)
- Nasopharyngitis [2]
- Pharyngitis (<10%)
- Pneumonia [2]
- Pulmonary embolism [3]
- Rhiinus [2]
- Rhabdomyolysis [9]

Endocrine/Metabolic
- Appetite increased [2]
- Diabetes mellitus [7]
- Diabetic ketoacidosis [2]
- Galactorrhea [2]
- Glucose dysregulation [3]
- Gynecomastia [2]
- Hypercholesterolemia [2]
- Hyperglycemia [6]
- Hypoglycemia [2]
- Weight gain (5–40%) [60]

Genitourinary
- Priapism [19]
- Sexual dysfunction [2]
- Urinary incontinence (<10%)
- Urinary tract infection (<10%)

Hematologic
- Agranulocytosis [2]
- Dyslipidemia [4]
- Eosinophilia [2]
- Glucose dysregulation [3]
- Macroglobulinemia [2]
- Myelodysplasia [2]
- Pancreatitis [2]

Ocular
- Amblyopia (<10%)
- Ocular pain [2]
- Vision blurred [2]

Other
- Adverse effects [9]
- Death [7]

OLAPARIB

Trade name: Lynparza (AstraZeneca)

Indications: BRCA-mutated ovarian cancer

Class: Poly (ADP-ribose) polymerase (PARP) inhibitor

Half-life: 7–17 hours

Clinically important, potentially hazardous interactions with: amphenic, aprepitant, atazanavir, boceprevir, bosentan, carbamazepine, ciprofloxacin, clarithromycin, crizotinib, darunavir, diltiazem, efavirenz, erthyromycin, epradiure, fluconazole, fosamprenavir, grapefruit juice, imatinib, indinavir, iraconazole, ketoconazole, lamivudine, nefaviravir, phenytoin, posaconazole, ritonavir, saquinavir, St John’s wort, strong and moderate CYP3A inhibitors, telaprevir, telithromycin, verapamil, voriconazole

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Eczema (<10%)
- Hot flashes (<10%)
- Peripheral edema (10–20%)
- Pruritus (<10%)
- Rash (25%) [2]
- Xerosis (<10%)

Hair
- Alopecia [2]

Mucosal
- Stomatitis (<10%)

Cardiovascular
- Hypertension (<10%)
- Venous thromboembolism (<10%)

Central Nervous System
- Anxiety (<10%)
- Depression (<10%)
- Dryptsena (taste perversion) (21%) [2]
- Fever (<10%)
- Headache (25%) [4]
- Insomnia (<10%)
- Peripheral neuropathy (<10%)

Neuromuscular/Skeletal
- Antralgia (21–32%)
- Asthenia (fatigue) (66–68%) [18]
- Back pain (25%)
- Myalgia/Myalgia/Myopathy (22–25%)

Gastrointestinal/Hepatic
- Abdominal pain (43–47%) [3]
- Constipation (10–20%) [2]
- Diarrhea (28–31%) [8]
- Dyspepsia (25%) [3]
- Gastric obstruction [2]
- Nausea (64–75%) [14]
- Vomiting (32–43%) [10]

Respiratory
- Cough (21%) [2]
- Dyspnea (10–20%)
- Nasopharyngitis (26–43%)
- Pharyngitis (43%)
- Pulmonary embolism (<10%)
- Upper respiratory tract infection (26–43%)

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Endocrine/Metabolic
ALT increased [2]
Appetite decreased (22–25%) [4]
Creatinine phosphokinase increased (26–30%)
Hypoglycemia (<10%)
Hypomagnesemia (<10%)
Genitourinary
Dysuria (<10%)
Urinary incontinence (<10%)
Urinary tract infection (10–20%)
Hematologic
Anemia (25–34%) [17]
Febrile neutropenia [2]
Leukopenia (<10%) [3]
Lymphopenia (56%)
Myelodysplastic syndrome [2]
Myeloid leukemia [2]
Neutropenia (25–32%) [12]
Thrombocytopenia (26–30%) [8]
Other
Adverse effects [5]
Death [3]

OLARATUMAB
Trade name: Lartruvo (Lilly)
Indications: Treatment of adult patients with soft tissue sarcoma (with doxorubicin) with a histologic subtype for which an anthracycline-containing regimen is appropriate and which is not amenable to curative treatment with radiotherapy or surgery
Class: Monoclonal antibody, Platelet-derived growth factor receptor alpha blocking antibody
Half-life: ~11 days
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Can cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: none
Other
Note: See separate entry for doxorubicin.

Hematologic
Lymphopenia (77%)
Neutropenia (65%) [2]
Prothrombin time increased (33%)
Thrombocytopenia (63%)
Ocular
Xerophthalmia (11%)
Local
Infusion-related reactions (13%)

OLMESARTAN
Trade names: Benicar (Sankyo), Olmec (Daiichi Sankyo)
Indications: Hypertension
Class: Angiotensin II receptor antagonist (blocker), Antihypertensive
Half-life: ~13 hours
Clinically important, potentially hazardous interactions with: ACE inhibitors, adrenergic neuron blocks, aldosterone, aliskiren, alprostadil, amifostine, antihypertensives, antipsychotics, anxieties and hypnogens, baclofen, beta blockers, calcium channel blockers, clonidine, colosseum, corticosteroids, cyclosporine, diazoxide, diuretics, etcrotopene, eplerenone, estrogens, general anesthetics, heparins, hydrozaleine, levodopa, lithium, MAO inhibitors, metyldopa, methylenedate, minoxidil, moxisylyte, moxonidine, nitrates, nitropresside, NSAIDs, pentoxifylline, phosphodiesterase 5 inhibitors, potassium salts, quinine, rituximab, tacroilimus, tizanidine, tolvaptan, trimethoprim
Pregnancy category: D (category C in first trimester; category D in second and third trimesters)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with diabetes.
Warning: FETAL TOXICITY

Skin
Angioedema [3]
Edema [2]
Periophal edema [2]
Cardiovascular
Hypotension [2]
Central Nervous System Vertigo (dizziness) (3%) [8]
Neuromuscular/Skeletal
Anesthesia (fatigue) [2]
Gastrointestinal/Hepatic
Diarrhea [4]
Enteropathy [20]
Gastrointestinal disorder [6]
Respiratory
Pneumonia (11%) [4]
Upper respiratory tract infection (8%) [4]
Genitourinary
Urinary tract infection (3%) [3]

OLODATEROL
Trade names: Stiolto Respimat (Boehringer Ingelheim), Striverdi Respimat (Boehringer Ingelheim)
Indications: Chronic obstructive pulmonary disease including chronic bronchitis and emphysema
Class: Beta-2 adrenergic agonist
Half-life: 8 hours
Clinically important, potentially hazardous interactions with: adrenergics, beta blockers, diuretics, MAO inhibitors, QT interval prolonging agents, steroids, tricyclic antidepressants, xanthine derivatives
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Stiolto Respimat is olodaterol and tiotropium.
Warning: ASTHMA-RELATED DEATH

Skin
Rash (2%)
Cardiovascular
Hypertension [2]
Central Nervous System
Fever (>2%) [2]
Headache [3]
Vertigo (dizziness) (2%) [2]
Neuromuscular/Skeletal
Arthralgia (2%) [2]
Gastrointestinal/Hepatic
Constipation (>2%) [3]
Diarrhea (3%) [3]
Respiratory
Bronchitis (5%) [4]
COPD [2]
Cough (4%) [3]
Dyspnea [2]
Nasopharyngitis (11%) [4]
Pneumonia (>2%) [3]
Upper respiratory tract infection (8%) [4]
Genitourinary
Urinary tract infection (3%) [3]

OLOPATADINE
Trade names: Pataday (Alcon), Patanol (Alcon)
Indications: Pruritus due to allergic conjunctivitis, rhinitis
Class: Histamine H1 receptor antagonist
Half-life: 3 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Central Nervous System
Headache (7%) [2]
Ocular
Eyelid burning (<5%)
Eyelid edema (<5%)
Eyelid stinging (<5%)

**OLSALAZINE**

See: www.drugeruptiondata.com/drug/id/512

**OMACETAXINE**

**Trade name:** Synribo (Ivax)
**Indications:** Chronic myeloid leukemia (CML) in patients with resistance and/or intolerance to two or more tyrosine kinase inhibitors
**Class:** Protein synthesis inhibitor
**Half-life:** Clinically important, potentially hazardous interactions with: none known
**Pregnancy category:** D
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Skin**
- Burning (<10%)
- Ecchymoses (<10%)
- Edema (<10%)
- Erythema (<10%)
- Exfoliative dermatitis (<10%)
- Hematoma (<10%)
- Hot flashes (<10%)
- Hyperhidrosis (<10%)
- Hypersensitivity (<10%)
- Lesions (<10%)
- Peripheral edema (13%)
- Petechiae (<10%)
- Pigmentation (<10%)
- Pruritus (<10%)
- Purpura (<10%)
- Rash (10%)
- Ulcerations (<10%)
- Xerosis (<10%)

**Hair**
- Alopecia (15%)

**Mucosal**
- Aphthous stomatitis (<10%)
- Epistaxis (nosebleed) (11–15%)
- Gingival bleeding (<10%)
- Nasal congestion (<10%)
- Oral bleeding (<10%)
- Oral ulceration (<10%)
- Rhinorrhea (<10%)
- Stomatitis (<10%)
- Xerostomia (<10%)

**Cardiovascular**
- Acute coronary syndrome (<10%)
- Angina (<10%)
- Arrhythmias (<10%)
- Bradycardia (<10%)
- Extrasystoles (<10%)
- Hypertension (<10%)
- Hypotension (<10%)
- Palpitation (<10%)
- Tachycardia (<10%)

**Central Nervous System**
- Agitation (<10%)
- Anorexia (13%)
- Anxiety (<10%)
- Cerebral hemorrhage (<10%)
- Chills (13%)
- Confusion (<10%)
- Depression (<10%)
- Dysgeusia (taste perversion) (<10%)
- Fever (24–29%) [4]
- Headache (13%) [4]
- Hypoesthesia (<10%)
- Insomnia (10%)
- Mood changes (<10%)
- Paresthesias (<10%)
- Seizures (<10%)
- Tremor (<10%)
- Vertigo (dizziness) (<10%)

**Neuromuscular/Skeletal**
- Arthralgia (19%)
- Asthenia (fatigue) (23–31%) [5]
- Back pain (11%)
- Bone or joint pain (<10%)
- Gouty tophi (<10%)
- Muscle spasm (<10%)
- Myalgia/Myalgia/Myalgia (<10%)
- Pain in extremities (11–13%)

**Gastrointestinal/Hepatic**
- Abdominal distension (<10%)
- Abdominal pain (13–14%)
- Black stools (<10%)
- Constipation (15%)
- Diarrhea (35–42%) [6]
- Dyspepsia (<10%)
- Gastritis (<10%)
- Gastroesophageal reflux (<10%)
- Gastrointestinal bleeding (<10%)
- Hemorrhoids (<10%)
- Nausea (32%) [6]
- Vomiting (12–15%)

**Respiratory**
- Cough (15–16%)
- Dysphonia (<10%)
- Dyspnea (11%)
- Hemoptysis (<10%)
- Hypoesthesia (<10%)
- Headache (13%) [4]
- Fever (24–29%) [4]
- Dysgeusia (taste perversion) (<10%)
- Depression (<10%)
- Confusion (<10%)
- Chills (13%)
- Angina (<10%)
- Anorexia (13%)
- Asthenia (fatigue) (23–31%) [5]
- Back pain (11%)
- Bone or joint pain (<10%)
- Gouty tophi (<10%)
- Muscle spasm (<10%)
- Myalgia/Myalgia/Myalgia (<10%)
- Pain in extremities (11–13%)
- Arthralgia (19%) [4]
- Asthenia (fatigue) (23–31%) [5]
- Back pain (11%)
- Bone or joint pain (<10%)
- Gouty tophi (<10%)
- Muscle spasm (<10%)
- Myalgia/Myalgia/Myalgia (<10%)
- Pain in extremities (11–13%)

**Endocrine/Metabolic**
- ALT increased (2–6%)
- Appetite decreased (<10%)
- Creatine phosphokinase increased (9–16%)
- Dehydration (<10%)
- Diabetes mellitus (<10%)

**Genitourinary**
- Dysuria (<10%)

**Hematologic**
- Anemia (51–61%) [6]
- Bone marrow suppression (10%)
- Febrile neutropenia (10–20%)
- Hemoglobin decreased (62–80%)
- Leukocytosis (6%)
- Myelosuppression [2]
- Neutropenia (50%) [7]
- Platelets decreased (85–88%)
- Thrombocytopenia (56–74%) [8]

**Otic**
- Ear pain (<10%)
- Otoxicity (<10%)
- Tinnitus (<10%)

**Ocular**
- Cataract (<10%)
- Conjunctival hemorrhage (<10%)
- Conjunctivitis (<10%)
- Diplopia (<10%)
- Eyelid edema (<10%)
- Lacrimation (<10%)
- Ocular pain (<10%)
- Vision blurred (<10%)
- Xerophthalmia (<10%)

**Local**
- Infusion-site reactions (22–34%)
- Injection-site reactions (22–34%)

**Other**
- Infection (46–56%) [3]

**OMALIZUMAB**

**Trade name:** Xolair (Genentech)
**Indications:** Asthma
**Class:** IgE-targeting monoclonal antibody, Monoclonal antibody
**Half-life:** 26 days
**Clinically important, potentially hazardous interactions with:** none known
**Pregnancy category:** B
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers
**Warning:** ANAPHYLAXIS

**Skin**
- Anaphylactoid reactions/Anaphylaxis [10]
- Angioedema [2]
- Churg-Strauss syndrome [13]
- Dermatitis (2%) [2]
- Pruritus (2%) [2]
- Rash [2]
- Serum sickness [2]
- Serum sickness-like reaction [2]
- Urticaria (7%) [3]

**Central Nervous System**
- Headache (15%) [8]
- Pain (7%)
- Vertigo (dizziness) (3%)

**Neuromuscular/Skeletal**
- Arthralgia (8%) [2]
- Asthenia (fatigue) (3%) [2]
- Myalgia/Myalgia/Myalgia [2]

**Gastrointestinal/Hepatic**
- Abdominal pain [3]
- Diarrhea [2]
- Nausea [3]

**Respiratory**
- Cough [2]
- Upper respiratory tract infection (20%) [5]

**Local**
- Injection-site pain [2]
- Injection-site reactions (45%) [7]

**Other**
- Adverse effects [5]
- Infection [2]
Genotype 4 chronic hepatitis C virus infection in patients without cirrhosis (in combination with ribavirin)

Contra-indications: CYP3A4 inhibitor (ritonavir), Direct-acting antiviral, Hepatitis C virus NS5A/4 protease inhibitor (paritaprevir), Hepatitis C virus NS5A inhibitor (ombitasvir)

Half-life: 21–25 hours (ombitasvir); 6 hours (paritaprevir); 4 hours (ritonavir)

Clinical important, potentially hazardous interactions with: atazanavir, carbamazepine, cisapride, colchicine, dihydroergotamine, dronedarone, efavirenz, ergotamine, ethyl estradiol-containing medications, lopinavir, lovastatin, lurasidone, methylergonovine, midazolam, midostaurin, nortriptyline, phenobarbital, phenytoin, pimozide, ranolazine, rifampin, rilpivirine, salmeterol, sildenafil, simvastatin, St John’s wort, triazolam, voriconazole

Note: Contra-indicated in patients with moderate or severe hepatic impairment or with known hypersensitivity to ritonavir (see separate entry). See also separate entry for ribavirin.

Pregnancy category: B (pregnancy category will be X when administered with ribavirin)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Dermatitis (<5%)
- Eczema (<5%)
- Exfoliative dermatitis (<5%)
- Photosensitivity (<5%)
- Pruritus (5%) [8]
- Psoriasis (<3%) [4]
- Rash (<5%) [4]
- Ulcerations (<5%)
- Urticaria (<5%)

Central Nervous System
- Headache [17]
- Insomnia (5%) [11]
- Irritability [2]
- Vertigo (dizziness) [2]

Neuromuscular/Skeletal
- Arthralgia [2]
- Asthenia (fatigue) (7–25%) [17]

Gastrointestinal/Hepatic
- Diarrhea [10]
- Nausea (9%) [13]
- Vomiting [2]

Respiratory
- Cough [3]
- Dyspnea [2]
- Nasopharyngitis [2]

Endocrine/Metabolic
- Acidosis [2]
- ALT increased [3]
- AST increased [3]

Hematologic
- Anemia [6]
- Hemoglobin decreased [2]

Other
- Adverse effects [2]
- Death [2]

Skin
- AGEP [2]
- Anaphylactoid reactions/Anaphylaxis [7]
- Angioedema [5]
- Baboon syndrome (SDRIFE) [2]
- Bullous pemphigoid [2]
- Contact dermatitis [2]
- Eczema [2]
- Edema (<10%) [2]
- Erythroderma [2]
- Exfoliative dermatitis [3]
- Hypersensitivity [2]
- Lichen planus [2]
- Lichen spinulosus [2]
- Lichenoid eruption [2]
- Lupus erythematosus [5]
- Pemphigus (exacerbation) [2]
- Periorbital edema [2]
- Pruritus (<10%) [8]
- Rash (2%) [6]
- Toxidermic necrolysis [5]
- Urticaria (<10%) [9]
- Vasculitis [2]
- Xerosis [2]

Hair
- Alopecia [2]

Mucosal
- Oral candidiasis [3]
- Xerostomia (<10%) [2]

Central Nervous System
- Anorexia [3]
- Dysgeusia (taste perversion) (<10%) [4]
- Headache (7%) [2]
- Paresthesias [2]
- Somnolence (drowsiness) [2]
- Vertigo (dizziness) (2%)

Neuromuscular/Skeletal
- Asthenia (fatigue) [2]
- Myalgia/Myopathy (<10%)
- Rhabdomyolysis [2]

Gastrointestinal/Hepatic
- Abdominal distension [2]
- Abdominal pain (5%) [4]
- Constipation [3]
- Diarrhea (4%) [9]
- Flatulence (3%)
- Hepatitis [4]
- Hepatotoxicity [3]
- Nausea (4%) [7]
- Pancreatitis [2]
- Vomiting (3%) [6]

Respiratory
- Cough [2]
- Upper respiratory tract infection (2%)

Endocrine/Metabolic
- Gynecomastia [11]
- Hypomagnesemia [7]

Renal
- Nephrotoxicity [9]

Hematologic
- Agranulocytosis [3]
- Hemolytic anemia [2]
- Leukopenia [3]
- Neutropenia [3]

Ocular
- Visual disturbances [2]

Other
- Adverse effects [9]

Skin
- Anaphylactoid reactions/Anaphylaxis [5]
- Fixed eruption [2]
- Pruritus (5%)

Mucosal
- Salopain (<5%)
- Xerostomia (<10%) [3]

Cardiovascular
- Bradycardia [2]
- Flushing [2]
Hypotension [3]
Myocardial ischemia [2]
QT prolongation [1]
Torsades de pointes [3]
Ventricular tachycardia [2]

Central Nervous System
Anxiety (6%)
Chills (510%)
Fever (2–8%)
Headache (17–25%) [14]
Paresthesias (2%)
Seizures [3]
Somnolence (drowsiness) (8%) [4]
Vertigo (dizziness) (4–7%) [8]

Neuromuscular/Skeletal
Ashtenia (fatigue) (9–13%)

Gastrointestinal/Hepatic
Abdominal pain [2]
Constipation (6–11%) [7]
Diarrhea (8–16%) [3]

Respiratory
Hypoxia (9%)

Endocrine/Metabolic
ALT increased [2]

Local
Injection-site reactions (4%) [3]

Other
Adverse effects [3]
Death [2]
Hiccups [2]

ORAL CONTRACEPTIVES

Trade names: Alesse (Wyeth), Aviane (Barr), Brevicon (Watson), Demulen (Pfizer), Desogen (Organon), Estrostep (Pfizer), Efvra (Johnson & Johnson), Levlen (Bayer), Levite (Bayer), Levora (Watson), Lo/Ovral (Wyeth), Loestrin (Barr), Lo/Ovral (Wyeth), Loestrin (Barr), Lulette (Pfizer), Mircette (Organon), Modicon (Ortho), Necon (Watson), Nordette (Monarch), Norinyl (Watson), Ortho-Tri-Cyclen (Ortho-McNeil), Ortho-Cyden (Ortho-McNeil), Ortho-Novum (Ortho-McNeil), Ovcon (Warner Chilcott), Ovral (Wyeth), Tri-Phesil (Bayer), Tri-Norinyl (Watson), Triphasil (Wyeth), Trivora (Watson), Yasmin (Bayer), Yaz (Bayer), Zovia (Watson)

Indications: Prevention of pregnancy

Class: Hormone

Half-life: N/A

Clinically important, potentially hazardous interactions with: aminophylline, amprenavir, anticonvulsants, aprepitant, azithromycin, atorvastatin, beclomethasone, bexarotene, bosentan, budesonide, cigarette smoking, danazol, doxycycline, efavirenz, eslicarbazepine, exenatide, fluocicloxacin, fluvoxilide, flucitacose propionate, glecaprevir & pibrentasvir, hydrocortisone, insulin aspart, insulin degludec, insulin detemir, insulin glargine, insulin glulisine, isoretinoin, lamotrigine, lomotapide, lymecycline, metformin, methylprednisolone, mifepristone, modafinil, naratriptan, neflavinir, oxcarbazepine, perampanel, prednisolone, prednisone, rifabutin, rifampin, ritonavir, roflumilast, selegiline, St John's Wort, teriflunomide, tigacycline, triamcinolone, troxerutin, cromoglycate, ursodiol, zolmitriptan

Warning: CIGARETTE SMOKING AND SERIOUS CARDIOVASCULAR EVENTS

Skin
Acneform eruption [17]
Angioedema [4]
Candidiasis [9]
Chloasma [13]
Erythema multiforme [2]
Erythema nodosum [18]
Exanthems [2]
Herpes gestationis [3]
Lupus erythematosus [29]
Melanoma [5]
Melasma [8]
Perioral dermatitis [8]
Photosensitivity [12]
Pigmentation [18]
Pruritus [5]
Purpura [3]
Sebhorreic [3]
Spider angioma [2]
Sweet's syndrome [2]
Telangiectasia [6]
Urticaria [2]

Hair
Alopecia [19]
Alopecia areata [4]
Hirsutism [12]

Mucosal
Gingival hyperplasia/hypertrophy [2]

Cardiovascular
Thrombophlebitis [2]
Venous thromboembolism [6]

Central Nervous System
Chorea [2]
Depression [2]
Headache [3]

Gastrointestinal/Hepatic
Colitis [3]
Nausea [4]

Endocrine/Metabolic
Acute intermittent porphyria [5]
Galactoarreha [2]
Mastodynia [3]
Porphyria cutanea tarda [28]
Porphyria variegate [2]

Genitourinary
Vaginal bleeding [4]

Local
Application-site reactions (92%) [2]

Other
Adverse effects [3]

See all our books at www.crcpress.com

ORITAVANCIN

Trade name: Orbactiv (Medicines Co)

Indications: Acute bacterial skin and skin structure infections caused or suspected to be caused by susceptible isolates of designated planktonic organisms

Class: Antibiotic, lipoglycopeptide

Half-life: 245 hours

Clinically important, potentially hazardous interactions with: warfarin, voriconazol

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Abcess (4%) [3]
Angioedema (<2%)
Cellulitis [4]
Erythema multiforme (<2%)
Hypersensitivity (<2%)
Leukocytoclastic vasculitis (<2%)
Pruritus (<2% [3]
Rash (<2%)
Urticaria (<2%)

Cardiovascular
Phlebitis [2]
Tachycardia (3%)

Central Nervous System
Fever [4]
Headache (7%) [6]
Vertigo (dizziness) (3%) [4]

Neuromuscular/Skeletal
Myalgia/Myalgia (<2%)
Osteoarthralgia (<2%)

Gastrointestinal/Hepatic
Constipation [5]
Diarrhea (4%) [6]
Nausea (10%) [7]
Vomiting (3%) [5]

Respiratory
Bronchoscopy (<2%)
Wheezing (<2%)

Endocrine/Metabolic
ALT increased (3%) [4]
AST increased (2%) [2]
Hyperuricemia (<2%)
Hypoglycemia (<2%)

Hematologic
Anemia (<2%)
Eosinophilia (<2%)

Local
Infusion-site reactions (2%) [3]
Injection-site extravasation [3]
Injection-site phlebitis [3]
Injection-site reactions [2]
**ORLISTAT**

**Trade names:** Alli (GSK), Xenical (Roche)
**Indications:** Obesity, weight reduction
**Class:** Lipase inhibitor
**Half-life:** 12 hours

Clinically important, potentially hazardous interactions with: acarbose, amiodarone, antiepileptics, coumarins, cyclosporine, ergocalciferol, ethosuximide, lacosamide, levothyroxine, oxcarbazepine, paricalticol, phytodaniode, tiagabine, vigabatrin, vitamin A, vitamin E, warfarin

**Pregnancy category:** B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Note:** Contra-indicated in organ transplant recipients. Orlistat interferes with the medicines used to prevent transplant rejection.

<table>
<thead>
<tr>
<th>Skin</th>
<th>Lichenoid eruption [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peripheral edema (3%)</td>
</tr>
<tr>
<td></td>
<td>Rash (4%)</td>
</tr>
<tr>
<td></td>
<td>Xerosis (2%)</td>
</tr>
</tbody>
</table>

| Mucosal                       | Gingivitis (2–4%)      |

<table>
<thead>
<tr>
<th>Central Nervous System</th>
<th>Anxiety (3–5%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depression (3%)</td>
</tr>
<tr>
<td></td>
<td>Headache (31%) [2]</td>
</tr>
<tr>
<td></td>
<td>Sleep related disorder (4%)</td>
</tr>
<tr>
<td></td>
<td>Vertigo (dizziness) (5%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neuromuscular/Skeletal</th>
<th>Arthralgia (5%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Asthenia (fatigue) (3–7%)</td>
</tr>
<tr>
<td></td>
<td>Back pain (14%)</td>
</tr>
<tr>
<td></td>
<td>Bone or joint pain (2%)</td>
</tr>
<tr>
<td></td>
<td>Myalgia/Myopathy (4%)</td>
</tr>
<tr>
<td></td>
<td>Tendinitis (2%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gastrointestinal/Hepatic</th>
<th>Abdominal pain (26%) [4]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cholelithiasis (gallstones) (3%)</td>
</tr>
<tr>
<td></td>
<td>Defecation (increased) (3–11%) [2]</td>
</tr>
<tr>
<td></td>
<td>Fecal incontinence (2–8%)</td>
</tr>
<tr>
<td></td>
<td>Fecal urgency (3–23%) [2]</td>
</tr>
<tr>
<td></td>
<td>Flatulence (with discharge) (2–24%) [2]</td>
</tr>
<tr>
<td></td>
<td>Hepatic failure [2]</td>
</tr>
<tr>
<td></td>
<td>Hepatitis [3]</td>
</tr>
<tr>
<td></td>
<td>Hepatotoxicity [4]</td>
</tr>
<tr>
<td></td>
<td>Nausea (4–8%)</td>
</tr>
<tr>
<td></td>
<td>Pancreatitis [5]</td>
</tr>
<tr>
<td></td>
<td>Vomiting (4%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory</th>
<th>Influenza (40%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upper respiratory tract infection (26–38%) [2]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Endocrine/Metabolic</th>
<th>Hypoglycemia (in diabetic patients) [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Menstrual irregularities (10%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Genitourinary</th>
<th>Urinary tract infection (6–8%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vaginitis (3–4%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Renal</th>
<th>Nephrotoxicity [9]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Renal failure [2]</td>
</tr>
</tbody>
</table>

**Otic**

| Otis media (3–4%) |

**Other**

<table>
<thead>
<tr>
<th>Adverse effects [7]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooth disorder (3–4%)</td>
</tr>
</tbody>
</table>

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**ORPHENADRINE**

**See:** www.drugerupationdata.com/drug/id/517

**OSTELTAMIVIR**

**Trade name:** Tamiflu (Roche)
**Indications:** Influenza infection
**Class:** Antiviral, Neuraminidase inhibitor
**Half-life:** 610 hours

Clinically important, potentially hazardous interactions with: none known

**Pregnancy category:** C

<table>
<thead>
<tr>
<th>Skin</th>
<th>Rash [5]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Toxic epidermal necrolysis [2]</td>
</tr>
</tbody>
</table>

**Central Nervous System**

<table>
<thead>
<tr>
<th>Delirium [5]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hallucinations [3]</td>
</tr>
<tr>
<td>Headache [2]</td>
</tr>
<tr>
<td>Insomnia [2]</td>
</tr>
<tr>
<td>Neuropsychiatric disturbances [3]</td>
</tr>
<tr>
<td>Neurotoxicity [5]</td>
</tr>
<tr>
<td>Seizures [2]</td>
</tr>
<tr>
<td>Suicidal ideation [2]</td>
</tr>
</tbody>
</table>

**Gastrointestinal/Hepatic**

<table>
<thead>
<tr>
<th>Abdominal pain (2–5%) [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhea (&lt;3%) [8]</td>
</tr>
<tr>
<td>Hemorrhagic colitis [5]</td>
</tr>
<tr>
<td>Nausea (4–10%) [16]</td>
</tr>
<tr>
<td>Vomiting (2–15%) [16]</td>
</tr>
</tbody>
</table>

**Respiratory**

<table>
<thead>
<tr>
<th>Respiratory failure [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper respiratory tract infection [2]</td>
</tr>
</tbody>
</table>

**Hematologic**

| Thrombocytopenia [2] |

**Other**

| Adverse effects [7] |

---

**OSPEMIFENE**

**Trade name:** Osphena (Shionogi)
**Indications:** Dyspareunia due to menopausal vulvar and vaginal atrophy
**Class:** Estrogen agonist. Estrogen antagonist, Selective estrogen receptor modulator (SERM)
**Half-life:** 26 hours

Clinically important, potentially hazardous interactions with: fluconazole, ketoconazole, other estrogen agonists or antagonists, rifampin

**Pregnancy category:** X

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with undiagnosed abnormal genital bleeding, known or suspected estrogen-dependent neoplasia, active DVT or pulmonary embolism, or active arterial thromboembolic disease.

<table>
<thead>
<tr>
<th>Skin</th>
<th>Rash (41%) [7]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Xerosis (31%) [2]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nails</th>
<th>Nail toxicity (25%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Paronychia [2]</td>
</tr>
</tbody>
</table>

| Mucosal                      | Stomatitis (12%) |

<table>
<thead>
<tr>
<th>Cardiovascular/Hepatic</th>
<th>Constipation (15%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diarrhea (42%) [7]</td>
</tr>
<tr>
<td></td>
<td>Nausea (17%) [2]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory</th>
<th>Cough (14%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dyspnea [2]</td>
</tr>
<tr>
<td></td>
<td>Pneumonia (4%)</td>
</tr>
<tr>
<td></td>
<td>Pneumonitis (3%)</td>
</tr>
<tr>
<td></td>
<td>Pulmonary toxicity [5]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Endocrine/Metabolic</th>
<th>Appetite decreased (16%) [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypermagnesemia (20%)</td>
</tr>
<tr>
<td></td>
<td>Hyponatremia (26%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hematologic</th>
<th>Anemia (44%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lymphopenia (63%)</td>
</tr>
<tr>
<td></td>
<td>Neutropenia (33%)</td>
</tr>
<tr>
<td></td>
<td>Thrombocytopenia (54%)</td>
</tr>
</tbody>
</table>

| Ocular                       | Ocular adverse effects (18%) |

---
Warning: ENDOMETRIAL CANCER AND CARDIOVASCULAR DISORDERS

Skin
- Hot flashes (8%) [7]
- Hyperhidrosis (2%) [7]

Neuromuscular/Skeletal
- Muscle spasm (3%) [11]

Genitourinary
- Urinary tract infection [2]
- Vaginal discharge (4%) [2]

OXACILLIN

Indications: Various infections caused by susceptible organisms
Class: Antibiotic, penicillin
Half-life: 2360 minutes

Clinically important, potentially hazardous interactions with: aminoglycosides, BCG vaccine, capreomycin, cardiac glycosides, clozapine, dexamethasone, diuretics, teflumonide, natalizumab, pimecrolimus, polymyxins, sipuleucel-T, tacrolimus, taxanes, topotecan, trastuzumab, vaccines, vitamin K antagonists

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
- Exanthems [2]
- Rash (<22%) [2]

Other
- Adverse effects [2]

OXALIPLATIN

Trade name: Eloxatin (Sanofi-Aventis)
Indications: Metastatic carcinoma of the colon or rectum (in combination with fluorouracil/leucovorin (FOLFOX))
Class: Alkylation agent, Antineoplastic
Half-life: 391 hours

Clinically important, potentially hazardous interactions with: anticancer drugs, cyclosporine, methotrexate, minocycline, oxytetracycline, demeclocycline, doxycycline, imipenem/cilastatin, methotrexate, minocycline, oxytetracycline, tetracycline

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: ANAPHYLACTIC REACTIONS

Skin
- Anaphylactoid reactions/Anaphylaxis [11]
- Diaphoresis (5%) [2]
- Edema (13–15%) [2]
- Erythema [4]
- Exanthems (25%) [11]
- Hand-foot syndrome (7–13%) [12]
- Hot flashes (25%) [2]
- Hypersensitivity (12%) [29]
- Peripheral edema (11%) [8]
- Pruritus (6%) [5]

Purpura (25%)
- Radiation recall dermatitis [3]
- Rash (5–11%) [11]
- Thrombocytopenic purpura [2]
- Toxicity [2]
- Urticaria [2]
- Xerosis (6%)

Hair
- Alopecia (3–38%) [3]

Mucosal
- Epistaxis (nosebleed) (<16%)
- Gingivitis (25%)
- Mucositis (10%) [4]
- Oral mucositis [2]
- Stomatitis (32–42%) [3]
- Xerostomia (5%)

Cardiovascular
- Chest pain (4%) [2]
- Flushing (2–7%) [2]
- Hypertension [5]
- Hypotension (5%) [2]
- Tachycardia [3]
- Thromboembolism (4%) [9]

Central Nervous System
- Anorexia (13–35%) [4]
- Anxiety (5%)
- Chills [3]
- Depression (9%)
- Dysesthesia (often cold-induced or cold-exacerbated) (38%) [7]
- Dysesthesia (taste perversion) (<14%)
- Dysestesias (often cold-induced or cold-exacerbated) (38%) [7]
- Fever (16–27%) [9]
- Headache (7–13%)
- Hyperalgesia [2]
- Hypoesthesia [2]
- Insomnia (4–13%)
- Leukoencephalopathy [4]
- Neuropathy (92%) [38]
- Rigors (8%) [11]
- Sensory disturbances (8%)
- Vertigo (dizziness) (7–8%)

Neuromuscular/Skeletal
- Arthralgia (5–10%)
- Asthenia (fatigue) (44–70%) [21]
- Axia [2]
- Back pain (11–16%)
- Myalgia/Myalgias (14%)

Gastrointestinal/Hepatic
- Abdominal pain (18–31%) [4]
- Constipation (22–32%) [2]
- Diarrhea (44–56%) [41]
- Dyspepsia (8–12%) [38]
- Flatulence (6–9%) [11]
- Gastroesophageal reflux (3%)
- Gastrointestinal toxicity [8]
- Nausea (59–74%) [23]
- Sinusoidal obstruction syndrome [2]
- Vomiting (27–47%) [19]

Respiratory
- Cough (9–35%)
- Dyspnea (5–18%) [2]
- Pharyngitis (10%)
- Pneumonia [2]
- Pulmonary embolism [2]
- Pulmonary fibrosis [2]
- Pulmonary toxicity [2]
- Rhinitis (4–10%)
- Upper respiratory tract infection (4%)

Endocrine/Metabolic
- ALP increased (42%)
- ALT increased (57%)
- AST increased [2]
- Demyelinating polyneuropathy (9%)
- Hypoglycemia (14%)
- Hypoaluminaemia (8%)
- Hypocalcemia (7%)
- Hypokalemia (11%)
- Hypoproteinemia (8%) [2]
- Serum creatinine increased (4%) [2]
- Weight gain (10%)
- Weight loss (11%)

Genitourinary
- Urinary frequency (5%)

Renal
- Nephrotoxicity [3]

Hematologic
- Anemia (27–76%) [24]
- Febrile neutropenia (<4%) [7]
- Hemo poetic anemia [4]
- Leukocytopenia [2]
- Leukopenia (34–85%) [14]
- Lymphopenia (6%)
- Myelosuppression [4]
- Neutropenia (25–81%) [52]
- Thrombocytopenia (20–77%) [38]
- Thrombosis (6%)

Ocular
- Abnormal vision (5%)
- Conjunctivitis (9%)
- Epiphora [3]
- Lacrimation (4–9%)
- Vision blurred [2]

Local
- Injection-site reactions (5–11%) [2]

Other
- Adverse effects [2]
- Allergic reactions (3%) [4]
- Death [3]
- Hiccups (5%)
- Infection (8–25%) [2]

OXAPROZIN

Trade name: Daypro (Pfizer)
Indications: Arthritis
Class: Non-steroidal anti-inflammatory (NSAID)
Half-life: 4250 hours

Clinically important, potentially hazardous interactions with: methotrexate

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Skin
- Pruritus (<10%)
- Rash (>10%) [2]
### OXAZEPAM

**Trade name:** Serax (Mayne)

**Indications:** Anxiety, depression

**Class:** Benzodiazepine

**Half-life:** 36 hours

**Clinically important, potentially hazardous interactions with:**
- amprenamine, chlorpheniramine, clonazepam, clobazam, clozapine, conivaptan, diphenoxylate, antihistamines, arbutamine, cannabinoids, memantine, metoclopramide, nefopam, nitrates, ketoconazole, levodopa, MAO inhibitors, disopyramide, domperidone, haloperidol, clozapine, conivaptan, diphenoxylate, voxcilaprevir, sorafenib, SSRIs, St John's wort, tadalafil, tenofovir alafenamide, thiazide diuretics, tolvaptan, tricyclic antidepressants, ulipristal, valproic acid, zuclopenthixol

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:**
- breastfeeding mothers; pediatric patients

**Skin**
- Dermatitis (<10%)
- Diaphoresis (>10%)
- Rash (>10%)

**Mucosal**
- Sialopenia (>10%)
- Sialorrhea (<10%)
- Xerostomia (>10%)

### OXCARBAZEPINE

**Trade names:** Oxtellar XR (Supernus), T rileptal (Novartis)

**Indications:**
- Partial epileptic seizures

**Class:** Anticonvulsant, CYP3A4 inducer, Mood stabilizer

**Half-life:** 12.5 hours

**Clinically important, potentially hazardous interactions with:**
- alcohol, antipsychotics, carbamazepine, chloroquine, clobazam, cobicistat/elvitegravir/emericitabine/tenofovir alafenamide, cobicistat/elvitegravir/emericitabine/tenofovir disoproxil, cyclosporine, CYP3A4 substrates, dronedarone, emtricitabine/ritispivirine/tenofovir alafenamide, escarbazepine, everolimus, exemestane, guanfacine, hydroxychloroquine, imatinib, ibapetine, lepaspavir & sofusbvur, levomepromazine, levonorgestrel, MAO inhibitors, maraviroc, melphoquine, nifedipine, nilotinib, nilosipidine, oral contraceptives, orlistat, paxopanib, perampanel, phenobarbital, phenytoin, prazosin, ranolazine, rilpivirine, risperidone, romidepsin, saxaglupin, seleline, simprevir, sofosbuvir, sofosbuvir & voxcilaprevir, sofosbuvir/voxcilaprevir, sorafenib, SSRIs, St John's wort, taladafi, tenofovir alafenamide, thiazide diuretics, tolvaptan, tricyclic antidepressants, ulipristal, valproic acid, zuclopenthixol

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:**
- nursing mothers; pediatric patients

**Skin**
- Acneform eruption (<2%)
- Diaphoresis (3%)
- DRESS syndrome [6]
- Ecchymoses (4%)
- Edema (<2%)
- Exanthes [4]
- Hot flashes (<2%)
- Hyperhidrosis (3%)
- Hypersensitivity [6]
- Lymphadenopathy (<2%)
- Purpura (2%)
- Rash (<6%) [11]
- Stevens-Johnson syndrome [10]

**Central Nervous System**
- Agitation (<2%)
- Anorexia (3–5%)
- Anxiety (5–7%)
- Coma [2]
- Confusion (<7%)
- Dysgeusia (taste perversion) (5%)
- Emotional lability (2–3%)
- Fever (3%)
- Gait instability (5–17%)
- Headache (13–32%) [8]
- Hyperesthesia (3%)
- Hypoesthesia (<2%)
- Incoordination (<4%)
- Insomnia (2–6%)
- Nervousness (3–5%)
- Somnolence (drowsiness) (5–36%) [5]
- Speech disorder (<3%)
- Tremor (3–16%) [2]
- Vertigo (dizziness) (3–49%) [12]

**Cardiovascular**
- chest pain (2%)
- Hypotension (<3%)

**Respiratory**
- Cough (5%)
- Pharyngitis (3%)
- Pseudopseudomembranous colitis (3%)
- Pneumonia (2%)
- Rhinitis (2–5%)

**Endocrine/Metabolic**
- Sinusitis (4%)
- Upper respiratory tract infection (5–10%)

**Ocular**
- Abnormal vision (2–14%)
- Accommodation disorder (<3%)
- Diplopia (<40%) [10]
- Nystagmus (2–26%)

**Other**
- Adverse effects [7]
- Allergic reactions (2%) [3]
- Dopamine (2%) [2]
- Hypotension (2%) [11]
- Infection (<2–7%)
- Teratogenicity [3]
- Toothache (2%)
**OXYCODONE**

**Trade name:** OxyContin (Purdue), OxyIR (Purdue), Percocet (Endo), Roxicodone (aaiPharma), Troxyca (Pfizer), Tylox (Ortho-McNeil), Xtampza ER (Collegium)

**Indications:** Pain

**Class:** Opiate agonist

**Half-life:** 4.6 hours

**Clinically important, potentially hazardous interactions with:** cimetidine, clonazepam, tetracaine & oxymetazoline as intranasal solution and a nasal decongestant in over-the-counter products.

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Oxycodone is often combined with acetaminophen (Percocet, Roxicet, Tylox) or aspirin (Percodan, Roxiprin); Trigmin is oxycodeone and naloxone; Targmin is oxycodone and naltrexone. Contra-indicated in patients with significant respiratory depression, acute or severe bronchial asthma, or with known or suspected gastrointestinal obstruction, including paralytic ileus.

**OXYMETAZOLINE**

**Trade name:** Rhofade (Allergan)

**Indications:** Persistent facial erythema associated with rosacea

**Class:** Alpha adrenoceptor agonist

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** none known

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** For topical use only. See separate entry for tetracaine & oxymetazoline as intranasal formulation. Oxymetazoline is also available as an ophthalmic solution and a nasal decongestant in over-the-counter products.

**Skin**
- Rosacea (exacerbation) (<3%)

**Local**
- Application-site dermatitis (<3%)
- Application-site pain (<2%)
- Application-site pruritus (<2%)

**WARNING:** ADDICTION, ABUSE and MISUSE; LIFETHREATENING RESPIRATORY DEPRESSION; ACCIDENTAL INGESTION; NEONATAL OPIOID WITHDRAWAL SYNDROME; and CYTOCHROME P450 3A4 INTERACTION

**Skin**
- Hot flashes (<10%)
- Pruritus [7]

**Mucosal**
- Sialopenia [2]
- Xerostomia (7%) [31]

**Central Nervous System**
- Cognitive impairment [4]
- Insomnia (6%)
- Nervousness (7%)
- Somnolence (drowsiness) (14%)
- Vertigo (dizziness) (17%) [2]

**Gastrointestinal/Hepatic**
- Constipation (15%) [4]
- Dyspepsia (6%)
- Nausea [3]

**Genitourinary**
- Urinary retention (6%)
- Urinary tract infection (7%)

**Ocular**
- Vision blurred (10%) (a)

**Other**
- Adverse effects [4]
- Allergic reactions [2]
<table>
<thead>
<tr>
<th>Pregnancy category:</th>
<th>Mucosal</th>
<th>Respiratory</th>
<th>Genitourinary</th>
</tr>
</thead>
</table>

Pregnancy category: X

Skin
- Anaphylactoid reactions/Anaphylaxis [7]
PACLITAXEL

Trade name: Taxol (Bristol-Myers Squibb)
Indications: Breast cancer and metastatic carcinoma of the ovary
Class: Antineoplastic, Taxane
Half-life: 517 hours

Clinically important, potentially hazardous interactions with: atazanavir, bexarotene, buspirone, carbamazepine, cisplatin, clarithromycin, delavirdine, doxorubicin, efavirenz, etravirine, fosamprenavir, gemfibrozil, indinavir, iraconazole, ketoconazole, lapatinib, lovatatin, nefazodone, nelfinavir, repaglinide, rifampin, ritonavir, saquinavir, sildenafil, simvastatin, telithromycin, teriflunomide, trastuzumab, triazolam

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Studies have shown that elderly patients have an increased risk of severe myelosuppression, severe neutropathy and a higher incidence of cardiovascular events.

Skin
Acneform eruption [6]
Acral erythema [4]
Anaphylactoid reactions/Anaphylaxis [3]
Dermatitis [2]
Desquamation (7%) [2]
Edema (21%) [2]
Erythema [6]
Exantheme [2]
Fixed eruption [2]
Folliculitis [2]
Hand-foot syndrome [17]
Hypersensitivity (31–45%) [25]
Lupus erythematosus [5]
Photosensitivity [4]
Pigmentation [3]
Pruritus [6]
Pustules [2]
Radiation recall dermatitis [10]
Rash (12%) [18]
Recall reaction [2]
Sclerodema [6]
Toxicity [9]
Tumor lysis syndrome [2]
Urticaria (2–4%) [4]

Hair
Alopecia (87.100%) [47]

Nails
Leukonychia (Mees’ lines) [2]
Nail changes (2%) [6]
Nail pigmentation (2%) [2]
Onycholysis [9]
Pyriform granuloma [2]

Mucosal
Epistaxis (nosebleed) [2]
Mucosal inflammation [3]
Mucositis (17–35%) [12]
Oral lesions (38%) [2]
Stomatitis (23%) [9]

Cardiovascular
Atrial fibrillation [2]
Bradyarrhythmias [3]
Cardiotoxicity [3]
Congestive heart failure [3]
Flushing (28%) [3]
Hypertension [12]
Hypotension (4–12%)
Myocardial infarction [2]

Central Nervous System
Anorexia [6]
Dysgeusia (taste perversion) [3]
Fever [4]
Headache [2]
Insomnia [2]
Neurotoxicity [39]
Pain [9]
Paresthesias (>10%) [5]
Peripheral neuropathy (42–70%) [35]
Seizures [2]
Vertigo (dizziness) [7]

Neuromuscular/Skeletal
Arthralgia [60%] [15]
Asthenia (fatigue) (17%) [54]
Bleeding [2]
Bone or joint pain [3]
Myalgia/Myopathy (19–60%) [23]

Gastrointestinal/Hepatic
Abdominal pain (>10%) [2]
Constipation [6]
Diarrhea (38%) [39]
Dyspepsia [2]
Gastrointestinal bleeding [2]
Gastrointestinal disorder [2]
Gastrointestinal perforation [3]
Hepatotoxicity [5]
Nausea (52%) [33]
Pancreatitis [4]
Vomiting [26]

Respiratory
Cough [3]
Dyspnea (2%) [4]
Fever [2]
Headache [2]
Fever [2]

Endocrine/Metabolic
ALP increased [2]
ALT increased [10]
Appetite decreased [4]
AST increased [7]
Hyperglycemia [4]
SIADH [3]

Renal
Proteinuria [3]

Hematologic
Anemia (47%) [34]
Bleeding [2]

Hematologic
Anemia (47%) [34]
Bleeding [2]
Febrile neutropenia [19]
Hemotoxicity [10]
Leukopenia (90%) [27]
Lymphopenia (2%) [2]
Myelosuppression [4]
Myelotoxicity [3]
Neutropenia (78–98%) [83]
Thrombocytopenia (4–20%) [29]

Ocular
Macular edema [10]
Maculopathy [2]

Local
Injection-site cellulitis (>10%)
Injection-site extravasation (>10%) [4]
Injection-site pain (>10%)
Injection-site reactions (13%) [2]

Other
Adverse effects [8]
Allergic reactions (15%) [8]
Death [12]
Infection (322%) [12]
Kounis syndrome [2]

PALBOCICLIB

Trade name: Ibrance (Pfizer)
Indications: Treatment of postmenopausal women with estrogen receptor (ER)-positive, human epidermal growth factor receptor 2 (HER2)-negative advanced breast cancer (in combination with letrozole)
Class: Kinase inhibitor
Half-life: 29 hours

Clinically important, potentially hazardous interactions with: bosentan, carbamazepine, clarithromycin, efavirenz, etravirine, grapefruit juice, indinavir, iraconazole, ketoconazole, lopinavir, modafinil, nelfinavir, nefazodone, nelfinavir, phenytoin, posaconazole, ritonavir, saquinavir, St John's wort, telaprevir, telithromycin, verapamil, voriconazole

Pregnancy category: NA (Can cause fetal harm)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Periangular edema [2]

Hair
Alopecia (22%)

Mucosal
Epistaxis (nosebleed) (11%) [2]
Stomatitis (25%)

Central Nervous System
Fever [2]
Headache [2]
Peripheral neuropathy (13%)

Neuromuscular/Skeletal
Asthenia (fatigue) (13–41%) [10]

Gastrointestinal/Hepatic
Constipation [2]
Diarrhea (21%) [6]
Nausea (25%) [7]
Vomiting (15%) [3]

Respiratory
Dyspnea [2]
Upper respiratory tract infection (31%)

Endocrine/Metabolic
Appetite decreased (16%)

Hematologic
Anemia (35%) [9]
Febrile neutropenia [7]
Leukopenia (43%) [11]
Lymphopenia (2%)
Neutropenia (75%) [21]
Thrombocytopenia (17%) [6]
Severe oral mucositis in cancer

Keratinocyte growth factor

Immunomodulator, Monoclonal antibody

Invega is not recommended for patients

5-HT3 antagonist, Antiemetic, Serotonin

40 hours

Schizophrenia

2018 by Taylor & Francis Group, LLC 213

See also the fixed drug combination

18 days

Antiemetic (for cancer

Antipsychotic

INCREASED MORTALITY IN

Prophylaxis of serious lower

4.5 hours

RELATED PSYCHOSIS

ELDERLY PATIENTS WITH DEMENTIA-

Warning:

risperidone (see separate entry).

Paliperidone is the active metabolite of

with creatinine clearance below 10 mL/min.

Note:

mothers; pediatric patients

prescribing guidelines for:

Important contra-indications noted in the

Pregnancy category:

Pregnancy category:

Clinically important, potentially hazardous

interactions with: heparin

PALIFERMIN

Trade name: Kepivance (Amgen)

Indications: Severe oral mucositis in cancer patients

Class: Keratinocyte growth factor

Half-life: 4.5 hours

Clinically important, potentially hazardous interactions with: heparin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin

Acanthosis nigricans [2]

Edema (28%) [2]

Erythema (32%) [2]

Hand-foot syndrome [3]

Pruritus (35%) [3]

Rash (62%) [7]

Mucosal

Tongue edema (17%) [3]

Tongue pigmentation (17%)

Cardiovascular

Hypertension (~12%)

Central Nervous System

Dysesthesia (12%)

Dysgeusia (taste perversion) (16%) [4]

Fever (39%)

Dysesthesia (12%)

Central Nervous System

Agitation (<2%) [6]

Akathisia (3–17%) [22]

Anxiety (2–9%) [9]

Depression [2]

Dysarthria (<4%) [2]

Extrapyramidal symptoms (4–23%) [15]

Headache (4–14%) [16]

Insomnia (<2%) [22]

Neuroleptic malignant syndrome [6]

Nightmares (<2%)

Parkinsonism [4]

Psychosis [3]

Schizophrenia [6]

Sleep related disorder (2–3%)

Somnolence (drowsiness) (6–26%) [13]

Tardive dyskinesia [3]

Tremor [7]

Vertigo (dizziness) (2–6%) [3]

Neuromuscular/Skeletal

Arthralgia (10%)

PALIPERIDONE

Trade name: Invega (Janssen)

Indications: Schizophrenia

Class: Antipsychotic

Half-life: ~23 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, alcohol, alpha blockers, amphetamine, angiotensin II receptor antagonists, carbamazepine, CNS depressants, dopamine agonists, droperidol, general anesthetics, iraconazole, levodopa, levoxmemprazine, lithium, methylphenidate, metoclopramide, myelosuppressives, P-glycoprotein inhibitors or inducers, quinololide, risperidone, tetrabenzine, valproic acid

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Invega is not recommended for patients with creatinine clearance below 10 mL/min. Paliperidone is the active metabolite of risperidone (see separate entry).

Warning: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

Skin

Anaphylactoid reactions/Anaphylaxis (<2%)

Edema (<=2%)

Peripheral edema [4]

Pruritus (<2%)

Rash (<2%)

Mucosal

Nasal congestion (<2%)

Salorhea (<=6%) [2]

Tongue edema (3%)

Xerostomia (<4%)

Cardiovascular

Arrhythmias (<2%)

Atrioventricular block (<2%)

Bradycardia (<2%)

Bundle branch block (<3%)

Hypertension (<2%)

Palpation (<2%) [2]

Tachycardia (<14%) [6]

Central Nervous System

Agitation (<2%) [6]

Akathisia (3–17%) [22]

Anxiety (2–9%) [9]

Depression [2]

Dysarthria (<4%) [2]

Extrapyramidal symptoms (4–23%) [15]

Headache (4–14%) [16]

Insomnia (<2%) [22]

Neuroleptic malignant syndrome [6]

Nightmares (<2%)

Parkinsonism [4]

Psychosis [3]

Schizophrenia [6]

Sleep related disorder (2–3%)

Somnolence (drowsiness) (6–26%) [13]

Tardive dyskinesia [3]

Tremor [7]

Vertigo (dizziness) (2–6%) [3]

Neuromuscular/Skeletal

Arthralgia (10%)

Gastrointestinal/Hepatic

Abdominal pain (<3%)

Constipation (4–5%) [3]

Dyspepsia (3–6%)

Flatulence (<2%)

Nausea [3]

Vomiting [3]

Respiratory

Cough (<3%)

Nasopharyngitis (2–5%) [6]

Pharyngolaryngeal pain (<2%)

Pulmonary embolism [2]

Rhinitis (<3%)

Endocrine/Metabolic

ALT increased (<2%)

Amenorrhea (6%) [3]

Appetite decreased (<2%)

Appetite increased (2–3%)

AST increased (<2%)

Galactorrhea (4%) [5]

Gynecomastia (3%)

Hyperprolactinemia [10]

Hyponatremia [2]

Menstrual irregularities (<2%)

Weight gain (2–7%) [19]

Genitourinary

Ejaculatory dysfunction (<2%)

Erectile dysfunction [2]

Urinary tract infection (<2%)

Ocular

Vision blurred (3%)

Local

Injection-site pain [9]

Other

Adverse effects [7]

Death [3]

PALIVIZUMAB

Trade name: Synagis (Medimmune)

Indications: Prophylaxis of serious lower respiratory tract disease caused by respiratory syncytial virus in pediatric patients

Class: Immunomodulator, Monoclonal antibody

Half-life: 18 days

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Skin

Anaphylactoid reactions/Anaphylaxis [3]

Rash (26%)

Central Nervous System

Fever [2]

Local

Injection-site bruising (<3%)

Injection-site edema (<3%)

Injection-site erythema [3]

Injection-site induration (<3%)

Injection-site pain (<9%) [2]

Injection-site reactions [2]

PALONOSETRON

Trade name: Aloli (MGI)

Indications: Antiemetic (for cancer chemotherapy)

Class: 5-HT3 antagonist, Antiemetic, Serotonin type 3 receptor antagonist

Half-life: 40 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: B

Note: See also the fixed drug combination Netupitant & Palonosetron (separate entry).

Skin

Hot flashes (<1.5)

Pruritus (822%)

Rash (6%)

Central Nervous System

Anorexia [2]

Fever [2]

Headache (9%) [13]

Vertigo (dizziness) [4]

Neuromuscular/Skeletal

Asthenia (fatigue) [3]

Osteonecrosis (jaw) [13]
PAMIDRONATE

Trade name: Aredia (Novartis)
Indications: Hypercalcemia, Paget’s disease, osteogenesis imperfecta
Class: Bisphosphonate
Half-life: 1.6 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Candidiasis (6%)

Cardiovascular
Atrial fibrillation (6%)
Hypertension (6%)
Tachycardia (6%)

Central Nervous System
Anorexia (26%) [2]
Fever (18–39%) [8]
Headache (26%) [2]
Insomnia (22%) [2]
Sonnnolence (drowsiness) (6%)

Neuromuscular/Skeletal
Arthralgia (14%) [2]
Asthma (fatigue) (37%) [2]
Bone or joint pain [3]
Fractures [3]
Myalgia/Myopathy [3]
Osteonecrosis [19]

Gastrointestinal/Hepatic
Abdominal pain (23%) [3]
Constipation (6%) [2]
Diabetes (6%) [5]
Dyspepsia (23%) [2]
Nausea (54%) [5]
Vomiting (36%) [2]

Respiratory
Cough (26%) [2]
Flu-like syndrome [3]
Rhinitis (6%) [3]
Sinusitis (16%) [2]

Endocrine/Metabolic
Hypocalcemia [10]
Hypophosphatemia [2]
Hypothyroidism (6%)

Genitourinary
Azotemia (prerenal) (4%)
Urinary tract infection (19%)

Renal
Nephrotoxicity [11]

Hematologic
Anemia (43%)
Granulocytopenia (20%)

Ocular
Conjunctivitis [5]
Episcleritis [2]
Orbital inflammation [2]
Scleritis [4]
Uveitis [12]
Vision blurred [2]

Local
Injection-site reactions (18%)

PANCREATIN

See: www.drugeruptiondata.com/drug/id/1389

PANCRELIPASE

See: www.drugeruptiondata.com/drug/id/1180

PANCURONIUM

See: www.drugeruptiondata.com/drug/id/886

PANDEMIC INFLUENZA VACCINE (H1N1)

Trade names: Celvapan (Baxter), Focetria (Novartis), Pandemrix (GSK), Tamiflu (Roche)
Indications: Pandemic influenza vaccine (H1N1)
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Lymphadenopathy (<10%)

Central Nervous System
Anorexia (26%) [2]
Fever (3%) [2]
Guillain–Barre syndrome [2]
Headache (>10%) [2]
Seizures (2)

Neuromuscular/Skeletal
Asthma (fatigue) [2]

Other
Adverse effects [4]

PANITUMUMAB

Trade name: Vectibix (Amgen)
Indications: Metastatic colorectal carcinoma progression
Class: Antineoplastic, Biologic, Epidermal growth factor receptor (EGFR) inhibitor, Monoclonal antibody
Half-life: ~7.5 days
Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: DERMATOLOGIC TOXICITY and INFUSION REACTIONS

Skin
Acneform eruption (57%) [18]
Desquamation [3]
Eczema [2]
Erythema (65%) [5]
Exfoliative dermatitis (25%) [2]
Fissures (20%) [4]
Foliculitis [3]
Hand-foot syndrome [3]
Papulopustular eruption [4]
Peripheral edema (12%)
Pruritus (57%) [9]
Rash (22%) [30]
Toxicity (90%) [26]
Xerosis (10%) [12]

Hair
Alopecia [3]
Hair changes (9%) [2]

Nails
Nail changes (9–29%) [2]
Paronychia (25%) [13]

Mucosal
Mucosal inflammation (6%)
Mucositis [4]
Stomatitis (7%) [4]

Central Nervous System
Anorexia [3]
Fever [2]

Neuromuscular/Skeletal
Asthma (fatigue) (26%) [15]

Gastrointestinal/Hepatic
Abdominal pain (25%) [3]
Constipation (21%) [4]
Diarrhea (21%) [19]
Nausea (23%) [8]
Vomiting (19%) [8]

Respiratory
Cough (14%)
Dyspnea [2]
Pulmonary embolism [3]
Pulmonary fibrosis [3]
Pulmonary toxicity [7]

Endocrine/Metabolic
Dehydration [3]
Hypocalcemia [3]
Hypokalemia [6]
Hypomagnesemia [20]

Hematologic
Anemia [2]

Other
Adverse effects [2]

Periorificial
Hand-foot syndrome [3]

Toxicity (90%) [26]

Xerosis (10%) [12]

Warning: DERMATOLOGIC TOXICITY and INFUSION REACTIONS

Skin
Acneform eruption (57%) [18]
Desquamation [3]
Eczema [2]
Erythema (65%) [5]
Exfoliative dermatitis (25%) [2]
Fissures (20%) [4]
Foliculitis [3]
Hand-foot syndrome [3]
Papulopustular eruption [4]
Peripheral edema (12%)
Pruritus (57%) [9]
Rash (22%) [30]
Toxicity (90%) [26]
Xerosis (10%) [12]

Hair
Alopecia [3]
Hair changes (9%) [2]

Nails
Nail changes (9–29%) [2]
Paronychia (25%) [13]

Mucosal
Mucosal inflammation (6%)
Mucositis [4]
Stomatitis (7%) [4]

Central Nervous System
Anorexia [3]
Fever [2]

Neuromuscular/Skeletal
Asthma (fatigue) (26%) [15]

Gastrointestinal/Hepatic
Abdominal pain (25%) [3]
Constipation (21%) [4]
Diarrhea (21%) [19]
Nausea (23%) [8]
Vomiting (19%) [8]

Respiratory
Cough (14%)
Dyspnea [2]
Pulmonary embolism [3]
Pulmonary fibrosis [3]
Pulmonary toxicity [7]

Endocrine/Metabolic
Dehydration [3]
Hypocalcemia [3]
Hypokalemia [6]
Hypomagnesemia [20]

Hematologic
Anemia [2]

Other
Adverse effects [2]

Periorificial
Hand-foot syndrome [3]

Toxicity (90%) [26]
**Local**
Infusion-related reactions (3%) [5]
Injection-site reactions (4%) [5]

**Other**
Adverse effects [5]
Death [2]
Infection [3]

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**PANOBINOSTAT**

**Trade name:** Farydak (Novartis)

**Indications:** Multiple myeloma (in combination with bortezomib and dexamethasone)

**Class:** Histone deacetylase (HDAC) inhibitor

**Half-life:** 37 hours

**Clinically important, potentially hazardous interactions with:** antiarrhythmics, QT prolonging agents, sensitive CYP2D6 substrates, strong CYP3A4 inducers

**Pregnancy category:** N/A (can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** the elderly; pediatric patients

**Warning:** FATAL AND SERIOUS TOXICITIES: SEVERE DIARRHEA AND CARDIAC TOXICITIES

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**Skin**
Edema (<10%)  
Erythema (<10%)  
Lesions (<10%)  
Peripheral edema (29%) [3]  
Rash (<10%) [5]

**Mucosal**
Cheilitis (<10%)  
Xerostomia (<10%)  

**Cardiovascular**
Arrhythmias (12%)  
Hypertension (<10%)  
Hypotension (<10%) [2]  
Orthostatic hypotension (<10%)  
Palpitation (<10%)  
QT prolongation [7]

**Central Nervous System**
Anorexia [5]  
Chills (<10%)  
Dysgeusia (taste perversion) (<10%) [3]  
Fever (26%) [3]  
Headache (<10%) [3]  
Insomnia (<10%)  
Peripheral neuropathy [8]  
Syncope (<10%) [2]  
Tremor (10%)  
Vertigo (dizziness) (<10%) [2]

**Neuromuscular/Skeletal**
Asthenia (fatigue) (60%) [29]  
Back pain [2]  
Joint disorder (<10%)  

**Gastrointestinal/Hepatic**
Abdominal distension (<10%)  
Abdominal pain (<10%) [4]  
Colitis (<10%)  
Constipation [5]  
Diarrhea (68%) [27]  
Dyspepsia (<10%) [27]  
Flatulence (<10%) [2]  
Gastritis (<10%)  
Nausea (36%) [17]  
Vomiting (26%) [11]  

**Respiratory**
Cough (<10%)  
Dyspnea (<10%) [5]  
Pneumonia [5]  
Respiratory failure (<10%)  
Wheezeing (<10%)  

**Endocrine/Metabolic**
ALP increased (<10%)  
Appetite decreased (28%) [4]  
Creatine phosphokinase increased (41%) [4]  
Dehydration (<10%) [2]  
Hyperbilirubinemia (21%) [3]  
Hyperglycemia (<10%)  
Hypomagnesemia (27%)  
Hyperphosphatemia (29%)  
Hyperuricemia (<10%)  
Hyperalbuminemia (63%)  
Hypocalcemia (67%) [2]  
Hypokalemia (52%) [7]  
Hyponatremia (49%) [2]  
Hypophosphatemia (63%) [4]  

doctor AIDS/HIV, PAPYRINE  

**Other**
Adverse effects [2]  
Death (8%)  

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**Gastrointestinal/Hepatic**
Anemia (62%) [13]  
Febrile neutropenia [2]  
Leukopenia (81%) [5]  
Lymphopenia (82%) [6]  
Myelosuppression [5]  
Neutropenia (75%) [20]  
Sepsis [2]  
Thrombocytopenia (97%) [34]

**Central Nervous System**
Neurological [2]  
Thrombocytopenia (<2%)  

**Skin**
Allergic reactions (<2%)  
Diabetes mellitus (4%)  
Facial edema (<10%)  
Hypersensitivity (<2%)  
Pruritus (<10%)  
Rash (<10%) [3]  
Urticaria (<4%) [2]

**Mucosal**
Xerostomia (<2%)  

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**Skin**
Anaphylactic reactions/Anaphylaxis [7]  
Blistering (<2%)  
Eczema (<4%)  
Lupus erythematosus (discoid) [3]  
Perineal edema [2]  
Photosensitivity (<2%)  
Pruritus (<10%)  
Rash (<2%) [3]  
Urticaria (<4%) [2]

**Mucosal**
Xerostomia (<2%)  

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**PAPYRINE**

**Trade name:** Protium (Nycomed), Protonix (Wyeth)

**Indications:** Esophagitis associated with erosive esophagitis and reflux disease (GERD), Zollinger-Ellison syndrome, erosive esophagitis

**Class:** Proton pump inhibitor (PPI)

**Half-life:** 1 hour

**Clinically important, potentially hazardous interactions with:** alcohol, allopurinol, atazanavir, cefidoxir, clopidogrel, conivaptan, CYP3A4 inducers and substrates, dabcictrin, dasatinib, delavirdine, dexamethasone, digoxin, erlotinib, eucalyptus, fluconazole, indinavir, iron salts, iraconazole, ketoconazole, lopinavir, mibolerine, methotrexate, methylphenidate, mycophenolate, nelfinavir, repaglinide, saquinavir, tipranavir, topotecan, ulipristal, voriconazole, warfarin

**Pregnancy category:** B  

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers

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**Skin**
Anaphylactic reactions/Anaphylaxis [7]  
Edema (<2%)  
Facial edema (<4%)  
Lupus erythematosus (discoid) [3]  
Perineal edema [2]  
Photosensitivity (<2%)  
Pruritus (<10%)  
Rash (<2%) [3]  
Urticaria (<4%) [2]

**Central Nervous System**
Depression (<2%)  
Fever (>4%) [3]  
Headache (12%) [2]  
Vertigo (dizziness) (3%)  

**Neuromuscular/Skeletal**
Arthralgia (<4%)  
Myalgia/Myopathy (<4%)  

**Gastrointestinal/Hepatic**
Absence (<6%)  
Constipation (<4%)  
Diarrhea (9%)  
Flatulence (<4%)  
Nausea (7%)  
Pancreatitis [2]  
Vomiting (4%)  

**Respiratory**
Flu-like syndrome (<10%)  
Upper respiratory tract infection (>4%)  

**Endocrine/Metabolic**
Creatine phosphokinase increased (<2%)  
Hypomagnesemia [3]

**Renal**
Nephrotoxicity [4]

**Hematologic**
Leukopenia (<2%)  
Thrombocytopenia (<2%) [5]  

**Ocular**
Vision blurred (<2%)  

**Other**
Adverse effects [2]  
Allergic reactions (<2%)  

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**PANTOTHENIC ACID**

See: www.drugeruptdata.com/drug/id/529

**PAPAVERINE**

**Indications:** Peripherial and cerebral ischemia  

**Class:** Opium alkaloid, Vasodilator, peripheral

**Half-life:** 0.52 hours

**Clinically important, potentially hazardous interactions with:** levodopa, reboxetine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Cardiovascular
Hypotension [2]
Genitourinary
Priapism (11%) [16]

PARAMETHADIONE
See: www.drugeruptiondata.com/drug/id/332

PARICALCITOL
See: www.drugeruptiondata.com/drug/id/943

PAROMOMYCIN
Trade name: Humatin (Pfizer)
Indications: Intestinal amebiasis
Class: Antibiotic, aminoglycoside
Half-life: N/A
Clinically important, potentially hazardous interactions with: methotrexate, succinylcholine
Pregnancy category: C

PAROXETINE HYDRO-CHLORIDE
Trade names: Paxil (GSK), Paxil CR (GSK), Seroxat (GSK)
Indications: Depression, obsessive-compulsive disorder, panic disorder, social and generalized anxiety disorders, post-traumatic stress disorder
Class: Antidepressant, Selective serotonin reuptake inhibitor (SSRI)
Half-life: 21 hours
Clinically important, potentially hazardous interactions with: alcohol, amitriptyline, amphetamines, antiepileptics, aminoglutethimide, aripiprazole, artemether/lumefantrine, asenapine, aspirin, astemizole, atenoloxime, barbiturates, clarithromycin, clobazam, cobicistat/elvitegravir/emeritcabine/tenofovir alafenamide, cobicistat/elvitegravir/emeritcabine/tenofovir disoproxil, coumarins, cyproheptadine, darifenacin, daruravir, deuterabenzamine, dexibuprofen, dextroamphetamine, diethylpropion, digitals, digoxin, duloxetine, eluxadoline, entacapone, erthromycin, galantamine, iloperidone, isocarboxazid, linezolid, lithium, MAO inhibitors, mazindol, methadone, methamphetamine, methylene blue, methylphenidate, metoprolol, moclobemide, molidone, NSAIIS, paroxetine, phenelmitrazine, phenelzine, phenobarbital, phenelzine, phenytoin, trimethadione, propafenone, propranolol, pseudoephedrine, ranolazine, rasagiline, risperidone, ritonavir, selegiline, sibutramine, St John's wort, sumatriptan, sympathometmics, tamoxifen, tamsulosin, tetrabenazine, thioridazine, tramadol, tranylcypromine, trazodone, tricyclic antidepressants, troleandomycin, tryptophan, valbenazine, vortioxetine
Pregnancy category: C

PAROXETINE MESYLATE
Trade name: Brisdelle (Noven)
Indications: Vasomotor symptoms associated with the menopause
Class: Selective serotonin reuptake inhibitor (SSRI)
Half-life: N/A
Clinically important, potentially hazardous interactions with: eluxadoline, linezolid, MAO inhibitors, methylene blue, pimozide, tamoxifen, thioridazine
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Note: Brisdelle contains a low dose of paroxetine and is not indicated for psychiatric conditions. Paroxetine mesylate is also available as Pexeva. For psychiatric indications see separate entry for paroxetine hydrochloride.
Warning: SUICIDAL THOUGHTS AND ANTIDEPRESSANT DRUGS

Skin
Pruritus [2]
Central Nervous System
Pain [2]
Gastrointestinal/Hepatic
Abdominal pain [2]
Local
Injection-site pain [2]

Central Nervous System
Abnormal dreams (3-4%) [2]
Agitation (3-6%) [2]
Akathisia [3]
Anxiety (5%) [2]
Chills (2%) [2]
Delirium [3]
Depression [3]
Dysarthria [2]
Dysgeusia (taste perversion) (2%) [2]
Extrapyramidal symptoms [2]
Headache (17-28%) [12]
Insomnia (11-24%) [5]
Irritability [2]
Mania [2]
Nervousness (4-9%) [2]
Neuroleptic malignant syndrome [4]
Paresthesias (4%) [2]
Parkinsonism [3]
Restless legs syndrome [7]
Serotonin syndrome [19]
Somnolence (drowsiness) (15-24%) [4]
Suicidal ideation [4]
Tic disorder [3]
Tremor (4-11%) [5]
Vertigo (dizziness) (6-14%) [7]
Yawning (2-4%) [2]

Neuromuscular/Skeletal
Asthenia (fatigue) [4]
Myalgia/Myopathy (<10%) [2]

Gastrointestinal/Hepatic
Abdominal pain (4%) [2]
Constipation (5-18%) [2]
Diarrhea (9-12%) [3]
Nausea (26%) [6]
Vomiting [2]

Respiratory
Pharyngitis (4%) [2]
Rhinitis (3%) [2]
Sinusitis (4%) [2]

Endocrine/Metabolic
Galactorrhoea [4]
Gynecomastia [2]
Libido decreased (3-15%) [3]
SIADH [18]
Weight gain [8]

Genitourinary
Ejaculatory dysfunction (13-28%)
Erectile dysfunction [2]
Priapism [4]
Sexual dysfunction [7]

Ocular
Glaucoma [2]
Hallucinations, visual [2]
Vision impaired [2]

Other
Adverse effects [2]
Bruxism [4]
Congenital malformations [2]
Death [2]
Infection (5-6%)
Other
Adverse effects [2]

PASIREOTIDE
See: www.drugeruptiondata.com/drug/id/3135

Patiromer
Trade name: Veltassa (Relpya)
Indications: Hyperkalemia
Class: Potassium binder
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Not expected to cause fetal risk)
Important contra-indications noted in the prescribing guidelines for: pediatric patients
Warning: BINDING TO OTHER ORAL MEDICATIONS

Gastrointestinal/Hepatic
Abdominal pain (2%)
Constipation (7%) [11]
Diarrhea (5%) [5]
Flatulence (2%) [3]
Nausea (2%) [2]
Vomiting (<2%) [3]
Endocrine/Metabolic
Hypokalemia (5%) [5]
Hypomagnesemia (5–9%) [6]

PAZOPANIB
See: www.drugeruptiondata.com/drug/id/1430

PEG-INTERFERON
Trade names: PegIntron (Schering), Sylatron (Schering)
Indications: Chronic hepatitis C, melanoma
Class: Immunomodulator, Interferon
Half-life: 40 hours
Clinically important, potentially hazardous interactions with: ACE inhibitors, aceterminophen, aldesleukin, bupivacaine, clostazol, cinacalcet, CYP2C9 substrates, CYP2D6 substrates, delavirdine, duloxetine, estradiol, fesoterodine, fingolimod, flavoxetine, indinavir, melphalan, methadone, methylaltrexone, panoprazole, pegloticase, ribavirin, sildenafil, tapentadol, telbivudine, theophylline, theophylline derivatives, tiotropium, trimethoprim, voriconazole, warfarin, zidovudine
Pregnancy category: C (pregnancy category will be X when used in combination with ribavirin)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: PEG-interferon is commonly administered with ribavirin and many of the reactions listed below are in combination therapy with this drug. Contra-indicated in patients with known hypersensitivity reactions, such as urticaria, angioedema, bronchoconstriction, anaphylaxis, Stevens-Johnson syndrome, and toxic epidermal necrolysis to interferon alpha or any other product component; or with autoimmune hepatitis.
Warning: RISK OF SERIOUS DISORDERS AND RIBAVIRIN-ASSOCIATED EFFECTS DEPRESSION AND OTHER NEUROPSYCHIATRIC DISORDERS

Skin
Dermatitis (7%)
Diaphoresis (6%)
DRESS syndrome [2]
Eczema [2]
Exanthems [5]
Fixed eruption [2]
Lupus erythematosus [3]
Nummular eczema [2]
Photosensitivity [4]
Pruritus (12%) [11]
Psoriasis [4]
Rash (6%) [24]
Rosacea fulminans [2]
Sarcoidosis [9]
Stevens-Johnson syndrome [2]
Toxic epidermal necrolysis [2]
Toxicity [3]
Vasculitis [2]
Vitiligo [3]
Xerosis (11%) [2]

Hair
Alopecia (22%) [5]
Alopecia areata [2]

Cardiovascular
Flushing (6%)
Central Nervous System
Anorexia (17%) [2]
Chills [2]
Cognitive impairment [2]
Depression (1629%) [10]
Dysgeusia (taste perversion) (<10%) [5]
Fever (37%) [8]
Headache (6–10%) [16]
Insomnia (19%) [4]
Ischemic injury (transient) (<5%) [4]
Myocardial ischemia (transient) (<5%) [4]
Neuromuscular/Skeletal
Arthralgia (<5%)
Arthralgia (>5%)
Back pain (9%)
Myalgia/Myopathy (3842%) [4]

Neuromuscular/Skeletal
Arthralgia (28%) [2]
Asthenia (fatigue) (56%) [24]
Back pain (9%)
Myalgia/Myopathy (3842%) [4]

Gastrointestinal/Hepatic
Abdominal pain (15%)
Diarrhea (16%) [4]
Hepatotoxicity [5]
Nausea (24%) [12]
Pancreatitis [4]
Vomiting (24%) [2]

Respiratory
Cough (6%)
Dyspnea (13%) [2]
Flu-like syndrome (46%) [11]
Pneumonitis [2]

Endocrine/Metabolic
ALT increased [3]
Appetite decreased [2]
AST increased [3]
Diabetes mellitus [2]
Thyroid dysfunction [2]
Weight loss (16%) [3]

Genitourinary
Urine tract infection [2]
Renal
Nephrotoxicity [4]
Hematologic
Anemia (14%) [44]
Hemotoxicity [2]
Leukopenia [6]
Lymphopenia (14%) [2]
Neutropenia (21%) [20]
Sepsis [2]
Thrombocytopenia (5%) [15]

Otic
Hearing loss [2]
Tinnitus [2]

Ocular
Retinopathy [7]
Vision blurred (4%) [4]

Local
Injection-site pain (2%)
Injection-site reactions (22%) [4]

Other
Adverse effects [26]
Death [2]
Infection (3%) [4]

PEGAPTANIB
Trade name: Macugen (Valeant)
Indications: Neovascular (wet) age-related macular degeneration
Class: Vascular endothelial growth factor antagonist
Half-life: 10±4 days
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with ocular or periocular infections.

Skin
Dermatitis (<5%)

Cardiovascular
Arterial occlusion (carotid) (<5%)
Chest pain (<5%)
Hypertension (10–40%)
Myocardial ischemia (transient) (<5%)

Central Nervous System
Cerebrovascular accident (<5%)
Headache (6–10%)
Ischemic injury (transient) (<5%)
Vertigo (dizziness) (<10%)

Neuromuscular/Skeletal
Arthralgia (<5%)
PEGAPANTANIB

Gastrointestinal/Hepatic
Diarrhea (6–10%)
Nausea (6–10%)
Vomiting (<5%)

Respiratory
Bronchitis (6–10%)
Pleural effusion (<5%)

Endocrine/Metabolic
Diabetes mellitus (<5%)

Genitourinary
Urinary retention (<5%)
Urinary tract infection (6–10%)

Otic
Hearing loss (<5%)
Otitis media (<5%)

Ocular
Blepharitis (6–10%)
Cataract (10–40%) [2]
Conjunctival edema (<5%)
Conjunctival hemorrhage (10–40%)
Conjunctivitis (<10%)
Corneal abnormalities (<5%)
Corneal deposits (<5%)
Corneal edema (10–40%)
Endophthalmitis (<5%) [4]
Eyelid irritation (<5%)
Intracocular pressure increased (10–40%)
Meibomianitis (<5%)
Mydriasis (<5%)
Ocular edema (<5%)
Ocular hypertension (10–40%)
Ocular inflammation (<5%) [2]
Ocular pain (10–40%)
Ocular stinging (10–40%)
Ophthalmitis (<5%)
Periorbital hematoma (<5%)
Photopsia (6–10%)
Punctate keratitis (10–40%)
Reduced visual acuity (10–40%)
Retinal detachment (<10%) [5]
Retinal edema (<5%)
Vision blurred (10–40%)
Visual disturbances (10–40%)
Vitreous floaters (10–40%)

Febrile (>5%)
Headache (<5%)
Paresthesias (<5%)
Seizures (<5%) [2]

Neuromuscular/Skeletal
Arthralgia (<5%)
Myalgia/Myopathy (<5%)

Gastrointestinal/Hepatic
Abdominal pain (<5%)
Hepatotoxicity [3]
Pancreatitis [3]

Hematologic
Leukopenia [2]
Neutropenia [2]
Thrombocytopenia [2]

Other
Allergic reactions (>5%) [6]

PEGINESATIDE

See: www.drugerupiondata.com/drug/id/2887

PEGLOTICASE

Trade name: Krystexxa (Savient)
Indications: Chronic gout
Class: Enzyme
Half-life: N/A

Clinically important, potentially hazardous interactions with: PEG-interferon

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis (5%) [3]
Ecchymoses (11%)

Cardiovascular
Chest pain (6%)

Central Nervous System
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Arthralgia [3]

Gastrointestinal/Flare
Constipation (6%)
Nausea (12%) [3]
Vomiting (5%)

Respiratory
Dyspnea [2]
Nasopharyngitis (7%)

Local
Injection-site reactions [4]
Infusion-site reactions (26%) [4]

Other
Adverse effects [2]

PEGVISOMANT

Trade name: Somavert (Pfizer)
Indications: Acromegaly
Class: Growth hormone analog
Half-life: 6 days

Clinically important, potentially hazardous interactions with: acarbose, exenatide, hydromorphone, insulin, latex, metformin, opioids, oral hypoglycemics, pioglitazone, saxagliptin, tapentadol

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Lipohypertrophy (<5%) [2]
Peripheral edema (48%)

Cardiovascular
Chest pain (4–8%)
Hypertension (8%)

Central Nervous System
Pain (4–14%)
Paresthesias (7%)
Vertigo (dizziness) (4–8%)

Neuromuscular/Skeletal
Back pain (4–8%)

Gastrointestinal/Hepatic
Diarrhea (4–14%)
Hepatitis [2]
Hepatotoxicity [6]
Nausea (8–14%)

Respiratory
Flu-like syndrome (4–12%)
Sinusitis (4–8%)

Local
Injection-site reactions (8–11%) [4]

Other
Adverse effects [3]
Infection (23%)

PENUMBROLIZUMAB

Synonym: lambrolizumab
Trade name: Keytruda (Merck Sharpe & Dohme)
Indications: Unresectable or metastatic melanoma and disease progression following ipilimumab and, if BRAF V600 mutation positive, a BRAF inhibitor
Class: Monoclonal antibody. Programmed death receptor-1 (PD-1) inhibitor
Half-life: 26 days

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

PEGASPARAGASE

Trade name: Oncaspar (Enzon)
Indications: Acute lymphoblastic leukemia
Class: Antineoplastic
Half-life: 5.7 days

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Skin
Anaphylactoid reactions/Anaphylaxis (<5%) [2]
Angioedema (<5%)
Edema (>5%)
Rash (<5%)
Urticaria (<5%)

Cardiovascular
Hypotension (>5%)
Tachycardia (>5%)

Central Nervous System
Chills (<5%)

Fever (>5%)
Headache (<5%)
Paresthesias (<5%)
Seizures (<5%) [2]

Neuromuscular/Skeletal
Arthralgia (<5%)
Myalgia/Myopathy (<5%)

Gastrointestinal/Hepatic
Abdominal pain (<5%)
Hepatotoxicity [3]
Pancreatitis [3]

Hematologic
Leukopenia [2]
Neutropenia [2]
Thrombocytopenia [2]

Other
Allergic reactions (>5%) [6]

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**Skin**

- Bullous pemphigoid [4]
- Dermatitis [2]
- Exanthems [3]
- Lichen planus [2]
- Lichenoid eruption [2]
- Psoriasis [2]
- Rash (29%) [14]
- Sarcoidosis [4]
- Scleroderma [2]
- Toxicity [5]
- Vitiligo (11%) [9]

**Hair**

- Alopecia [2]

**Central Nervous System**

- Chills (14%) [8]
- Encephalopathy [3]
- Fever (11%) [5]
- Headache (16%) [3]
- Insomnia (14%) [6]
- Neurotoxicity [3]
- Peripheral neuropathy [2]
- Vertigo (dizziness) (11%) [11]

**Neuromuscular/Skeletal**

- Arthralgia (20%) [8]
- Asthenia (fatigue) (47%) [20]
- Back pain (12%) [6]
- Myalgia/Myopathy (14%) [6]
- Myasthenia gravis [5]
- Pain in extremities (18%) [18]

**Gastrointestinal/Hepatic**

- Abdominal pain (12%) [2]
- Colitis [1]
- Constipation (21%) [11]
- Diarrhea (<5%) [2]
- Hepatitis [5]
- Hepatotoxicity [6]
- Nausea (30%) [9]
- Pancreatitis [6]
- Vomiting (16%) [3]

**Respiratory**

- Cough (30%) [5]
- Dyspnea (18%) [4]
- Pneumonia (12%) [2]
- Sepsis (<5%) [10]
- Vomiting (16%) [3]

**Endocrine/Metabolic**

- ALT increased [4]
- AST increased (8–10%) [3]
- AFP increased (7–8%) [3]
- Creatine phosphokinase increased (<5%) [3]
- G2PDH increased [2]
- Hyperglycemia [2]
- Hypokalemia [2]
- Hypomagnesemia [3]
- Hyponatremia [3]

**Hematologic**

- Anemia (15–19%) [22]
- Febrile neutropenia (5%) [10]
- Leukocytosis [2]
- Leukopenia (6–12%) [11]
- Lymphopenia [2]
- Neutropenia (6–11%) [22]
- Sepsis [2]
- Thrombocytopenia (0%) [14]

**Ocular**

- Conjunctivitis (<5%) [2]
- Eyelid edema [3]
- Lacrimation (<5%) [2]

**Other**

- Adverse effects (53%) [14]
- Allergic reactions (<5%) [2]
- Death [5]
- Hiccups [2]
- Infection (<5%) [7]

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**PEMETREXED**

**Trade name:** Alimta (Lilly)

**Indications:** Non-squamous non-small cell lung cancer, mesothelioma (in combination with cisplatin)

**Class:** Antimetabolite, Folic acid antagonist

**Half-life:** 3.5 hours

**Clinically important, potentially hazardous interactions with:**
- clozapine, digoxin, leflunomide, meloxicam, natalizumab, nephrotoxic drugs, NSAIDs, phenytoin, pimecrolimus, probenecid, pyrimethamine, sipuleucel-T, tacrolimus, trastuzumab, vaccines

**Pregnancy category:** D

**Important contra-indications noted in the prescribing guidelines for:**
- nursing mothers;
- pediatric patients

**Skin**

- AGEP [4]
- Cellulitis [3]
- Desquamation (10–14%)
- Edema (<5%)
- Erythema multiforme (<5%)
- Hypersensitivity (<5%)
- Periorbital edema [4]
- Pruritus (<7%)
- Radiation recall dermatitis [7]
- Rash (10–14%) [20]
- Toxic epidermal necrolysis [2]
- Urticaria [3]
- Vasculitis [2]

**Hematologic**

- Anemia (14–55%) [6]
- Neutropenia [3]
- Peripheral edema [4]
- Pruritus (30%) [15]
- Thrombocytopenia [4]

**Ocular**

- Iridocyclitis [2]
- Uveitis [5]

**Local**

- Infusion-related reactions [2]

**Other**

- Adverse effects [17]
- Death [6]
- Side effects [3]

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**PEMIROLAST**

See: [www.drugeruptiondata.com/drug/id/887](http://www.drugeruptiondata.com/drug/id/887)

**PEMOLINE**


**PENBUTOLOL**

PENCICLOVIR

See: www.drugeruptiondata.com/drug/id/1178

PENCILLAMINE

Trade name: Depen (MedPointe)

Indications: Wilson's disease, rheumatoid arthritis

Class: Antidote, Chelator, Disease-modifying antirheumatic drug (DMARD)

Half-life: 1.73.2 hours

Clinically important, potentially hazardous interactions with: aluminum, antacids, ascorbic acid, bone marrow suppressants, chloroquine, clazapine, cytoxic agents, diclofenac, ferrous sulfate, food, gold & gold compounds, hydroxychloroquine, iron, magnesium, meloxicam, primaquine, probenecid, sodium picosulfate

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: As an antidote, it is difficult to differentiate side effects due to the drug from those due to the effects of the poison.

Skin

Bullous dermatitis [3]
Bullous pemphigoid [6]
Cicatrical pemphigoid [2]
Cutis laxa [13]
Dermatitis [4]
Dermatomyositis [14]
Edema of lip (<10%)
Ehlers–Danlos syndrome [2]
Elastosis perforans serpiginosa [43]
Epidermolysis bullosa [4]
Epidermolysis bullosa acquisita [2]
Erythema multiforme (<5%)
Exanthems [8]
Fragility [2]
Hypersensitivity [3]
Lichen planus [4]
Lichenoid eruption [7]
Lupus erythematosus [43]
Morpha [2]
Pemphigus [75]
Pemphigus erythematosides (SenearUsher) [10]
Pemphigus foliaceus [16]
Pemphigus herpetiformis [3]
Pemphigus vulgaris [2]
Peripheral edema (<10%)
Pruritus (4450%) [2]
Pseudoexanthema elasticum [16]
Psoriasis [4]
Psoriasis vulgaris [5]
Rash (4450%) [6]
Sclerodema [7]
Toxic epidermal necrolysis [2]
Urticaria (4450%) [2]
Vasculitis [7]

Hair

Alopecia [3]
Hirsutism [2]

Nails

Nail pigmentation [4]

Mucosal

Aphthous stomatitis [2]
Mucosal lesions (pemphigus-like) [2]
Oral ulceration [5]
Stomatitis [6]

Central Nervous System

Ageusia (taste loss) (12%) [2]
Dysgeusia (taste perversion) (metallic taste) [8]
Hypogeusia (2533%) [2]

Neuromuscular/Skeletal

Dystonia [4]
Myasthenia gravis [73]
Polyneuritis [8]

Respiratory

Pulmonary toxicity [2]

Endocrine/Metabolic

Gynecomastia [5]

Renal

Glomerulonephritis [3]
Nephrotoxicity [5]
Proteinuria [2]

Hematologic

Hemotoxicity [2]

Other

Adverse effects [2]

PENICILLAMINE

Trade name: V-cillin K (Lilly)

Indications: Cellulitis, endocarditis, erysipelas, oral infections, otitis media, rheumatic fever, scarlet fever, tonsillitis

Class: Antibiotic, penicillin

Half-life: 4 hours

Clinically important, potentially hazardous interactions with: estrogens, methotrexate, minocycline, neomycin, phenindione, probenecid, sulfipyrazole, warfarin

Pregnancy category: B

Skin

Anaphylactoid reactions/Anaphylaxis [2]
DRESS syndrome [2]
Hypersensitivity [3]
Serum sickness [2]
Serum sickness-like reaction [2]
Urticaria [3]

Central Nervous System

Fever [3]

Neuromuscular/Skeletal

Arthralgia [2]

Gastrointestinal/Hepatic

Diarrhea [2]

PENTAGASTRIN

See: www.drugeruptiondata.com/drug/id/538

PENTAMIDINE

Trade names: NebuPent (Astellas), Pentacarinat (Sanofi-Aventis), Pentam 300 (Astellas)

Indications: Pneumocystis jiroveci infection, trypanosomiasis, leishmaniasis

Class: Antiprotozoal

Half-life: 9.1–13.2 hours (intramuscular); 6.5 hours (intravenous)

Clinically important, potentially hazardous interactions with: adefovir, aminglycosides, amiiodaron, amisulipride, amitryptiline, aphantomlin, B, cisplatin, droperidol, erythromycin, foscarin, insulin aspart, insulin degludec, insulin detemir, insulin glargine, insulin glulisine, ivabradine, levoemopromazine, moxifloxacin, phenothazines, saquinavir, sparflloxacin, sulpiride, tricylic antidepressants, trifluoperazine, vancomycin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: The rate of adverse side effects is increased in patients with AIDS.

Skin

Exanthems (<15%) [10]
Pruritus [2]
Rash (<47%) [4]
Toxic epidermal necrolysis [3]
Urticaria [3]
Cardiovascular

- QT prolongation [8]
- Torsade de pointes [4]

Central Nervous System

- Dysequia (taste perversion) (metallic taste) (2%)
- Paresthesias [2]
- Vertigo (dizziness) [2]

Neuromuscular/Skeletal

- Myalgia/Myopathy (<5%)
- Rhabdomyolysis [4]

Gastrointestinal/Hepatic

- Pancreatitis [6]
- Local
  - Injection-site irritation [2]
  - Injection-site pain [2]
  - Injection-site reactions (>10%)

Other

- Adverse effects [4]

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**PENTAZOCINE**

See: www.drugeruptiondata.com/drug/id/540

**PENTOBARBITAL**

See: www.drugeruptiondata.com/drug/id/541

**PENTOSAN**

See: www.drugeruptiondata.com/drug/id/542

**PENTOSTATIN**

See: www.drugeruptiondata.com/drug/id/543

**PENTOXIFYLLINE**

Trade names: Pentoxil (Upsher-Smith), Trenal (Sanofi-Aventis)

Indications: Peripheral vascular disease, intermittent claudication

Class: Vasodilator, peripheral, Xanthine alkaloid

Half-life: 0.40.8 hours

Clinically important, potentially hazardous interactions with:
- abciximab, benazepril, captopril, ceftriaxone, ciprofloxacin, clindamycin, clonazepam, clopidogrel, diclofenac, enalapril, epilobatide, fosinopril, insulin degludec, insulin glargine, insulin glulisine, irbesartan, leflunomide, meloxicam, olmesartan, quinapril, ramlipril, tinzaparin

Pregnancy category: C

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**PEPLOMYCIN**

See: www.drugeruptiondata.com/drug/id/1129

**PERAMIVIR**

Trade name: Rapivab (BioCryst)

Indications: Influenza

Class: Antiviral, Neuraminidase inhibitor

Half-life: ~20 hours

Clinically important, potentially hazardous interactions with:
- Live attenuated influenza vaccine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for:
- Nursing mothers;
- Pediatric patients

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**PERAMPMANEL**

Trade name: Fycompa (Eisai)

Indications: Partial-onset seizures, primary generalized tonic-clonic seizures

Class: AMPA glutamate receptor antagonist, Anticonvulsant, Antiepileptic

Half-life: ~105 hours

Clinically important, potentially hazardous interactions with:
- Alcohol, carbamazepine, oral contraceptives, oxcarbazepine, phenobarbital, phenytoin, primidone, rifampin, St John’s wort

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: SERIOUS PSYCHIATRIC AND BEHAVIORAL REACTIONS

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**PERICYZAZINE**

See: www.drugeruptiondata.com/drug/id/1411

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**PERFLUTREN**

See: www.drugeruptiondata.com/drug/id/1057

**PERGOLIDE**

See: www.drugeruptiondata.com/drug/id/545

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**PERICYZAZINE**

See: www.drugeruptiondata.com/drug/id/1411
PERINDOPRIL

Trade names: Aceon (Solvay), Prestalia (Symphamed)

Indications: Hypertension, coronary disease

Class: Angiotensin-converting enzyme (ACE) inhibitor, Antihypertensive

Half-life: 1.53 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: D (category C in first trimester; category D in second and third trimesters)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Prestalia is perindopril and amlodipine.

Warning: FETAL TOXICITY

PERPHENAZINE

Trade names: Decentan (Merck), Fentazin (Goldshield), Trilafon (Schering)

Indications: Psychotic disorders, nausea and vomiting

Class: Antimatic, Antipsychotic, Phenothiazine

Half-life: 9 hours

Clinically important, potentially hazardous interactions with: cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, paroxetine hydrochloride, sparfloxacin

Pregnancy category: C

Note: Perphenazine is also used in combination with amitriptyline.

Skin

Angioedema [6]
Edema (4%)
Peripheral edema [3]
Pruritus (<10%)
 Rash (<10%)

Mucosal

Tongue edema [2]

Central Nervous System

Paresthesias (2%) Vertigo (dizziness) [2]

Neuromuscular/Skeletal

Back pain (6%)

Respiratory

Cough (12%) [16]

Other

Adverse effects [2]

PHENOBARBITAL

See: www.drugeruptiondata.com/drug/id/1363

PERMETHRIN

See: www.drugeruptiondata.com/drug/id/1363

PERINDOPRIL

Trade names: Aceon (Solvay), Prestalia (Symphamed)

Indications: Hypertension, coronary disease

Class: Angiotensin-converting enzyme (ACE) inhibitor, Antihypertensive

Half-life: 1.53 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: D (category C in first trimester; category D in second and third trimesters)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Prestalia is perindopril and amlodipine.

Warning: FETAL TOXICITY

Skin

Angioedema [6]
Edema (4%)
Peripheral edema [3]
Pruritus (<10%)
 Rash (<10%)

Mucosal

Tongue edema [2]

Central Nervous System

Paresthesias (2%) Vertigo (dizziness) [2]

Neuromuscular/Skeletal

Back pain (6%)

Respiratory

Cough (12%) [16]

Other

Adverse effects [2]

PHENOBARBITAL

See: www.drugeruptiondata.com/drug/id/1363

PHENELZINE

See: www.drugeruptiondata.com/drug/id/550

PHENINDAMINE

See: www.drugeruptiondata.com/drug/id/551

PHENOBARBITAL

Synonyms: phenobarbionate; phenyllethylmalonylurea

Trade name: Luminal (Sanofi-Aventis)

Indications: Insomnia, seizures

Class: Anticonvulsant, Barbiturate, CYP3A4 inducer

Half-life: 26 days

Clinically important, potentially hazardous interactions with: abacavir, abiraterone, alatinib, alcohol, ampreravir, anticoagulants, antihistamines, apremilast, aprepitant, betamethasone, bocepbriv, brompheniramine, bucizilene, buprenorphine, cabazitaxel, cabozantinib, caffeine, calcifediol, chlorpheniramine, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, enzalutamide, estradiol, ethanolamine, ethosuximide, etravirine, fesoterodine, filbanserin, fluorocazole, flunisolide, fosamprenavir, gefitinib, hydrocortisone, imatinib, indinavir, inflammation vaccine, iraconazole, idoxibrin, lacosamide, lactabin, ledipasvir & sofosbuvir, lisdexamfetamine, lopinavir, mepreriden, methoximide, methylprednisolone, midazolam, mifepristone, nilotinib, omibitasvir/paritaprevir/ritonavir, oxcarbazepine, oxiriphylne, paroxetine hydrochloride, perampanel, piracetam, pizotifen, prednisolone, prednisone, propranolol, ranolazine, regorafenib, rilpirivine, riociguat, rivaroxaban, roflumilast, romiphasin, rufinamide, simprevir, sodium oxybate, sofosbuvir, sofosbuvir & velpatasvir, sofosbuvir/velpatasvir/voxiaprevir, solfencacin, sonidegib, sorafenib, sunitinib, telaprevir, telithromycin, temsorioliuma, teniposide, tenfovir alafenamide, tiagabine, ticagrelor, tipranariv, trabectedin, triamcinolone, uripristal, vandetanib, vemurafenib, voriconazole, warfarin

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Note: Aromatic antiepileptic drugs, phenytoin, phenobarbital, carbamazepine and pramidone, are a frequent cause of severe cutaneous adverse reactions. A strong genetic association between HLA-B*5702 and phenobarbital-induced Stevens-Johnson syndrome and toxic epidermal necrolysis has been shown in Han Chinese patients.

Skin

Anticonvulsant hypersensitivity syndrome [10]
Bullous dermatitis [5]
DRESS syndrome [13]
Erythema multiforme [7]
Erythroderma [2]
Exanthems [13]
Exfoliative dermatitis [6]
Fixed eruption [9]
Hypersensitivity [12]
Lupus erythematosus [2]
Purpura [2]
Rash [4]
Stevens-Johnson syndrome [21]
Toxic epidermal necrolysis [26]

Nails

Nail hypoplasia [2]

Mucosal

Gingival hyperplasia/hypertrophy [4]

Central Nervous System

Behavioral disturbances [3]
Somnolence (drowsiness) [2]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal

Asthenia (fatigue) [2]

Gastrointestinal/Hepatic

Hepatotoxicity [2]

Local

Injection-site pain (>10%) Injection-site thrombophlebitis (>10%)

Other

Allergic reactions [2]

Death [2]

Side effects [2]

Teratogenicity [5]

See: www.drugeruptiondata.com/drug/id/553
PHENOBUTAZONE
See: www.drugeruptiondata.com/drug/id/1257

PHENYLEPHRINE
Trade names: Rymatan (MedPointe), Tussi-12D (MedPointe)
Indications: Nasal congestion, glaucoma, hypotension
Class: Adrenergic alpha-receptor agonist, Sympathomimetic
Half-life: 2.5 hours
Clinically important, potentially hazardous interactions with: epinephrine, furazolidone, iobenguane, MAO inhibitors, oxprenolol, phenelzine, tranlycypromine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Qsymia is phentermine and topiramate.

PHENYTOIN
Synonyms: diphenylhydantoin; DPH; phenytoin sodium
Trade name: Dilantin (Pfizer)
Indications: Grand mal seizures
Class: Antiarrhythmic class Ib, Anticonvulsant, diphenylhydantoin; DPH; phenytoin
Half-life: 742 hours (dose dependent)
Clinically important, potentially hazardous interactions with: abacavir, abiraterone, acitretin, alfentanil, amiodarone, amitriptyline, amiodipine, amprenavir, aripiprazole, aprepitant, artemether/lumefantrine, beclometasone, boceprevir, brigatinib, brivaracetam, bupropion, cabazitaxel, cabozantinib, caffeine, calcium, capcetabine, capsofungin, cefazolin, ceftriaxone, chloramphenicol, citicoline, ciprofloxacin, citalopram, clobazam, clonazepam, clonidine, clonipramine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, clonidine, 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PHENYTOIN

HLA-B*1502 and phenytoin-induced Stevens-Johnson syndrome and toxic epidermal necrolysis has been shown in Han Chinese patients. Children whose mothers receive phenytoin during pregnancy are born with fetal hydantoin syndrome. The main features of this syndrome are mental and growth retardation, unusual facies, digital and nail hypoplasia, and coarse scalp hair. Occasionally neonatal acne will be present.

Skin
Acne keloid [2]
Acneform eruption [8]
AGEP [5]
Angioedema [2]
Anticonvulsant hypersensitivity syndrome [10]
Coarse facies [4]
Dermatomyositis [2]
Erythema multiforme [11]
Erythroderma [9]
Exanethes (671%) [22]
Exfoliative dermatitis [15]
Fixed eruption [5]
Hypersensitivity [47]
Kaposi's varicelliform eruption [2]
Linear IgA bullous dermatosis [8]
Lupus erythematosus [19]
Lymphoma [6]
Mycosis fungoides [7]
Pemphigus [2]
Pigmentation [4]
Pruritus [5]
Pseudolymphoma [31]
Purple glove syndrome [10]
Purpura [4]
Pustules [3]
Rash (<10%) [13]
Reticular hyperplasia [2]
Serum sickness-like reaction [2]
Stevens-Johnson syndrome (14%) [58]
Toxic epidermal necrolysis (2%) [65]
Urticaria [5]
Vasculitis (2%) [11]

Hair
Alopecia [3]
Hirsutism [8]

Nails
Nail changes [2]
Nail hypoplasia [3]

Mucosal
Gingival hyperplasia/hypertrophy (>10%) [57]
Mucocutaneous eruption [2]

Cardiovascular
Bradyarrhythmia [2]
Polyarteritis nodosa [2]

Central Nervous System
Ageusia (taste loss) [2]
Fetal hydantoin syndrome [8]
Hallucinations [2]
Neurotoxicity [2]
Paresthesias [2]
Restless legs syndrome [2]

Neuromuscular/Skeletal
Digital malformations [4]
Myalgia/Mypathy [2]

Myasthenia gravis [2]
Osteoporosis [2]
Rhabdomyolysis [6]

Gastrointestinal/Hepatic
Hepatotoxicity [10]

Respiratory
Cough [2]

Ocular
Hallucinations, visual [2]

Local
Injection-site extravasation [2]
Injection-site necrosis [2]

Other
Adverse effects [3]
Death [4]
Hiccups [2]
Teratogenicity [3]

Note:

PHYSOSTIGMINE

Synonym: eserine

Indications: Miotic in glaucoma treatment, reverses toxic CNS effects caused by anticholinergic drugs

Class: Cholinesterase inhibitor

Half-life: 1540 minutes

Clinically important, potentially hazardous interactions with: cholestyramine, orlistat, warfarin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis [4]
Dermatitis [9]
Eczema [2]
Scleroderma [12]
Urticaria [4]

Local
Injection-site eczematous eruption [10]
Injection-site erythema [2]
Injection-site induration [15]

Other
Allergic reactions [2]

PILOCARPINE

Trade names: Ocusert Pilo (Akorn), Pilopine (Alcon), Salagen (MGI)

Indications: Glaucoma, miosis induction, xerostomia

Class: Miotic, Muscarinic cholinergic agonist

Half-life: N/A

Clinically important, potentially hazardous interactions with: acebutolol, galantamine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Burning (<10%)
Dermatitis [4]
Diaphoresis [5]
Edema (4%)
Hyperhidrosis [2]
Hypersensitivity (<10%)
Stinging (<10%)

Central Nervous System
Dysgeusia (taste perversion) (2%)
Headache [2]

Ocular
Cataract [2]
PIMAVANSERIN

Trade name: Nuplazid (Acadia)

Indications: Hallucinations and delusions associated with Parkinson’s disease psychosis

Class: Antipsychotic

Half-life: 57 hours

Clinically important, potentially hazardous interactions with: amiodarone, carbamazepine, chlorpromazine, clarithromycin, disopyramide, drugs known to prolong the QT interval, gatifloxacin, indinavir, iraconazole, ketoconazole, moxifloxacin, phenytoin, procainamide, quinidine, rifampin, sotalol, St John’s wort, strong CYP3A4 inhibitors and inducers, thioridazine, ziprasidone

Pregnancy category: N/A (No data available)

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

Skin

Peripheral edema (7%) [2]

Central Nervous System

Confusion (6%) 

Hallucinations (5%) [2]

Gastrointestinal/Hepatic

Constipation (4%)

Nausea (7%)

Genitourinary

Urinary tract infection [2]

PIMECROLIMUS

Trade name: Elidel (Valeant)

Indications: Second-line therapy for the short-term and non-continuous chronic treatment of mild to moderate atopic dermatitis

Class: Immunosupmodulator, Macrolactam

Half-life: N/A

Clinically important, potentially hazardous interactions with: abatacept, alcohol, xeloda, aperitif, azathioprine, betamethasone, cabazitaxel, calcium channel blockers, cimetidine, conivaptan, CYP3A4 inhibitors, darunavir, delavirdine, denileukin, docetaxel, efavirenz, erythromycin, fingolimod, fluconazole, gefitinib, immunosuppressants, indinavir, iraconazole, ketoconazole, lapatinib, leflunomide, lenalidomide, oxaliplatin, pazopanib, pentetredax, telithromycin, temsirolimus, triamcinolone, voriconazole

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: LONG-TERM SAFETY OF TOPICAL CALCINEURIN INHIBITORS HAS NOT BEEN ESTABLISHED.

Skin

Burning [4]

Dermatitis [2]

Peripheral edema [3]

PIMOBAX

Trade name: Orap (Teva)

Indications: Tourette’s syndrome, schizophrenia

Class: Antipsychotic

Half-life: 50 hours

PIPERACILLIN


PIPERACILLIN/TAZOBACTAM

**Trade name:** Zosyn (Wyeth)

**Indications:** Moderate to severe infections

**Class:** Antibacterial

**Half-life:** 3 hours

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers,

**Skin**

AGEP [2]

**Gastrointestinal/Hepatic**

Diarrhea [4]

**Cardiovascular**

Chest pain [5]

**Central Nervous System**

Fever [3]

**Endocrine/Metabolic**

Hypokalemia [3]

**Central Nervous System**

Neuromuscular/Skeletal

Anorexia (13%) [10]

**Respiratory**

Cough [2]

**Endocrine/Metabolic**

ALT increased [5]

**Other**

Adverse effects [9]

PIROXICAM

**Trade name:** Feldene (Pfizer)

**Indications:** Arthritis

**Class:** Non-steroidal anti-inflammatory (NSAID)

**Half-life:** 50 hours

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

**Skin**

Photosensitivity (9%) [21]

**Cardiovascular**

Chest pain (5%) [3]

**Central Nervous System**

Anorexia (13%) [10]

**Respiratory**

Cough [2]

**Endocrine/Metabolic**

ALT increased [5]

**Other**

Adverse effects [9]

PIRAZOLAM

**Trade name:** Zitrim (Hoffman-LaRoche)

**Indications:** Anxiety, sleep disorders

**Class:** Benzodiazepine

**Half-life:** 3 hours

**Important contra-indications noted in the prescribing guidelines for:** psychiatric patients

**Skin**

AGEP [2]

**PITAVASTATIN**

**Trade name:** Livalo (Kowa)

**Indications:** Primary hyperlipidemia, mixed dyslipidemia

**Class:** Statin

**Half-life:** 30 hours

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**

Hypersensitivity (<2%)

**POTASSIUM**

**Trade name:** Kayexalate (Kayexalate Erythromycin Sulfate Tablets, Kayexalate Erythromycin Sulfate Oral Solution, Kayexalate Erythromycin Sulfate Powder for Oral Suspension, Kayexalate Erythromycin Sulfate Powder for Nasogastric Tube Administration)

**Indications:** Hemodialysis, peritoneal dialysis

**Class:** Ion exchange resin

**Half-life:** 3 hours

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**

Photosensitivity [2]

**PREDNIZOLONE**

**Trade name:** Deltasone (Pfizer)

**Indications:** Autoimmune conditions, inflammatory conditions, endocrine deficiencies

**Class:** Glucocorticoid

**Half-life:** 2 hours

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**

Photosensitivity [2]

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Central Nervous System
Headache (<2%)

Neuromuscular/Skeletal
Arthralgia (<2%)
Back pain (2-4%) 
Myalgia/Myopathy (2-3%) [5] 
Pain in extremities (<2%)

Gastrointestinal/Hepatic
Constipation (2-4%) 
Diarrhea (2-3%)

Respiratory
Influenza (<2%)
Nasopharyngitis (<2%) [2]

Endocrine/Metabolic
ALT increased [2] 
AST increased [2] 
Creatine phosphokinase increased [2]

Other
Adverse effects [4]

PIZOTIFEN
See: www.drugeruptiondata.com/drug/id/1369

PLASMA (HUMAN)
BLOOD PRODUCT
See: www.drugeruptiondata.com/drug/id/3195

PLECANATIDE *
Trade name: Trulance (Synergy)
Indications: Chronic idiopathic constipation
Class: Guanylate cyclase-C agonist
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Insufficient data to inform drug-associated risks)
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Warning: RISK OF SERIOUS DEHYDRATION IN PEDIATRIC PATIENTS

Gastrointestinal/Hepatic
Abdominal distension (<2%)
Abdominal pain [2]
Diarrhea (5%) [5]
Flatulence (<2%)
Nausea [2]
Vomiting [2]

Respiratory
Sinusitis (<2%)
Upper respiratory tract infection (<2%)

Endocrine/Metabolic
ALT increased (<2%)
AST increased (<2%)

POLYTHIAZIDE
See: www.drugeruptiondata.com/drug/id/569

POMALIDOMIDE
Trade name: Pomalyst (Celgene)
Indications: Multiple myeloma in patients who have received at least two prior therapies including lenalidomide and bortezomib
Class: Immunomodulator, Thalidomide analog
Half-life: 7.5-9.5 hours
Clinically important, potentially hazardous interactions with: ketoconazole, P-glycoprotein, rifampin
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: EMBRYO-FETAL TOXICITY and VENOUS AND ARTERIAL THROMBOEMBOLISM

Skin
Edema [4]
Hyperhidrosis (6%)
Peripheral edema (23%)
Pruritus (15%)
Rash (22%) [2]
Xerosis (9%)

PNEUMOCOCCAL VACCINE
Trade names: PCV (Lederle), Prevnar (Wyeth), Pnu-Immune (Lederle), PPV (Lederle), Prevnar (Wyeth)
Indications: Prevention of bacteremia, meningitis, pneumonia, respiratory tract infections, otitis media, sinusitis
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Skin
Anaphylactoid reactions/Anaphylaxis [4]
Pigmentation [2]
Urticaria [2]

Cardiovascular
Cardiac arrest [2]
Phlebitis [2]

Central Nervous System
Migraine [2]

Neuromuscular/Skeletal
Leg pain [2]

Hematologic
Thrombosis [2]

Local
Injection-site hematoma (42%)
Injection-site irritation (41%)
Injection-site pain (24%)
Injection-site pigmentation (38%)
Injection-site pruritus (19%)
Injection-site reactions [3]
Injection-site thrombosis (6%)

PODOPHYLLOTOXIN
See: www.drugeruptiondata.com/drug/id/1364

POLIDOCANOL
Trade names: Asclera (Chemische Fabrik Kreussler), Varithena (BTG)
Indications: Uncomplicated spider veins and uncomplicated reticular veins in the lower extremity
Class: Sclerosant, local
Half-life: 1.5 hours
Clinically important, potentially hazardous interactions with: none known

Skin
Edema [4]
Hyperhidrosis (6%)
Peripheral edema (23%)
Pruritus (15%)
Rash (22%) [2]
Xerosis (9%)

PREGNANCY category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Severe allergic reactions have been reported following polidocanol use, including anaphylactic reactions, some of them fatal. Severe reactions are more frequent with use of larger volumes (>3 mL).
Contra-indicated in patients with acute thromboembolic diseases.

PREGNANCY category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis [4]
Pigmentation [2]
Urticaria [2]

Cardiovascular
Cardiac arrest [2]
Phlebitis [2]

Central Nervous System
Migraine [2]

Neuromuscular/Skeletal
Leg pain [2]

Hematologic
Thrombosis [2]

Local
Injection-site hematoma (42%)
Injection-site irritation (41%)
Injection-site pain (24%)
Injection-site pigmentation (38%)
Injection-site pruritus (19%)
Injection-site reactions [3]
Injection-site thrombosis (6%)

POLYTHIAZIDE
See: www.drugeruptiondata.com/drug/id/569

POMALIDOMIDE
Trade name: Pomalyst (Celgene)
Indications: Multiple myeloma in patients who have received at least two prior therapies including lenalidomide and bortezomib
Class: Immunomodulator, Thalidomide analog
Half-life: 7.5-9.5 hours
Clinically important, potentially hazardous interactions with: ketoconazole, P-glycoprotein, rifampin
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: EMBRYO-FETAL TOXICITY and VENOUS AND ARTERIAL THROMBOEMBOLISM

Skin
Edema [4]
Hyperhidrosis (6%)
Peripheral edema (23%)
Pruritus (15%)
Rash (22%) [2]
Xerosis (9%)
Mucosal
Epistaxis (nosebleed) (15%)  

Cardiovascular
Chest pain (22%)  
Venous thromboembolism [8]

Central Nervous System
Anxiety (11%)  
Chills (9%)  
Confusion (10%)  
Fever (19%) [3]  
Headache (13%)  
Insomnia (7%)  
Neurotoxicity (18%) [3]  
Pain (6%)  
Peripheral neuropathy (10%) [2]  
Tremor (9%) [2]  
Vertigo (dizziness) (20%)  

Neuromuscular/Skeletal
Arthralgia (16%)  
Asthenia (fatigue) (12–55%) [10]  
Back pain (32%) [3]  
Bone or joint pain (11–12%) [2]  
Muscle spasm (19%)  
Myalgia/Myopathy [2]  
Pain in extremities (5%)  

Gastrointestinal/Hepatic
Constipation (36%) [2]  
Diarrhea (34%) [2]  
Nausea (36%)  
Vomiting (14%)  

Respiratory
Cough (14%)  
Dyspnea (34%) [5]  
Pneumonia (12%) 
Upper respiratory tract infection (32%)  

Endocrine/Metabolic
Appetite decreased (22%)  
Dehydration [2]  
Hyperglycemia (11%)  
Hypocalcemia (6%)  
Hypokalemia (10%)  
Hyponatremia (10%)  
Serum creatinine increased (15%)  
Weight loss (14%)  

Genitourinary
Urinary tract infection (8%)  

Renal
Renal failure (15%)  

Hematologic
Anemia (38%) [13]  
Febrile neutropenia [2]  
Leukopenia (11%) [3]  
Lymphopenia (4%) [2]  
Myelosuppression [4]  
Neutropenia (52%) [22]  
Sepsis [2]  
Thrombocytopenia (25%) [14]  

Other
Death [3]  
Infection [9]  

PONATINIB
See: www.drugeruptiondata.com/drug/id/3145  

POSACONAZOLE
Trade name: Noxafil (Schering)  
Indications: Aspergillus and Candida infection prophylaxis in immunocompromised patients  
Class: Antifungal,azole  
Half-life: 35 hours  

Clinically important, potentially hazardous interactions with: allopurinol, azathioprine, 
intravenous, brinzolamide, cabozantinib, calcium channel blockers, cimetidine, 
cyanidin, ciclosporine, digoxin, dihydroergotamine, 
diltiazem, dexamethasone, efavirenz, ergotamine, 
esomeprazole, everolimus, fedoxepine, flibanserin, 
fosamprenavir, HMG-CoA reductase inhibitors, 
hydroxyprogesterone, idarubicin, imatinib, 
indinavir, itraconazole, ivacaftor, lansoprazole, 
lovastatin, dronedarone, efavirenz, ergotamine, 
fosamprenavir, HMG-CoA reductase inhibitors, 
Prilosec (Pfizer)  
Ranitidine (U.S.)  
Ranitidine (Canada)  
Ranitidine (France)  
Richarson's solution  
Ritonavir/lovastatin  
Rizatriptan  
Rolipram  
Rosiglitazone  
Sildenafil  
Simvastatin  
Stavudine  
Sulfasalazine  
Tamsulosin  
Trazodone  
Treprostinil  
Trichloroethylene  
Ursodeoxycholic acid  
Vardenafil  
Varenicline  
Verapamil  
Voriconazole  
Voriconazole oral suspension unlabeled use  
Voriconazole oral suspension pediatric use  
Voriconazole oral suspension pediatric use  

Other
Adverse effects [11]  
Allergic reactions (<5%)  

POTASSIUM IODIDE
Synonyms: KI, Lugol’s solution  
Trade name: SSKI (Upsher-Smith)  
Indications: Hyperthyroidism, erythema nodosum, sporotrichosis  
Class: Antithyroid, Antimycobacterial  
Half-life: N/A  

Clinically important, potentially hazardous interactions with: ACE inhibitors, potassium-
sparing diuretics, spironolactone, triamterene
Acute coronary syndrome in ~8 hours

BLEEDING RISK
Antiplatelet, thienopyridine 2.4–5.3 hours
Dopamine receptor agonist
Steroid

Contra-indicated in patients with active Parkinsonism, restless legs

Important contra-indications noted in the prescribing guidelines for: nursing mothers

PRASUGREL

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Pregnancy category: D

Skin
Acneform eruption (<10%) [3]
Angioedema (<10%) [3]
Bullous pemphigoid [2]
Dermatitis herpetiformis [2]
Iododerma [17]
Pсорiasis [2]
Urticaria (<10%) [3]

Central Nervous System
Dysgeusia (taste perversion) (<10%) [2]

Gastrointestinal/Hepatic
Gastrointestinal disorder [2]

Endocrine/Metabolic
Hyperthyroidism [2]

PRALATREXATE

See: www.drugeruptiondata.com/drug/id/1431

PRALIDOXIME

Trade name: Protopam (Baxter)
Indications: Muscle weakness and respiratory depression caused by organophosphate drugs which have anticholinesterase activity, antidote to overdose of anticholinesterase drugs
Class: Antidote
Half-life: 2.4–5.3 hours

Clinically important, potentially hazardous interactions with: succinylcholine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Note: Pralidoxime is not effective in the treatment of poisoning due to phosphorus, inorganic phosphates, or organophosphates not having anticholinesterase activity. Pralidoxime is not indicated as an antidote for intoxication by pesticides of the carbamate class since it may increase the toxicity of carbaryl. In therapy it has been difficult to differentiate side effects due to the drug from those due to the effects of the poison.

PRAMIPEXOLE

Trade name: Mirapex (Boehringer Ingelheim)
Indications: Parkinsonism, restless legs syndrome
Class: Dopamine receptor agonist
Half-life: ~8 hours

Clinically important, potentially hazardous interactions with: levomethamphetamine, risperidone, zuclopenthixol

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

PRAMIPROFEN

See: www.drugeruptiondata.com/drug/id/1269

Genitourinary
Vaginal discharge (5–14%) [2]

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Note: Contra-indicated in patients with undiagnosed abnormal genital bleeding or with a known or suspected history of breast cancer.

Warning: BLEEDING RISK

SKIN
Edema (3%) Peripheral edema (5%) [3]

MUCOSAL
Xerostomia (7%) [3]

CARDIOVASCULAR
Chest pain (3%) Hypotension (~53%) [2]
Orthostatic hypotension [2]

Central Nervous System
Abnormal dreams (11%)
Akathisia (2–3%)
Anemia (4–6%)
Anorexia (<5%)
Compulsions [6]
Confusion [2]
Depression (2%)
Dyskinesia (17–47%) [3]
Hallucinations (5–17%) [6]
Headache (4–7%) [3]
Hyperesthesia (3%)
Impulse control disorder [10]
Insomnia (4–27%) [2]
Restless legs syndrome [2]
Somniales (drowsiness) (9–36%) [9]
Tremor (4%)
Twitching (2%)
Vertigo (dizziness) (2–26%) [6]

Neuromuscular/Skeletal
Antecollis [2]
Arthralgia (4%)
Asthenia (fatigue) (<14%) [2]

Gastrointestinal/Hepatic
Constipation [5]
Diarrhea (6%)
Dyspepsia (4%)
Rhinorrhoea (3%)

Genitourinary
Urinary frequency (6%)
Urinary tract infection (4%)

Other Adverse effects (2%) [5]

PRALMINTIDE

See: www.drugeruptiondata.com/drug/id/1069

PRANLUKAST

See: www.drugeruptiondata.com/drug/id/1269

PRANOPROFEN

See: www.drugeruptiondata.com/drug/id/1278

Gastrointestinal/Hepatic
Dyspepsia (4%)

Neuromuscular/Skeletal
Dyskinesia (17–47%) [3]

Depression caused by organophosphate drugs

Note: Contra-indicated in patients with undiagnosed abnormal genital bleeding or with a known or suspected history of breast cancer.

Warning: BLEEDING RISK

SKIN
Edema (3%) Peripheral edema (5%) [3]

MUCOSAL
Xerostomia (7%) [3]

CARDIOVASCULAR
Chest pain (3%) Hypotension (~53%) [2]
Orthostatic hypotension [2]

Central Nervous System
Abnormal dreams (11%)
Akathisia (2–3%)
Anemia (4–6%)
Anorexia (<5%)
Compulsions [6]
Confusion [2]
Depression (2%)
Dyskinesia (17–47%) [3]
Hallucinations (5–17%) [6]
Headache (4–7%) [3]
Hyperesthesia (3%)
Impulse control disorder [10]
Insomnia (4–27%) [2]
Restless legs syndrome [2]
Somniales (drowsiness) (9–36%) [9]
Tremor (4%)
Twitching (2%)
Vertigo (dizziness) (2–26%) [6]

Neuromuscular/Skeletal
Antecollis [2]
Arthralgia (4%)
Asthenia (fatigue) (<14%) [2]

Gastrointestinal/Hepatic
Constipation [5]
Diarrhea (6%)
Dyspepsia (4%)
Rhinorrhoea (3%)

Genitourinary
Urinary frequency (6%)
Urinary tract infection (4%)

Other Adverse effects (2%) [5]

PRASUGREL

Trade name: Effient (Lilly)
Indications: Acute coronary syndrome in patients who are to be managed with percutaneous coronary intervention

Class: Antiplatelet, thienopyridine

Half-life: 2–15 hours

Clinically important, potentially hazardous interactions with: cangrelor, clopidogrel, conivaptan, coumarins, darunavir, delavirdine, diclofenac, indinavir, meloxicam, NSAIDs, pheinidone, telithromycin, voriconazole, warfarin

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with active pathological bleeding, prior transient ischemic attack or stroke.

Warning: BLEEDING RISK

SKIN
Edema (3%) Peripheral edema (5%) [3]

MUCOSAL
Xerostomia (7%) [3]

CARDIOVASCULAR
Chest pain (3%) Hypotension (~53%) [2]
Orthostatic hypotension [2]

Central Nervous System
Abnormal dreams (11%)
Akathisia (2–3%)
Anemia (4–6%)
Anorexia (<5%)
Compulsions [6]
Confusion [2]
Depression (2%)
Dyskinesia (17–47%) [3]
Hallucinations (5–17%) [6]
Headache (4–7%) [3]
Hyperesthesia (3%)
Impulse control disorder [10]
Insomnia (4–27%) [2]
Restless legs syndrome [2]
Somniales (drowsiness) (9–36%) [9]
Tremor (4%)
Twitching (2%)
Vertigo (dizziness) (2–26%) [6]

Neuromuscular/Skeletal
Antecollis [2]
Arthralgia (4%)
Asthenia (fatigue) (<14%) [2]

Gastrointestinal/Hepatic
Constipation [5]
Diarrhea (6%)
Dyspepsia (4%)
Rhinorrhoea (3%)

Genitourinary
Urinary frequency (6%)
Urinary tract infection (4%)

Other Adverse effects (2%) [5]
Respiratory
Cough (4%)
Dyspnea (3%)
Respiratory distress [2]

Endocrine/Metabolic
Hypercholesterolemia (7%)
Hyperlipidemia (7%)

Hematologic
Anemia (2%)
Bleeding (<14%) [24]
Hemorrhage [2]
Leukopenia (3%)

Other
Adverse effects [2]
Malignant neoplasms (2%)

PRAVASTATIN
Trade names: Lipostat (Bristol-Myers Squibb), Pravachol (Bristol-Myers Squibb)
Indications: Hypercholesterolemia
Class: HMG-CoA reductase inhibitor, Statin
Half-life: ~23 hours
Clinically important, potentially hazardous interactions with: azithromycin, ciprofibrate, clarithromycin, colchicine, cyclosporine, darunavir, efavirenz, erythromycin, gemfibrozil, imatinib, red rice yeast, telithromycin
Pregnancy category: X

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
Dermatomyositis [2]
Eczema (generalized) [2]
Edema (3%)
Lichenoid eruption [2]
Pruritus [2]
Rash (5–7%) [7]

Cardiovascular
Angina (5%)
Chest pain (3–10%)

Central Nervous System
Anxiety (5%)
Fever (2%)
Headache (6%)
Nervousness (5%)
Paresthesias (3%)
Sleep disturbances (3%)
Vertigo (dizziness) (4–7%)

Neuromuscular/Skeletal
Arthralgia (fatigue) (3–8%)
Bone or joint pain (25%)
Cramps (5%)
Myalgia/Myopathy (2–3%) [9]
Rhabdomyolysis [24]

Gastrointestinal/Hepatic
Abdominal distension (2%)
Diarrhea (7%)
Dyspepsia (3%)
Flatulence (3%)
Nausea (7%)
Pancreatitis [4]
Vomiting (7%)

Respiratory
Bronchitis (3%)

Cough (3–8%)
Influenza (9%)
Pharyngitis (2%)
Pulmonary toxicity (4%)
Rhinitis (4%)
Upper respiratory tract infection (6–21%)

Endocrine/Metabolic
ALT increased (3%)
Creatine phosphokinase increased (4%) [3]
GGT increased (2%)
Weight gain (4%)
Weight loss (3%)

Genitourinary
Urinary tract infection (3%)

Renal
Renal failure [2]

Ocular
Diabetes (3%)
Vision blurred (3%)

Other
Adverse effects [2]
Infection (3%)

PRAZEPAM
See: www.drugeruptiondata.com/drug/id/573

PRAZIQUANTEL
Trade name: Biltricide (Bayer)
Indications: Helminthic infections
Class: Anthelmintic
Half-life: 0.8–1.5 hours
Clinically important, potentially hazardous interactions with: dexamethasone, efavirenz, oxcarbazepine, rifampin, rifapentine
Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
Acneform eruption [4]
AGEP [2]
Candidiasis [2]
Dermatitis [3]
Edema [7]
Erythema [2]
Erythema multiforme [2]
Exanthes [3]
Kaposi’s sarcoma [3]
Pruritus [2]
Stevens-Johnson syndrome [2]
Toxicity [2]

Hair
Alopecia [2]

Cardiovascular
Atrial fibrillation [2]
Cardiotoxicity [4]
Flushing [2]
Hypertension [13]
Tachycardia [2]

Central Nervous System
Behavioral disturbances [2]
Depression [4]

Neuromuscular/Skeletal
Arthralgia [4]
Asthenia (fatigue) [5]
Back pain [4]
Bone or joint pain [5]
Myalgia/Myopathy [2]
Osteonecrosis [4]
Osteoporosis [32]

Gastrointestinal/Hepatic
Constipation [3]
Diarrhea [2]
Hepatotoxicity [6]
### PREDNISONE

**Trade names:** Deltasone (Pharmacia), Metocorten (Schering)

**Indications:** Arthralgias, asthma, dermatoses, inflammatory ocular conditions

**Class:** Corticosteroid, systemic

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** aluminum, aminophylline, aspirin, chlorambucil, cimetidine, clarithromycin, cyclophosphamide, cyclosporine, dicumarol, estradiol, estrogens, grapefruit juice, cyclophosphamide, cyclosporine, dicumarol, estradiol, estrogens, grapefruit juice, adenosine, amide-type anesthetics, antimalarials, co-trimoxazole, drenederone, nitric compounds, sulfonamides

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers

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<tr>
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<td>Diarrhea [4]</td>
</tr>
<tr>
<td></td>
<td>Nausea [4]</td>
</tr>
<tr>
<td></td>
<td>Vomiting [2]</td>
</tr>
<tr>
<td><strong>Respiratory</strong></td>
<td>Cough [2]</td>
</tr>
<tr>
<td><strong>Endocrine/Metabolic</strong></td>
<td>Diabetes mellitus [2]</td>
</tr>
<tr>
<td></td>
<td>Hyperglycemia [3]</td>
</tr>
<tr>
<td></td>
<td>Weight gain [2]</td>
</tr>
<tr>
<td><strong>Hematologic</strong></td>
<td>Anemia [5]</td>
</tr>
<tr>
<td></td>
<td>Febrile neutropenia [3]</td>
</tr>
<tr>
<td></td>
<td>Leukopenia [3]</td>
</tr>
<tr>
<td></td>
<td>Neutropenia [15]</td>
</tr>
<tr>
<td></td>
<td>Thrombocytopenia [10]</td>
</tr>
<tr>
<td><strong>Ocular</strong></td>
<td>Cataract [3]</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Adverse effects [11]</td>
</tr>
<tr>
<td></td>
<td>Allergic reactions [2]</td>
</tr>
<tr>
<td></td>
<td>Death [2]</td>
</tr>
<tr>
<td></td>
<td>Infection [17]</td>
</tr>
<tr>
<td></td>
<td>Side effects [4]</td>
</tr>
</tbody>
</table>

**PRENYLAMINE**


**PRILOCAINE**

**Trade name:** Lyrica (Pfizer)

**Indications:** Neuropathy, post-herpetic neuralgia, partial epilepsy, fibromyalgia

**Class:** Anticonvulsant, GABA analog

**Half-life:** 6 hours

**Clinically important, potentially hazardous interactions with:** lacosamide, pioglitazone

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

<table>
<thead>
<tr>
<th>System</th>
<th>Side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin</strong></td>
<td>Edema (2%) [9]</td>
</tr>
<tr>
<td></td>
<td>Peripheral edema (9%) [14]</td>
</tr>
<tr>
<td><strong>Mucosal</strong></td>
<td>Xerostomia (5%) [11]</td>
</tr>
<tr>
<td><strong>Cardiovascular</strong></td>
<td>Cardiac failure [3]</td>
</tr>
<tr>
<td></td>
<td>Chest pain (2%6)</td>
</tr>
<tr>
<td><strong>Central Nervous System</strong></td>
<td>Anorgasmia [2]</td>
</tr>
<tr>
<td></td>
<td>Confusion [2]</td>
</tr>
<tr>
<td></td>
<td>Depression [2]</td>
</tr>
<tr>
<td></td>
<td>Gait instability [4]</td>
</tr>
<tr>
<td></td>
<td>Headache (7%) [8]</td>
</tr>
</tbody>
</table>

**Other** | Adverse effects [6] |

<table>
<thead>
<tr>
<th>System</th>
<th>Side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Central Nervous System</strong></td>
<td>Impaired concentration [2]</td>
</tr>
<tr>
<td></td>
<td>Insomnia [3]</td>
</tr>
<tr>
<td></td>
<td>Memory loss [2]</td>
</tr>
<tr>
<td></td>
<td>Neurotoxicity [3]</td>
</tr>
<tr>
<td></td>
<td>Pain (5%)</td>
</tr>
<tr>
<td></td>
<td>Sedation [6]</td>
</tr>
<tr>
<td></td>
<td>Somnolence (drowsiness) [45]</td>
</tr>
<tr>
<td></td>
<td>Suicidal ideation [4]</td>
</tr>
<tr>
<td></td>
<td>Tinnitus [2]</td>
</tr>
<tr>
<td></td>
<td>Vertigo (dizziness) (4%) [58]</td>
</tr>
</tbody>
</table>

**Gastrointestinal/Hepatic**

**Constitution** [5]

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

<table>
<thead>
<tr>
<th>System</th>
<th>Side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ocular</strong></td>
<td>Coma [4]</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Angioedema [3]</td>
</tr>
<tr>
<td></td>
<td>Contact dermatitis [3]</td>
</tr>
<tr>
<td></td>
<td>Hypersensitivity [2]</td>
</tr>
<tr>
<td></td>
<td>Petechiae [3]</td>
</tr>
<tr>
<td></td>
<td>Purpura [3]</td>
</tr>
</tbody>
</table>

**Central Nervous System**

**Conna [4] |

**Paresthesias [3] |
Seizures [2]
Hematologic
Methemoglobinemia [11]
Other
Adverse effects [2]

**PRIMAQUINE**
See: www.drugeruptiondata.com/drug/id/576

**PRIMIDONE**
See: www.drugeruptiondata.com/drug/id/577

**PRISTINAMYCIN**
See: www.drugeruptiondata.com/drug/id/1311

**PROBENECID**
**Indications:** Gouty arthritis
**Class:** Uricosuric
**Half-life:** 612 hours (dose-dependent)
**Clinically important, potentially hazardous interactions with:** acemetacin, acetaminophen, amphotericin B, ampicillin/sulbactam, benzodiazepines, captopril, cefazolin, cefditoren, cefloxicin, deferiprone, doripenem, ertapenem, flucloxacillin, furosemide, gemifloxacin, glibenclamide, ketoprofen, ketorolac, levodopa, levofloxacin, meloxicam, meropenem & vaborbactam, methotrexate, moxifloxacin, nifedipine, NSAIDs, pemetrexed, penicillamine, penicillin G, penicillin V, salicylates, sulfamethoxazole, sulfonamides, torsemide, zidovudine
**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Dermatitis (6%)
- Exanthems (<8%) [5]
- Hypersensitivity [2]
- Lupus erythematosus (>10%) [175]
- Purpura (5%)
- Vasculitis [5]

**Mucosal**
- Oral mucosal eruption (2%)

**Central Nervous System**
- Dysgeusia (taste perversion) (34%)
- Psychosis [2]

**Neuromuscular/Skeletal**
- Myalgia/Myopathy [2]
- Myasthenia gravis [3]

**Gastrointestinal/Heaptic**
- Hepatotoxicity [3]

**Respiratory**
- Pulmonary toxicity [2]

**Hematologic**
- Agranulocytosis [4]
- Neutropenia [3]
- Pure red cell aplasia [3]

**Skin**
- Anaphylactoid reactions/Anaphylaxis (<10%)
- Fixed eruption [3]
- Photosensitivity (<10%) [3]
- Pruritus (<10%)
- Rash (<10%)
- Toxic epidermal necrolysis [2]

**Mucosal**
- Xerostomia (>10%)

**Central Nervous System**
- Akathisia [14]
- Extrapyramidal symptoms [3]
- Neuroleptic malignant syndrome [3]
- Parkinsonism [4]

**Neuromuscular/Skeletal**
- Dystonia [6]

**Endocrine/Metabolic**
- Gynecomastia (<10%)

**PROCHLORPERAZINE**
**Trade name:** Compazine (GSK)
**Indications:** Psychotic disorders, control of severe nausea and vomiting
**Class:** Antidepressant, Antipsychotic, Muscarinic antagonist, Phenothiazine
**Half-life:** 23 hours
**Clinically important, potentially hazardous interactions with:** antihistamines, arsenic, chlorpromazine, dexamethasone, phenytoin, piperazine, quinidine, quinolones, sparfloxacin
**Pregnancy category:** C
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Skin**
- Anaphylactoid reactions/Anaphylaxis (<10%)
- Fixed eruption [3]
- Photosensitivity (<10%) [3]
- Pruritus (<10%)
- Rash (<10%)
- Toxic epidermal necrolysis [2]

**Mucosal**
- Xerostomia (>10%)

**Central Nervous System**
- Akathisia [14]
- Extrapyramidal symptoms [3]
- Neuroleptic malignant syndrome [3]
- Parkinsonism [4]

**Neuromuscular/Skeletal**
- Dystonia [6]

**Endocrine/Metabolic**
- Gynecomastia (<10%)

**PROCYCLIDINE**
See: www.drugeruptiondata.com/drug/id/582

**PROGESTINS**
**Trade name:** Aygestin (Barr), Megace (Bristol-Myers Squibb), Micronor (Ortho), Ovrette (Wyeth), Provera (Pfizer)
**Indications:** Prevention of pregnancy
**Class:** Progestogen
**Half-life:** N/A
**Clinically important, potentially hazardous interactions with:** acitretin, aminoglutethimide, doxifluridine, roxovan, voriconazole

**Skin**
- Acneform eruption [3]
- Dermatitis [4]
- Diaphoresis (31%)
- Erythema multiforme [2]
- Urticaria [2]

**Cardiovascular**
- Flushing (12%)

**Endocrine/Metabolic**
- Amenorrhea [2]
PROPRANOLOL

See: www.drugeruptiondata.com/drug/id/587

PROPOFOL

Trade name: Diprivan (AstraZeneca)
Indications: Induction and maintenance of anesthesia
Class: Anesthetic, general
Half-life: initial: 40 minutes; terminal: 3 days
Clinically important, potentially hazardous interactions with: zuc 
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis (<10%) [8]
Angioedema [2]
Exanthems (6%) [2]
Rash (5%) [2]

Cardiovascular
Bradyarrhythmias [14]
Bradycardia [2]
Cardiac failure [2]
Congestive heart failure [2]
Hypotension [17]
Tachycardia [2]

Central Nervous System
Amnesia [10]
Hallucinations [3]
Seizures [8]
Twitching (<10%)

Neuromuscular/Skeletal
Ataxia [2]
Rhabdomyolysis [9]

Gastrointestinal/Hepatic
Nausea [3]
Pancreatitis [7]
Vomiting [4]

Respiratory
Apnea [4]
Cough [2]
Hypoxia [7]
Respiratory depression [2]

Endocrine/Metabolic
Acidosis [2]

Renal
Green urine [8]

Local
Infusion-related reactions [3]
Injection-site pain (> 10%) [35]

Other
Adverse effects [4]
Death [8]
Hiccups [3]

PROPOXYPHENE

See: www.drugeruptiondata.com/drug/id/589

PROPRANOLOL

Trade names: Hemangeol (Pierre Fabre), Inderal (Wyeth)
Indications: Hypertension, angina pectoris, atrial fibrillation, myocardial infarction, migraine, tremor, infantile hemangioma
Class: Antiarrhythmic, Antiarrhythmic class II, Beta adrenergic blocker, Beta blocker
Half-life: 26 hours
Clinically important, potentially hazardous interactions with: alcohol, aluminum hydroxide, aminophylline, amiodarone, barbiturates, bupivacaine, chlorpromazine, cholestyramine, cimetidine, ciprofloxacin, clonidine, colchicine, cyclosporine, delavirdine, diazepam, diltiazem, disopyramide, epinephrine, ethylmorphine, flurazepam, fluoxetine, fluvoxamine, haloperidol, imipramine, insulin, insulin detemir, insulin glargine, insulin glulisine, isoniazid, levodopa, lidocaine, nicardipine, nifedipine, nisoldipine, oxcarbazepine, paroxetine, propranolol, repaglinide, risperidone, ritonavir, rituximab, ruboxisomab, sulfonylureas, tamoxifen, ticlopidine, ticlopidine, tobramycin, toparoxol, trazodone, triptans, triptans, troleandomycin, valproic acid, verapamil, warfarin, zileuton, zolmitriptan

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Cutaneous side effects of beta-receptor blockers are clinically polymorphous. They apparently appear after several months of continuous therapy.

Skin
Acneform eruption [2]
Angioedema [2]
Cold extremities [6]
Dermatitis [2]
Eczema [2]
Exanthems [4]
Lichenoid eruption [3]
Lupus erythematosus [2]
Necrosis [3]
PROPAMOXOL

Pemphigus [2]
Psoriasis [21]
Rash (<10%) [2]
Raynaud’s phenomenon [3]
Stevens-Johnson syndrome [2]
Urticaria [3]

Hair
Alopecia [6]

Nails
Nail thickening [2]

Cardiovascular
Bradycardia [19]
Cardiac arrest [2]
Flushing [2]
Hypertension [2]
Hypotension [19]

Central Nervous System
Agitation [2]
Amnesia [2]
Confusion [2]
Delirium [3]
Hallucinations [5]
Headache [2]
Insomnia [2]
Nightmares [2]
Psychosis [3]
Sleep disturbances [9]
Somnolence (drowsiness) [4]
Vertigo (dizziness) [3]

Neuromuscular/Skeletal
Asthenia (fatigue) [4]
Myalgia/Myopathy [3]

Gastrointestinal/Hepatic
Constipation [2]
Diarrhea [6]
Gastroesophageal reflux [2]
Nausea [2]

Respiratory
Bronchospasm [3]
Wheezing [3]

Endocrine/Metabolic
Hyperkalemia [4]
Hypoglycemia [15]
Weight gain [2]

Genitourinary
Peyronie’s disease [6]

Ocular
Hallucinations, visual [4]

Other
Adverse effects [10]
Death [3]
Tooth decay [2]

PROTAMINE SULFATE

Indications: Heparin overdose
Class: Heparin antagonist
Half-life: 2 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Skin
Anaphylactoid reactions/Anaphylaxis [42]
Angioedema [3]
Hypersensitivity [10]
Rash [2]
Urticaria [5]

Cardiovascular
Hypertension [2]
Hypotension [6]

Other
Adverse effects [2]
Allergic reactions [13]
Death [13]

PROTEIN C CONCENTRATE (HUMAN)

See: www.drugeruptiondata.com/drug/id/1247

PROTHROMBIN COMPLEX CONCENTRATE (HUMAN)

Synonym: PCC
Trade name: Kcentra (CSL Behring)
Indications: Urgent reversal of acquired coagulation factor deficiency induced by vitamin K antagonist therapy in adult patients with acute major bleeding
Class: Coagulant
Half-life: 4-60 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Skin
AGEP [3]
Dermatitis [3]
Diaphoresis (<10%) [2]
Erythoderma [2]
Exanthems [4]
Fixed eruption [14]

Cardiovascular
Myocardial infarction [2]
Pulmonary edema [2]

Central Nervous System
Somnolence (drowsiness) [2]

Ocular
Hallucinations, visual [2]

PSORALENS

Trade names: Oxsoralen (Valeant), Trisoralen (Valeant)
Indications: Psoriasis, eczema, vitiligo, cutaneous T-cell lymphoma
Class: Psorales
Half-life: 2 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

PROPYLTHIOURACIL

See: www.drugeruptiondata.com/drug/id/591

PROPYLPHENAZONE

See: www.drugeruptiondata.com/drug/id/1405

PROPYRHYTHIOURACIL

See: www.drugeruptiondata.com/drug/id/591

PROZAC
Skin

Anaphylactoid reactions/Anaphylaxis [2]
Basal cell carcinoma [3]
Bullous pemphigoid (with UVA) [13]
Burning (<10%) [3]
Dermatitis [11]
Eczema [2]
Edema (<10%) [5]
Erythema [2]
Herpes simplex [2]
Herpes zoster [2]
Hypomelanosis (<10%)
Lupus erythematosus [5]
Melanoma [3]
Photosensitivity [14]
Phototoxicity [14]
Porokeratosis (actinic) [3]
Pruritus (>10%) [4]
Rash (<10%) [3]
Squamous cell carcinoma [4]
Tumors (for the most part malignant) [18]
Vitiligo [2]

Hair

Hypertrichosis [4]

Nails

Nail pigmentation [4]
Photo-onycholysis [3]

Mucosal

Cheilitis (<10%)

Central Nervous System

Pain [3]

PYRIDOSTIGMINE

Trade names: Mestinon (Valeant), Regonol (Novartis)
Indications: Myasthenia gravis
Class: Acetylcholinesterase inhibitor
Half-life: ~2 hours
Clinically important, potentially hazardous interactions with: aminoglycosides, bacitracin, clindamycin, colistin, edrophonium, polymyxin B, propafenone, propranolol, quinidine, tetracyclines
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Central Nervous System

Neurotoxicity [3]
Parkinsonism [2]

Gastrointestinal/Hepatic

Abdominal pain [5]
Diarrhea [2]
Nausea [3]

Other

Adverse effects [2]
Side effects [2]

PYRIDOXINE

See: www.drugeruptiondata.com/drug/id/598

PYRILAMINE

See: www.drugeruptiondata.com/drug/id/599

PYRIMETHAMINE

Trade names: Daraprim (GSK), Fansidar (Roche)
Indications: Malaria
Class: Antimalarial, Antiprotozoal
Half-life: 8095 hours
Clinically important, potentially hazardous interactions with: dapson, pemetrexed, trimethoprim, zidovudine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers
Note: Fansidar is pyrimethamine and sulfadoxine. Sulfadoxine is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin

Angioedema [2]
Bullous dermatitis [2]
DRESS syndrome [2]
Erythema multiforme [4]
Exanthesms [3]
Exfoliative dermatitis [2]
Fixed eruption [3]
Hypersensitivity (>10%)
Lichenoid eruption [2]
Photosensitivity (>10%) [3]
Pigmentation [5]
Pruritus [2]
Stevens-Johnson syndrome (<10%) [25]
Toxic epidermal necrolysis [15]

Central Nervous System

Vertigo (dizziness) [2]

Neuromuscular/Skeletal

Asthenia (fatigue) [2]

Gastrointestinal/Hepatic

Diarrhea [2]
Nausea [2]
Vomiting [2]

Other

Adverse effects [2]
Death [4]
QUAZEPAM

See: www.drugeruptiondata.com/drug/id/601

QUETIAPINE

Trade name: Seroquel (AstraZeneca)
Indications: Schizophrenia, bipolar I disorder
Class: Antipsychotic, Mood stabilizer
Half-life: ~6 hours

CLINICALLY IMPORTANT, POTENTIALLY HAZARDOUS INTERACTIONS WITH: alcohol, amoxapine, antihypertensive agents, arsenic, azatadine, azithromycin, CNS acting drugs, darunavir, doxazosin, dopamine, drugs known to cause electrolyte imbalance or increase QT interval, erythromycin, fluconazole, hepatic enzyme inducers, iraconazole, ketoconazole, levodopa, methadone, P4503A inhibitors, pazopanib, telavancin, tipranavir, tricyclic antidepressants, voriconazole

Pregnancy category: C

IMPORTANT CONTRA-INDICATIONS NOTED IN THE PRESCRIBING GUIDELINES FOR: the elderly; nursing mothers; pediatric patients

WARNING: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS; SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
Diaphoresis (<10%)
Hyperhidrosis (2%)
Peripheral edema [5]
Rash (4%)

Mucosal
Sialorrhea [3]
Xerostomia (9%) [22]

Cardiovascular
Bradycardia [2]
Hypertension (41%)
Hypotension [6]
Postural hypotension [2]
QT prolongation [7]
Tachycardia (6%) [3]

Central Nervous System
Abnormal dreams (2–3%)
Agitation (20%) [2]
Akathisia (8%) [6]
Anxiety (2–4%)
Confusional states [3]
Confusion [2]
Delirium [2]
Depression (3%) [3]
Extrapyramidal symptoms [3]
Headache (21%) [6]
Hypoaesthesia (2%)
Hypomania [3]
Impulse control disorder [2]
Insomnia (99%)
Mania [2]
Neuroleptic malignant syndrome [15]
Pain (7%)
Paresthesias (3%)
Parkinsonism (4%) [4]
Psychosis [2]
Restless leg syndrome [7]
Sedation [15]
Seizures [7]
Serotonin syndrome [2]
Sleep related disorder [2]
Somnambulism [2]
Somanolence (drowsiness) (18%) [23]
Suicidal ideation [3]
Tardive dyskinesia (5%) [3]
Tic disorder [3]
Tremor [3]
Vertigo (dizziness) (11%) [13]

NEUROMUSCULAR/SKELETAL

Asthenia (fatigue) (5%) [5]
Ataxia (2%)
Dystonia [2]
Pisa syndrome [2]
Rhabdomyolysis [4]

GASTROINTESTINAL/HEPATIC

Adbominal pain (4–7%)
Colitis [3]
Constipation (8%) [4]
Dyspepsia (5%)
Hepatotoxicity [2]
Nausea (7%) 
Pancreatitis [4]
Vomiting (6%)

Respiratory
Pneumonia [2]

ENDOCRINE/METABOLIC

ALT increased (5%)
Appetite increased [3]
Diabetes mellitus [2]
Hyperglycemia [3]
Hypoglycemia [3]
Lipid decreased (2%)
Metabolic syndrome [2]
SIADH [2]
Weight gain (5%) [23]

GENITOURINARY

Priapism [14]
Sexual dysfunction [2]
Urinary retention (2%)

HEMATOLOGIC

Leukopenia [2]
Neutropenia [2]
Thrombocytopenia [3]

OCULAR

Amblyopia (2–3%)
Vision blurred (<4%)

OTHER

Adverse effects [11]
Death [8]
Toothache (2–3%)

SKIN

Exanthems [3]
Exfoliative dermatitis (8%) [3]
Fixed eruption [3]
Lichenoid eruption (12%) [6]
Ochronosis [1]
Pigmentation [9]
Squamous cell carcinoma [2]

HAIR

Alopecia (80%) [2]

NAILS

Nail pigmentation (ala nasi) (blue-gray) [2]

MUCOSAL

Oral pigmentation [4]

GASTROINTESTINAL/HEPATIC

Nausea [2]
Vomiting [2]

QUINAGOLIDE

See: www.drugeruptiondata.com/drug/id/1377

QUINAPRIL

Trade names: Accupril (Pfizer), Accupro (Pfizer), Accuretic (Pfizer)
Indications: Hypertension, heart failure
Class: Angiotensin-converting enzyme (ACE) inhibitor, Antihypertensive, Vasodilator
Half-life: 2 hours

CLINICALLY IMPORTANT, POTENTIALLY HAZARDOUS INTERACTIONS WITH: alcohol, aldesleukin, allopurinol, alpha blockers, alprostadil, amifostine, amiloride, angiotensin II receptor antagonists, antacids, antidiabetics, antihypertensives, antipsychotics, anxiolytics and hypnotics, aprotinin, azathioprine, baclofen, beta blockers, calcium channel blockers, chlorthalidione, ciprofloxacin, clonidine, corticosteroids, cyclosporine, demeclocycline, diazoxide, diuretics, doxycycline, eplerenone, estrogens, everolimus, gemifloxacin, general anesthetics, gold & gold compounds, heparins, hydralazine, insulin, levodopa, lithium, lymecycline, MAO inhibitors, metformin, methylprednisolone, methylprednisolone, minocycline, minoxidil, moxifloxacin, moxisylyte, mounidine, nitrates, nitroprusside, NSAIDs, ofloxacin, oxazocyclines, pentoxifylline, phosphodiesterase 5 inhibitors, potassium salts, prostacyclin analogues, quinine, quinolones, rituximab, salicylates, sirolimus, spironolactone, sulfonolureas, tamsulosins, tetracycline, tetracyclines, tigecycline, tizanidine, tolvaptan, trimaterene, trimethoprim

Pregnancy category: D (category C in first trimester; category D in second and third trimesters)

IMPORTANT CONTRA-INDICATIONS NOTED IN THE PRESCRIBING GUIDELINES FOR: nursing mothers; pediatric patients

NOTE: Contra-indicated in patients with a history of angioedema related to previous treatment with an ACE inhibitor.

WARNING: FETAL TOXICITY
**Skin**
- Angioedema [9]
- Diaphoresis [3]
- Edema [4]
- Peripheral edema [3]
- Photosensitivity [2]
- Pruritus [7]
- Rash [5]

**Central Nervous System**
- Dysesthesia (taste perversion) [3]

**Neuromuscular/Skeletal**
- Myalgia/Myalgia [2%]

**Respiratory**
- Cough [9]

**Other**
- Adverse effects [2]

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**QUININE**

**Trade name:** Qualaquin (URL Pharma)

**Indications:** Malaria

**Class:** Antimalarial, Antiprotozoal

**Half-life:** 8-14 hours

**Clinically important, potentially hazardous interactions with:** amphetamine, amiloride, ampicillin, amoxicillin, amphotericin B, amprinavir, anisodamine, anticoagulants, arsenic, artemether/lumefantrine, asenapine, atorvastatin, atazanavir, azithromycin, azithromycin, bicalutamide, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprost, bimatoprot...
**RABEPRAZOLE**

*Trade name:* Aciphex (Eisai) (Janssen)  
*Indications:* Gastroesophageal reflux disease (GERD), duodenal ulcers, Zollinger-Ellison syndrome  
*Class:* Proton pump inhibitor (PPI)  
*Half-life:* 1–2 hours  
*Clinically important, potentially hazardous interactions with:* atazanavir, clopidogrel, cyclosporine, digoxin, ketoconazole, rilpivirine, simvastatin, warfarin  
*Pregnancy category:* B  
*Important contra-indications noted in the prescribing guidelines for:* nursing mothers

**Skin**  
Pruritus [2]  
Rash [2]

**Central Nervous System**  
Dysgeusia (taste perversion) [2]  
Headache (2–5%) [4]  
Pain (3%)  
Vertigo (dizziness) [4]

**Neuromuscular/Skeletal**  
Asthenia (fatigue) [3]

**Gastrointestinal/Hepatic**  
Abdominal pain [6]  
Constipation (25%)  
Diarrhea (3%) [8]  
Dyspepsia [3]  
Flatulence [2]  
Gastrointestinal bleeding [2]  
Nausea [5]  
Vomiting [5]

**Respiratory**  
Cough [3]  
Upper respiratory tract infection [2]

**Endocrine/Metabolic**  
Hypomagnesemia [2]

**Renal**  
Nephrotoxicity [2]

**Other**  
Adverse effects [2]

**RADOXIFENE**

*Trade name:* Evista (Lilly)  
*Indications:* Osteoporosis, reduction in risk of invasive breast cancer in postmenopausal women with osteoporosis or at high risk for invasive breast cancer  
*Class:* Selective estrogen receptor modulator (SERM)  
*Half-life:* 27.7 hours  
*Clinically important, potentially hazardous interactions with:* cholestyramine, levothyroixine  
*Pregnancy category:* X  
*Important contra-indications noted in the prescribing guidelines for:* nursing mothers; pediatric patients

**Skin**  
DRESS syndrome [4]  
Pruritus (<2%)  
Rash (<2%) [8]

**Central Nervous System**  
Depression (<2%)  
Insomnia (4%) [4]  
Neurotoxicity [2]  
Vertigo (dizziness) (<2%)

**Neuromuscular/Skeletal**  
Asthenia (fatigue) (<2%) [4]  
Myalgia/Myopathy [3]  
Rhabdomyolysis [8]

**Gastrointestinal/Hepatic**  
Abdominal pain (<2%) [2]  
Diarrhea [7]  
Dyspepsia (<2%)  
Gastritis (<2%)  
Hepatitis [2]  
Hepatotoxicity (<2%) [3]  
Nausea (<2%) [8]  
Vomiting (<2%)

**Endocrine/Metabolic**  
ALT increased [3]  
Creatine phosphokinase increased [3]

**Renal**  
Nephrolithiasis (<2%)  
Renal failure (<2%)

**Other**  
Adverse effects [6]
**RAMITREXED**

See: www.drugerupationdata.com/drug/id/1298

**RAMELTEON**

**Trade name:** Rozerem (Takeda)

**Indications:** Insomnia

**Class:** Hypnotic, Melatonin receptor agonist

**Half-life:** 12.6 hours

**Clinically important, potentially hazardous interactions with:** alcohol, antifungals, CNS depressants, conivaptan, CYP3A4 inhibitors, donepezil, doxepin, droperidol, fluconazole, fluvoxamine, food, ketoconazole, levomepromazine, rifampin, rifapentine, St John’s wort, voriconazole, zidovudine

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Central Nervous System**

Depression (2%)

Dysgeusia (taste perversion) (2%)

Headache (7%) [8]

Insomnia (exacerbation) (3%)

Somnolence (drowsiness) (3%) [9]

Vertigo (dizziness) (4%) [6]

**Neuromuscular/Skeletal**

Arthralgia (2%) [4]

Myalgia/Myopathy (2%)

**Gastrointestinal/Hepatic**

Nausea (3%) [3]

**Respiratory**

Upper respiratory tract infection (3%)

**Genitourinary**

Urinary tract infection [2]

**Other**

Adverse effects [7]

**RAMIPRIL**

**Trade names:** Altace (Monarch), Tritace (Sanofi-Aventis)

**Indications:** Hypertension

**Class:** Angiotensin-converting enzyme (ACE) inhibitor, Antihypertensive, Vasodilator

**Half-life:** 2–7 hours

**Clinically important, potentially hazardous interactions with:** alcohol, aldoseleukin, alopurinol, alpha blockers, alprostadil, amifostine, amiloride, angiotensin II receptor antagonists, antacids, antihypertensives, antipsychotics, azathioprine, baclofen, beta blockers, calcium channel blockers, clondine, corticosteroids, cyclosporine, diazoxide, diuretics, eplerenone, estrogens, everolimus, general anesthetics, gold & gold compounds, heparins, hyaluronic acid, hypotensives, insulin, levodopa, lithium, MAO inhibitors, metformin, methyl dopa, minoxidil, moxisylyte, mexitilidene, nitrites, nitroprusside, NSAIDs, pentoxyfylline, phosphodiesterase 5 inhibitors, potassium salts, prostatocin analogues, quinine, rituximab, sirolimus, spironolactone, sulfonylureas, telmisartan, temsirolimus, tizanidine, tolvaptan, triamterene, trimethoprim

**Pregnancy category:** D (category C in first trimester; category D in second and third trimesters)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with a history of angioedema related to previous treatment with an ACE inhibitor, or a history of hereditary or idiopathic angioedema.

**Warning:** FETAL TOXICITY

- **Skin**
  - Angioedema [11]
  - Diaphoresis [2]
  - Lichen planus pemphigoides [3]
  - Photosensitivity [2]
  - Pruritus [3]
  - Rash [4]

- **Hair**
  - Alopecia (<10%)

- **Cardiovascular**
  - Angina (3%)
  - Flushing [2]
  - Hypotension (11%) [3]
  - Postural hypertension (2%)

- **Central Nervous System**
  - Headache (5%) [2]
  - Syncope (2%)
  - Vertigo (dizziness) (2-4%) [4]

- **Neuromuscular/Skeletal**
  - Asthenia (fatigue) (2%)

**RANIBIZUMAB**

**Trade name:** Lucentis (Genentech)

**Indications:** Neovascular (wet) age-related macular degeneration, macular edema (following retinal vein occlusion)

**Class:** Monoclonal antibody, Vascular endothelial growth factor antagonist

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Warning:** HEMORRHAGE, GASTROINTESTINAL PERFORATION, AND IMPAIRED WOUND HEALING

**Skin**

Peripheral edema [2]

**Rash (4%)**

**Mucosal**

Epistaxis (nosebleed) (5%) [2]

Stomatitis [3]

**Cardiovascular**

Hypertension (16%) [21]

Thromboembolism (2%) [2]

Venous thromboembolism [2]

**Central Nervous System**

Anorexia [2]

Headache (9%) [3]

**Neuromuscular/Skeletal**

Asthenia (fatigue) [13]

**Gastrointestinal/Hepatic**

Abdominal pain [2]

Ascites [2]

Constipation [3]

Diarrhea (14%) [7]

Gastric obstruction (2%)

Hemorrhage [3]

Headache (9%) [3]

**Respiratory**

Dyspnea [3]

**Endocrine/Metabolic**

Appetite decreased [2]

Hypoglycemia (6%)

**Renal**

Proteinuria [10]

**Hematologic**

Anemia [3]

Bleeding [5]

Febrile neutropenia [9]

Hemorrhage [3]

Leukemia [6]

Neutropenia (5%) [12]

Thrombocytopenia [5]

**Local**

Infusion-related reactions [4]

**Other**

Adverse effects [2]

Death [3]

**RANIBIZUMAB**

**Trade name:** Cyramza (Lilly)

**Indications:** Gastric cancer

**Class:** Monoclonal antibody, Vascular endothelial growth factor antagonist

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Warning:** HEMORRHAGE, GASTROINTESTINAL PERFORATION, AND IMPAIRED WOUND HEALING

**Skin**

Peripheral edema [2]

**Rash (4%)**

**Mucosal**

Epistaxis (nosebleed) (5%) [2]

Stomatitis [3]

**Cardiovascular**

Hypertension (16%) [21]

Thromboembolism (2%) [2]

Venous thromboembolism [2]

**Central Nervous System**

Anorexia [2]

Headache (9%) [3]

**Neuromuscular/Skeletal**

Asthenia (fatigue) [13]

**Gastrointestinal/Hepatic**

Abdominal pain [2]

Ascites [2]

Constipation [3]

Diarrhea (14%) [7]

Gastric obstruction (2%)

Hemorrhage [3]

Headache (9%) [3]

**Respiratory**

Dyspnea [3]

**Endocrine/Metabolic**

Appetite decreased [2]

Hypoglycemia (6%)

**Renal**

Proteinuria [10]

**Hematologic**

Anemia [3]

Bleeding [5]

Febrile neutropenia [9]

Hemorrhage [3]

Leukemia [6]

Neutropenia (5%) [12]

Thrombocytopenia [5]

**Local**

Infusion-related reactions [4]

**Other**

Adverse effects [2]

Death [3]
RANIBIZUMAB

Over 100 updates per week on www.drugeruptiondata.com

RANITIDINE

Trade name: Zantac (Concordia)
Indications: Duodenal ulcer
Class: Histamine H2 receptor antagonist
Half-life: 2.5 hours
Clinically important, potentially hazardous interactions with: alfenimal, delavirdine, fentanyl, gefitinib, metformin, prednisone, rilpivirine, risperidone
Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
AGEP [2]
Anaphylactoid reactions/Anaphylaxis [18]
Dermatitis [6]
Eczem [2]
Exanthems [5]
Hypersensitivity [2]
Photosensitivity [2]
Pseudolymphoma [2]
Porphyria [3]
Other
Adverse effects [3]

RANOLAZINE

Trade name: Ranexa (CV Therapeutics)
Indications: Angina
Class: Anti-ischemic, Fatty acid oxidation inhibitor
Half-life: 7 hours
Clinically important, potentially hazardous interactions with: aprepitant, atazanavir, clarithromycin, conivaptan, cyclosporine, CYP3A inducers, CYP3A inhibitors, darunavir, dasabuvir/omitavir/paritaprevir/ritonavir, delavirdine, diltiazem, dofetilide, efavirenz, erythromycin, grapefruit juice, indinavir, iraconazole, ketoconazole, lopinavir, nelfinavir, omitavir/paritaprevir/ritonavir, oxbirazepine, paroxetine hydrochloride, phenobarbital, phenytoin, rifampin, rilpivirine, simvastatin, telithromycin, thioridazine, tipranavir, venetoclax, verapamil, voriconazole, ziprasidone
Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Cardiovascular
Palpitation (<2%)
QT prolongation [7]
Torsades de pointes [2]

Central Nervous System
Headache (3%) [4]
Vertigo (dizziness) [10]

Neuromuscular/Skeletal
Asthenia (fatigue) [3]

Gastrointestinal/Hepatic
Abdominal pain (<2%)
Constipation [8]
Nausea [9]
Vomiting [2]

Otic
Tinnitus (<2%)

RAPACURONIUM

See: www.drugeruptiondata.com/drug/id/806

RASAGILINE

Trade name: Azilect (Teva)
Indications: Parkinsonism
Class: Monoamine oxidase B inhibitor
Half-life: 6.0.2 hours
Clinically important, potentially hazardous interactions with: aminophylline, amitriptyline, ciprofloxacin, citalopram, dizoxamethorph, entacapone, fluoxetine, fluvoxamine, MAO inhibitors, meperidine, paroxetine hydrochloride, phenytoin, pethidine, pseudoephedrine, SSRIs
Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Ecchymoses (2%)
Mucosal
Xerostomia (3%)
Cardiovascular
Hypotension (5%)

Central Nervous System
Depression (5%) [2]
Dyskinesia (>10%)
Fever (3%)
Gait instability (5%)
Headache (14%) [2]
Paresthesias (2%)
Somnolence (drowsiness) [3]
Vertigo (dizziness) (2%) [3]

Neuromuscular/Skeletal
Arthralgia (7%) [2]
Asthenia (fatigue) (2%)
Dystonia (2%)
Neck pain (2%)

Gastrointestinal/Hepatic
Dyspepsia (7%)
Gastroenteritis (3%)
Nausea [2]

Respiratory
Flu-like syndrome (5%)
Rhinitis (3%)
Ocular
Conjunctivitis (3%)

**RASBURICASE**

See: www.drugeruptiondata.com/drug/id/942

**REBOXETINE**

Trade name: Edronax (Pfizer)
Indications: Clinical depression, panic disorder
Class: Antidepressant, Noradrenaline reuptake inhibitor
Half-life: 1.3 hours
Clinically important, potentially hazardous interactions with: azithromycin, bosentan, itraconazole, ketoconazole, MAO inhibitors, papaverine, voriconazole
Pregnancy category: N/A (not recommended in pregnancy)
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Diaphoresis [8]
Mucosal
Xerostomia [12]
Central Nervous System
Headache [5]
Insomnia [9]
Somnolence (drowsiness) [2]
Genitourinary
Ejaculatory dysfunction [2]

**REGENONSON**

See: www.drugeruptiondata.com/drug/id/1293

**REGORAFENIB**

See: www.drugeruptiondata.com/drug/id/3067

**REMIFENTANIL**

See: www.drugeruptiondata.com/drug/id/1414

**REPAGLINIDE**

See: www.drugeruptiondata.com/drug/id/614

**RESERPIN**

See: www.drugeruptiondata.com/drug/id/615

**RESLIZUMAB**

Trade name: Cinqair (Teva)
Indications: Adjunctive treatment for severe eosinophilic asthma
Class: Interleukin-5 antagonist, Monoclonal antibody
Half-life: 24 days
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Insufficient evidence to inform drug-associated risk)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: ANAPHYLAXIS

Mucosal
Oropharyngeal pain (3%)
Central Nervous System
Headache [3]
Respiratory
Asthma (exacerbation) [3]
Nasopharyngitis [4]
Upper respiratory tract infection [3]
Endocrine/Metabolic
Creatine phosphokinase increased (14%)

**RETAPAMULIN**

See: www.drugeruptiondata.com/drug/id/1248

**RETEPLASE**

See: www.drugeruptiondata.com/drug/id/616

**RIBAVIRIN**

Trade names: Copegus (Roche), Rebetol (Schering-Plough), Rebetron (Schering), Virazole (Valeant)
Indications: Respiratory syncytial viral infections
Class: Antiviral, nucleoside analog
Half-life: 24 hours
Clinically important, potentially hazardous interactions with: abacavir, azathioprine, didanosine, emtricitabine, interferon alfa, PEG-interferon, stavudine, zidovudine
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: [NH] = Inhalation; [O] = Oral. Rebetron is ribavirin and interferon.
Warning: RISK OF SERIOUS DISORDERS AND RIBAVIRIN-ASSOCIATED EFFECTS

Skin
Dermatitis [O] (16%)
DRESS syndrome [2]
Eczaema [O] (4–5%) [3]
Exanthesms [5]
Lichenoid eruption [2]
Nummular eczema [2]
Peripheral edema [2]

Photosensitivity [6]
Pruritus [O] (13–29%) [26]
Psoriasis [2]
Rash [O] (5–28%) [38]
Sarcoidosis [16]
 Stevens-Johnson syndrome [2]
Toxic epidermal necrolysis [2]
Toxicity [2]
Vasculitis [2]
Vitiligo [2]
Xerosis [O] (10–24%) [2]

Hair
Alopecia [O] (27–36%) [5]
Alopecia areata [2]

Cardiovascular
Flushing [O] (4%)

Central Nervous System
Depression [O] (20–36%) [10]
Dysgeusia (taste perversion) [O] (4–9%) [4]
Headache [INH] (Insomnia [O] (25–41%)
Irritability [9]
Neurotoxicity [2]
Nausea [O] (10%)
Vomiting [O] (25–48%)
Suicidal ideation [O] (2%) [2]
Vertigo (dizziness) [O] (14–26%) [6]

Neuromuscular/Skeletal
Arthralgia [26]
Myalgia [INH] (Myopathy) [INH] (20–36%) [7]

Gastrointestinal/Hepatic
Diarrhea [16]
Hepatotoxicity [6]
Nausea [INH] (<10%) [37]
Pancreatitis [4]
Vomiting [O] (9–25%) [3]

Respiratory
Cough [O] (7–23%) [9]
Dyspnea [O] (13–26%) [5]
Flu-like syndrome [O] (13–18%) [8]
Nasopharyngitis [3]
Pneumonitis [2]
Rhinitis [O] (8%) [26]

Endocrine/Metabolic
ALT increased [6]
Appetite decreased [2]
AST increased [5]
Diabetes mellitus [2]
Hepatitis B [2]
Hyperbilirubinemia [3]
Hyperuricemia [O] (33–38%) [3]
Thyroid dysfunction [2]
Weight loss [O] (10–29%) [2]

Genitourinary
Erection dysfunction [2]

Renal
Nephrotoxicity [5]

Hematologic
Anemia [INH] (<10%) [74]
Hemoglobin decreased [3]
Hemotoxicity [2]
Leukopenia [O] (6–45%) [3]
Lymphopenia [O] (12–14%) [2]
Neutropenia [O] (8–42%) [18]
velpatasvir, sofosbuvir/velpatasvir/voxilaprevir, sofosbuvir, simeprevir, sovaprevir, sovaprevir/conpenavir, sonidegib, sorafenib, sunitinib, tacrolimus, taladafil, taimeltoen, telaprevir, telithromycin, temsirolimus, tenofovir alafenamide, terbinafine, thalidomide, ticagrelor, tipranavir, tofacitinib, tolvaptan, trabectedin, treprostinil, triamcinolone, triazolam, trimethoprim, troleandomycin, ulipristal, valbenazine, vandetanib, vemurafenib, venetoclax, vorapaxar, voriconazole, vortioxetine, warfarin, zaleplon, zidovudine, zolpidem

Pregnancy category: C

Skin
Acneform eruption [3]
AGEP [2]
Anaphylactoid reactions/Anaphylaxis [8]
Dermatitis [3]
Diaphoresis (<10%) [3]
DRESS syndrome [5]
Exanthes (<5%) [6]
Fixed eruption [6]
Hypersensitivity [5]
Linear IgA bullous dermatosis [3]
Pemphigus [9]
Pruritus (<62%) [9]
Purpura [6]
Rash (<5%) [5]
Sunburn (<2%) [5]

Cardiovascular
Flushing (7%) [8]

Central Nervous System
Seizures [3]
Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Asthenia (fatigue) [3]

Gastrointestinal/Hepatic
Abdominal pain [3]
Diarrhea [2]
Hepatitis [3]
Hepatotoxicity [18]
Nausea [4]
Vomiting [2]

Respiratory
Pneumonitis [2]

Endocrine/Metabolic
Amenorrhea [2]
Porphyria [2]

Renal
Nephrotoxicity [10]

Hematologic
Agranulocytosis [2]
Anemia [3]
Thrombocytopenia [11]

Other
Adverse effects [12]
Death [7]
Side effects (5%)

RIFAPENTINE
See: www.drugeruptiondata.com/drug/id/621

RIFAXIMIN
Trade names: Xifaxan (Salix), Xifaxanta (Norgine)
Indications: Diarrhea in travelers (caused by non-invasive strains of E. coli), reduction in risk of overt hepatic encephalopathy recurrence (in adults)
Class: Antibiotic, rifamycin
Half-life: 2–5 hours
Clinically important, potentially hazardous interactions with: BCG vaccine

Skin
Cellulitis (2–5%) [11]
Clammy skin (<2%) [9]
Edema (2–5%) [9]
Hot flashes (<2%) [6]
Hyperhidrosis (<2%) [6]
Peripheral edema (15%) [2]
Pruritus (9%)
Rash (<5%)
Sunburn (<2%)

Mucosal
Epistaxis (nosebleed) (2–5%)
Gingival lesions (<2%)
Rhinorrhea (<2%)
Xerostomia (2–5%)

Cardiovascular
Chest pain (<5%) [2]

Central Nervous System
Abnormal dreams (<2%) [8]
Ageusia (taste loss) (<2%)
Amnesia (2–5%)
Anorexia (<5%)
Confusion (2–5%)
Depression (7%)
Dysgeusia (taste perversion) (<2%) [2]
Fever (3–6%)
Headache (10%) [8]
Hypoestesia (2–5%)
Impaired concentration (2–5%)
Insomnia (<2%)
Migraine (<2%)
Pain (<5%)
Syncope (<2%)
Tremor (2–5%)
Vertigo (dizziness) (<13%) [3]

Neuromuscular/Skeletal
Arthralgia (<6%)
Anemia (fatigue) (<12%) [3]
Back pain (6%)
Muscle spasm (<9%)
Myalgia/Myopathy (<5%)
Neck pain (<2%)

Gastrointestinal/Hepatic
Abdominal distension (<8%)
Abdominal pain (2–9%) [10]
Asctes (11%)
Black stools (<2%)
Constipation (4–6%)
Diarrhea (<2%) [6]
Fecal urgency (6%) [6]
Flatulence (11%) [2]
Hernia (<2%)
Nausea (3–14%) [8]
Tenesmus (7%)
Vomiting (2%) [3]

Respiratory
Cough (7%)
Dyspnea (<6%)
Flu-like syndrome (2–5%)
Nasopharyngitis (<7%) [4]
Pharyngitis (<2%)
Pharyngolaryngeal pain (2%)
Pneumonia (2–5%)
Rhinitis (<5%)
Sinusitis [2]

Endocrine/Metabolic
AST increased (<2%)
Dehydration (<5%)
Hyperglycemia (2–5%)
Hyperkalemia (2–5%)
Hypoglycemia (2–5%)
Hypotonia (2–5%)

Genitourinary
Dysuria (<2%)
Hematuria (<2%)
Polyuria (2%)
Urinary frequency (<2%)

Renal
Proteinuria (2%)

Hematologic
Anemia (8%)
Lymphocytosis (<2%)
Monocytosis (<2%)

Otic
Ear pain (<2%)
Tinnitus (<2%)

Other
Breast cancer [2]

RILONACEPT
See: www.drugeruptiondata.com/drug/id/1307

RILPIVIRINE
See: www.drugeruptiondata.com/drug/id/2507

RILUZOLE
See: www.drugeruptiondata.com/drug/id/622
RIMANTADINE

See: www.drugeruptiondata.com/drug/id/623

RIMONABANT

See: www.drugeruptiondata.com/drug/id/1236

RIOCIGUAT

Trade name: Adempas (Bayer)
Indications: Pulmonary hypertension
Class: Soluble guanylate cyclase (sGC) stimulator
Half-life: 7–12 hours
Clinically important, potentially hazardous interactions with: antacids, carbamazepine, dipyrядamole, nitrates or nitric oxide donors, nitroprusside, phenobarbital, phenytoin, rifampin, sildenafil, St John’s wort, tadalafil, theophylline, vardenafil
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: EMBRYO-FETAL TOXICITY

Skin
- Peripheral edema [2]
- Hypotension (10%) [6]
- Rash (13%) [4]

Cardiovascular
- Hypertension (11%)
- Bradycardia [2]

Central Nervous System
- Headache (10%) [3]
- Syncope [2]
- Dizziness (20%)
- Paresthesia (1%)
- Vertebralgia (5%)
- Vertigo (dizziness) (7%)

Gastrointestinal/Hepatic
- Constipation (5%)
- Diarrhea (12%)
- Dyspepsia (2%) [2]
- Gastroesophageal reflux (5%)
- Nausea (14%)
- Vomiting (10%)
- Fractures (9%)
- Myalgia/Myalgia (7%)
- Neck pain (5%)
- Osteonecrosis [5]
- Tendinopathy/Tendon rupture (3%)

Genitourinary
- Urinary tract infection (11%)

Ocular
- Cataract (7%)
- Adverse effects [3]
- Scleritis [2]

Other
- Adverse effects [5]

RISEDRONATE

Trade names: Actonel (Procter & Gamble), Atelia (Warner Chilcott)
Indications: Paget’s disease of bone, osteoporosis
Class: Bisphosphonate
Half-life: terminal: 220 hours
Clinically important, potentially hazardous interactions with: antacids, calcium supplements, iron preparations, laxatives, magnesium-based supplements
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Eccymoses (4%)
- Peripheral edema (8%)
- Pruritus (3%)
- Rash (8%)

Cardiovascular
- Chest pain (5%)
- Hypertension (11%)

Central Nervous System
- Depression (7%)
- Headache (10%) [3]
- Insomnia (5%)
- Pain (14%)
- Paresthesia (2%)
- Vertebralgia (7%)

Neuromuscular/Skeletal
- Arthralgia (10–24%) [6]
- Arthritis (2%)
- Back pain (28%) [4]
- Bone or joint pain (7%) [5]
- Fractures (9%) [9]
- Myalgia/Myalgia (7%)
- Neck pain (5%)
- Osteonecrosis [5]
- Tendinopathy/Tendon rupture (3%)

Gastrointestinal/Hepatic
- Abdominal pain (12%) [3]
- Constipation (13%) [3]
- Diarrhea (11%) [4]
- Dyspepsia (11%) [2]
- Esophagitis [2]
- Gastrointestinal disorder [3]
- Hepatotoxicity [6]
- Nausea (11%) [2]

Respiratory
- Bronchitis (10%)
- Cough (6%)
- Flu-like syndrome (11%) [2]
- Influenza [3]
- Nasopharyngitis [3]
- Pharyngitis (6%)
- Rhinitis (6%)
- Sinusitis (6%)

Genitourinary
- Urinary tract infection (11%)

Ocular
- Cataract (7%)
- Adverse effects [3]
- Scleritis [2]

Other
- Adverse effects [5]
- Allergic reactions (46%)
- Infection (31%) [2]
- Tooth disorder (2%)

RISPERIDONE

Trade names: Risperdal (Ortho-McNeil) (Janssen), Risperdal Consta (Ortho-McNeil) (Janssen)
Indications: Schizophrenia, bipolar mania, irritability associated with autistic disorder
Class: Antipsychotic, Mood stabilizer
Half-life: 330 hours
Clinically important, potentially hazardous interactions with: ACE inhibitors, alcohol, alpha blockers, amantadine, angiotensin II receptor antagonists, anxiolytics and hypnotics, apomorphine, artemether/lumefantrine, barbiturates, bromocriptine, cabergoline, calcium channel blockers, carbamazepine, cimetidine, citalopram, clozapine, cobicistat/elvitegravir/ emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil ethosuximide, flutamide, general anesthetics, histamine, levodopa, meranamine, methylxypol, metoprolol, opioids, oral contraceptives, paroxetine, pergolide, phenytoin, pramipexole, primidone, ranitidine, ritonavir, ropinirole, rotigotine, sodium oxybate, sympathomimetics, tetrabenazine, tramadol, tricyclics, valproic acid
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Safety and effectiveness have not been established for pediatric patients with schizophrenia <13 years of age, for bipolar mania <10 years of age, and for autistic disorder <5 years of age. [C] = in children.
Warning: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

Skin
- Angioedema [6]
- Edema [3]
- Peripheral edema (16%) [4]
- Photosensitivity (<10%) [2]
- Rash [C] (11%) (2–4%)
- Seborrhea (2%)
- Urticaria [2]
- Xerosis (2%) [2]

Hair
- Alopecia [2]

Mucosal
- Salivary (5%)
- Salivary [C] (<3%) [11]
- Xerostomia [C] (13%) (4%) [7]

Cardiovascular
- Bradycardia [2]
- Cardiotoxicity [2]
- Hypotension [2]
- QT prolongation [4]
- Tachycardia [C] (7%) (<5%) [2]
- Venous thromboembolism [6]
- Ventricular arrhythmia [2]

Central Nervous System
- Agitation [2]
- Akathisia [C] (16%) (5–9%) [18]
- Anorexia [C] (8%) (2%)

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**Adverse effects**

- **Skin**
  - Anaphylactoid reactions
  - Diaphoresis
  - Hypersensitivity
  - Rash
  - Pruritus
  - Edema
  - Eczema
  - Dermatitis
  - Bullous dermatitis
  - Dermatitis
  - Acneform eruption
  - Urticaria
  - Nausea

- **Respiratory**
  - Cough
  - Dyspnea
  - Pulmonary embolism
  - Rhinitis
  - Upper respiratory tract infection

- **Neuromuscular/Skeletal**
  - Arthralgia
  - Carditis
  - Myocardial ischemia
  - Vasculitis

- **Gastrointestinal/Hepatic**
  - Chills
  - Tremor
  - Neutropenia
  - Hepatotoxicity
  - Rhabdomyolysis

- **Cardiovascular**
  - Myocardial ischemia

- **Central Nervous System**
  - Chills
  - Tremor
  - Rash
  - Toxic epidermal necrolysis

- **Endocrine/Metabolic**
  - Hypokalemia
  - Hyperprolactinemia
  - Gynecomastia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Cough
  - Urinary tract infection

- **Lipid lowering drugs**
  - Hypokalemia
  - Hypercholesterolemia

- **Hepatotoxicity**
  - Hypokalemia

- **Hypersensitivity**
  - Hypersensitivity

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills

- **Central Nervous System**
  - Chills

- **Endocrine/Metabolic**
  - Hypokalemia

- **Neurotoxicity**
  - Peripheral neuropathy

- **Renal**
  - Hypokalemia

- **Cardiovascular**
  - Myocardial ischemia

- **Gastrointestinal/Hepatic**
  - Chills
RITONAVIR

Xanthomas [2]
Xerosis (<2%)

Hair
Alopecia [2]

Mucosal
Chelitis (<2%)
Gingivitis (<2%)
Oral candidiasis (<2%)
Oral ulceration (<2%)
Oropharyngeal pain (16%)
Xerostomia (<2%)

Cardiovascular
Cardiotoxicity [2]
Flushing (13%)
Hypertension (3%)
Hypotension (2%)
Orthostatic hypotension (2%)

Central Nervous System
Ageusia (taste loss) (<2%)
Confusion (3%)
Dysgeusia (taste perversion) (16%)
Headache [8]
Hypersomnia [2]
Neurotoxicity [2]
Paresthesias (51%)
Parosmia (<2%)
Peripheral neuropathy (10%)
Syncope (3%)
Vertigo (dizziness) (16%) [2]

Neuromuscular/Skeletal
Arthralgia (19%)
Asthemia (fatigue) (46%) [3]
Back pain (19%)
Myalgia/Myopathy (4-9%)
Rhabdomyolysis [2]

Gastrointestinal/Hepatic
Abdominal pain (26%) [2]
Diarrhea (68%) [14]
Dyspepsia (12%)
Flatulence (8%)
Gastrointestinal bleeding (2%)
Gastrointestinal disorder [4]
Hepatotoxicity (9%) [2]
Hepatotoxicity (3%)
Hyperbilirubinemia (14%)
Hypogammaglobulinemia [6]
Hypocalcemia [3]
Hypereosinophilia [3]
Hypertophic (12%) [10]

Renal
Anemia (8%) [12]
Cytopenia (3%)
Febrile neutropenia [15]
Hematoxicity [3]
Hypogammaglobulinemia [6]
Leukopenia (14%) [14]
Lymphocytopenia [2]
Lymphopenia [28%]
Myelosuppression [5]
Myelotoxicity [2]
Neutropenia (14%) [49]
Sepsis [3]
Thrombocytopenia (12%) [37]
Thrombosis [2]

Cardiovascular
Cardiotoxicity [5]
Flushing (5%)
Hypertension (6%) [2]
Hypotension (10%) [10]

Ocular
Vision blurred (6%)

Other
Adverse effects [9]
Allergic reactions (<2%)

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RIVASTIGMINE

Trade name: Exelon (Novartis)
Indications: Alzheimer’s disease and dementia
Class: Cholinesterase inhibitor
Half-life: 12 hours
Clinically important, potentially hazardous interactions with: galantamine
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Dermatitis [2]
Diaphoresis (10%)
Exanthes [2]
Hyperhidrosis (4%)
Peripheral edema (>2%)
Rash (>2%) [2]

Cardiovascular
Bradycardia [5]
Chest pain (>2%)
Hypertension (3%)
QT prolongation [2]
Thrombophlebitis (<2%)

Central Nervous System
Aggression (3%)
Agitation (>2%)
Anorexia (6–17%) [2]
Anxiety (4–5%)
Confusion (8%)
Delusions of parasitosis (>2%)
Depression (6%)
Hallucinations (4%)
Headache (4–17%)
Insomnia (3–9%)
Nervousness (>2%)
Pain (>2%)
Parkinsonism (2%)
Restlessness [2]
Somnolence (drowsiness) (3–5%)
Syncope (3%) [3]
Tremor (4–10%) [3]
Vertigo (dizziness) (6–21%) [4]

Neuromuscular/Skeletal
Arthralgia (>2%)
Asthenia (fatigue) (2–9%)
Back pain (>2%)
Dystonia [2]
Fractures (>2%)
Myalgia/Myopathy (20%)
Pisa syndrome [2]

Gastrointestinal/Hepatic
Abdominal pain [2]
Back pain (>2%)
Dyspepsia (9%)
Erectation (belching) (2%)
Flatulence (4%)
Nausea (25–47%) [12]
Vomiting (17–31%) [12]

Respiratory
Bronchitis (>2%)
Cough (>2%)
Flu-like syndrome (3%)
Pharyngitis (>2%)

Rhinitis (4%)
Endocrine/Metabolic
Dehydration (2%)
Weight loss (3%) [2]

Gastrointestinal
Urinary incontinence (>2%)
Urinary tract infection (7%)

Local
Application-site pruritus [2]
Application-site reactions [3]

Other
Adverse effects [5]
Death [2]
Infection (>2%)

RIZATRIPTAN

Trade name: Maxalt (Merck)
Indications: Migraine
Class: 5-HT1 agonist, Serotonin receptor agonist
Half-life: 23 hours
Clinically important, potentially hazardous interactions with: dihydroergotamine, ergot-containing drugs, isocarboxazid, MAO inhibitors, methysergide, naratriptan, phenelzine, propranolol, sibutramine, SSRIs, St John’s wort, sumatriptan, tranylcypromine, zolmitriptan
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: Safety and effectiveness in pediatric patients <6 years of age have not been established.

Mucosal
Xerostomia (3%)

Cardiovascular
Chest pain (<3%) [2]

Central Nervous System
Headache (<2%)
Neurotoxicity [2]
Pain (3%)
Paresthesias (3–4%)
Somnolence (drowsiness) (4–6%)
Vertigo (dizziness) (4–9%) [10]

Neuromuscular/Skeletal
Asthenia (fatigue) (4–7%) [9]
Jaw pain (<2%)
Neck pain (<2%)

Gastrointestinal/Hepatic
Nausea (4–6%)

Other
Adverse effects [4]

ROCURONIUM

See: www.drugeruptiondata.com/drug/id/1187

ROFECOXIB

See: www.drugeruptiondata.com/drug/id/631

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers
Note: Safety and effectiveness in pediatric patients <6 years of age have not been established.

Mucosal
Xerostomia (3%)

Cardiovascular
Chest pain (<3%) [2]

Central Nervous System
Headache (<2%)
Neurotoxicity [2]
Pain (3%)
Paresthesias (3–4%)
Somnolence (drowsiness) (4–6%)
Vertigo (dizziness) (4–9%) [10]

Neuromuscular/Skeletal
Asthenia (fatigue) (4–7%) [9]
Jaw pain (<2%)
Neck pain (<2%)

Gastrointestinal/Hepatic
Nauea (4–6%)

Other
Adverse effects [4]

ROCURONIUM

See: www.drugeruptiondata.com/drug/id/1187

ROFECOXIB

See: www.drugeruptiondata.com/drug/id/631
**ROFLUMILAST**

**Trade names:** Daliresp (Takeda), Daxas (Takeda)

**Indications:** To reduce the risk of COPD exacerbations in patients with severe COPD associated with chronic bronchitis and a history of exacerbations.

**Class:** Anti-inflammatory, Phosphodiesterase 4 (PDE4) inhibitor

**Half-life:** 17 hours

**Adverse effects:**
- Urinary tract infection (<2%)
- Appetite decreased (2%) [4]
- Upper respiratory tract infection [4]
- Sinusitis (<2%)
- Rhinitis (<2%)
- Pneumonia [3]
- Nasopharyngitis [4]
- Influenza (3%) [3]
- Dyspnea [3]
- COPD [3]
- Bronchitis [3]
- Asthma (fatigue) [5]
- Abdominal pain (3%) [3]
- Vomiting (<2%) [2]
- Nasal congestion (3%) [2]
- Headache (4%) [2]
- Fatigue (<2%) [2]
- Back pain (3%) [3]
- Muscle spasm (<2%)

**Important contra-indications noted in the prescribing guidelines:**
- Nursing mothers; pediatric patients
- Pregnancy category: C

**Note:** Contra-indicated in patients with moderate to severe liver impairment (Child-Pugh B or C class).

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**ROLAPITANT**

**Trade name:** Varubi (Tesaro)

**Indications:** Delayed nausea and vomiting from chemotherapy, in combination with dexamethasone and a 5HT3-receptor antagonist.

**Class:** Antiemetic, Neurokinin 1 receptor antagonist

**Half-life:** ~7 days

**Important contra-indications noted in the prescribing guidelines:**
- Nursing mothers; pediatric patients
- Pregnancy category: C

**Important contra-indications noted in the prescribing guidelines for:**
- Nursing mothers; pediatric patients

**Adverse effects:**
- Mucosal stomatitis (6–10%)
- Cardiovascular
  - Hypotension (7–23%)
  - Supraventricular arrhythmias (>2%)
  - Tachycardia (10%)
  - Ventricular arrhythmia (>2%)

**Central Nervous System**
- Anorexia (23–54%) [3]
- Chills (11–17%)
- Dysesthesia (taste perversion) (15–40%)
- Fever (20–47%)
- Headache (15–34%)

**Gastrointestinal/Hepatic**
- Asthenia (fatigue) (53–77%) [10]
- Gastrointestinal/Hepatic
  - Abdominal pain (13–14%)
  - Constipation (12–40%)
  - Diarrhea (20–36%)
  - Nausea (56–86%) [9]
  - Vomiting (34–52%) [5]

**Other**
- Adverse effects [2]
- Infection (46–54%) [2]

**ROMIDEPSIN**

**Indications:** Cutaneous T-cell lymphoma (CTCL)

**Class:** Histone deacetylase (HDAC) inhibitor

**Half-life:** 3 hours

**Clinically important, potentially hazardous interactions with:** atazanavir, carbamazepine, clarithromycin, conivaptan, coumarin derivatives, CYP3A4 inhibitors and inducers, darunavir, delavirdine, dexamethasone, efavirenz, indinavir, itraconazole, ketoconazole, nefazodone, nevirapine, oxcarbazepine, phenobarbital, phenytoin, rifabutin, rifampin, ritonavir, saquinavir, St John’s wort, telithromycin, voriconazole, warfarin

**Pregnancy category:** D

**Important contra-indications noted in the prescribing guidelines for:**
- Nursing mothers; pediatric patients

**Other**
- Adverse effects [6]

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**ROPIROLINE**

**Trade name:** Requip (GSK)

**Indications:** Parkinsonism

**Class:** Dopamine receptor agonist

**Half-life:** ~6 hours

**Clinically important, potentially hazardous interactions with:** ciprofloxacin, estradiol, levomepromazine, norfloxacin, risperidone, warfarin, zuclopenthixol
Thiazolidinediones, including rosiglitazone, have a half-life of ~19 hours. Hypercholesterolemia, mixed dyslipidemia, and diabetes are indications for their use. The most common adverse effects include weight gain, edema, and peripheral edema. Important contra-indications noted in the Pregnancy category include breastfeeding and pregnancy. Important contra-indications noted in the nursing category include breastfeeding and pregnancy.

**ROSUVASTATIN**

**Trade name:** Crestor (AstraZeneca)

**Indications:** Hypercholesterolemia, mixed dyslipidemia

**Class:** HMG-CoA reductase inhibitor, Statin

**Half-life:** ~19 hours

Clinically important, potentially hazardous interactions with: alcohol, amiodarone, antacids, azithromycin, ciprofibrate, colchicine, conivaptan, coumarins, cyclosporine, dapptomycin, darunavir, dronedarone, elabavir & grazoprevir, eltroambop, eluxadoline, erythromycin, ethinylestradiol, fenofibrate, fibrates, fosamprenavir, fusidic acid, gemfibrozil, indinavir, ledipasvir & sofosbuvir, lovastatin, niacin, omeprazole, phenindione, progestins, protease inhibitors, ritonavir, saquinavir, sofosbuvir/velpatavir/voxilaprevir, tipranavir, trabekitin, vitamin K antagonists, warfarin

**Pregnancy category:** X

Important contra-indications noted in the prescribing guidelines for: nursing mothers

**Skin**

Peripheral edema (>2%)

Rash (>2%)

**Central Nervous System**

Depression (>2%)

Headache (6%)

Pain (>2%)

Vertigo (dizziness) (4%) [3]

**Neuromuscular/Skeletal**

Arthralgia (>2%)

Back pain (3%)

Myalgia/Myopathy (3%) [18]

Rhabdomyolysis [16]

**Gastrointestinal/Hepatic**

Abdominal pain (>2%)

Constipation (2%)

Diarrhea (5%)

Dyspepsia (4–10%)

Nausea (40–60%) [18]

Vomiting (11%) [3]

**Respiratory**

Cough (>2%)

Dyspnea (2%)

Flu-like syndrome (2%)

Rhinitis (2%)

Sinusitis (2%)

**Endocrine/Metabolic**

Creatine phosphokinase increased [2]

Diabetes mellitus [3]

**Renal**

Nephrotoxicity [4]

Renal failure [3]

**Other**

Adverse effects [8]

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ROSIVACAINE

See: www.drugerupti ondata.com/drug/id/1771

**ROSIGLITAZONE**

**Trade names:** Avandamet (GSK), Avandaryl (GSK), Avandia (GSK)

**Indications:** Type II diabetes

**Class:** Antidiabetic, Thiazolidinedione

**Half-life:** 3–4 hours

**Important contra-indications noted in the prescribing guidelines for: nursing mothers**

**Skin**

Diaphoresis (3–6%)

Herpes simplex (5%)

Hyperhidrosis (3%)

Peripheral edema (2–7%) [2]

Rash [2]

**Mucosal**

Xerostomia (5%)

**Cardiovascular**

Cardiotoxicity [2]

Chest pain (4%)

Flushing (3%)

Hypotension [2]

Orthostatic hypoten sion [4]

**Central Nervous System**

Anesthesia (3%)

Dysskinesia [9]

Hallucinations (<5%) [7]

Headache (6%) [5]

Hyperesthesia (4%)

Impulse control disorder [3]

Insomnia [2]

Isomnia (3–8%)

Myalgia/Myopathy (3%)

Sleep related disorder [2]

Somnolence (drowsiness) (11–40%) [13]

Syncope (<12%) [3]

Tremor (6%)

**Neuromuscular/Skeletal**

Arthralgia (4%)

Asthenia (fatigue) (8–11%) [4]

Back pain [2]

Myalgia/Myopathy (3%)

Gastrointestinal/Hepatic

Abdominal pain (3–7%) [2]

Anemia [2]

Bladder disorder [2]

Constipation [2]

Abdominal pain (3–7%) [2]

Dyspepsia (4–10%) [3]

Diarrhea (5%)

Constipation (>2%)

Abdominal pain (>2%)

Urinary tract infection (5%)
ROTAVIRUS VACCINE

Trade names: Rotarix (GSK), RotaTeq (Merck)
Indications: Prevention of rotavirus gastroenteritis
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Central Nervous System
Vertebral [3]
Gastrointestinal/Hepatic
Intussusception [2]

ROTIGOTINE

Trade name: Neupro (Schwarz)
Indications: Parkinsonism, restless legs syndrome
Class: Dopamine receptor agonist
Half-life: 5–7 hours
Clinically important, potentially hazardous interactions with: antipsychotics, levomepromazine, memantine, methyldopa, metoclopramide, risperidone, zuclopenthixol
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Neupro contains sodium metabisulfite which is capable of causing anaphylactoid reactions in patients with sulfite allergy.

Skin
Diaphoresis (4%)
Erythema (2%)
Peripheral edema (7%) [3]

Mucosal
Xerostomia (3%) [3]

Cardiovascular
Chest pain (>2%)
Hypertension (3%)
Hypotension [2]

Central Nervous System
Abnormal dreams (3%)
Anorexia (3%)
Anxiety (>2%)
Depression (>2%)
Dyskinesia [4]
Gait instability [2]
Hallucinations (2%) [3]
Headache (14%) [8]
Impulse control disorder [4]
Insomnia (10%) [3]
Somnolence (drowsiness) (25%) [16]

ROXATIDINE

See: www.drugeruptiondata.com/drug/id/1080

ROXITHROMYCIN

See: www.drugeruptiondata.com/drug/id/1117

RUCAPARIB *

Trade name: Rubraca (Clovis)
Indications: Advanced BRCA-mutated ovarian cancer
Class: Poly (ADP-ribose) polymerase (PARP) inhibitor
Half-life: 17 hours
Clinically important, potentially hazardous interactions with: none known

Pregnancy category: N/A (Can cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Dermatitis (13%)
Erythema (13%)
Exanthema (13%)
Hand-foot syndrome (2%)
Photosensitivity (10%)
Pruritus (9%)
Rash (13%)

Central Nervous System
Dysgeusia (taste perversion) (39%) [2]
Vertigo (dizziness) (17%)

Neuromuscular/Skeletal
Asthenia (fatigue) (77%) [4]

Gastrointestinal/Hepatic
Abdominal pain (32%) [2]
Constipation (40%) [2]
Diarrhea (34%) [2]
Nausea (77%) [4]
Vomiting (46%) [4]

Respiratory
Dyspnea (21%)

Endocrine/Metabolic
ALT increased (74%) [3]
Appetite decreased (39%)
AST increased (73%) [4]
Hypercholesterolemia (40%)
Serum creatinine increased (92%)

Hematologic
Anemia (44%) [6]
Lymphocytopenia (45%)
Neutropenia (15%) [2]
Thrombocytopenia (21%) [2]
SACCHARIN

Indications: Sugar substitute
Class: Sweetening agent
Half-life: N/A
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A
Note: Saccharin is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin
Dermatitis [3]
Exanthems [2]
Photosensitivity [3]
Pruritus [3]
Urticaria [5]

SACUBITRIL/VALSARTAN

Trade name: Entresto (Novartis)
Indications: To reduce risk of cardiovascular death and hospitalization for heart failure in chronic heart failure
Class: Angiotensin receptor nephrilysin inhibitor (ARNI)
Half-life: <12 hours
Clinically important, potentially hazardous interactions with: ACE inhibitors, aliskiren, lithium, NSAIDs, potassium-sparring diuretics
Pregnancy category: N/A (Can cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with a history of angioedema related to previous therapy with angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker. See also separate profile for valsartan.
Warning: FETAL TOXICITY

Skin
Angioedema (<2%) [2]
Peripheral edema [2]
Cardiovascular
Hypotension (18%) [4]
Orthostatic hypotension (2%)
Central Nervous System
Gait instability (2%)
Vertigo (dizziness) (6%) [2]
Neuromuscular/Skeletal
Arthralgia [2]
Gastrointestinal/Hepatic
Constipation [2]
Respiratory
Cough (9%) [4]
Nasopharyngitis [2]
Endocrine/Metabolic
Hyperkalemia (12%) [4]
Serum creatinine increased [2]
Renal
Nephrotoxicity [3]
Renal failure (5%)
Other
Adverse effects [2]

SAFINAMIDE *

Trade name: Xadago (Neuron)
Indications: Adjunctive treatment to levodopa/ carbidopa in patients with Parkinson’s disease experiencing off episodes
Class: Monoamine oxidase B inhibitor
Half-life: 20–26 hours
Clinically important, potentially hazardous interactions with: cyclonbenzamine, dextromethorphan, dopamine antagonists, imatinib, irinotecan, itraconazol, laptinin, linezolid, meperidine, methadone, methylphenidate, metoclopramide, mitotane, modafinil, meprostem, mitoxantrone, other MAO inhibitors, propoxyphene, rosuvastatin, serotonergic drugs, St John’s wort, sulfasalazine, sympathomimetics, topotecan, tramadol, tricyclic or tetracyclic antidepressants
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Anaphylactoid reactions/Anaphylaxis (<10%) Rash (<10%)

SALMETEROL

See: www.drugeruptiondata.com/drug/id/635

SALSALATE

Trade name: Mono-Gesic (Schwarz)
Indications: Arthritis
Class: Non-steroidal anti-inflammatory (NSAID), Salicylate
Half-life: 78 hours
Clinically important, potentially hazardous interactions with: diclofenac, mexitetate
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Skin
Hyperkalemia (12%) [4]
Serum creatinine increased [2]

SAPROPTERIN

See: www.drugeruptiondata.com/drug/id/1271

SAQUINAVIR

Trade name: Invirase (Roche)
Indications: Advanced HIV infection
Class: Antiretroviral, CYP3A4 inhibitor, HIV-1 protease inhibitor
Half-life: 12 hours
Clinically important, potentially hazardous interactions with: abiraterone, atalatin, alprazolam, amitriptyline, ampresanav, astemizole, atazanavir, atorvastatin, avanafil, brigatinib, cabazitaxel, cabozantinib, calcifediol, clindamycin, clozapine, copanlisib, crizotinib, darifenacin, darivarni, dasatinib, delavirdine, dihydroergotamine, dromedarone, efavirenz, elavbars & grazoprevir, eluxadoline, eplerenone, ergot derivatives, everolimus, fentanyl, fesoterodine, flibanserin, fluticasone propionate, ifraconazole, ixabepilone, ketocozazole, lapatinib, levorepromazine, lomitapide, lopinavir, maraviroc, methysergide, midazolam, midostaurin, mifepristone, naldemedine, nefinavir, neratinib, olaparib, omeprazole, paclitaxel, palbociclib, pantoprazole, pazopanib, pentamidine, phenytoin, pimozone, ponatinib, quinine, ribociclib, rimegan, rilpivirine, ritonavir, rivaroxaban, romidespin, rosuvastatin, ruxolitinib, sildenafil, simeprevir, simvastatin, solifenacin, sonidegib, St John’s wort, sunsitina, tadalafil, telithromycin, temsirolimus, ticagrelor, tipranavir, tolpyran, vardenafil, vemurafenib, vorapaxar, voriconazole
SAQUINAVIR

Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Note: Protease inhibitors cause dyslipidemia which includes elevated triglycerides and cholesterol and redistribution of body fat centrally to produce the so-called ‘protease paunch’, breast enlargement, facial atrophy, and ‘buffalo hump’.

Skin
Acneform eruption (<2%)
Candidiasis (<2%)
Dermatitis (<2%)
Diaphoresis (<2%)
Eczema (<2%)
Erythema (<2%)
Exanthems (<2%)
Folliculitis (<2%)
Herpes simplex (<2%)
Herpes zoster (<2%)
Photosensitivity (<2%)
Pingementation (<2%)
Seborrheic dermatitis (<2%)
Ulcerations (<2%)
Verrucae (<2%)
Xerosis (<2%)

Hair
Hair changes (<2%)

Mucosal
Cheilitis (<2%)
Gingivitis (<2%)
Glossitis (<2%)
Oral ulceration (2%)
Stomatitis (<2%)
Xerostomia (<2%)

Cardiovascular
QT prolongation [3]

Central Nervous System
Dysesthesia (<2%)
Dysgeusia (taste perversion) (<2%)
Hypertension (<2%)
Paresthesias [3%]

Gastrointestinal/Hepatic
Hepatotoxicity [2]

Endocrine/Metabolic
Gynecomastia [2]

SARILUMAB *

Trade name: Kevzara (Sanofi)
Indications: Rheumatoid arthritis
Class: Anti-interleukin-6 receptor monoclonal antibody, Monoclonal antibody
Half-life: 8–10 days (concentration-dependent)
Clinically important, potentially hazardous interactions with: live vaccines
Pregnancy category: N/A (Based on animal data, may cause fetal harm)

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: RISK OF SERIOUS INFECTIONS

Respiratory
Nasopharyngitis (>3%)
Upper respiratory tract infection (3–4%)
Endocrine/Metabolic
ALT increased (5%) [3]
AST increased (38–43%)
Hypertriglyceridemia (<3%)

Genitourinary
Urinary tract infection (3%)

Hematologic
Leukopenia (<2%)
Neutropenia (7–10%) [5]

Local
Injection-site erythema (4–5%)
Injection-site pruritus (2%)
Injection-site reactions (6–7%)

Other
Infection [5]

SAXAGLIPTIN

Trade names: Onglyza (Bristol-Myers Squibb), Qtern (AstraZeneca)
Indications: Type II diabetes mellitus
Class: Anid diabetic, Dipeptidyl peptidase-4 (DPP-4) inhibitor
Half-life: 2.5–3.1 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, alcohol, aprepitant, beta blockers, bevacizumab, colchicine, conivaptan, corticosteroids, CYP3A4 inducers, darunavir, dasatinib, delavirdine, diazoxide, diuretics, efavirenz, estradiol, estrogens, hypoglycemic agents, indinavir, ketoconazole, lapatinib, MAO inhibitors, omeprazole, oxcarbazepine, P-glycoprotein inhibitors and inducers, pegvisomant, pioglitazone, rifapentine, somatropin, strong CYP3A4/5 inhibitors, telithromycin, terbinafine, testosterone, voriconazole

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
Hypersensitivity (20%)
Urticaria (33%)
Mucosal
Oropharyngeal pain (17%)

Cardiovascular
Chest pain (<8%)
Tachycardia (<30%)

Central Nervous System
Anxiety (<8%)
Fever (25–56%)
Headache (28%)  

Neuromuscular/Skeletal
Anesthesia (fatigue) (8%)
Hypotonia (<30%)

Gastrointestinal/Hepatic
Constipation (8%)
Diarrhea (67%)
Nausea (8%)
Vomiting (67%)

Respiratory
Cough (33%)
Nasopharyngitis (11–33%)
Rhinitis (56%)

Hematologic
Anemia (44%)

Other
Sneezing (<30%)

SECNIDAZOLE *

Trade name: Solosec (Symbionix)
Indications: Bacterial vaginosis
Class: Antibiotic, nitroimidazole
Half-life: ~17 hours
Clinically important, potentially hazardous interactions with: none known

Pregnancy category: N/A (Insufficient evidence to inform drug-associated risk)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Potential risk for carcinogenicity from animal studies – avoid chronic use.
SELEGILINE
Synonyms: deprenyl, L-deprenyl
Trade names: Eldepryl (Somerset), Emsam (Mylan Specialty), Zelapar (Valeant)
Indications: Parkinsonism
Class: Antidepressant, Monoamine oxidase B inhibitor
Half-life: 9 minutes
Clinically important, potentially hazardous interactions with: amitriptyline, carbipda, citalopram, doxepin, ephedra, ephedrine, escitalopram, fluoxetine, fluvoxamine, levodopa, meperidine, methadone, moclobemide, narantripan, nefazodone, oral contraceptives, oxcarbazepine, paroxetine hydrochloride, propoxyphene, sertraline, tramadol, valbenazine, venlafaxine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: Suicidality in children and adolescents

Mucosal
Xerostomia (>10%) [2]
Cardiovascular
Hypertension [2]
Central Nervous System
Hallucinations [2]
Serotonin syndrome [2]
Gastrointestinal/Hepatic
Nausea [2]
Local
Application-site reactions [5]
Other
Bruxism (<10%)

SELENIUM
See: www.drugerupotiondata.com/drug/id/915

SELEXIPAG
Trade name: Uptravi (Actelion)
Indications: Pulmonary arterial hypertension
Class: Prostacyclin receptor agonist
Half-life: <3 hours
Clinically important, potentially hazardous interactions with: gemfibrozil, strong CYP2C8 inhibitors
Pregnancy category: N/A (No data available)
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
Rash (11%)
Cardiovascular
Flushing (12%)
Central Nervous System
Headache (65%) [7]

SERTRALINE
Trade name: Zoloft (Pfizer)
Indications: Depression, panic disorders, obsessive compulsive disorders
Class: Antidepressant, Selective serotonin reuptake inhibitor (SSRI)
Half-life: 2426 hours
Clinically important, potentially hazardous interactions with: amphetamines, astemizole, clarithromycin, cizapine, darunavir, dextroamphetamine, diethylpropion, droperidol, efavirenz, erythromycin, isocarboxazid, linezolid, MAO inhibitors, mazindol, methamphetamine, metoclopramide, phendimetrazine, phenelzine, phehterime, phenylpropanolamine, picoxide, pseudoephedrine, selegilne, sibutramine, St John’s wort, sumatriptan, sympathomimetics, tranylcypromine, trazodone, troleandomycin, zolmitriptan
Pregnancy category: C

Skin
Angioedema [3]
Diaphoresis (8%) [6]
Rash (<10%)
Stevens-Johnson syndrome [2]
Hair
Alopecia [3]
Mucosal
Xerostomia (16%) [7]
Cardiovascular
Chest pain (<10%)
Flushing (2%)
Palpitation (<10%)
QT prolongation [3]
Torsades de pointes [2]
SERTRALINE

See: www.drugeruptiondata.com/drug/id/1402

SEVELAMER

See: www.drugeruptiondata.com/drug/id/1197

SIBUTRAMINE

See: www.drugeruptiondata.com/drug/id/644

Central Nervous System

Akathisia [6]
Anxiety (<10%)
Coma [2]
Headache (>10%)
Hypotension (5%)
Insomnia (>10%)
Mania [4]
Pain (<10%)
Paresthesias (<10%)
Restless legs syndrome [3]
Seizures [2]
Serotonin syndrome [10]
Somnolence (drowsiness) (>10%)
Tremor (<10%) [3]
Vertigo (dizziness) (>10%) [3]
Yawning (<10%)

Neuromuscular/Skeletal

Ashtenia (fatigue) (>10%)
Back pain (<10%)

Gastrointestinal/Heaptic

Constipation (<10%)
Diarrhea (>10%) [3]
Hepatotoxicity [4]
Nausea (10%) [2]
Vomiting (>10%)

Respiratory

Rhinitis (<10%)

Endocrine/Metabolic

Galactorrhea [4]
Gynecomastia [2]
Hypotension [4]
Libido decreased (>10%)
SIADH [14]
Weight gain (<10%)

Genitourinary

Impotence (<10%)
Priapism [3]
Sexual dysfunction (10%) [4]

Otic

Tinnitus (<10%)

Ocular

Abnormal vision (<10%)
Hallucinations, visual [3]

Other

Adverse effects [4]
Allergic reactions [2]
Bruxism [3]
Death [5]

SILDENAFIL

Trade names: Revatio (Pfizer), Viagra (Pfizer)

Indications: Erectile dysfunction, hypertension

Class: Phosphodiesterase type 5 (PDE5) inhibitor

Half-life: 4 hours

Clinically important, potentially hazardous interactions with: aflunazin, alpha blockers, amiodpine, amyl nitrate, antifungals, antihypertensives, atazarinav, bocepriver, bosentan, cimetidine, clarithromycin, cobicistat/eritgravir/emtricitabine/tenofovir alafenamide, cobicistat/eritgravir/emtricitabine/tenofovir disoproxil, conivaptan, CYP3A4 inhibitors and inducers, danavir, dasabuvir/ombitasvir/paritaprevir/ritonavir, dasatnib, deferasirox, delavirdine, disopyramide, erythromycin, etravirine, fosamprenavir, grapefruit juice, high-fat foods, HMG-CoA reductase inhibitors, indinavir, isosorbide, isosorbide dinitrate, isosorbide mononitrate, tracazola, ketoconazole, lopinavir, macrolide antibiotics, neflavinav, nicorinadl, nirtates, nitroglycerin, ombitasvir/paritaprevir/ritonavir, other phosphodiestarase 5 inhibitors, paclitaxel, PEG-interferon, riociguat, ritonavir, saprotaprevir, saquinavir, St John’s wort, tamsulosin, ticlopidine, tamsulosin, telithromycin, tiaparanav

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin

Dermatitis (<2%)
Diaphoresis (<2%)
Edema (<2%)
Erythema (6%)
Exfoliative dermatitis (<2%)
Facial edema (<2%)
Genital edema (<2%)
Herpes simplex (<2%)
Lichenoid eruption [2]
Peripheral edema (<2%)
Photosensitivity (<2%)
Pruritus (<2%)
Rash (<2%)
Ulcerations (<2%)
Urticaria (<2%)

Mucosal

Epistaxis (nosebleed) (9–13%) [2]
Gingivitis (<2%)
Glossitis (<2%)
Nasal congestion [7]
Rectal hemorrhage (<2%)
Stomatitis (<2%)
Xerostomia (<2%)

Cardiovascular

Angina (<2%)
Atrial fibrillation [2]
Atrioventricular block (<2%)
Cardiac arrest (<2%)
Cardiac failure (<2%)
Cardiomyopathy (<2%)
Chest pain (<2%) [2]
Congestive heart failure [2]
flushing (1025%) [34]
Hypotension (<2%) [5]
Myocardial infarction [4]
Myocardial ischemia (<2%)

Palpitation (<2%)
Postural hypotension (<2%)
Tachycardia (<2%)
Vasodilation [3]
Ventricular arrhythmia [2]

Central Nervous System

Abnormal dreams (<2%)
Annesia [3]
Anorgasmia (<2%)
Chills (<2%)
Depression (<2%)
Fever (6%) [40]
Headache (16–46%) [40]
Hyperesthesia (<2%)
Insomnia (7%)
Migraine (<2%)
Neurotoxicity (<2%)
Pain (<2%)
Paresthesias (3%)
Seizures [3]
Somnolence (drowsiness) (<2%)
Stroke [2]
Subarachnoid hemorrhage [2]
Syncope (<2%)
Tremor (<2%)
Vertigo (dizziness) (2%) [7]

Neuromuscular/Skeletal

Arthralgia (<2%)
Ashtenia (fatigue) (<2%)
Ataxia (<2%)
Back pain [3]
Bone or joint pain (<2%)
Gouty tophi (<2%)
Hypertonia (<2%)
Myalgia/Myopathy (7%) [4]
Tendinopathy/Tendon rupture (<2%)

Gastrointestinal/Hepatic

Abdominal pain (<2%) [3]
Colitis (<2%)
Diarrhea (3–4%) [4]
Dyspepsia (7–17%) [15]
Dysphagia (<2%)
Esophagitis (<2%)
Gastritis (<2%)
Gastroenteritis (<2%)
Hepatotoxicity [2]
Nausea [4]
Vomiting (<2%)

Respiratory

Asthma (<2%)
Bronchitis (<2%)
Cough (<2%)
Dyspea (7%) [4]
Hemoptysis [2]
Hypoxia [3]
Laryngitis (<2%)
Pharyngitis (<2%)
Pneumonia [2]
Respiratory failure [3]
Rhinitis (4%) [6]
Sinusitis (<2%)
Stridor [2]
Upper respiratory tract infection [2]

Endocrine/Metabolic

Gynecomastia (<2%)
Hyperglycemia (<2%)
Hypernatremia (<2%)
Hyperuricemia (<2%)
Hypertriglyceridemia (<2%)
Hypothyroidism (<2%)
Hypotension (<2%)
Insomnia (7%)
Benign prostatic hyperplasia

Simcor is simvastatin and niacin; Vytorin is a combination of simvastatin and ezetimibe.

**Genitourinary**
- Cystitis (<2%)
- Ejaculatory dysfunction (<2%)
- Nocturia (<2%)
- Priapism [6]
- Urinary frequency (<2%)
- Urinary incontinence (<2%)
- Urinary tract infection (3%)

**Hematologic**
- Anemia (<2%)
- Leukopenia (<2%)

**Otic**
- Ear pain (<2%)
- Hearing loss (<2%)
- Tinnitus (<2%)

**Ocular**
- Abnormal vision [3]
- Conjunctivitis (<2%)
- Dyschromatopsia (blue-green vision) (311%)
- Mydriasis (<2%)
- Ocular hemorrhage (<2%)
- Ocular pain (<2%)
- Ocular pigmentation (<2%)
- Optic neuritis [18]
- Photophobia (<2%)
- Retinal vein occlusion [2]
- Vision blurred [4]

**Other**
- Adverse effects [2]
- Allergic reactions (<2%)
- Death [3]
- Dipsia (thirst) (<2%)

**SILODOSIN**

**Trade names:** Rapaflo (Watson), Urief (Kissei)

**Class:** Adrenergic alpha-receptor antagonist

**Half-life:** 4.76 hours

**Clinically important, potentially hazardous interactions with:** alpha blockers, antihypertensives, stavudinat, clarithromycin, conivaptan, cyclopamine, danazol, darenariv, datisirine, diltiazem, erythromycin, etaviron, fluconazole, fosamprenavir, indinavir, itraconazole, ketocanazole, ketoconazole, lomitapide, lopinavir, miconazole, mifepristone, nefazodone, nelfinavir, ombitasvir/paritaprevir/ritonavir, dasatinib, delavirdine, diltiazem, dnoneradone, efavirenz, elbasvir & grazoprevir, erithromycin, fosamprenavir, fusidic acid, gentamibrozil, gecaprevir & pibrentasvir, grapefruit juice, HIV protease inhibitors, imatinib, midazolam, indinavir, iraconazole, ketoconazole, lomitapide, lopinavir, miconazole, mifepristone, nefazodone, nelfinavir, ombitasvir/paritaprevir/ritonavir, paclitaxel, paizopanib, posaconazole, rabeprazole, ranolazine, red rice yeast, rifampin, ritonavir, roxithromycin, saquinavir, selenium, St John's wort, tacrolimus, telaprevir, telithromycin, ticagrelor, tipranavir, triazole, verapamil, voriconazole, warfarin

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Simcor is simvastatin and niacin; Vytorin is simvastatin and ezetimibe.

**Skin**
- Dermatomyositis [5]
- Eczema (5%) [4]
- Edema (3%)
- Eosinophilic fascitis [2]
- Erythema multiforme [2]
- Lichen planus pemphigoides [2]
- Lupus erythematosus [5]
- Peripheral edema [2]
- Photosensitivity [7]
- Pruritus [3]
- Purpura [3]
- Rash (<10%) [4]
- Vasculitis [2]

**Mucosal**
- Stomatitis [2]

**Cardiovascular**
- Atrial fibrillation (6%)

**Central Nervous System**
- Cognitive impairment [3]

**SIMVASTATIN**

**Trade names:** Inegy (MSD), Simcor (AbbVie), Vytorin (MSD), Zocor (Merck)

**Indications:** Hypercholesterolemia

**Class:** HMG-CoA reductase inhibitor, Statin

**Half-life:** 1.9 hours

**Clinically important, potentially hazardous interactions with:** alitretinoin, amiodarone, amlopidine, amprenavir, atazanavir, azithromycin, beceprrevir, bosantan, carbaamazepine, ciprolflitate, clarithromycin, clodipogrel, colchicine, conivaptan, coumarins, cycloporine, danazol, darenavir, datsirine/ombitasvir/paritaprevir/ritonavir, dasatinib, delavirdine, diltiazem, dnoneradone, efavirenz, elbasvir & grazoprevir, erithromycin, fosamprenavir, fusidic acid, gentamibrozil, gecaprevir & pibrentasvir, grapefruit juice, HIV protease inhibitors, imatinib, midazolam, indinavir, iraconazole, ketoconazole, lomitapide, lopinavir, miconazole, mifepristone, nefazodone, nelfinavir, ombitasvir/paritaprevir/ritonavir, paclitaxel, paizopanib, posaconazole, rabeprazole, ranolazine, red rice yeast, rifampin, ritonavir, roxithromycin, saquinavir, selenium, St John's wort, tacrolimus, telaprevir, telithromycin, ticagrelor, tipranavir, triazole, verapamil, voriconazole, warfarin

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Simcor is simvastatin and niacin; Vytorin is simvastatin and ezetimibe.

**Skin**
- Dermatomyositis [5]
- Eczema (5%) [4]
- Edema (3%)
- Eosinophilic fascitis [2]
- Erythema multiforme [2]
- Lichen planus pemphigoides [2]
- Lupus erythematosus [5]
- Peripheral edema [2]
- Photosensitivity [7]
- Pruritus [3]
- Purpura [3]
- Rash (<10%) [4]
- Vasculitis [2]

**Mucosal**
- Stomatitis [2]

**Cardiovascular**
- Atrial fibrillation (6%)

**Central Nervous System**
- Cognitive impairment [3]

Vertigo (dizziness) (3%) [8]

Vomiting [2]

Respiratory
- Dyspnea (12%)
- Flu-like syndrome [3]

Endocrine/Metabolic
- Hyperbilirubinemia [9]

Hematologic
- Anemia [11]
- Neutropenia [3]

Other
- Adverse effects [7]

**SILUXIMAB**

**See:** www.drugerupiondata.com/drug/id/3515

**SIMPREVIR**

**Trade name:** Olysio (Janssen)

**Indications:** Hepatitis C

**Class:** Direct-acting antiviral, Hepatitis C virus NS3/4A protease inhibitor

**Half-life:** 10–13 hours

**Clinically important, potentially hazardous interactions with:** atazanavir, carbaamazepine, ciprolflitate, clarithromycin, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, darunavir, delavirdine, dexamethasone, efavirenz, erythromycin, etaviron, fluconazole, fosamprenavir, indinavir, iraconazole, ketoconazole, lepidapavir & sofosbuvir, lopinavir, milk thistle, nelfinavir, nevirapine, ombitasvir/paritaprevir/ritonavir, paclitaxel, paizopanib, posaconazole, rabeprazole, ranolazine, red rice yeast, rifampin, rifampin, ritonavir, saquinavir, St John's wort, telaprevir, telithromycin, tipranavir, voriconazole

**Pregnancy category:** X (simprevir is pregnancy category C but must not be used in monotherapy)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Must be used in combination with PEG-interferon and ribavirin (see separate entries).

**Warning:** RISK OF HEPATITIS B VIRUS REACTIVATION IN PATIENTS COINFECTED WITH HCV AND HBV

**Skin**
- Photosensitivity (28%) [5]
- Pruritus (22%) [8]
- Rash (28%) [10]

**Central Nervous System**
- Fever [2]
- Headache [13]
- Insomnia [3]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) [10]
- Myalgia/Myopathy (16%)

**Gastrointestinal/Hepatic**
- Nausea (22%) [9]

**Respiratory**
- Dyspnea (12%)
- Flu-like syndrome [3]

**Other**
- Adverse effects [7]

**SIMVASTATIN**

**Trade names:** Inegy (MSD), Simcor (AbbVie), Vytorin (MSD), Zocor (Merck)

**Indications:** Hypercholesterolemia

**Class:** HMG-CoA reductase inhibitor, Statin

**Half-life:** 1.9 hours

**Clinically important, potentially hazardous interactions with:** alpha blockers, antihypertensives, stavudinat, clarithromycin, conivaptan, cyclopamine, danazol, darenavir, datsirine/ombitasvir/paritaprevir/ritonavir, dasatinib, delavirdine, diltiazem, dnoneradone, efavirenz, elbasvir & grazoprevir, erithromycin, fosamprenavir, fusidic acid, gentamibrozil, gecaprevir & pibrentasvir, grapefruit juice, HIV protease inhibitors, imatinib, midazolam, indinavir, iraconazole, ketoconazole, lomitapide, lopinavir, miconazole, mifepristone, nefazodone, nelfinavir, ombitasvir/paritaprevir/ritonavir, paclitaxel, paizopanib, posaconazole, rabeprazole, ranolazine, red rice yeast, rifampin, ritonavir, roxithromycin, saquinavir, selenium, St John's wort, tacrolimus, telaprevir, telithromycin, ticagrelor, tipranavir, triazole, verapamil, voriconazole, warfarin

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Simcor is simvastatin and niacin; Vytorin is simvastatin and ezetimibe.
**SIROLIMUS**

**Synonym:** rapamycin  
**Trade name:** Rapamune (Wyeth)  
**Indications:** Prophylaxis of organ rejection in renal transplants, lymphangioleiomyomatosis  
**Class:** Immunosuppressant, Macrolactam, Non-steroidal calcineurin inhibitor  
**Half-life:** 62 hours  
**Clinically important, potentially hazardous interactions with:** atazanavir, benazepril, boceprevir, captopril, ceritinib, cobicistat/elvitegravir/ritonavir, delavirdine, dexamethasone, efavirenz, eluxadoline, enalapril, enzalutamide, fosinopril, Hemophils B vaccine, indinavir, iraconazole, lindane, lopinavir, mifepristone, posaconazole, quinapril, ramipril, ribociclib, St John's wort, tacrolimus, telaprevir, telithromycin, tipranavir, venetoclax, voriconazole, zotarolimus  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients  
**Warning:** IMMUNOSUPPRESSION, USE IS NOT RECOMMENDED IN LIVER OR LUNG TRANSPLANT PATIENTS  

**Skin**  
Abcess (320%)  
Acneform eruption (2031%) [9]  
Angioedema [5]  
Cellulitis (320%)  
Dermatitis [3]  
Diaphoresis (320%)  
Eccymoses (320%)  
Edema (1624%) [6]  
Facial edema (320%) [2]  
Foliculitis [3]  
Fungal dermatitis (320%)  
Hypertrophy (320%)  
Lymphedema [2]  
Peripheral edema (5464%) [3]  
Pruritus (320%)  
Purpura (320%)  
Rash (1020%) [5]  
Toxicity [2]  
Ulceraations (320%)  
Vasculitis [2]  

**Hair**  
Hirsutism (320%)  

**Nails**  
Onychopathy [2]  

**Mucosal**  
Aphthous stomatitis (9%) [8]  
Gingival hyperplasia/hypertrophy (320%) [2]  
Gingivitis (320%)  
Mucositis [2]  
Oral candidiasis (320%)  
Oral ulceration (320%) [6]  
Oral ulceration (320%) [8]  
Oral candidiasis (320%)  
Stomatitis (320%) [6]  

**Cardiovascular**  
Thrombophlebitis (320%)  

**Central Nervous System**  
Chills (320%)  
Depression (3-20%)  
Fever [2]  
Hyperesthesia (320%)  
Paresthesia (320%)  
Tremor (2131%)  

**Neuromuscular/Skeletal**  
Arthralgia (25-31%) [3]  
Arthralgia (25-31%) [3]  
Asthenia (fatigue) (3%) [9]  
Myalgia/Myalgia (2%) [9]  
Myasthenia (2%) [9]  
Neuropathy (3%) [9]  

**Gastrointestinal/Hepatic**  
Diarrhea [3]  
Hepatitis [2]  
Hepatotoxicity [3]  

**Respiratory**  
Cough [2]  
Flu-like syndrome (3-20%)  
Pneumonitis [7]  
Pulmonary toxicity [3]  
Upper respiratory tract infection (20-26%) [2]  

**Hematologic**  
Anemia [3]  
Aplastic anemia [3]  
Agranulocytosis [3]  
Aplastic anemia [3]  
Bone marrow depression [3]  
Neutropenia [2]  

**Renal**  
Nephrotoxicity [2]  
Proteinuria [5]  

**Other**  
Adverse effects [5]  
Death [3]  
Infection [5]  

**SITAGLIPTIN**  

**Trade names:** Janumet (Merck Sharpe & Dohme), Januvia (Merck Sharpe & Dohme)  
**Indications:** Type II diabetes mellitus  
**Class:** Antidiabetic, Dipeptidyl peptidase-4 (DPP-4) inhibitor  
**Half-life:** 12 hours  
**Clinically important, potentially hazardous interactions with:** alcohol, anabolic steroids, beta blockers, corticosteroids, diazoxide, digoxin, estrogens, loop diuretics, MAO inhibitors, progestogens, testosterone, thiazides  
**Pregnancy category:** B  
**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients  
**Note:** Janumet is sitagliptin and metformin.
Endocrine/Metabolic
Creatine phosphokinase increased [2]
Hypoglycemia [10]
Weight gain [3]
Weight loss [2]
Renal
Renal failure [2]
Other
Adverse effects [7]
Cancer [3]

Renal failure [2]

Other
Adverse effects [7]
Cancer [3]

Adverse effects [7]
Cancer [3]

Cancer [3]

Adverse effects [7]
Cancer [3]

Cancer [3]

Adverse effects [7]
Cancer [3]

See: www.drugerupptiondata.com/drug/id/1222

SITAXENTAN

See: www.drugerupptiondata.com/drug/id/1222

SMALLPOX VACCINE

Trade name: Dryvax (Wyeth)
Indications: Prevention of smallpox (variola)
Class: Vaccine
Half-life: ~5 years
Clinically important, potentially hazardous interactions with: corticosteroids
Pregnancy category: C

Skin
Basal cell carcinoma [4]
Bullous dermatitis [2]
Carcinoma [2]
Dermatitis [2]
Eczema vaccinatum [13]
Erythema multiforme [8]
Exanthems [7]
Folliculitis [2]
Herpes simplex [2]
Herpes zoster [2]
Hematologic
Melanoma [2]
Photosensitivity [2]
Purpura [11]
Rash [3]
Scars [2]
Stevens-Johnson syndrome [3]
Toxic epidermal necrolysis [5]
Tumors [3]
Urticaria [5]
Vaccinia [25]
Vinca alkaloids [3]
Vaccinia gangrenosum [3]
Vaccinia necrosum [6]
Central Nervous System
Headache [2]
Other
Allergic reactions [2]
Death [8]

SODIUM OXYBATE

See: www.drugerupptiondata.com/drug/id/919

SODIUM PICOSULFATE

See: www.drugerupptiondata.com/drug/id/2988

SODIUM THIOSULFATE

See: www.drugerupptiondata.com/drug/id/2807

SODIUM IOIDIDE I-131

See: www.drugerupptiondata.com/drug/id/2657

SODIUM NITRITE

See: www.drugerupptiondata.com/drug/id/2797

SOFOSBUVIR

Trade name: Sovaldi (Gilead)
Indications: Hepatitis C
Class: Direct-acting antiviral, Hepatitis C virus nucleotide analog NS5B polymerase inhibitor
Half-life: <27 hours
Clinically important, potentially hazardous interactions with: amiodarone, carbamazepine, efavirenz, omeprazole, oxcarbazepine, phenobarbital, phenytoin, rifabutin, rifampin, rifapentine, St John’s wort, topotecan
Pregnancy category: N/A (May cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Used in combination with daclatasvir, ledipasvir, ribavirin, velpatasvir or with PEG-interferon and ribavirin (see separate entries).

Skin
Pruritus (11–27%) [11]
Rash (8–18%) [9]
Cardiovascular
Bradyarrhythmia [2]
Bradycardia [2]
Central Nervous System
Chills (2–18%) [2]
Fever (4–18%) [3]
Headache (24–44%) [48]
Insomnia (15–29%) [19]
Irritability (10–16%) [5]
Vertigo (dizziness) [3]
Neuromuscular/Skeletal
Arthralgia [2]
Asthenia (fatigue) (30–59%) [47]
Back pain [2]
Myalgia/Myopathy (6–16%) [4]
Gastrointestinal/Hepatic
Diarrhea (9–17%) [6]
Nausea (13–34%) [35]
Vomiting [2]
Respiratory
Cough [4]
Flu-like syndrome (3–18%) [3]
Nasopharyngitis [2]
Upper respiratory tract infection [4]
Endocrine/Metabolic
Creatine phosphokinase increased (<2%)
SOFOSBUVIR/VELPATASVIR/VOXILAPREVIR *

Trade name: Vosevi (Gilead)
Indications: Chronic HCV infection
Class: Direct-acting antiviral, Hepatitis C virus NS5A/NS5B polymerase inhibitor (voxilaprevir), Hepatitis C virus NS5A inhibitor (velpatasvir), Hepatitis C virus nucleotide analog NS5B polymerase inhibitor (sofosbuvir)
Half-life: <29 hours (sofosbuvir); 17 hours (velpatasvir); 33 hours (voxilaprevir)
Clinically important, potentially hazardous interactions with: amiodarone, atazanavir, carbamazepine, cyclosporine, efavirenz, imatinib, nefazodone, ritonavir, saquinavir, St John's wort, tizanidine, tizanidine, telithromycin, voriconazole

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: RISK OF HEPATITIS B VIRUS REACTIVATION IN PATIENTS COINFECTED WITH HCV AND HBV

Skin
Rash (<2%)

Central Nervous System
Headache (21–23%) [6]
Insomnia (3–6%)

Neuromuscular/Skeletal
Asthenia (fatigue) (6–19%) [7]

Gastrointestinal/Hepatic
Diarrhea (13–14%) [6]
Nausea (10–13%) [6]

Endocrine/Metabolic
Hyperbilirubinemia (4–13%) [6]

Hematologic
Hyperlipasemia (2–3%)

SOLIFENACIN

Trade name: Vesicare (Astellas)
Indications: Overactive bladder
Class: Antimuscarinic, Mucaricinic antagonist
Half-life: 4586 hours

Clinically important, potentially hazardous interactions with: atazanavir, carbamazepine, clarithromycin, indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, phenobarbital, phenytoin, rifabutin, rifampin, rifapentine, ritonavir, saquinavir, St John's wort, tizanidine, voriconazole

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Mucosal
Xerostomia (1127%) [21]

Cardiovascular
QT prolongation [3]

Central Nervous System
Vertigo (dizziness) (2%) [3]

Neuromuscular/Skeletal
Asthenia (fatigue) (<2%)

Gastrointestinal/Hepatic
Abdominal pain (2%) [11]

Ocular
Vision blurred (45%) [5]
Xerophthalmia (2%) [3]

Other
Adverse effects [5]

SONIDEGB

Trade name: Odonzo (Novartis)
Indications: Basal cell carcinoma
Class: Hedgehog (HH) signaling pathway inhibitor
Half-life: 28 days

Clinically important, potentially hazardous interactions with: atazanavir, carbamazepine, diltiazem, efavirenz, fluconazole, irinotecan, neomycin, oxcarbazepine, phenobarbital, phenytoin, rifampin, saquinavir, St John's wort, telithromycin, voriconazole

Pregnancy category: N/A (Can cause fetal harm)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Patients should not donate blood or blood products while receiving sonidegib and for at least 20 months after the last dose.

Warning: EMBRYO-FETAL TOXICITY

Skin
Pruritus (10%)

Hair
Alopecia (53%) [6]

Central Nervous System
Anorexia [2]
Dysgeusia (taste perversion) (46%) [6]
Headache (15%) [15]

Neuromuscular/Skeletal
Asthenia (fatigue) (41%) [5]
Bone or joint pain (32%) [2]
Muscle spasm (54%) [6]
Myalgia/Myopathy (19%) [5]

Gastrointestinal/Hepatic
Abdominal pain (18%) [6]
Diarrhea (32%) [6]
Hepatotoxicity [2]
Nausea (39%) [4]
Vomiting (11%) [3]

Endocrine/Metabolic
ALT increased (19%) [7]
Appetite decreased (30%) [3]
AST increased (11%) [7]
Creatine phosphokinase increased (61%) [7]
Hyperbilirubinemia [2]
Hyperglycemia (51%) [6]
Weight loss (30%) [3]

Hematologic
Anemia (32%) [6]
Lymphopenia (28%)

SORAFENIB

Trade name: Nexavar (Bayer)
Indications: Advanced renal cell carcinoma
Class: Antineoplastic, Epidermal growth factor receptor (EGFR) inhibitor, Tyrosine kinase inhibitor
Half-life: 2548 hours

Clinically important, potentially hazardous interactions with: bevacizumab, carbamazepine, clozapine, conivaptan, coumarins, CYP3A4 inducers, darunavir, delavirdine, dexamethasone, digoxin, doxycycline, doxorubicin, efavirenz, indinavir, indinavir, irinotecan, neomycin, oxcarbazepine, phenobarbital, phenytoin, rifabutin, rifampin, rifapentine, St John's wort, telithromycin, voriconazole, warfarin

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: In combination with carboplatin and paclitaxel, Nexavar is contra-indicated in patients with squamous cell lung cancer.

Skin
Acneform eruption (<10%) [6]
Actinic keratoses [4]
AGEP [2]
Desquamation (19–40%) [9]
Eczema [2]
Edema [3]
Erythema (>10%) [4]
Erythema multiforme [11]
Exanthems [3]
Exfoliative dermatitis (<10%)
 Facial erythema [3]
Foliculitis [3]
Hand-foot syndrome (21–30%) [113]
Hyperkeratosis [4]
Hypersensitivity [2]
Keratoacanthoma [4]
Keratitis pilaris [2]
Milia [2]
Nevi [3]
Palmar-plantar toxicity [2]
Pigmentation [2]
Pruritus (14–19%) [10]
Porpulesis [2]
Radiation recall dermatitis [3]
Rash (19–40%) [51]
Recall reaction [2]
Seborrheic dermatitis [2]
Squamous cell carcinoma [8]
Stevens-Johnson syndrome [2]
Toxicity [16]
Xerosis (10–11%) [6]

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Spironolactone has been shown to be associated with various side effects and drug interactions. It is contraindicated in patients with congestive heart failure, cirrhosis of the liver or nephrotic syndrome, or severe renal impairment.

Central Nervous System
- Hypertension (9–17%)
- Flushing (<10%)
- Congestive heart failure (<10%)
- Cardiotoxicity (3%)

Skin
- Eczema (<2%)
- Dermatitis (<6%)
- Bullous pemphigoid (<2%)
- Erythema multiforme (<2%)
- Maculopapular rash (<2%)
- Urticaria (<2%)
- Pruritus (<10%)
- Melasma (<2%)

Hematologic
- Anemia (12–46%)
- Neutropenia (<10%)
- Lymphopenia (23–47%)
- Leukopenia (7–10%)
- Hemotoxicity (<10%)

Cardiovascular
- Cardiac failure (<2%)
- Hypertension (9–17%)
- Cardiotoxicity (<2%)

Neuromuscular/Skeletal
- Myalgia/Myopathy (<10%)
- Bone or joint pain (>10%)
- Back pain (<10%)
- Arthralgia (<10%)

Endocrine/Metabolic
- Hypocalcemia (<2%)
- Hypothyroidism (<2%)
- Thyroid dysfunction (<2%)

Other
- Adverse effects (<2%)

Drugs that should be avoided with Spironolactone include:
- ACE inhibitors
- Alcohol
- Amiloride
- Barbiturates
- Benzodiazepines
- Beta-blockers
- Calcium channel blockers
- Chloral hydrate
- Coumarin anticoagulants
- Digitalis
- Dextran
- Diazepam
- Fludrocortisone
- Flurandrenolone
- Glucocorticoids
- Heparin
- Hydrocortisone
- Indomethacin
- Isoniazid
- Ketanserin
- Ketorolac
- Lithium
- Methotrexate
- Nifedipine
- Oral hypoglycemic agents
- Omeprazole
- Oxyphenbutazone
- Penicillin
- Penicillinase-potentiated beta-lactam antibiotics
- Phenylbutazone
- Prazosin
- Quinidine
- Quinine
- Ritonavir
- Salicylates
- Sulfonamides
- Sulfonylureas
- Thyroid hormones
- Thrombolytic agents
- Tricyclic antidepressants
- Troleandomycin
- Trimethoprim
- Warfarin

Drug interactions with Spironolactone include:
- Beta-blockers
- Calcium channel blockers
- Nonsteroidal anti-inflammatory drugs
- Steroid hormones
- Thiazide diuretics
-Statins
- ACE inhibitors
- Alcohol
- Amiloride
- Barbiturates
- Benzodiazepines
- Beta-blockers
- Calcium channel blockers
- Chloral hydrate
- Coumarin anticoagulants
- Digitalis
- Dextran
- Diazepam
- Fludrocortisone
- Flurandrenolone
- Glucocorticoids
- Heparin
- Hydrocortisone
- Indomethacin
- Isoniazid
- Ketanserin
- Ketorolac
- Lithium
- Methotrexate
- Nifedipine
- Oral hypoglycemic agents
- Omeprazole
- Oxyphenbutazone
- Penicillin
- Penicillinase-potentiated beta-lactam antibiotics
- Phenylbutazone
- Prazosin
- Quinidine
- Quinine
- Ritonavir
- Salicylates
- Sulfonamides
- Sulfonylureas
- Thyroid hormones
- Thrombolytic agents
- Tricyclic antidepressants
- Troleandomycin
- Trimethoprim
- Warfarin

Sotalol is a cardiac class III antiarrhythmic agent that is not recommended for patients with atrioventricular block, heart failure, or uncontrolled congestive heart failure.

Adverse effects of Sotalol include:
- Hypertension
- Cardiac failure
- Cardiotoxicity

Clarithromycin is a macrolide antibiotic that is not recommended for patients with a history of hypersensitivity to β-lactam antibiotics.

Side effects and drug interactions with Clarithromycin include:
- Beta-blockers
- Calcium channel blockers
- Nonsteroidal anti-inflammatory drugs
- Steroid hormones
- Thiazide diuretics
- Statins
- ACE inhibitors
- Alcohol
- Amiloride
- Barbiturates
- Benzodiazepines
- Beta-blockers
- Calcium channel blockers
- Chloral hydrate
- Coumarin anticoagulants
- Digitalis
- Dextran
- Diazepam
- Fludrocortisone
- Flurandrenolone
- Glucocorticoids
- Heparin
- Hydrocortisone
- Indomethacin
- Isoniazid
- Ketanserin
- Ketorolac
- Lithium
- Methotrexate
- Nifedipine
- Oral hypoglycemic agents
- Omeprazole
- Oxyphenbutazone
- Penicillin
- Penicillinase-potentiated beta-lactam antibiotics
- Phenylbutazone
- Prazosin
- Quinidine
- Quinine
- Ritonavir
- Salicylates
- Sulfonamides
- Sulfonylureas
- Thyroid hormones
- Thrombolytic agents
- Tricyclic antidepressants
- Troleandomycin
- Trimethoprim
- Warfarin

References:
- Litt's Drug Eruption & Reaction Manual
- www.drugeruptiondata.com/drug/id/2185
- www.drugeruptiondata.com/drug/id/650
- www.drugeruptiondata.com/drug/id/651
- www.drugeruptiondata.com/drug/id/2185
- www.drugeruptiondata.com/drug/id/2185
- www.drugeruptiondata.com/drug/id/2185
Hereditary angioedema

N/A

HIV infection

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1.44 hours

Aminoglycosides may cause neurotoxicity

83 minutes

D4T

LACTIC ACIDOSIS and

Alkylating agent, Antineoplastic

Fibrinolytic

Anabolic steroid

25 hours

Tuberculosis

Antiretroviral, Nucleoside analog reverse transcriptase inhibitor

Carcinoma of the pancreas,
Pulmonary embolism, acute

35 minutes

Antibiotic, aminoglycoside

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zidovudine

interactions with:

Clinically important, potentially hazardous

Half-life:

Transcriptase inhibitor

Class:

Indications:

Trade name:

Synonym:

STAVUDINE

Trade name: Zerit (Bristol-Myers Squibb)

Indications: HIV infection

Class: Antiretroviral, Nucleoside analog reverse transcriptase inhibitor

Half-life: 1.44 hours

Clinically important, potentially hazardous interactions with: doxorubicin, ribavirin, zidovudine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers

Warning: LACTIC ACIDOSIS and HEPATOMEGALY with STEATOSIS; PANCREATITIS

Skin

Diaphoresis (19%)

Lipoatrophy [7]

Lipodystrophy [8]

Rash (40%)

Toxic epidermal necrolysis [2]

Toxicity [2]

Central Nervous System

Chills (50%)

Neurotoxicity [4]

Peripheral neuropathy (52%) [11]

Neuromuscular/Skeletal

Myalgia/Myopathy (32%) [2]

Gastrointestinal/Hepatic

Diarrhea (50%)

Hepatotoxicity [2]

Nausea (39%)

Pancreatitis [6]

Vomiting (39%)

Endocrine/Metabolic

Acidosis [11]

Diabetes mellitus [2]

Fat distribution abnormality [4]

Gynecomastia [4]

Renal

Fanconi syndrome [2]

Other

Adverse effects [3]

Allergic reactions (9%)
**STRONTIUM RANELATE**

See: www.drugeruptiondata.com/drug/id/1386

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**SUCCIMER**

**Synonym:** DMSA  
**Trade name:** Chemet (Sanofi-Aventis)  
**Indications:** Heavy metal poisoning  
**Class:** Chelator  
**Half-life:** 2 days  
**Clinically important, potentially hazardous interactions with:** other chelating agents  
**Pregnancy category:** C  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients  

<table>
<thead>
<tr>
<th>Skin</th>
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<tbody>
<tr>
<td>Candidiasis (16%)</td>
</tr>
<tr>
<td>Exanthems (11%)</td>
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<tr>
<td>Pruritus (11%)</td>
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<tr>
<td>Rash (&lt;11%)</td>
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<tr>
<th>Mucosal</th>
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<tbody>
<tr>
<td>Mucocutaneous eruption (11%)</td>
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<table>
<thead>
<tr>
<th>Central Nervous System</th>
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</thead>
<tbody>
<tr>
<td>Chills (16%)</td>
</tr>
<tr>
<td>Dysgeusia (taste perversion) (metallic) (21%)</td>
</tr>
<tr>
<td>Fever (16%)</td>
</tr>
<tr>
<td>Headache (16%)</td>
</tr>
<tr>
<td>Pain (3%)</td>
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<tr>
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<th>Respiratory</th>
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<td>Flu-like syndrome (16%)</td>
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**Pregnancy category:** C  
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Neuromuscular/Skeletal
Bone or joint pain (<2%)
Myalgia/Myalgia (<2%)
Tremor (<10%)

Gastrointestinal/Hepatic
Abdominal pain (4–6%)
Diarrhea [2]
Flatulence (<3%)
Nausea (23–26%) [3]
Vomiting (11–15%) [2]

Respiratory
Bronchospasm [2]
Cough (<8%)

Endocrine/Metabolic
Creatine phosphokinase increased (<2%)
Hypocalcemia (<2%)

Hematologic
Anemia (<2%)

Local
Injection-site pain (4–6%)

Other
Allergic reactions [2]

SULFADIAZINE
See: www.drugeruptiondata.com/drug/id/661

SULFADIAZINE
See: www.drugeruptiondata.com/drug/id/894

SULFADOXINE
Trade name: Fansidar (Roche)
Class: Antibiotic, sulfonamide, Antimalarial
Half-life: 58 days
Clinically important, potentially hazardous interactions with: None known
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: The elderly; nursing mothers; pediatric patients

Note: Sulfadoxine is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome. Sulfamethoxazole is commonly used in conjunction with trimethoprim (see separate entry for co-trimoxazole).

Skin
Erythema multiforme [3]
Exfoliative dermatitis [3]
Fixed eruption [2]
Hypersensitivity (>10%) [5]
Phototoxicity (>10%) [5]
Pruritus [5]
Stevens-Johnson syndrome (<10%) [5]
Toxic epidermal necrolysis [17]

Mucosal
Glossitis (>10%)
Central Nervous System
Tremor (>10%)

Vertigo (dizziness) [2]

Neuromuscular/Skeletal
Anemia (fatigue) [2]

Gastrointestinal/Hepatic
Diarrhea [2]

Other
Death [7]

SULFA-METHOXAZOLE
Trade names: Bactrim (Women First), Septra (Monarch)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, sulfonamide, Folic acid antagonist
Half-life: 712 hours
Clinically important, potentially hazardous interactions with: Anticoagulants, azathioprine, cyclosporine, methotrexate, prolactin, warfarin
Pregnancy category: C
Note: Sulfamethoxazole is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin
AGEP [3]
Anaphylactoid reactions/Anaphylaxis [4]
Angioedema [3]
Bullous pemphigoid [3]
Cyanosis (<10%)
Dermatitis [2]
DRESS syndrome [31]
Erythema multiforme [8]
Erythema nodosum [2]
Exanthems (<5%) [30]
Exfoliative dermatitis [5]
Fixed eruption [7]
Hypersensitivity (<5%) [21]
Lichen planus [3]
Lupus erythematosus [34]
Phototoxicity (10%) [4]
Pigmentation [3]
Pruritus (10%) [8]
Pseudolymphoma [2]
Pustules [2]
Rash (>10%) [19]
Raynaud’s phenomenon [3]
Stevens-Johnson syndrome [9]
Toxic epidermal necrolysis (<10%) [13]
Urticaria (<5%) [11]
Vasculitis [4]

Hair
Alopecia [6]

Mucosal
Mucocutaneous reactions (6%) [2]
Oral mucosal eruption [4]
Oral ulceration [2]
Stomatitis (<10%)

Cardiovascular
Flush [2]

Central Nervous System
Anorexia (10%)
Aseptic meningitis [3]
Fever [4]
SUNITINIB

Trade name: Sutent (Pfizer)
Indications: Gastrointestinal stromal tumor, advanced renal cell carcinoma, advanced pancreatic neuroendocrine tumor
Class: Antineoplastic, Epidermal growth factor receptor (EGFR) inhibitor, Tyrosine kinase inhibitor
Half-life: 4060 hours
Clinically important, potentially hazardous interactions with: atazanavir, bevacizumab, carbamazepine, clarithromycin, clotiapine, dexamethasone, digoxin, efavirenz, grapefruit juice, indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, phenobarbital, phenytoin, rifabutin, rifampin, rifapentine, ritonavir, saquinavir, St John’s wort, telithromycin, temsirolimus, voriconazole
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: [C] = treated for gastrointestinal tumor; [R] = treated for renal cell carcinoma; [P] = treated for pancreatic neuroendocrine tumor
Warning: HEPATOTOXICITY

Skin
Acral erythema [2]
Edema [6]
Erythema [6]
Facial edema [3]
Hand–foot syndrome (1214%) [68]
Lesions [2]
Nevi [2]
Peripheral edema [R] (17%)
Pigmentation [14]
Pruritus [R] [3]
Pyoderma gangrenosum [8]
Rash (1438%) [17]
Thrombocytopenic purpura [4]

SULFINPYRAZONE

See: www.drugeruptiondata.com/drug/id/665

SULFISOXAZOLE

See: www.drugeruptiondata.com/drug/id/666

SULINDAC

Trade name: Clinoril (Merck)
Indications: Arthritis
Class: Non-steroidal anti-inflammatory (NSAID)
Half-life: 7.816.4 hours
Clinically important, potentially hazardous interactions with: methotrexate, warfarin
Pregnancy category: C (category C in first and second trimesters; category D in third trimester)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: NSAIDs may cause an increased risk of serious cardiovascular and gastrointestinal adverse events, which can be fatal. This risk may increase with duration of use.

Skin
Anaphylactoid reactions/Anaphylaxis [4]
Erythema multiforme [8]
Exantheme (<5%) [9]
Fixed eruption [5]
Photosensitivity [2]
Pruritus (<10%) [5]
Purpura [2]
Rash (>10%) [2]
Stevens-Johnson syndrome [5]
Toxic epidermal necrolysis [13]
Urticaria [4]

SULPIRIDE

See: www.drugeruptiondata.com/drug/id/1351

SUMATRIPTAN

Trade names: Alsuma (King), Imigran (GSK), Imitrex (GSK), Onzetra Xsail (Avanir), Sumavel DosePro (Endo), Zecuity (Teva)
Indications: Migraine attacks, cluster headaches
Class: 5-HT1 agonist, Serotonin receptor agonist, Triptan
Half-life: 2.5 hours
Clinically important, potentially hazardous interactions with: citotopran, dihydroergotamine, ergot-containing drugs, escitalopram, fluoxetine, fluvoxamine, isocarboxazid, MAO inhibitors, methysergide, nefazodone, nelfinavir, phenobarbital, phenytoin, saquinavir, St John’s wort, tranylcypromine, venlafaxine, zolmitriptan
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: elderly; nursing mothers; pediatric patients
Note: Contra-indicated in patients with Wolff-Parkinson-White syndrome, peripheral vascular disease, ischemic bowel disease, uncontrolled hypertension, severe hepatic impairment or a history of coronary artery disease, coronary vasospasm, stroke, transient ischemic attack, or hemiplegic or basilar migraine; or with recent history of coronary artery disease, ischemic bowel disease, uncontrolled hypertension, severe hepatic or renal impairment; with recent use of a monoamine oxidase-A inhibitor.

Skin
 Burning (<10%) [2]
 Diaphoresis (2%) [2]
 Hot flashes (>10%) [2]
 Mucosal
 Nasal discomfort [2]
 Xerostomia [2]
 Cardiovascular
 Chest pain (<2%) [7]
 Flushing (7%) [4]
 Hypertension [2]
 Myocardial infarction [5]
 Central Nervous System
 Dyseusia (taste perversion) [10]
 Headache [2]
 Neurotoxicity [3]
 Pain (>2%) [2]
 Paresthesias (3-5%) [11]
 Somnolence (drowsiness) [3]
 Stroke [2]
 Vertigo (dizziness) (<2%) [10]
 Warm feeling (2-3%)

Gastrointestinal/Hepatic
Abdominal pain (<10%)
Dyspepsia (10%) [3]
Hepatotoxicity [14]
Nausea (10%) [7]
Pancreatitis [6]
Vomiting (10%) [2]
Respiratory
Pulmonary toxicity [3]
Upper respiratory tract infection [3]
Renal
Nephrototoxicity [4]
Renal failure [2]
Hematologic
Agranulocytosis [5]
Anemia (<10%) [4]
Leukopenia (<10%) [4]
Neutropenia [2]
Thrombocytopenia (<10%)
Ocular
Conjunctival pigmentation [2]
Other
Adverse effects [9]
Death [4]
Side effects (5%)

Headache (10%) [7]
Vertigo (dizziness) (<10%)
Neuromuscular/Skeletal
Arthralgia [2]
Asthenia (fatigue) [5]
Gastrointestinal/Hepatic
Abdominal pain (<10%)
Dyspepsia (10%) [3]
Hepatotoxicity [14]
Nausea (10%) [7]
Pancreatitis [6]
Vomiting (10%) [2]
Respiratory
Pulmonary toxicity [3]
Upper respiratory tract infection [3]
Renal
Nephrototoxicity [4]
Renal failure [2]
Hematologic
Agranulocytosis [5]
Anemia (<10%) [4]
Leukopenia (<10%) [4]
Neutropenia [2]
Thrombocytopenia (<10%)
Ocular
Conjunctival pigmentation [2]
Other
Adverse effects [9]
Death [4]
Side effects (5%)
SUNITINIB

Toxicity [24]
Xerosis (17%) [3]

Hair
Alopecia (512%) [5]
Hair pigmentation [G] [8]

Nails
Splinter hemorrhage [2]
Subungual hemorrhage [4]

Mucosal
Epistaxis (nosebleed) [2]
Glossodynia [R] [P] (15%)
Mucosal inflammation [4]
Mucositis (2953%) [18]
Stomatitis [17]
Xerostomia [R] [P] [2]

Cardiovascular
Aortic dissection [3]
Cardiac failure [2]
Cardiomyopathy [2]
Cardiotoxicity [7]
Congestive heart failure [2]
Hypertension [56]
QT prolongation [2]
Ventricular arrhythmia [2]

Central Nervous System
Anorexia [8]
Dysgeusia (taste perversion) (2143%) [6]
Fever [R] (1518%) [2]
Headache (1325%) [4]
Leukoencephalopathy [3]
Neurotoxicity [R] (10%)
Pain [R] (18%)
Vertigo (dizziness) [R] (16%)

Neuromuscular/Skeletal
Arthralgia [R] (1228%)
Asthenia (fatigue) (22%) [69]
Back pain [R] (1117%)
Myalgia/Myopathy [G] (1417%)
Osteonecrosis [3]

Gastrointestinal/Hepatic
Abdominal pain (2033%) [2]
Constipation [3]
Diarrhea [36]
Dyspepsia [R] [P] [3]
Esophagitis [2]
Gastrointestinal bleeding [4]
Gastrointestinal disorder [2]
Hepatotoxicity [7]
Nausea [17]
Pneumatosis intestinals [2]
Thrombocytopenia [39]

Ocular
Epiphora [R] (6%)
Periorbital edema [R] [7%]

Other
Adverse effects [17]
Death [7]
Side effects [3]

SUVOREXANT

Trade name: Belsomra (Merck Sharpe & Dohme)

Indications: Insomnia

Class: Orexin receptor antagonist

Half-life: 10–22 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with narcolepsy.

Mucosal
Xerostomia (2%)

Central Nervous System
Abnormal dreams (2%) [2]
Headache (7%) [2]
Sedation [2]
Somnolence (drowsiness) (7%) [6]
Vertigo (dizziness) (3%)

Gastrointestinal/Hepatic
Diarrhea (2%)

Respiratory
Cough (2%)
Upper respiratory tract infection (2%)
MALIGNANCIES AND SERIOUS 2018 by Taylor & Francis Group, LLC 265

Calcineurin inhibitor, Immunosuppressant, Phosphodiesterase type 5 (PDE5) inhibitor

15–18 hours

Prophylaxis of organ rejection,

Skin

INFECTIONS

Warning:

mothers; pediatric patients

Important contra-indications noted in the prescribing guidelines for:

tamsulosin, telaprevir, telithromycin, voriconazole

Important clinically, potentially hazardous interactions with:

rifampin, rifapentine, riociguat, ritonavir,

potassium, potassium-sparing diuretics,

nifedipine, olmesartan, omeprazole, oxaliplatin,

mifepristone, mycophenolate, nelfinavir,

lenalidomide, lopinavir, lovastatin, meloxicam,

immunosuppressants, indinavir, irbesartan,

itraconazole, ketoconazole, leflunomide,

alenalidomide, olanzapine, oxaplatin, pazopanib, penretexed, posaconazole,

potassium, potassium-sparing diuretics,

pralatrexate, ribociclib, rifabutin, rifampin,

boceprevir, amiodarone, amprenavir, atazanavir, azacitidine,

beta blockers, betamethasone, boceprevir,

miloride, benazepril, benzonatate, benzquinamine, cetirizine,

cinacalcet, cobicistat/elvitegravir/emtricitabine/ tenofovir disoproxil, crizotinib, cyclosporine,

CYP3A4 inhibitors and inducers, ibuprofen,

immunosuppressants, indinavir, irbesartan,

itraconazole, ketoconazole, leflunomide,

lenalidomide, olanzapine, oxaplatin, pazopanib, penretexed, posaconazole,

potassium, potassium-sparing diuretics,

pralatrexate, ribociclib, rifabutin, rifampin,

boceprevir, amiodarone, amprenavir, atazanavir, azacitidine,

beta blockers, betamethasone, boceprevir,

miloride, benazepril, benzonatate, benzquinamine, cetirizine,

cinacalcet, cobicistat/elvitegravir/emtricitabine/ tenofovir disoproxil, crizotinib, cyclosporine,

CYP3A4 inhibitors and inducers, ibuprofen,

immunosuppressants, indinavir, irbesartan,

itraconazole, ketoconazole, leflunomide,

lenalidomide, olanzapine, oxaplatin, pazopanib, penretexed, posaconazole,

potassium, potassium-sparing diuretics,

pralatrexate, ribociclib, rifabutin, rifampin,

boceprevir, amiodarone, amprenavir, atazanavir, azacitidine,

beta blockers, betamethasone, boceprevir,
TADALAFIL

Nasal congestion [4]  
Rectal hemorrhage (<2%)  
Xerostomia (<2%)  

**Cardiovascular**  
Angina (<2%)  
Chest pain (<2%)  
Flushing (23%) [16]  
Hypotension (<2%)  
Myocardial infarction (<2%)  
Palpitation (<2%)  
Postural hypotension (<2%)  
Tachycardia (<2%)  

**Central Nervous System**  
Anesthesia [3]  
Headache (415%) [36]  
Hyperesthesia (<2%)  
Insomnia (<2%)  
Pain (<3%)  
Paresthesias (<2%)  
Somnia (drowsiness) (<2%)  
Syncope (<2%)  
Vertigo (dizziness) (<2%) [6]  

**Neuromuscular/Skeletal**  
Arthralgia (<2%)  
Asthenia (fatigue) (<2%)  
Back pain (26%) [21]  
Myalgia/Myopathy (<4%) [15]  
Neck pain (<2%)  

**Gastrointestinal/Hepatic**  
Diarrhea [2]  
Dyspepsia [8]  
Dysphagia (<2%)  
Esophagitis (<2%)  
Gastroesophageal reflux (<2%)  
Gastrointestinal fever (<10%)  
Hepatotoxicity [2]  
Loose stools (<2%)  
Nausea (<2%) [3]  
Vomiting (<2%)  

**Respiratory**  
Dyspnea (<2%)  
Pharyngitis (<2%)  

**Endocrine/Metabolic**  
Glycemia increased (<2%)  

**Genitourinary**  
Erection (<2%)  
Priapism (spontaneous) (<2%) [2]  

**Hematologic**  
Anemia [2]  
Platelets decreased [2]  

**Otic**  
Hearing loss (<2%) [4]  
Tinnitus (<2%)  

**Ocular**  
Chorioretinopathy [2]  
Conjunctival hyperemia (<2%)  
Conjunctivitis (<2%)  
Dyschromatopsia (<2%)  
Eyelid edema (<2%)  
Eyelid pain (<2%)  
Lacrimation (<2%)  
Optic neuropathy [7]  
Vision blurred (<2%)  

**Other**  
Adverse effects [4]  

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**TALFUPROST**

**Trade names:** Saflutan (Merck Sharpe & Dohme), Zioptan (Merck Sharpe & Dohme)  
**Indications:** Reduction of elevated intraocular pressure in open angle glaucoma or ocular hypertension  
**Class:** Anti-glaucoma, Prostaglandin analog  
**Half-life:** 0.5 hours  
**Clinically important, potentially hazardous interactions with:** none known  

**Pregnancy category:** C  

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Central Nervous System**  
Headache (6%)  

**Respiratory**  
Cough (3%)  

**Genitourinary**  
Urinary tract infection (2%)  

**Ocular**  
Cataract (3%)  
Conjunctival hyperemia (4–20%) [7]  
Conjunctivitis (5%)  
Deepening of upper lid sulcus [4]  
Eyelashes – pigmentation (2%) [2]  
Eye lid erythema (<10%)  
Eye lid pigmentation (<10%)  
Eye lid itching [5]  
Eye lid edema (26%) [3]  
Eye lid pain (<2%)  
Eye lid redness (<2%)  
Eye lid swelling (<2%)  

**Other**  
Adverse effects [5]  

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**TALIGLUCERASE**

See: www.drugerupiondata.com/drug/id/2927

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**TALIMOGENE LAHERPAREPVEC**

**Synonym:** T-VEC  
**Trade name:** Imlygic (Ampgene)  
**Indications:** Unresectable cutaneous, subcutaneous, and nodal lesions in patients with melanoma recurrent after initial surgery  
**Class:** Oncolytic virus immunotherapy  
**Half-life:** N/A  
**Clinically important, potentially hazardous interactions with:** none known  

**Pregnancy category:** NA (Contraception advised to prevent pregnancy during treatment)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**  
Cellulitis (<5%) [3]  
Herpes (oral) (<5%)  
Vitiligo (<5%)  

**Mucosal**  
Oropharyngeal pain (6%)  

**Central Nervous System**  
Chills (49%) [4]  
Fever (43%) [3]  
Headache (19%)  
Vertigo (dizziness) (10%)  

**Neuromuscular/Skeletal**  
Arthralgia (17%)  
Asthenia (fatigue) (50%) [4]  
Myalgia/Myopathy (18%)  
Pain in extremities (16%)  

**Gastrointestinal/Hepatic**  
Abdominal pain (9%)  
Constipation (12%)  
Diarrhea (19%)  
Nausea (36%)  
Vomiting (21%)  

**Respiratory**  
Flu-like syndrome (31%) [2]  

**Endocrine/Metabolic**  
Weight loss (6%)  

**Renal**  
Glomerulonephritis (<5%)  

**Local**  
Injection-site pain (28%)  

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**TAMOXIFEN**

**Trade name:** Nolvadex (AstraZeneca)  
**Indications:** Advanced breast cancer  
**Class:** Selective estrogen receptor modulator (SERM)  
**Half-life:** 5–7 days  
**Clinically important, potentially hazardous interactions with:** anastrozole, bexarotene, cinacalcet, delavirdine, droperidol, duloxetine, gadobenate, paroxetine hydrochloride, rifapentine, terbinafine, tipranavir  

**Pregnancy category:** D  

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**  
Carcinosarcoma (2%)  
Diaphoresis [4]  
Edema (26%) [3]  
Exanthes (3%) [3]  
Hot flashes [18]  
Lupus erythematosus [2]  
Pruritus ani et vulvae [2]  
Radiation recall dermatitis [6]  
Rash (<10%) [2]  
Sarcoma [9]  
Toxicity [3]  

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Tamsulosin

**Trade names:** Flomax (Boehringer Ingelheim), Jalyn (GSK)

**Indications:** Benign prostatic hypertrophy

**Class:** Adrenergic alpha-receptor antagonist

**Half-life:** 913 hours

**Clinically important, potentially hazardous interactions with:** alpha adrenergic blockers, cimetidine, conivaptan, darunavir, delavirdine, erythromycin, indinavir, ketoconazole, paroxetine hydrochloride, phosphodiesterase 5 inhibitors, tadalafil, telithromycin, terbinafine, vardenafil, voriconazole, warfarin

**Pregnancy category:** B (not indicated for use in women; Jalyn is pregnancy category X)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Jalyn is tamsulosin and dutasteride.

**Mucosal**
- Xerostomia [4]

**Cardiovascular**
- Chest pain (4%)
- Hypotension (6–19%) [3]
- Postural hypotension [3]

**Central Nervous System**
- Headache [3]
- Insomnia (<2%)
- Somnolence (drowsiness) (3–4%)
- Vertigo (dizziness) (15–17%) [16]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (8–9%) [2]
- Back pain (7–8%)

**Gastrointestinal/Hepatic**
- Constipation [2]
- Diarrhea (4–6%)
- Nausea (3–4%)

**Respiratory**
- Cough (3–5%)
- Pharyngitis (5–6%)
- Rhinitis (13–18%) [2]
- Sinusitis (2–4%)

**Endocrine/Metabolic**
- Libido decreased (<2%)

**Genitourinary**
- Dyspareunia (<2%)

**Gastrointestinal**
- Hypochromic microcytic anemia [2]

**Ocular**
- Cataract [9]
- Retinopathy [5]

**TAPENTADOL**

**Trade names:** Nucynta (Janssen), Nucynta ER (Janssen), Palexia (Grunenthal)

**Indications:** Immediate release formulation: moderate to severe acute pain, extended release formulation: moderate to severe chronic pain and neuropathic pain associated with diabetic peripheral neuropathy when a continuous analgesic is needed for an extended period of time

**Class:** Analgesic, opioid

**Half-life:** 5 hours

**Clinically important, potentially hazardous interactions with:** alcohol, alvimopan, anesthetics, anticoagulants, anticonvulsants, buprenorphine, butorphanol, CNS depressants, desmopressin, droperidol, hypnotics, linezolid, MAO inhibitors, meperidine, morphine, NSAIDs, SNRIs, SSRIs, St John’s wort, succinylcholine, thiadizide diuretics, tramadol, tranquilizers, trazodone, tricyclic antidepressants, triptans

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with impaired pulmonary function or paralytic ileus. Should not be used in patients currently using or within 14 days of using a monoamine oxidase inhibitor.

**Warning:** For extended release oral tablets: ABUSE POTENTIAL, LIFE-THREATENING RESPIRATORY DEPRESSION, ACCIDENTAL EXPOSURE, and INTERACTION WITH ALCOHOL.

**Mucosal**
- Xerostomia [4]

**Central Nervous System**
- Headache [4]
- Neurotoxicity [2]
- Somnolence (drowsiness) [8]
- Vertigo (dizziness) (4%) [9]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) [3]

**Gastrointestinal/Hepatic**
- Constipation [18]
- Diarrhea [2]
- Nausea disorder [2]
- Vomiting [3] [14]

**Other**
- Adverse effects [4]

**TARTRAZINE**

**Class:** Food additive

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** none known

**Note:** Tartrazine intolerance has been estimated to affect between 0.01% and 0.1% of the population. Adverse reactions are most common in people who are sensitive to aspirin.

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Banned in Austria and Norway.

**Skin**
- Anaphylactoid reactions/Anaphylaxis [8]
- Angioedema [11]
- Atopic dermatitis [2]
- Hypersensitivity [9]
- Pruritus [2]
- Purpura [5]
- Urticaria (often related to aspirin intolerance) [33]

**Other**
- Adverse effects [3]
- Allergic reactions [9]

### TASIMELTEON

**Trade name:** Hetlioz (Vanda)

**Indications:** Non-24-hour sleep-wake disorder

**Class:** Melatonin receptor agonist

**Half-life:** 2–3 hours

**Clinically important, potentially hazardous interactions with:** fluvoxamine, ketoconazole, rifampin

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Central Nervous System**
- Abnormal dreams (10%) [3]
- Headache (17%) [3]
- Nightmares (10%) [3]

**Respiratory**
- Upper respiratory tract infection (7%) [2]

**Endocrine/Metabolic**
- ALT increased (10%) [2]

**Genitourinary**
- Urinary tract infection (7%) [3]

### TASONERMIN

See: [www.drugeruptiondata.com](http://www.drugeruptiondata.com/drug/id/1400)

### TAVABOROLE

**Indications:** Onychomycosis

**Class:** Antifungal, oxaborole

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Nails**
- Onychocryptosis (3%)

**Local**
- Application-site erythema (2%) [2]
- Application-site exfoliation (3%)

### TAZAROTENE

**Trade names:** Avage (Allergan), Fabior (GSK), Tazaroc (Allergan), Zorac (Allergan)

**Indications:** Acne vulgaris, mild to moderate plaque psoriasis involving up to 10% body surface area

**Half-life:** 18 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Skin**
- Burning (10–20%) [5]
- Contact dermatitis (5–10%)
- Desquamation (5–10%)
- Erythema (10–20%) [5]
- Pruritus (10–25%) [11]
- Psoriasis (5–10%)
- Rash (5–10%)
- Scaling [2]
- Stinging (<3%) [2]
- Xerosis (<3%) [5]

**Local**
- Application-site reactions [2]

**Other**
- Adverse effects [2]
- Side effects [2]

### TEDIZOLID

**Trade name:** Sivextro (Cubist)

**Indications:** Acute bacterial skin and skin structure infections caused by susceptible bacteria

**Class:** Antibiotic, oxazolidinone

**Half-life:** 12 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Dermatitis (<2%)
- Hypersensitivity (<2%)
- Pruritus (<2%)
- Urticaria (<2%)

**Cardiovascular**
- Flushing (<2%)
- Hypertension (<2%)
- Palpitation (<2%)
- Tachycardia (<2%)

**Central Nervous System**
- Headache (6%) [3]
- Hypoesthesia (<2%)
- Insomnia (<2%)
- Vertigo (dizziness) (2%) [3]

**Gastrointestinal/Hepatic**
- Diarrhea (4%) [4]
- Nausea (8%) [5]
- Vomiting (3%) [4]
**TEGAFUR/GIMERACIL/OTERACIL**

**Synonyms:** TS-1; S-1

**Trade name:** Teyusno (Taiho Pharma)

**Indications:** Gastric, colorectal, head and neck cancers, non-small cell lung cancer, inoperable or recurrent breast cancer, pancreatic cancer

**Class:** Antineoplastic

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** capetitabine, fluclotyzine, fluoroouracil, other fluoropyrimidine-group antineoplastics, phenytoin, uracil/tegafur, warfarin

**Pregnancy category:** N/A (Contra-indicated in pregnancy)

**Note:** Contra-indicated in patients with severe skin reactions

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Not available in the USA.

### Skin

- Dermatitis (<5%)
- Desquamation (<5%)
- Edema (<5%) [3]
- Erythema (<5%)
- Hand-foot syndrome (<5%) [12]
- Herpes simplex (<5%)
- Jaundice (<5%)
- Pigmentation (21%) [9]
- Pruritus (<5%)
- Rash (12%) [6]
- Raynaud’s phenomenon (<5%)
- Ulcerations (<5%)
- Xerosis (<5%) [2]

### Hair

- Alopecia (<5%) [4]

### Nails

- Nail disorder (<5%)
- Paronychia (<5%) [2]

### Mucosal

- Mucositis [7]
- Stomatitis (17%) [9]

### Cardiovascular

- Flushing (<5%)
- Hypertension (<5%)

### Central Nervous System

- Anorexia (34%) [25]
- Fever (<5%) [2]
- Headache (<5%)
- Neurotoxicity [4]
- Paresthesias (<5%)
- Peripheral neuropathy [3]
- Vertigo (dizziness) (<5%)
- Warm feeling (<5%)

### Neuromuscular/Skeletal

- Arthralgia (<5%)
- Asthenia (fatigue) (22%) [14]
- Myalgia/Myopathy (<5%)

### Gastrointestinal/Hepatic

- Diarrhea (19%) [37]
- Hepatotoxicity [6]

### Respiratory

- Pharyngitis (<5%)
- Pneumonitis [4]
- Rhinitis (<5%)

### Endocrine/Metabolic

- ALT increased (12%) [5]
- Appetite decreased [5]
- AST increased (12%) [3]
- Hyperbilirubinemia [3]
- Hyperonatremia [4]
- Weight loss (<5%)

### Genitourinary

- Glycosuria (<5%)
- Hematuria (<5%)

### Renal

- Nephrotoxicity [2]
- Proteinuria (<5%)

### Hematologic

- Anemia [28]
- Bleeding (<5%)
- Bone marrow suppression [2]
- Febrile neutropenia [12]
- Hematotoxicity [5]
- Leukocytopenia [2]
- Leukopenia (87%) [25]
- Myelosuppression [6]
- Neutropenia (44%) [48]
- Thrombocytopenia (11%) [18]

### Ocular

- Conjunctivitis (<5%)
- Keratitis (<5%)
- Laceration (<5%)
- Ocular adverse effects [2]
- Ocular pain (<5%)
- Reduced visual acuity (<5%)

### Other

- Adverse effects [21]
- Death [3]

**TEGASEROD**

**See:** [www.drugereptiondata.com/drug/id/936](http://www.drugereptiondata.com/drug/id/936)

**TEICOPLANIN**

**Trade name:** Incivek (Vertex)

**Indications:** Hepatitis C (must only be used in combination with PEG-interferon alfa and ribavirin)

**Class:** CYP3A4 inhibitor, Direct-acting antiviral, Hepatitis C virus NS3/4A protease inhibitor

**Half-life:** 4–11 hours

**Clinically important, potentially hazardous interactions with:** alfaxozin, alprazolam, amiodarone, amiodipine, azatavir, azoravastatin, bepridil, bosentan, budesonide, carbamazepine, cisapride, dabitran, darunavir, desipramine, dexamethasone, digoxin, dihydroergotamine, diltiazem, efavirenz, ergotamine, escitalopram, estradiol, felodipine, flecainide, fibranserin, fluticasone propionate, fosamprenavir, itraconazole, ketoconazole, lidocaine, lomitapide, lovastatin, methylprednisolone, midazolam, miltefosine, nisoldipine, olaparib, palbociclib, phenobarbital, phenytoin, pimozide, ponatinib, nicardipine, nisoldipine, olaparib, palbociclib, phenobarbital, phenytoin, pilrioxide, posaconazole, propafenone, quindine, rifampin, ritonavir, rubolitinib, salmeterol, sildenafil, simvastatin, sirolimus, St John’s wort, tacrolimus, telalafal, telithromycin, tenofovir disoproxil, tizafodone, triazolam, vardenafil, venoctelox, verapamil, vorapaxar, voriconazole, warfarin, zolpidem

**Pregnancy category:** X

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Must be used in combination with PEG-interferon alfa and ribavirin (see separate entries).

**Warning:** SERIOUS SKIN REACTIONS

### Skin

- Dermatitis [2]
- Dress syndrome [6]
- Exanthems [6]
- Pruritus (including anal pruritus) (53%) [14]
- Rash (56%) [38]
- Stevens-Johnson syndrome [3]
- Toxic epidermal necrolysis [2]
- Toxicity [2]

**Central Nervous System**

- Dysgeusia (taste perversion) (10%)
**TELAPREVI**

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (56%) [4]

**Gastrointestinal/Hepatic**
- Anorectal discomfort (11%) [2]
- Diarrhea (12%) [2]
- Hemorrhoids (12%) [2]
- Hepatotoxicity [5]
- Nausea (39%) [4]
- Vomiting (13%) [2]

**Renal**
- Nephrotoxicity [3]

**Hematologic**
- Anemia [36]
- Neutropenia [6]
- Thrombocytopenia [6]

**Other**
- Adverse effects [19]
- Infection [4]

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**TELAVANCIN**

See: www.drugerupositiondata.com/drug/id/1751

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**TELBIVUDINE**

Trade names: Sebivo (Novartis), Tyzeka (Novartis)

**Indications:** Hepatitis B (chronic)

**Class:** Nucleoside analog reverse transcriptase inhibitor

**Half-life:** ~15 hours

**Clinically important, potentially hazardous interactions with:** interferon alfa, PEG-interferon

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Skin**
- Pruritus (2%)
- Rash (4%)

**Cardiovascular**
- Arrhythmias [2]

**Central Nervous System**
- Fever (4%)
- Headache (11%)
- Insomnia (3%)
- Neurotoxicity [2]
- Vertigo (dizziness) (4%)

**Neuromuscular/Skeletal**
- Arthralgia (4%)
- Asthenia (fatigue) (>5%) [2]
- Back pain (4%)
- Myalgia/Myopathy (3%) [8]

**Gastrointestinal/Hepatic**
- Abdominal distension (3%)
- Abdominal pain (12%) [2]
- Diarrhea [2]
- Dyspepsia (3%)
- Hepatitis (abnormal elevation of) (2%)

**Respiratory**
- Cough (7%)
- Flu-like syndrome (7%)
- Pharyngolaryngeal pain (5%)

**Upper respiratory tract infection (5%)**

**Endocrine/Metabolic**
- ALT increased (3%)
- Creatine phosphokinase increased [4]

**Hematologic**
- Neutropenia (2%)

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**TELITHROMYCIN**

See: www.drugerupositiondata.com/drug/id/1038

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**TELISARTAN**

**Trade name:** Micardis (Boehringer Ingelheim)

**Indications:** Hypertension

**Class:** Angiotensin II receptor antagonist (blocker), Antihypertensive

**Half-life:** 2-4 hours

**Clinically important, potentially hazardous interactions with:** ramipril

**Pregnancy category:** D (category C in first trimester; category D in second and third trimesters)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Angioedema [2]
- Peripheral edema [2]

**Cardiovascular**
- Hypotension [2]

**Central Nervous System**
- Headache [4]
- Vertigo (dizziness) [5]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) [4]

**Respiratory**
- Cough [9]

**Endocrine/Metabolic**
- Hyperkalemia [2]

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**TELOTRISTAT ETHYL**

**Trade name:** Xermelo (Lexicon)

**Indications:** Carcinoid syndrome diarrhea in 24 hours

**Class:** Tryptophan hydroxylase inhibitor

**Half-life:** <1 hour

**Clinically important, potentially hazardous interactions with:** CYP1A4 substrates

**Pregnancy category:** N/A (No data available)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Central Nervous System**
- Depression (9%)
- Fever (7%)
- Headache (11%)

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**TEMOZOLOMIDE**

**Trade name:** Temodar (MSD)

**Indications:** Anaplastic astrocytoma, newly diagnosed glioblastoma multiforme concomitantly with radiotherapy and then as maintenance treatment

**Class:** Alkylating agent, Antineoplastic

**Half-life:** 1.8 hours

**Clinically important, potentially hazardous interactions with:** clozapine, digoxin, valproic acid

**Pregnancy category:** D

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Skin**
- Peripheral edema (11%)
- Pruritus (8%)
- Rash (>5%) [8]

**Hair**
- Alopecia [3]

**Cardiovascular**
- Thromboembolism [2]
Central Nervous System
Anorexia [3]
Fever [2]
Headache [3]
Presyncope [9%]
Neuromuscular/Skeletal
Asthenia (fatigue) [14]
Myalgia/Myopathy [5%]
Gastrointestinal/Hepatic
Constipation [2]
Diarrhea [8]
Hepatotoxicity [6]
Nausea [9]
Vomiting [4]
Endocrine/Metabolic
Mastodynia (6%)
Hematologic
Anemia [3]
Febrile neutropenia [2]
Hemotoxicity [5]
Leukopenia [6]
Lymphocytopenia [4]
Lymphopenia [4]
Myelosuppression [3]
Neutropenia [10]
Thrombocytopenia [11]
Other
Death [7]
Infection [5]

TEMSIROLIMUS

Trade name: Torisel (Wyeth)
Indications: Renal cell carcinoma, other cancers
Class: Analog of sirolimus, Antineoplastic, mTOR inhibitor
Half-life: 17 hours
Clinically important, potentially hazardous interactions with:
ACE inhibitors, atazanavir,
BCG vaccine, benazepril, captopril,
carbamazepine, clarithromycin, clozapine,
conivaptan, cyclosporine, darunavir, dasatinib,
denosumab, dexamethasone, digoxin, enalapril,
fluconazole, fosinopril, grapefruit juice,
hydroxychloroquine, hydroxyurea,
lovastatin, naproxen, nelfinavir,
nonsteroidal anti-inflammatory drugs,
oral contraceptives, oxcarbazepine,
phenobarbital, phenytoin,
protease inhibitors, quinapril, ramipril,
rifabutin, rifampin, ritonavir,
rilpivirine, St John's wort,
saturable drug transporters,
vincristine, voriconazole,
warfarin, zidovudine,
Interactions with:
Clinically important, potentially hazardous interactions with:
carbamazepine,
clarithromycin, phenobarbital, phenytoin,
ritonavir, saquinavir, St John's wort,
rifabutin, rifampin, rifapentine,
St John's wort
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for:
the elderly; nursing mothers; pediatric patients
Note: Contra-indicated in patients with bilirubin >1.5xULN.

Skin
Acneform eruption (10%) [4]
Edema [2]
Exanthenis [3]
Hypersensitivity (9%) [3]
Pruritus (19%) [3]
Rash (47%) [14]
Toxicity [3]
Xerosis (11%) [3]
Nails
Nail disorder (14%) [2]
Paronychia [2]
Mucosal
Mucosis (30%) [12]
Oral mucosis [2]
Stomatitis [16]
Cardiovascular
Chest pain (16%)
Hypertension (7%) [3]
Central Nervous System
Anorexia (30%) [3]
Chills (8%)
Depression (4%)
Dysgeusia (taste perversion) (20%) [2]
Fever (24%)
Headache (15%)
Insomnia (12%)
Neurotoxicity [2]
Pain (28%)
Neuromuscular/Skeletal
Arthralgia (18%)
Asthenia (fatigue) (30%) [20]
Back pain (20%)
Myalgia/Myopathy (8%)
Gastrointestinal/Hepatic
Abdominal pain (21%)
Diarrhea [7]
Nausea [7]
Vomiting [2]
Respiratory
Cough (26%) [3]
Dyspnea [7]
Pharyngitis [2]
Pneumonia [2]
Pneumonitis (36%) [11]
Rhinitis (10%)
Upper respiratory tract infection (7%)
Endocrine/Metabolic
Adverse effects [2]
Glycosuria (5%)
Hypercholesterolemia (4%)
Hyperamylasemia (3%)
Creatine phosphokinase increased (3%)
Hyperglycemia (14%)
Myasthenia gravis (2%)
Serum creatinine increased [2]
Genitourinary
Urinary tract infection (15%)
Hematologic
Anemia (10%)
Febrile neutropenia [3]
Hemorrhage [2]
Hemotoxicity [2]
Immunosuppression [2]
Leukopenia [4]
Lymphopenia [4]
Neutropenia [5]
Thrombocytopenia [16]
Ocular
Conjunctivitis (7%)
Central Nervous System
Headache (9%) [3]
Neuromuscular/Skeletal
Asthenia (fatigue) (6%) [3]
Myalgia/Myopathy (20%)
Gastrointestinal/Hepatic
Abdominal pain (7%)
Nausea [3]
Respiratory
Cough (6%)
Dyspnea [7]
Rhinovirus [2]
Upper respiratory tract infection [2]
Endocrine/Metabolic
Adverse effects (8%)
ALT increased (8%)
Creatine phosphokinase increased (3%)
Hyperamylasemia (3%)
Hypercholesterolemia (4%)
Gastrointestinal
Adverse effects [9]
Death [2]
Infection (20%) [5]

TENECTEPLASE

See: www.drugeruptiondata.com/drug/id/812

TENIPOSIDE

See: www.drugeruptiondata.com/drug/id/1204

TENOFOVIR ALAFENAMIDE

Trade names: Descovy (Gilead), Vemlidy (Gilead)
Indications: Hepatitis B
Class: Antiviral, Hepatitis B virus nucleoside analog reverse transcriptase inhibitor
Half-life: <1 hour
Clinically important, potentially hazardous interactions with:
carbamazepine, oscarbazepine, phenobarbital, phenytoin,
rifabutin, rifampin, rifapentine, St John's wort
Pregnancy category: N/A (No data available)
Important contra-indications noted in the prescribing guidelines for:
nursing mothers; pediatric patients
Note: Descovy is tenofovir alafenamide and emtricitabine. See also separate profile for
tenofovir alafenamide in combination with cobicitab, entevirgin and emtricitabine.
Warning: LACTIC ACIDOSIS/SEVERE HEPATOTEGALY WITH STEATOSIS and POST TREATMENT SEVERE ACUTE EXACERBATION OF HEPATITIS B

Central Nervous System
Headache (9%) [3]
Neuromuscular/Skeletal
Asthenia (fatigue) (6%) [3]
Myalgia/Myopathy (20%)
Gastrointestinal/Hepatic
Abdominal pain (7%)
Nausea (3%)
Respiratory
Cough (6%)
Dyspnea [7]
Rhinovirus [2]
Upper respiratory tract infection [2]
Endocrine/Metabolic
Adverse effects (8%)
ALT increased (8%)
Creatine phosphokinase increased (3%)
Hyperamylasemia (3%)
Hypercholesterolemia (4%)
Gastrointestinal
Adverse effects (5%)
Other
Adverse effects (2%)

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TENOFOVIR DISOPROXIL

Trade names: Atripla (Gilead), Complera (Gilead), Truvada (Gilead), Viread (Gilead)

Indications: HIV infection in combination with at least two other antiretroviral agents

Class: Antiretroviral, Nucleoside analog reverse transcriptase inhibitor

Half-life: 12–18 hours

Clinically important, potentially hazardous interactions with: acyclovir, adefovir, atazanavir, cidofovir, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, darunavir, didanosine, ganciclovir, high-fat foods, indinavir, ledipasvir & sofosbuvir, lopinavir, protease inhibitors, ritonavir, telaprevir, tipranavir, trospium, valacyclovir, valganciclovir

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Atripla is tenofovir disoproxil, efavirenz and emtricitabine. Complera is tenofovir disoproxil and emtricitabine. See also separate profile for tenofovir disoproxil, emtricitabine and rilpivirine; Truvada is tenofovir disoproxil and emtricitabine; Viread is tenofovir disoproxil; Atripla is tenofovir disoproxil, efavirenz and emtricitabine; Complera is tenofovir disoproxil and emtricitabine; T ruvada is tenofovir disoproxil, darunavir, didanosine, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, darunavir, didanosine, ganciclovir, high-fat foods, indinavir, ledipasvir & sofosbuvir, lopinavir, protease inhibitors, ritonavir, telaprevir, tipranavir, trospium, valacyclovir, valganciclovir

WARNING: LACTIC ACIDOSIS/SEVERE HEPATOMEGALY WITH STEATOSIS and POST TREATMENT EXACERBATION OF HEPATITIS

Skin

Diaphoresis (3%) 
Lichenoid eruption [2] 
Rash (5–18%) [4] 
Stevens-Johnson syndrome [2]

Cardiovascular

Chest pain (3%) 

Central Nervous System

Abnormal dreams [3] 
Anorexia (3%) [6] 
Anxiety (6%) [2] 
Depression (4–11%) [6] 
Fever (2–8%) 
Headache (5–14%) [10] 
Insomnia (3–5%) [2] 
Neurotoxicity (3%) [6] 
Pain (7–13%) 
Peripheral neuropathy (<3%) 
Somnolence (drowsiness) [2] 
Vertigo (dizziness) (<3%) [4]

Neuromuscular/Skeletal

Arthralgia (5%) 
Asthema (fatigue) (6–7%) [6] 
Back pain (3–9%) 
Bone or joint pain [4] 
Fractures [2] 
Myalgia/Myopathy (3%) [2] 
Osteomalacia [5]

Gastrointestinal/Hepatic

Abdominal pain (4–7%) [2] 
Diarrhea (11%) [7] 
Dyspepsia (3–4%) 
Flatulence (3%) 
Hepatic failure [2] 

Hepatotoxicity [3] 
Nausea (8%) [10] 
Pancreatitis [5] 
Vomiting (4–5%) [5] 

Respiratory

Nasopharyngitis [3] 
Pneumonia (2–5%) 
Upper respiratory tract infection [2] 

Endocrine/Metabolic

Acidosis [3] 
ALT increased [3] 
Creatine phosphokinase increased [3] 
Hypokalemia [2] 
Hypophosphatemia [3] 
Weight loss (2%) 

Renal

Fancoci syndrome [25] 
Nephrototoxicity [41] 
Proteinuria [4] 
Renal failure [10] 
Renal tubular necrosis [2] 

Other

Adverse effects [11]

TENOXICAM

See: www.drugeruptiondata.com/drug/id/1346

TERAZOSIN

Trade name: Hytrin (AbbVe)

Indications: Hypertension, benign prostatic hypertrophy

Class: Adrenergic alpha-receptor antagonist

Half-life: 12 hours

Clinically important, potentially hazardous interactions with: vardenafil

Pregnancy category: C

Skin

Edema (<10%) 
Lichenoid eruption [2] 
Peripheral edema (6%) 
Pain (7–13%) 
Paresthesias (3%) 
Postural hypotension [2] 
Vertigo (dizziness) (<3%) 

Hair

Alopecia (<10%)

Nails

Onychocryptosis [2]

Central Nervous System

Ageusia (taste loss) [17] 
Dysgeusia (taste perversion) (3%) [8] 
Headache (13%) 

Gastrointestinal/Hepatic

Abdominal pain (2%) 
Diarrhea (6%) 
Dyspepsia (4%) 
Flatulence (2%) 
Hepatotoxicity [11] 
Nausea (3%) 

Other

Adverse effects [3] 
Allergic reactions (<10%) 
Side effects (3%)
TERBUTALINE

Trade names: Brethine (aaiPharma), Bricanyl (AstraZeneca)
Indications: Bronchospasm
Class: Beta-2 adrenergic agonist, Bronchodilator, Tocolytic
Half-life: 1116 hours
Clinically important, potentially hazardous interactions with: alpha blockers, atomoxetine, beta blockers, betahistine, cannabinoids, epinephrine, insulin aspart, insulin glargine, insulin glutamine, iboguan, loop diuretics, MAO inhibitors, propranolol, sotalol, sympathomimetics, tricyclic antidepressants, yohimbine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: PROLONGED TOCOLYSIS

Skin
Diaphoresis (<10%)
Mucosal
Xerostomia (<10%)
Cardiovascular
Arrhythmias [2]
Central Nervous System
Dysgeusia (taste perversion) (<10%)
Tremor [2]
Gastrointestinal/Hepatic
Nausea [2]
Other
Side effects [2]

TERCONAZOLE

See: www.drugeruptiiondata.com/drug/id/679

TERFENADINE

See: www.drugerupptiondata.com/drug/id/680

TERIFLUNOMIDE

Trade name: Aubagio (Sanofi-Aventis)
Indications: Relapsing forms of multiple sclerosis
Class: Pyrimidine synthesis inhibitor
Half-life: N/A
Clinically important, potentially hazardous interactions with: alosetron, caffeine, duloxetine, ethinylestradiol, leflunomide, live vaccines, oral contraceptives, paclitaxel, pioglitazone, repaglinide, rosiglitazone, theophylline, tizanidine, warfarin
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Warning: HEPATOTOXICITY and RISK OF TERATOGENICITY

Skin
Acneform eruption (<3%)
Burning (2-3%)
Herpes (oral) (2-4%)
Pruritus (3-4%)
Hair
Alopecia (10-13%) [14]
Cardiovascular
Hypertension (4%) [3]
Palpitation (2-3%)
Central Nervous System
Anxiety (3-4%)
Carpal tunnel syndrome (<3%)
Headache (19-22%) [4]
Paresthesias (9-10%) [3]
Peripheral neuropathy (<2%) [2]
Gastrointestinal/Hepatic
Nausea (9-14%) [8]
Upper respiratory tract infection (9%)
Endocrine/Metabolic
ALT increased (12-14%) [11]
AST increased (2-3%)
GTT increased (3-5%)
Hypophosphatemia (mild) (18%)
Weight loss (2-3%)
Genitourinary
Cystitis (2-4%)
Renal
Renal failure [2]
Hematologic
Immunosuppression (10-15%)
Leukopenia (<2%) [2]
Lymphopenia [2]
Neutropenia (2-4%) [4]
Ocular
Conjunctivitis (<3%)
Vision blurred (3%)
Other
Adverse effects [4]
Allergic reactions (2-3%)
Infection [5]
Side effects [2]
Toothache (4%)

TERIPARATIDE

Trade name: Forteo (Lilly)
Indications: Osteoporosis in postmenopausal women and men at increased risk of fractures
Class: Parathyroid hormone analog
Half-life: 1 hour
Clinically important, potentially hazardous interactions with: alcohol, digoxin
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: POTENTIAL RISK OF OSTEOSARCOMA

Skin
Diaphoresis (2%) Herpes zoster (3%) Rash (5%)
Cardiovascular
Angina (3%) Hypertension (7%)
Central Nervous System
Anxiety (4%) Depression (4%) Dysgeusia (taste perversion) (<2%)
Headache (8%) [8]
Insomnia (4-5%)
Paresthesias (<2%)
Vertigo (dizziness) (4-8%) [7]
Neuromuscular/Skeletal
Ankalgia (10%) [3]
Bone tumor [2]
Leg cramps (3%) [4]
Myalgia/Myopathy [2]
Neck pain (3%)
Pain in extremities [3]
Gastrointestinal/Hepatic
Constipation (5%)
Diarrhea (5%)
Dyspepsia (5%)
Gastritis (2-7%)
Nausea (9-14%) [8]
Vomiting (3%)
Respiratory
Cough (6%)
Dyspnea (4-6%)
Pharyngitis (6%)
Pneumonia (4-6%)
Rhinitis (10%)
Endocrine/Metabolic
Hypercalcemia [6]
Local
Injection-site pain (<2%)
Other
Adverse effects [4]
Tooth disorder (2%)
TERLIPRESSIN

Trade names: Glypressin (IS Pharma), Terlpressin (Ferring) (Bissendorf Peptide)
Indications: Esophageal variceal hemorrhage
Class: Vasopressin agonist
Half-life: 50–70 minutes
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: N/A (Contra-indicated in pregnancy)

Skin
Gangrene [2]
Necrosis [12]

Cardiovascular
Myocardial infarction [3]
QT prolongation [2]
Torsades de pointes [2]

Central Nervous System
Seizures [3]

Neuromuscular/Skeletal
Rhabdomyolysis [3]

Endocrine/Metabolic
Hypogonadism, postpartum breast pain

Other
Adverse effects [2]

TETRABENAZINE

See: www.drugeruptiondata.com/drug/id/1301

TETRACYCLINE

Trade names: Helidac (Prometheus), Sumycin (Par)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, tetracycline
Half-life: 611 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, acitretin, aluminum, amoxicillin, ampicillin, ampicillin, atocalcet, atovaquone, atovaquone/proguanil, bacampicillin, betamethasone, bismuth, bromelain, calcium salts, carbencillin, cholestyramine, cloxacillin, colestipol, corticosteroids, coumarins, dairy products, dicloxacillin, dexamethasone, digoxin, ergotamine, food, gliclazide, isoretinoin, kaolin, methicillin, methotrexate, methoxyflurane, methylergocrist, methylprednisolone, nafcinil, oral iron, oral typhoid vaccine, oxacillin, penicillins, phenindione, methicillin, methotrexate, methoxyflurane, methylergocrist, methylprednisolone, nafcinil, oral iron, oral typhoid vaccine, oxacillin, penicillins, phenindione, piperacillin, quinapril, retinoids, rocuronium, sodium picosulfate, streptomycin, sucrafate, sulfonamide, ticarcillin, triamterene/diuretic, vitamin A, zinc
Pregnancy category: D

Skin
Acneform eruption [2]
Angioedema [2]
Candidiasis [2]
Erythema multiforme [7]
Exanthenes [3]
Exfoliative dermatitis [5]
Fixed eruption (15%) [43]
Jarisch–Herxheimer reaction [3]
Lichenoid eruption [3]
Lupus erythematosus [6]
Lichenoid eruption [3]
Mastodynia [2]
Nabumetone [9]
Necrosis [12]
Gangrene [2]

Central Nervous System
Dysgeusia (taste perversion) (8%)
Headache (10%)
Hypotension (intranasal and pharyngeal) (10%)
Sensory disturbances (2%) Vertigo (dizziness) (3%)
Ocular
Lacrimation (13%)
Other
Sneezing (4%)

TETRACYCLINE

Trade names: Helidac (Prometheus), Sumycin (Par)
Indications: Various infections caused by susceptible organisms
Class: Antibiotic, tetracycline
Half-life: 611 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, acitretin, aluminum, amoxicillin, ampicillin, ampicillin, atocalcet, atovaquone, atovaquone/proguanil, bacampicillin, betamethasone, bismuth, bromelain, calcium salts, carbencillin, cholestyramine, cloxacillin, colestipol, corticosteroids, coumarins, dairy products, dicloxacillin, dexamethasone, digoxin, ergotamine, food, gliclazide, isoretinoin, kaolin, methicillin, methotrexate, methoxyflurane, methylergocrist, methylprednisolone, nafcinil, oral iron, oral typhoid vaccine, oxacillin, penicillins, phenindione, methicillin, methotrexate, methoxyflurane, methylergocrist, methylprednisolone, nafcinil, oral iron, oral typhoid vaccine, oxacillin, penicillins, phenindione, piperacillin, quinapril, retinoids, rocuronium, sodium picosulfate, streptomycin, sucrafate, sulfonamide, ticarcillin, triamterene/diuretic, vitamin A, zinc
Pregnancy category: D

Skin
Acneform eruption [2]
Angioedema [2]
Candidiasis [2]
Erythema multiforme [7]
Exanthenes [3]
Exfoliative dermatitis [5]
Fixed eruption (15%) [43]
Jarisch–Herxheimer reaction [3]
Lichenoid eruption [3]
Mastodynia [2]
Nabumetone [9]
Necrosis [12]
Gangrene [2]

Central Nervous System
Dysgeusia (taste perversion) (8%)
Headache (10%)
Hypotension (intranasal and pharyngeal) (10%)
Sensory disturbances (2%) Vertigo (dizziness) (3%)
Ocular
Lacrimation (13%)
Other
Sneezing (4%)

TETRACYCLINE
Genitourinary
Vaginitis [3]

Other
Adverse effects [4]
Tooth pigmentation (commonly in under 8-year-olds) (>10%) [12]

TETRAZEPAM
See: www.drugeruptiondata.com/drug/id/2015

THALIDOMIDE
Trade name: Thalomid (Celgene)
Indications: Graft-versus-host reactions, recalcitrant aphthous stomatitis
Class: Immunosuppressant, TNF modulator
Half-life: 5–7 hours
Clinically important, potentially hazardous interactions with: alcohol, amiodarone, antihistamines, antipsychotics, bortezomib, calcium channel blockers, carbamazepine, cisplatin, CNS depressants, digoxin, disulfiram, docetaxel, famotidine, griseofulvin, lithium, metronidazole, modafinil, opioids, paclitaxel, penicillins, phenytoin, rifabutin, rifampin, St John's wort, succinylcholine, vincristine
Pregnancy category: X
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Thalidomide is a potent teratogen, an agent that causes congenital malformations and developmental abnormalities if introduced during gestation. Some of these teratogenic side effects of thalidomide include fetal limb growth retardation (arms, legs, hands, feet), ingrown genitalia, absence of lung, partial/total loss of hearing or sight, malformed digestive tract, heart, kidney, and stillborn infant.
Warning: FETAL RISK AND VENOUS THROMBOEMBOLIC EVENTS

Skin
Bullous dermatitis (5%)
Dermatitis [2]
Diaphoresis (13%)
Edema (57%) [11]
Erythema [2]
Erythema nodosum [2]
Erythroderma [2]
Exanthenms [2]
Exfoliative dermatitis [4]
Facial erythema (<5%) [2]
Hypersensitivity [3]
Peripheral edema (3–8%) [4]
Pruritus (3–8%) [3]
Psaorasis [2]
Purpura [2]
Rash (115%) [24]
Stevens-Johnson syndrome [2]
Toxic epidermal necrolysis [4]
Urticaria (3%) [2]
Vasculitis [2]
Xerosis (21%) [5]

Mucosal
Oral candidiasis (4–11%)
Xerostomia (8%) [9]

Cardiovascular
Bradycardia [5]
Cardiotoxicity [2]
Hypotension (16%)
Thromboembolism [2]
Venous thromboembolism [5]

Central Nervous System
Agitation (9–26%)
Fever (19–23%) [2]
Hyperesthesia [2]
Insomnia (96%)
Neurotoxicity (22%) [24]
Paresthesias (6–16%) [8]
Parkinsonism [2]
Peripheral neuropathy [26]
Somnolence (drowsiness) (36%) [13]
Tremor (4–26%) [6]
Vertigo (dizziness) (4–20%) [16]

Neuromuscular/Skeletal
Arthralgia (13%)
Fever (19–23%) [2]
Hyperesthesia [2]
Insomnia (9%)
Neurotoxicity (22%) [24]
Paresthesias (6–16%) [8]
Parkinsonism [2]
Peripheral neuropathy [26]
Somnolence (drowsiness) (36%) [13]
Tremor (4–26%) [6]
Vertigo (dizziness) (4–20%) [16]

Gastrointestinal/Hepatic
Abdominal pain (3%)
Constipation [13]
Diarrhea (4–19%)
Flatulence (8%)
Hepatotoxicity [4]
Pancreatitis [2]

Respiratory
Dyspnea (42%)
Pharyngitis (4–8%)
Pneumonia [2]
Rhinitis (4%)
Sinusitis (3–8%)

Endocrine/Metabolic
Amenorrhea [6]
Glycosuria [2]
Rheumatisms [4]
Sialorrhea (4–8%)

Genitourinary
Erectile dysfunction [2]
Impotence (38%)
Leukorrhea (17–35%)

Hematologic
Anemia (6–13%) [4]
Neutropenia (31%) [9]
Thrombocytopenia [6]
Thrombosis [13]

Other
Adverse effects [8]
Death [2]
Infection (6–8%) [6]
Teratogenicity [6]
Toothache (4%)

TIABENDAZOLE
Synonym: tiabendazole
Indications: Various infections caused by susceptible helminths
Class: Anthelmintic, Antibiotic, imidazole
Half-life: 1.2 hours
Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Skin
Dermatitis [3]
Erythema multiforme [3]
Exanthenms (>5%) [4]
Fixed eruption [2]
Rash (<10%)
Sjögren's syndrome [3]
Stevens-Johnson syndrome (<10%)
Toxic epidermal necrolysis [2]
Urticaria (<5%)

Central Nervous System
Vertigo (dizziness) [3]

Gastrointestinal/Hepatic
Abdominal pain [2]
Nausea [2]

THIAMINE
See: www.drugeruptiondata.com/drug/id/686

THIMEROSAL
See: www.drugeruptiondata.com/drug/id/848

THIOGUANINE
See: www.drugeruptiondata.com/drug/id/687
THIOPENTAL
See: www.drugeruptiondata.com/drug/id/688

THIORIDAZINE
See: www.drugeruptiondata.com/drug/id/689

THIOTEPA
See: www.drugeruptiondata.com/drug/id/690

THIOTHIXENE
See: www.drugeruptiondata.com/drug/id/691

THYROTROPIN ALFA
See: www.drugeruptiondata.com/drug/id/1357

TIAGABINE
Trade name: Gabitril (Cephalon)
Indications: Partial seizures
Class: Anticonvulsant, Mood stabilizer
Half-life: 79 hours
Clinically important, potentially hazardous interactions with: alcohol, antipsychotics, carbamazepine, chloroquine, conivaptan, CYP3A4 inhibitors and inducers, dasatinib, deferasirox, droperidol, hydroxycloroquine, ketorolac, levomepromazine, MAO inhibitors, melphalan, ondansetron, phenytoin, SSRIs, St John’s wort, tricyclic antidepressants
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients
Skin
Ecchymoses (<6%)
Pruritus (2%) [2]
Cardiovascular
Vasodilation (2%)
Central Nervous System
Confusion (5%)
Depression (<7%) [4]
Emotional lability (3%)
Gait instability (3-5%)
Headache [8]
Hostility (2-5%)
Impaired concentration (6-14%) [2]
Insomnia (5-6%)
Nervousness (10-14%) [10]
Pain (2-7%)
Paresthesias (4%)
Seizures [4]
Somnolence (drowsiness) (18-21%) [9]
Speech disorder (4%)
Status epilepticus (non-convulsive) [17]
Syncope [2]

TIANEPTINE
See: www.drugeruptiondata.com/drug/id/2065

TIBOLONE
See: www.drugeruptiondata.com/drug/id/1310

TICAGRELOR
Trade name: Brilinta (AstraZeneca)
Indications: Thrombotic cardiovascular events
Class: Antiplatelet, cyclopentyl triazolo-pyrimidine (CPTP)
Half-life: 7 hours
Clinically important, potentially hazardous interactions with: aliskiren, angiotensin II receptor antagonists, aspirin, butabarbital, efavirenz, indinavir, iraconazole, ketoconazole, lovastatin, nefazodone, neflinavir, phenobarbital, phenytoin, rifampin, ritonavir, saquinavir, simvastatin, telithromycin, venetoclax, voriconazole
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Maintenance doses of aspirin above 100 mg reduce the effectiveness of ticagrelor and should be avoided. Contra-indicated in patients with a history of intracranial hemorrhage, or active pathological bleeding, and in patients with severe hepatic impairment.
Warning: BLEEDING RISK
Cardiovascular
Atrial fibrillation (4%)

TICARCILLIN
See: www.drugeruptiondata.com/drug/id/693

TICLOPIDINE
See: www.drugeruptiondata.com/drug/id/694

TIGECYCLINE
See: www.drugeruptiondata.com/drug/id/1078

TIMEDRONE
See: www.drugeruptiondata.com/drug/id/1203

TIMOLOL
See: www.drugeruptiondata.com/drug/id/695

TINIDAZOLE
See: www.drugeruptiondata.com/drug/id/1051

TINZAPARIN
Trade name: Innohep (Leo Pharma)
Indications: Acute symptomatic deep vein thrombosis
Class: Anticoagulant, Heparin, low molecular weight
Half-life: 34 hours
Clinically important, potentially hazardous interactions with: aliskiren, angiotensin II receptor antagonists, aspirin, butabarbital,
clopidogrel, collagenase, dasatinib, dextran, diclofenac, dipyriramole, drotrecogin alfa, glyceryl trinitrate, ibritumomab, ibuprofen, ketorolac, NSAIDs, oral anticoagulants, pentosan, pentoxifylline, platelet inhibitors, prostacyclin analogues, salicylates, sulfipyrazone, throbolytics, ticlopidine, tositumomab & iodine.

**Pregnancy category**: B

**Important contra-indications noted in the prescribing guidelines for**: the elderly; nursing mothers; pediatric patients

**Warning**: SPINAL / EPIDURAL HEMATOMAS

**Skin**
- Bullous dermatitis (<10%)
- Pruritus (<10%)

**Mucosal**
- Epistaxis (nosebleed) (2%)

**Cardiovascular**
- Chest pain (2%)
- Central Nervous System
  - Fever (2%)
  - Headache (2%)
- Neuromuscular/Skeletal
  - Back pain (2%)

**Respiratory**
- Pulmonary embolism (2%)
- Endocrine/Metabolic
  - ALT increased (13%)
  - AST increased (9%)
- Genitourinary
  - Urinary tract infection (4%)
- Hematologic
  - Bleeding [4]
  - Hemorrhage (2%)
- Local
  - Injection-site hematoma (16%)

**TIOTRIPRIN**

See: www.drugereptiondata.com/drug/id/696

**TIOTROPIUM**

**Trade names**: Spiriva (Boehringer Ingelheim), Stiolo Respimat (Boehringer Ingelheim)

**Indications**: Bronchospasm (associated with COPD)

**Class**: Anticholinergic, Muscarinic antagonist

**Half-life**: 56 days

**Clinically important, potentially hazardous interactions with**: acetycholinesterase inhibitors, anticholinergics, antihistamines, botulinum toxin (A & B), cannabinoids, convaptan, disopyramide, dopemperidine, haloperidol, ketoconazole, levodopa, MAO inhibitors, memantine, metoclopramide, nefopam, parasympathomimetics, PEG-interferon, phenothiazines, potassium chloride, pramlinide, secretin, sublingual nitrates, tricyclic antidepressants

**Pregnancy category**: C

**Important contra-indications noted in the prescribing guidelines for**: nursing mothers; pediatric patients

**Note**: Stiolo Respimat is tiotropium and olodaterol.

**Skin**
- Candidiasis (4%)
- Edema (5%)
- Herpes zoster (<3%)
- Rash (4%)

**Mucosal**
- Epistaxis (nosebleed) (4%)
- Oral candidiasis [2]
- Stomatitis (<3%)
- Xerostomia (1016%) [22]

**Cardiovascular**
- Angina (<3%)
- Cardiotoxicity [2]
- Chest pain (7%) [2]
- Hypertension [2]

**Central Nervous System**
- Depression (<3%)
- Headache [6]
- Paresthesias (<3%)
- Vertigo (dizziness) [2]

**Neuromuscular/Skeletal**
- Arthralgia (>3%)
- Back pain [4]
- Bone or joint pain (<3%)
- Leg pain (<3%)
- Myalgia/Myopathy (4%)

**Gastrointestinal/Hepatic**
- Abdominal pain (5%)
- Constipation (4%) [2]
- Diarrhea [3]
- Dyspepsia (6%)
- Gastroesophageal reflux (<3%)
- Vomiting (4%)

**Respiratory**
- Asthma [4]
- Bronchitis [4]
- COPD (exacerbation) [5]
- Cough (>3%) [8]
- Dysphonia (<3%)
- Dyspnea [4]
- Flu-like syndrome (>3%)
- Influenza [3]
- Laryngitis (<3%)
- Nasopharyngitis [11]
- Pharyngitis (9%)
- Pneumonia [3]
- Rhinitis (6%) [3]
- Sinusitis (11%)
- Upper respiratory tract infection (41%) [4]

**Endocrine/Metabolic**
- Hypercholesterolemia (<3%)
- Hyperglycemia (<3%)

**Genitourinary**
- Urinary tract infection (7%)

**Ocular**
- Cataract (<3%)

**Other**
- Adverse effects [12]
- Allergic reactions (<3%)

Death [7]

**Infection (4%)**

**TIPRANAVIR**

**Trade name**: Aptivus (Boehringer Ingelheim)

**Indications**: Antiretroviral treatment of HIV-1

**Class**: HIV-1 protease inhibitor, Sulfonamide

**Half-life**: 486.0 hours

**Clinically important, potentially hazardous interactions with**: abacavir, alcohol, allopurinol, alprazolam, amiodarone, antacids, antifungals, apixaban, artermother/lumefantrine, atazanavir, atorvastatin, bepridil, bosentan, buproprion, calcium channel blockers, carbamazepine, cisapride, clarithromycin, codeine, conivaptan, copanlisib, corticosteroids, cyclosporine, CYP2D6 substrates, CYP3A4 inducers, dabigatran, darifenacin, deferasirox, delavirdine, didanosine, digoxin, dihydroergotamine, disulfiram, efavirenz, elbasvir & grazoprevir, eluxadoline, enfuvirtide, epelrenone, ergotamine, esomeprazole, estradiol, estrogens, etravirine, fosoterodine, flecainide, fluconazole, fosamprenavir, fusidic acid, garlic, HMCoA reductase inhibitors, lovastatin, meperidine, methadone, metoprolol, midazolam, midostaurin, nefazodone, nelfinavir, netazoxone, netaritin, omeprazole, P-glycoprotein substrates, pantoprazole, phenobarbital, phenytoin, pimozide, propafenone, protease inhibitors, proton pump inhibitors, quetiapine, quinidine, quinidine, ranitidine, rifabutin, rifampin, rifampin, rivaroxaban, rosuvastatin, salmeterol, saquinavir, sildenafil, simprevir, simvastatin, sirolimus, sofosbuvir, sofosbuvir/velpatasvir, voxelaprevir, St John’s wort, tacrolimus, tamoxifen, telithromycin, temsirolimus, tenofovir disoproxil, tetrabenzine, theophylline, thioridazine, tramadol, trazodone, triazolam, tricyclic antidepressants, valproic acid, vardenafil, vitamin E, zidovudine

**Pregnancy category**: C

**Important contra-indications noted in the prescribing guidelines for**: the elderly; nursing mothers; pediatric patients

**Note**: Tipranavir is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome. Tipranavir is co-administered with ritonavir. Contra-indicated in patients with moderate or severe (Child-Pugh Class B or C) hepatic impairment.

**Warning**: HEPATOTOXICITY and INTRACRANIAL HEMORRHAGE

**Skin**
- Exanthems (<2%)
- Herpes simplex (<2%)
- Herpes zoster (<2%)
- Hypersensitivity (<2%)
- Lipoproteinosis (<2%)
- Lipodystrophy (<2%)
- Lipoatrophy (<2%) (3%)
- Pruritus (<2%)
- Rash (3%) [2]
Central Nervous System
- Anorexia (<2%)
- Depression (2%)
- Fever (14%)
- Headache (5%)  
- Insomnia (2%)
- Intracranial hemorrhage (<2%) [3]
- Neurotoxicity (<2%)
- Peripheral neuropathy (2%)
- Sleep related disorder (<2%)
- Somnolence (drowsiness) (<2%)
- Vertigo (dizziness) (<2%)

Neuromuscular/Skeletal
- Asthenia (fatigue) (2%)
- Cramps (<2%)
- Myalgia/Myopathy (2%)

Gastrointestinal/Hepatic
- Abdominal distension (<2%)
- Abdominal pain (6%)
- Dyspepsia (<2%)
- Flatulence (<2%)
- Gastroesophageal reflux (<2%)
- Hepatic failure (<2%)
- Hepatitis (<2%)
- Hepatotoxicity [4]
- Nausea (9%)
- Pancreatitis (<2%)
- Vomiting (6%)

Respiratory
- Dyspnea (2%)
- Flu-like syndrome (<2%)

Endocrine/Metabolic
- ALT increased (2%) [2]
- Appetite decreased (<2%)
- Dehydration (2%)
- Diabetes mellitus (<2%)
- GGT increased (2%)
- Hyperamylasemia (<2%)
- Hypercholesterolemia (<2%)
- Hyperglycemia (<2%)
- Hyperlipidemia (3%)
- Hypertriglyceridemia (4%) [2]
- Weight loss (3%)

Hematologic
- Anemia (3%)
- Neutropenia (2%)
- Thrombocytopenia (<2%)

Other
- Adverse effects [3]

Tirofiban
See: www.drugeruptiondata.com/drug/id/697

Tizanidine
Trade name: Zanaflex (Acorda)
Indications: Muscle spasticity, multiple sclerosis
Class: Adrenergic alpha2-receptor agonist
Half-life: 2.5 hours
Clinically important, potentially hazardous interactions with:
- acetabulol, alfasizosin, benazepril, captopril, cilazapril, ciprofloxacin,
- enalapril, fluoxazoline, fosinopril, irbesartan, lisinopril, norfloxacin, obeticholic acid,
- olmesartan, phenytoin, quinapril, ramipril, rofecoxib, terflunomide, trandolapril
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: the elderly; pediatric patients

Skin
- Pallor [2]
- Pruritus (<10%)
- Rash (<10%)

Mucosal
- Xerostomia (49–88%) [14]

Cardiovascular
- Bradycardia (<10%) [5]
- Hypotension (16–33%) [3]

Central Nervous System
- Dyskinesia (3%)
- Nervousness (3%)
- Somnolence (drowsiness) (48–92%) [4]
- Speech disorder (3%)
- Tremor (<10%)
- Vertigo (dizziness) (41–45%) [3]

Neuromuscular/Skeletal
- Asthenia (fatigue) (41–78%) [5]

Gastrointestinal/Hepatic
- Constipation (4%) [3]

Respiratory
- Flu-like syndrome (3%)
- Pharyngitis (3%)
- Rhinitis (3%)

Genitourinary
- Urinary frequency (3%)
- Urinary tract infection (10%)  

Ocular
- Amblyopia (3%)
- Other
- Infection (6%)

Tobramycin
Trade names: TOBI (Chiron), TobraDex (Alcon)
Indications: Various serious infections caused by susceptible organisms, superficial ocular infections
Class: Antibiotic, aminoglycoside
Half-life: 23 hours
Clinically important, potentially hazardous interactions with:
- adefovir, aldesleukin, aminoglycosides, atarcurium, bumetanide,
- daptomycin, doxacurium, ethacrynic acid, furosemide, neuromuscular blockers,
- pancuronium, polypeptide antibiotics,
- rocuronium, succinylcholine, teicoplanin,
- toremide, vecuronium
Pregnancy category: D (category D for injection and inhalation; category B for ophthalmic use)
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
- Anaphylactoid reactions/Anaphylaxis [5]
- Cellulitis [9]
- Herpes zoster [8]
- Hypersensitivity [5]
- Malignancies [2]
- Peripheral edema (<2%)
- Psoriasis [2]
- Rash (2%) [6]
- Urticaria [2]

Mucosal
- Mucosal ulceration [2]
- Oral ulceration (2%)
- Stomatitis (<2%)

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TOCICUMAB
Trade name: Actemra (Roche)
Indications: Rheumatoid arthritis, juvenile idiopathic arthritis, Castleman’s disease
Class: Anti-interleukin-6 receptor monoclonal antibody, Disease-modifying antirheumatic drug (DMARD), Monoclonal antibody
Half-life: 8–14 days
Clinically important, potentially hazardous interactions with:
- efavirenz, fesoterodine, fingolimod, infliximab, lurisdione, paricalcitol,
- pazopanib, typhoid vaccine, yellow fever vaccine
Pregnancy category: N/A (Based on animal data, may cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: RISK OF SERIOUS INFECTIONS

Skin
- Anaphylactoid reactions/Anaphylaxis [5]

See: www.drugeruptiondata.com/drug/id/700

TOCICUMAB
Trade name: Actemra (Roche)
Indications: Rheumatoid arthritis, juvenile idiopathic arthritis, Castleman’s disease
Class: Anti-interleukin-6 receptor monoclonal antibody, Disease-modifying antirheumatic drug (DMARD), Monoclonal antibody
Half-life: 8–14 days
Clinically important, potentially hazardous interactions with:
- efavirenz, fesoterodine, fingolimod, infliximab, lurisdione, paricalcitol,
- pazopanib, typhoid vaccine, yellow fever vaccine
Pregnancy category: N/A (Based on animal data, may cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: RISK OF SERIOUS INFECTIONS

Skin
- Anaphylactoid reactions/Anaphylaxis [5]

See: www.drugeruptiondata.com/drug/id/700

TOCICUMAB
Trade name: Actemra (Roche)
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Clinically important, potentially hazardous interactions with:
- efavirenz, fesoterodine, fingolimod, infliximab, lurisdione, paricalcitol,
- pazopanib, typhoid vaccine, yellow fever vaccine
Pregnancy category: N/A (Based on animal data, may cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: RISK OF SERIOUS INFECTIONS

Skin
- Anaphylactoid reactions/Anaphylaxis [5]

See: www.drugeruptiondata.com/drug/id/700

TOCICUMAB
Trade name: Actemra (Roche)
Indications: Rheumatoid arthritis, juvenile idiopathic arthritis, Castleman’s disease
Class: Anti-interleukin-6 receptor monoclonal antibody, Disease-modifying antirheumatic drug (DMARD), Monoclonal antibody
Half-life: 8–14 days
Clinically important, potentially hazardous interactions with:
- efavirenz, fesoterodine, fingolimod, infliximab, lurisdione, paricalcitol,
- pazopanib, typhoid vaccine, yellow fever vaccine
Pregnancy category: N/A (Based on animal data, may cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: RISK OF SERIOUS INFECTIONS

Skin
- Anaphylactoid reactions/Anaphylaxis [5]

See: www.drugeruptiondata.com/drug/id/700

TOCICUMAB
Trade name: Actemra (Roche)
Indications: Rheumatoid arthritis, juvenile idiopathic arthritis, Castleman’s disease
Class: Anti-interleukin-6 receptor monoclonal antibody, Disease-modifying antirheumatic drug (DMARD), Monoclonal antibody
Half-life: 8–14 days
Clinically important, potentially hazardous interactions with:
- efavirenz, fesoterodine, fingolimod, infliximab, lurisdione, paricalcitol,
- pazopanib, typhoid vaccine, yellow fever vaccine
Pregnancy category: N/A (Based on animal data, may cause fetal harm)
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: RISK OF SERIOUS INFECTIONS

Skin
- Anaphylactoid reactions/Anaphylaxis [5]
TOFACITINIB

**Trade name:** Xeljanz (Pfizer)

**Indications:** Rheumatoid arthritis

**Class:** Janus kinase (JAK) inhibitor

**Half-life:** ~3 hours

**Clinically important, potentially hazardous interactions with:** azathioprine, biologic disease-modifying antirheumatics, cyclosporine, CYP3A4 inhibitors, fluconazole, ketoconazole, live vaccines, potent immunosuppressives, rifampin, strong CYP inducers, strong CYP2C19 inhibitors, tacrolimus

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Warning:** SERIOUS INFECTIONS AND MALIGNANCY

**Skin**
- Erythema (<2%)
- Herpes zoster [5]
- Peripheral edema (<2%)
- Pruritus (<2%)
- Rash (<2%) [3]

**Mucosal**
- Nasal congestion (<2%)

**Cardiovascular**
- Hypertension (2%)

**Central Nervous System**
- Chest pain (2%)
- Headache (3–4%) [10]
- Insomnia (<2%)
- Paresthesias (<2%)
- Rash (<2%) [3]

**Gastrointestinal/Hepatic**
- Abdominal pain (<2%) [2]
- Diarrhea (3–4%) [8]
- Dyspepsia (<2%) [2]
- Gastritis (<2%)
- Nausea (<2%) [3]
- Vomiting (<2%)

**Respiratory**
- Bronchitis [3]
- Cough (<2%)
- Dyspnea (<2%)
- Influenza [3]
- Nasopharyngitis (3–4%) [8]
- Tuberculosis [3]

**Upper respiratory tract infection (4–5%) [8]**

**Endocrine/Metabolic**
- ALT increased [2]
- AST increased [2]
- Creatine phosphokinase increased [2]
- Dehydration (<2%)

**Genitourinary**
- Urinary tract infection (2%) [5]

**Hematologic**
- Anemia (<2%)
- Neutropenia [3]

**Other**
- Adverse effects [11]
- Death [5]
- Infection [39]

**Other**
- Adverse effects [8]
- Infection (20–22%) [11]

TOLAZAMIDE

See: www.drugeruptiondata.com/drug/id/701

TOLAZOLINE

See: www.drugeruptiondata.com/drug/id/702

TOLBUTAMIDE

See: www.drugeruptiondata.com/drug/id/703

TOLCAPONE

See: www.drugeruptiondata.com/drug/id/704

TOLMETIN

See: www.drugeruptiondata.com/drug/id/705

TOLTERODINE

**Trade name:** Detrol (Pharmacia & Upjohn)

**Indications:** Urinary incontinence

**Class:** Muscarinic antagonist

**Half-life:** 24 hours

**Clinically important, potentially hazardous interactions with:** itraconazole, ketoconazole, lopinavir, neflinavir, sotalol, voriconazole, warfarin

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Skin**
- Erythema (2%)
- Rash (2%)

**Mucosal**
- Xerostomia (35%) [38]

**Cardiovascular**
- Chest pain (2%)

**Central Nervous System**
- Headache (7%) [4]
- Somnolence (drowsiness) (3%)
- Vertigo (dizziness) (5%) [4]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (4%)

**Gastrointestinal/Hepatic**
- Abdominal pain (5%) [2]
- Constipation (7%) [13]
- Diarrhea (4%)
- Dyspepsia (4%)

**Respiratory**
- Flu-like syndrome (3%)
- Upper respiratory tract infection (6%)

**Other**
- Adverse effects [8]
- Infection (20–22%) [11]

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TOPIRAMATE

Trade names: Qsymia (Vivus), Qudexy (Upsher-Smith), Topamax (Janssen), Trokendi XR (Supernus)
Indications: Partial onset seizures, migraine
Class: Anticonvulsant, Mood stabilizer
Half-life: 21 hours
Clinically important, potentially hazardous interactions with: eslicarbazepine, levetiracetam, rufinamide, ulipristal, valproic acid
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Qsymia is topiramate and phentermine.

Skin
Anhidrosis [2]
Bromhidrosis (2%) [2]
Diaphoresis (2%) [2]
Edema (2%) [2]
Fixed eruption [2]
Hot flashes (<10%) [2]
Hypohidrosis [2]
Pruritus (2%) [2]
Rash (4%) [3]

Hair
Alopecia [2]

Mucosal
Gingival hyperplasia/hypertrophy [2]
Gingivitis (2%) [2]
Xerostomia (3%) [5]

Cardiovascular
Flushing (5%) [2]
Tachycardia [2]

Central Nervous System
Anorexia (>5%) [4]
Anxiety [3]
Cognitive impairment (>5%) [16]
Confusion (>5%) [1]
Depression [11]
Dysgeusia (taste perversion) (>5%) [9]
Enccephalopathy [3]
Fever (>5%) [2]
Headache [2]
Hyperthermia [3]
Impaired concentration [3]
Insomnia [7]
Irritability [2]
Nervousness (>5%) [5]
Neurotoxicity [5]

 TOPOTECAN

Trade name: Hycamtin (GSK)
Indications: Metastatic ovarian carcinoma
Class: Antineoplastic, Topoisomerase I inhibitor
Half-life: 3-6 hours
Clinically important, potentially hazardous interactions with: atorvastatin, darunavir, gefitinib, lapatinib, oxaliplatin, pantoprazole, salinamide, sofosbuvir & velpatasvir
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: BONE MARROW SUPPRESSION

Hair
Alopecia (59%) [7]

Mucosal
Mucositis [2]
Stomatitis (24%) [4]

Central Nervous System
Fever [2]
Paresthesias (9%) [33]
Psychosis [3]
Seizures [3]
Somnambulism [2]
Somnolence (drowsiness) (>5%) [5]
Suicidal ideation [2]
Tremor (>10%) [25]
Vertigo (dizziness) (>5%) [12]

Gastrointestinal/Hepatic
Constipation [5]
Diarrhea [3]
Nausea [5]

Other
Adverse effects [11]
Death [2]
Infection (>5%) [2]
Side effects [3]
Teratogenicity [8]

TOREMIFENE

Trade name: Fareston (ProStrakan)
Indications: Metastatic breast cancer
Class: Selective estrogen receptor modulator (SERM)
Half-life: ~5 days
Clinically important, potentially hazardous interactions with: amoxapine, arsenic, dolutetron, efavirenz, pazopanib, sugammadex, telavancin
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: QT PROLONGATION

Skin
Anhidrosis [2]
Bromhidrosis (2%) [2]
Diaphoresis (2%) [2]
Edema (2%) [2]
Fixed eruption [2]
Hot flashes (<10%) [2]
Hypohidrosis [2]
Pruritus (2%) [2]
Rash (4%) [3]

Hair
Alopecia [2]

Mucosal
Gingival hyperplasia/hypertrophy [2]
Gingivitis (2%)
Xerostomia (3%) [5]

Cardiovascular
Flushing (5%) [2]
Tachycardia [2]

Central Nervous System
Anorexia (>5%) [4]
Anxiety [3]
Cognitive impairment (>5%) [16]
Confusion (>5%) [1]
Depression [11]
Dysgeusia (taste perversion) (>5%) [9]
Enccephalopathy [3]
Fever (>5%) [2]
Headache [2]
Hyperthermia [3]
Impaired concentration [3]
Insomnia [7]
Irritability [2]
Nervousness (>5%) [5]
Neurotoxicity [5]
Palinopisia [2]
TORSEMIDE

Trade names: Demadex (Roche), Torem (Roche)

Indications: Essential hypertension, edema due to congestive heart failure, hepatic, pulmonary or renal edema

Class: Diuretic, loop

Half-life: 24 hours

Clinically important, potentially hazardous interactions with: ACE inhibitors, amilakin, angiotensinconverting enzyme inhibitors, antidiabetics, azathioprine, benzodiazepines, chlorpheniramine, clonidine, cyclosporine, digoxin, diltiazem, dopamine, enalapril, erythropoietin, esmolol, furosemide, haloperidol, heparin, indomethacin, insulin, ketoprofen, levodopa, lidocaine, lithium, methyldopa, methotrexate, modafinil, nifedipine, nisoldipine, nitroglycerin, pentoxyfylline, procainamide, propranolol, quinidine, ramipril, ranitidine, ranolazine, rasagiline, riluzole, rocuronium, sodium valproate, spironolactone, tacrolimus, tacrine, temazepam, theophylline, tobramycin, verapamil, warfarin, zidovudine

Pregnancy category: B

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Torsemide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin

Photosensitivity (<10%)

Urticaria (<10%)

Vasculitis [2]

Central Nervous System

Headache (7%)

Vertigo (dizziness) (3%)

Neuromuscular/Skeletal

Articulargia (2%)

Asthenia (fatigue) (2%)

Myalgia/Myopathy (2%)

Gastrointestinal/Hepatic

Constipation (2%)

Diarrhea (2%)

Dyspepsia (2%)

Nausea (2%)

Respiratory

Cough (2%)

Pharyngolaryngeal pain (2%)

Rhinitis (3%)

Endocrine/Metabolic

Pseudoporphyria [2]

TOSITUMOMAB & IODINE

See: www.drugeruptiondata.com/drug/id/1015

TOSUFLOXACIN

See: www.drugeruptiondata.com/drug/id/1309

TRABECTEDIN

See: www.drugeruptiondata.com/drug/id/1385

TRAMETINIB

Trade name: Mekinist (Novartis)

Indications: Melanoma (unresectable or metastatic) in patients with BRAF V600E or V600K mutations

Class: MEK inhibitor

Half-life: 4-5 days

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin

Anaphylactoid reactions/Anaphylaxis [2]

Angioedema [2]

Contact dermatitis [2]

Diarrhea (9%) [2]

Hypersensitivity [2]

Peripheral edema [2]

Pruritus (<10%) [4]

Rash (<5%) [2]

Urticaria (<18%)

Pruritus (<10%) [4]

Peripheral edema (<5%)

Vertigo (dizziness) [18]

Neuromuscular/Skeletal

Asthenia (fatigue) (<5%) [3]

Hypotonia (<5%)

Gastrointestinal/Hepatic

Abdominal pain (<5%) [3]

Constipation [8]

Diarrhea [2]

Flatulence (<5%)

Nausea [25]

Vomiting [23]

Respiratory

Apnea [2]

Respiratory depression [2]

Endocrine/Metabolic

Adrenal insufficiency [2]

Hypoglycemia [7]

Hypotension [3]

Gastrointestinal

Urinary frequency (<5%)

Urinary retention (<5%)

Otic

Hallucinations, auditory [2]

Ocular

Hallucinations, visual [3]

Mydriasis [2]

Visual disturbances (<5%)

Other

Adverse effects [8]

Death [2]

TRAMETINIB

Trade name: Mekinist (Novartis)

Indications: Melanoma (unresectable or metastatic) in patients with BRAF V600E or V600K mutations

Class: MEK inhibitor

Half-life: 4-5 days

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin

Acneform eruption (19%) [7]

Actinic keratoses [2]

Cellulitis (<10%)

Dermatitis (19%) [2]

Erythema [7]

Erythema [2]

Exanthems [2]

Folliculitis (<10%)

Keratosis pilaris [2]

Lymphedema (32%)

Paniculitis [4]

Papulopustular eruption [2]

Peripheral edema (32%) [7]

Pruritus (10%) [3]

Pustules (<10%)

Rash (57%) [16]

Squamous cell carcinoma [3]

Toxicity (87%) [5]

Xerosis (11%) [2]

Hair

Alopecia [3]

Nails

Paronychia (10%)

Mucosal

Aphthous stomatitis (15%)

Epistaxis (nosebleed) (13%)

Gingival bleeding (13%)

Mucosal inflammation (15%)

Oral ulceration (15%)

Rectal hemorrhage (13%)

Stomatitis (15%) [2]

Xerostomia (<10%)

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TRANDOLAPRIL

Trade names: Mavik (AbbVie), Tarka (AbbVie)

Indications: Hypertension

Class: Angiotensin-converting enzyme (ACE) inhibitor, Antihypertensive, Vasodilator

Half-life: 6 hours

Clinically important, potentially hazardous interactions with: alcohol, aldeleuk, aliskiren, alpropranol, alpha blockers, amiloride, angiotensin II receptor antagonists, aminosalicylates, anesthetics, angiotensin receptor blockers, atenolol, beta blockers, calcium channel blockers, clonidine, corticosteroids, cyclosporine, diazoxide, diuretics, estrogens, general anesthetics, gold & gold compounds, heparins, hydralazine, insulin, levodopa, lithium, MAO inhibitors, metformin, methyldopa, minoxidil, moxisylyte, moxonidine, nitrates, nitroprusside, NSAIDs, potassium salts, spiranolactone, sulfonfylureas, tizanidine, tramterene, trimethoprim

Pregnancy category: D

Warning: Fetal toxicity

Skin
Anaphylaxis (10%)
Chills (2%)
Dysgeusia (taste perversion) (3%)
Fever (27%)
Headache (3%)
Hemorrhage (2%)
Hypertension (2%)
Insomnia (9%)
Myocardial toxicity (2%)
Neck pain (2%)
Nose bleed (2%)
Peripheral edema (2%)
Pulmonary emboli (2%)
Raynaud disease (2%)
Rhinitis (nose-rinse) (2%)
Rhabdomyolysis (2%)
Rhinorrhea (2%)
Stomatitis (2%)
Stomatitis (2%)
Tachycardia (2%)
Tinnitus (2%)
Urinary retention (2%)
Venous thrombosis (2%)
Vomiting (2%)

Other
Adverse effects [2]

TRANYLCYPROMINE

See: www.drugeruptiondata.com/drug/id/713

TRASTUZUMAB

Trade name: Herceptin (Genentech)

Indications: Metastatic breast cancer

Class: Antineoplastic, HER2/neu receptor antagonist, Monoclonal antibody

Half-life: 2–16 days (dose dependent)

Clinically important, potentially hazardous interactions with: abatacept, abciximab, alefacet, antineoplastics, azacitidine, betamethasone, cabazitaxel, denileukin, docetaxel, doxorubicin, fingolimod, gefitinib, immunosuppressants, lenalidomide, oxaliplatin, paclitaxel, pazopanib, pemetrexed, temsirolimus

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: Cardiomyopathy, infusion reactions, embryofetal toxicity, and pulmonary toxicity

Skin
Acneform eruption (2%) [4]
Edema (8%) [2]
Erythema [2]
Hand-foot syndrome [10]
Herpes simplex (2%) [2]
Hypersensitivity [2]
Peripheral edema (5–10%) [2]
Photosensitivity [2]
Pruritus (2%) [2]
Radiation recall dermatitis [2]
Rash (4–18%) [11]
Toxicity [3]

Hair
Alopecia [6]

Nails
Nail disorder (2%) [2]

Mucosal
Epistaxis (nosebleed) (2%) [3]
Mucositis [3]
Stomatitis [4]

Cardiovascular
Arrhythmias (3%) [4]
Cardiac disorder [4]
Cardiac failure [4]
Cardiomyopathy [2]
Cardiotoxicity [26]
Congestive heart failure (2–7%) [7]
Hypertension (4%) [3]
Myocardial toxicity [3]
Pulmonary toxicity (3%) [7]
Tachycardia (5%) [2]

Central Nervous System
Anorexia (14%) [3]
Chills (5–32%) [8]
Depression (6%) [2]
Fever (6–36%) [6]
Headache (10–26%) [2]
Insomnia (14%) [3]
Neurotoxicity [4]
**TRAVOPROST**

Trade names: Izba (Alcon), Travatan (Alcon), Travatan Z (Alcon)

Indications: Reduction of elevated intraocular pressure in open-angle glaucoma or ocular hypertension

Class: Prostaglandin analog

Half-life: N/A

Clinically important, potentially hazardous interactions with: none known

**Pregnancy category:** C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

**Cardiovascular**

- Angina (<5%)
- Bradycardia (<5%)
- Chest pain (<5%)
- Hypertension (<5%) [2]
- Hypotension (<5%)

**Central Nervous System**

- Anxiety (<5%)
- Depression (<5%)
- Dysgeusia (taste perversion) [3]
- Headache (<5%)
- Pain (<5%)

**Neuromuscular/Skeletal**

- Arthralgia (<5%)
- Back pain (<5%)

**Gastrointestinal/Hepatic**

- Diarrhea (<5%)
- Dyspepsia (<5%)
- Gastrointestinal disorder (<5%)
- Nausea [2]

**Respiratory**

- Cough (5–26%)
- Dyspnea (3–22%)
- Flu-like syndrome (10%) [3]
- Influenza (4%)
- Nasopharyngitis (8%)
- Pharyngitis (12%)
- Pharyngolaryngeal pain (2%)
- Pneumonia [2]
- Pulmonary toxicity [4]
- Rhinitis (2–14%)
- Sinusitis (<4%)
- Sputum increased (<5%)
- Throat irritation (<5%)
- Upper respiratory tract infection (3%)

**Endocrine/Metabolic**

- ALT increased [5]
- Appetite decreased [2]
- AST increased [3]
- Hyperbilirubinemia [2]
- Hyperglycemia [3]

**Genitourinary**

- Urinary tract infection (3–5%)

**Hematologic**

- Anemia (4%) [7]
- Febrile neutropenia [15]
- Leukopenia (3%) [10]
- Neutropenia [27]
- Thrombocytopenia [6]

**Local**

- Infusion-related reactions [4]
- Injection-site reactions (21–40%) [6]

**Other**

- Adverse effects [4]
- Allergic reactions (3%) [2]
- Death [5]
- Infection (20%) [2]

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**TRAZODONE**

Trade names: Desyrel (Bristol-Myers Squibb), Oleptro (Angelini)

Indications: Depression

Class: Antidepressant, tricyclic, Serotonin reuptake inhibitor

Half-life: 36 hours

Clinically important, potentially hazardous interactions with: amiodarone, amphetamine, atazanavir, bepivacaine, citalopram, cobicistat/elvitegravir/emeritcabinatenofovir alafenamide, cobicistat/elfitgravir/emeritcabinatenofovir disoproxil, darunavir, delavirdine, flutamide, fluvoxamine, ginkgo biloba, indinavir, linezolid, lopinavir, MAO inhibitors, nefazodone, paroxetine, procainamide, ritonavir, tipranavir, venlafaxine

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: SUICIDALITY IN CHILDREN AND ADOLESCENTS

Skin

- Edema (<10%)
- Exanthesms [6]
- Photosensitivity [2]
- Pemphigus (exacerbation) [2]
- Urticaria [3]

Hair

- Alopecia [2]

Mucosal

- Xerostomia (>10%) [6]

Cardiovascular

- Arrhythmias [2]
- QT prolongation [2]

Central Nervous System

- Dysgeusia (taste perversion) (>10%)
- Headache [3]
- Sedation (>5%)
- Serotonin syndrome (>5%)
- Somnolence (drowsiness) (>5%) [3]
- Tremor (<5%)
- Vertigo (dizziness) (>5%) [4]

Neuromuscular/Skeletal

- Myalgia/Myopathy (>10%)

Gastrointestinal/Hepatic

- Constipation (>5%)
- Nausea [2]

Genitourinary

- Priapism (>12%) [23]
- Sexual dysfunction [2]

Ocular

- Vision blurred (>5%)

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**TREPROSTINIL**

See: www.drugereptiondata.com/drug/id/953
**TRETINOIN**

**Synonyms:** all-trans-retinoic acid; ATRA

**Trade names:** Aknemycin Plus (EM Industries), Renova (Ortho), Retin-A Micro (Ortho), Solage (Galderma), Vesanoid (Roche)

**Indications:** Acne vulgaris, skin aging, facial roughness, fine wrinkles, hyperpigmentation [T], acute promyelocytic leukemia [O]

**Class:** Antineoplastic, Retinoid

**Half-life:** 0.52 hours

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Oral retinoids can cause birth defects, and women should avoid tretinoin when pregnant or trying to conceive. Avoid prolonged exposure to sunlight.


**Skin**
- Bullous dermatitis [2]
- Burning [O][T] (1040%)[20]
- Cellulitis [O] (<10%)
- Crusting [2]
- Desquamation (14%)
- Diaphoresis (20%)
- Differentiation syndrome [O] (25%) [19]
- Edema (29%) [8]
- Erythema [O][T] (<49%) [19]
- Erythema nodosum [4]
- Exfoliative dermatitis [O] (8%) [3]
- Facial edema [O] (<10%)
- Flaking [O] (23%)
- Hyperkeratosis [O] (78%)
- Hypomelanosis (5%) [2]
- Pallor [O] (<10%)
- Palmar-plantar desquamation [O] (<10%)
- Peeling [4]
- Photosensitivity [O][T] (10%) [3]
- Pigmentation (5%) [3]
- Pruritus [O][T] (5–40%) [14]
- Rash [O][T] (54%) [3]
- Scaling (1040%)[16]
- Stinging (<26%) [8]
- Sweeet’s syndrome [21]
- Ulcerations (scrotal) [9]
- Vasculitis [2]
- Xerosis [O] (49100%) [19]

**Hair**
- Alopecia areata [O] (14%)

**Nails**
- Pyogenic granuloma [3]

**Mucosal**
- Cheilitis [O] (10%)
- Xerostomia [O] (10%)

**Cardiovascular**
- Phlebitis (11%)

**Central Nervous System**
- Depression [O] (14%)
- Fever [O] [6]
- Headache [2]
- Intracranial pressure increased [2]

**Pain** [O] (37%)
- Paresthesias [O] (17%)
- Pseudotumor cerebri [O] [11]
- Shivering [O] (63%)
- Tremor [O] (<10%)

**Neuromuscular/Skeletal**
- Arthralgia [O] (10%) [3]
- Bone or joint pain [O] (77%) [3]
- Myalgia/Myopathy (14%) [3]

**Gastrointestinal/Hepatic**
- Hepatotoxicity [3]
- Pancreatitis [2]

**Hematologic**
- Hemorrhage [2]

**Ocular**
- Diplopia [2]
- Ocular pigmentation [O] (<10%)
- Ocular pruritus [O] (10%)
- Xerophthalmia [O] (<10%) [2]

**Local**
- Injection-site reactions (17%)

**Other**
- Death [O] [2]
- Infection [O] (58%)

**TIPIRACIL**

See: www.drugeruptiondata.com/drug/id/1108

**TRIAMCINOLONE**

See: www.drugeruptiondata.com/drug/id/1108

**TRIAMTERENE**

**Trade names:** Dyazide (GSK), Dyrenium (Concordia)

**Indications:** Edema

**Class:** Diuretic, potassium-sparing

**Half-life:** 12 hours

**Clinically important, potentially hazardous interactions with:** ACE inhibitors, acemetacin, benazepril, captopril, cyclosporine, enalapril, fosinopril, indometacin, lisinopril, meclopril, moexipril, potassium iodide, potassium salts, quinapril, ramipril, spirinolactone, trandolapril, zofenopril

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Dyazide and Maxzide are triamterene and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

**Skin**
- Edema (<10%)
- Lupus erythematosus (with hydrochlorothiazide) [2]
- Photosensitivity [2]
- Rash (<10%)

**TRIAZOLAM**

See: www.drugeruptiondata.com/drug/id/716

**TRICHLORMETHIAZIDE**

See: www.drugeruptiondata.com/drug/id/717

**TRIENTINE**

See: www.drugeruptiondata.com/drug/id/718

**TRIFLUOPERAZINE**

See: www.drugeruptiondata.com/drug/id/719

**TRIFLURIDINE**

See: www.drugeruptiondata.com/drug/id/1205

**TRIFLURIDINE & TIPIRACIL**

**Trade name:** Lonsurf (Monarch)

**Indications:** Metastatic colorectal cancer in patients who have been previously treated with fluoropyrimidine-, oxaliplatin- and irinotecan-based chemotherapy, an anti-VEGF biological therapy, and if RAS wild-type, an anti-EGFR therapy

**Class:** Antineoplastic, Thymidine phosphorylase inhibitor, Thymidine-based nucleoside analogue

**Half-life:** 2 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** N/A (Can cause fetal harm)

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** See also separate entry for trifluridine.

**Hair**
- Alopecia (7%)

**Mucosal**
- Stomatitis (8%)

**Central Nervous System**
- Dyseguesia (cage pereverison) (7%)
- Fever (19%)

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (52%) [3]

**Gastrointestinal/Hepatic**
- Abdominal pain (21%) [2]
- Diarrhea (32%) [2]
- Nausea (48%) [3]
- Vomiting (28%)

**Respiratory**
- Nasopharyngitis (4%)
- Pulmonary embolism (2%)
Endocrine/Metabolic
Appetite decreased (39%)

Genitourinary
Urinary tract infection (4%)

Hematologic
Anemia (77%) [7]
Febrile neutropenia [3]
Granulocytopenia [3]
Leukopenia [7]
Neutropenia (67%) [9]
Thrombocytopenia (42%) [3]

Other
Infection (27%)

TRIHEXYPHENIDYL
See: www.drugeruptiondata.com/drug/id/720

TRIMEPRAZINE
See: www.drugeruptiondata.com/drug/id/721

TRIMETHADIONE
See: www.drugeruptiondata.com/drug/id/722

TRIMETHOBENZAMIDE
See: www.drugeruptiondata.com/drug/id/723

TRIMETHOPRIM
Trade names: Bactrim (Women First), Septra (Monarch)
Indications: Various urinary tract infections caused by susceptible organisms, acute otitis media in children, acute and chronic bronchitis
Class: Antibiotic
Half-life: 810 hours
Clinically important, potentially hazardous interactions with: ACE inhibitors, amantadine, angiotensin II receptor antagonists, antiabetic, azathioprine, benazepril, captopril, carvedilol, citalopram, conivaptan, coumarins, cyclosporine, CYP2C8 substrates, CYP2C9 inhibitors, CYP3A4 inducers, dapson, deferasirox, digoxin, doxefilide, enalapril, epilengone, fosinopril, irbesartan, lamivudine, leucovorin, levodopacoumarin, lisinopril, memantine, mercaptothiopurin, metformin, methotrexate, olmesartan, oral typhoid vaccine, PEG-interferon, phenytoin, pioglitazone, protinase, procainamide, pyrimethamine, quinapril, ramipril, repaglinide, rifampin, sulfonyleureas, trimadopril
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: pediatric patients
Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
DRESS syndrome [2]
Fixed eruption [6]
Pruritus (<10%)
Rash (37%)
Stevens-Johnson syndrome [5]
Toxic epidermal necrolysis [3]

Central Nervous System
Aseptic meningitis [2]

Neuromuscular/Skeletal
Rhabdomyolysis [3]

Gastrointestinal/Hepatic
Hepatotoxicity [2]

Endocrine/Metabolic
Hyperkalemia [3]
Hyponatremia [2]

Hematologic
Anemia [2]
Thrombocytopenia [2]

TRIMETREXATE
See: www.drugeruptiondata.com/drug/id/725

TRIMIPRAMINE
Trade name: Surmontil (Odyssey)
Indications: Major depression
Class: Antidepressant, tricyclic
Half-life: 2026 hours
Clinically important, potentially hazardous interactions with: ampirovir, arbutamine, bupropion, clonidine, epinephrine, formoterol, guanethidine, isocarboxazid, linezolid, MAO inhibitors, phenelzine, quinolones, sparfloxacin, tranylcypromine, venlafaxine
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for:
Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
Diaphoresis (<10%)
Mucosal
Xerostomia (>10%) [2]

Cardiovascular
QT prolongation [2]

Central Nervous System
Dysgeusia (taste perversion) (>10%)
Parkinsonism (<10%)
Seizures [4]

TRIOXSALEN
See: www.drugeruptiondata.com/drug/id/727

Skin
Anaphylactoid reactions/Anaphylaxis [2]

TYPHOID VACCINE

TRIPELENNAMINE
See: www.drugeruptiondata.com/drug/id/728

TRIPROLIDINE
See: www.drugeruptiondata.com/drug/id/729

TRIPTORELIN
See: www.drugeruptiondata.com/drug/id/814

TROGLITAZONE
See: www.drugeruptiondata.com/drug/id/1861

TROLEANDOMYCIN
See: www.drugeruptiondata.com/drug/id/731

TROVAFLOXACIN
See: www.drugeruptiondata.com/drug/id/732

TRYPTOPHAN
See: www.drugeruptiondata.com/drug/id/798

TYPHOID VACCINE

Trade names: Typherix (GSK), Typhim Vi (Sanofi Pasteur), Vivotif (Berna Biotech)
Indications: Immunization against typhoid fever
Class: Vaccine
Half-life: N/A
Clinically important, potentially hazardous interactions with: alcohol, antibiotics, antimalarials, atovaquone/proguanil, azathioprine, belimumab, cefixime, ceftriaxone, ciprofloxacin, corticosteroids, daptomycin, fingolimod, gemifloxacin, hydroxychloroquine, immunosuppressants, interferon gamma, leflunomide, melphalan, mercaptopurine, sulfonamides, telavancin, ticagrelol, tocilizumab, ustekinumab
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Vivotif is a live oral vaccine.

Skin
Anaphylactoid reactions/Anaphylaxis [2]
**Central Nervous System**
- Fever (<3%) [5]
- Headache (5–20%) [3]
- Myelitis [2]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (4–24%) [3]
- Myalgia/Myopathy (3–7%) [3]

**Gastrointestinal/Hepatic**
- Abdominal pain (6%) [2]
- Diarrhea (<3%)
- Nausea (2–8%)
- Vomiting (2%)

**Local**
- Injection-site edema [3]

**Other**
- Adverse effects [4]
- Death [2]
ULIPRISTAL
See: www.drugeruptiondata.com/drug/id/1421

UMECLIDINIUM
Trade name: Incruse (GSK)
Indications: Chronic obstructive pulmonary disease (COPD)
Class: Anticholinergic, Muscarinic antagonist
Half-life: 11 hours
Clinically important, potentially hazardous interactions with: anticholinergics
Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Mucosal
Oral pharyngeal pain [2]

Cardiovascular
Angina [2]
Arrhythmias [2]
 Extrasystoles [3]
Hypertension [3]
Supraventricular tachycardia [2]
Tachycardia [2]

Central Nervous System
Dysgeusia (taste perversion) [3]
Headache [12]

Neuromuscular/Skeletal
Arthralgia (2%) [2]
Back pain [5]

Gastrointestinal/Hepatic
Constipation [2]

Respiratory
COPD (exacerbation) [5]
Cough (3%) [6]
Dysphonia [4]
Influenza [2]

Other
Adverse effects [4]

URIDINE TRIACETATE
See: www.drugeruptiondata.com/drug/id/3997

UROFOLLITROPIN
See: www.drugeruptiondata.com/drug/id/990

UROKINASE
See: www.drugeruptiondata.com/drug/id/733

URSODIOL
Synonyms: Ursodeoxycholic acid; UDCA
Trade names: Actigall (Watson), Destolit (Norgine), Urdox (Wockhardt), Urso 350 (Aptalis), Urso Forte (Aptalis), Ursogal (Galen)
Indications: The dissolution of radiolucent (i.e. non-radio opaque) cholesterol gallstones in patients with a functioning gallbladder, primary biliary cirrhosis, biliary calculi, cholelithiasis
Class: Cholesterol antagonist, Uro lithic
Half-life: 100 hours
Clinically important, potentially hazardous interactions with: aluminum based antacids, charcoal, cholestyramine, dapsone, estradiol, estrogens, nitrendipine, oral contraceptives, P4503A substrates
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
Lichenoid eruption [3]
Pruritus [3]

Hair
Alopecia (<5%)

Cardiovascular
Chest pain (3%)

Central Nervous System
Headache (18–25%)
Insomnia (2%)
Vertigo (dizziness) (17%)

Neuromuscular/Skeletal
Arthralgia (5%)
Asthenia (fatigue) (3–7%)
Back pain (7–12%)
Bone or joint pain (6%)
Myalgia/Myopathy (5%)

Gastrointestinal/Hepatic
Abdominal pain (43%)
Cholecytitis (5%)
Constipation (26%)
Diarrhea (27%) [4]
Dyspepsia (16%) [2]
Flattulence (7%)
Nausea (14%) [4]
Vomiting (9–14%) [3]

Respiratory
Bronchitis (6%)

Infection (viral) (9–19%)

Other
Adverse effects [3]
Allergic reactions (5%)

USEKINUMAB
Trade name: Stelara (Centocor)
Indications: Plaque psoriasis (moderate to severe), active psoriatic arthritis, active Crohn’s disease (moderate to severe)
Class: Interleukin-12/23 antagonist, Monoclonal antibody
Half-life: 15–32 days
Clinically important, potentially hazardous interactions with: live vaccines
Pregnancy category: B
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Cellulitis (<10%)
Herpes zoster [2]
Malignancies [2]
Pruritus (<10%)
Psoriasis [3]

Mucosal
Nasal congestion (<10%)

Cardiovascular
Cardiotoxicity [3]

Central Nervous System
Depression (<10%)
Headache (<10%) [8]
Leukoencephalopathy [3]
Vertigo (dizziness) (<10%)

Neuromuscular/Skeletal
Arthralgia [3]
Asthenia (fatigue) (<10%) [2]
Back pain (<10%)
Myalgia/Myopathy (<10%)
Psoriatic arthralgia [2]

Gastrointestinal/Hepatic
Diarrhea (<10%)
Hepatotoxicity [2]

Respiratory
Nasopharyngitis (10%) [9]
Pharyngolaryngeal pain (<10%)
Upper respiratory tract infection (10%) [8]

Local
Injection-site reactions [6]

Other
Adverse effects [11]
Infection [12]
**VALACYCLOVIR**

**Trade name:** Valtrex (GSK)  
**Indications:** Genital herpes, herpes simplex, herpes zoster  
**Class:** Antiviral, Guanine nucleoside analog  
**Half-life:** 3 hours  
**Clinically important, potentially hazardous interactions with:** abacavir, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, cobimetinib, gefitinib, ganciclovir, hydralazine, imatinib, irinotecan, megestrol, meperidine, methadone, mirtazapine, omeprazole, olanzapine, oxcarbazepine, paliperidone, paroxetine hydrochloride, phenelzine, phenytoin, pimozide, quinidine, rifampin, selegiline, St John's wort, ticlopidine, ticlopidine, tizanidine, topotecan, valproate sodium, valproic acid, vorinostat, zidovudine, zinc, zuclopenthixol  
**Pregnancy category:** D  
**Warning:** LIFE THREATENING ADVERSE REACTIONS  

- **Skin**  
  - Anticonvulsant hypersensitivity syndrome [6]  
  - Dress syndrome [9]  
  - Ecchymoses (<5%) [4]  
  - Edema [3]  
  - Erythema multiforme [3]  
  - Erythroderma [3]  
  - Exanthes (<5%) [3]  
  - Facial edema (>5%)  
  - Furunculosis (<5%)  
  - Hypersensitivity [5]  
  - Lupus erythematosus [5]  
  - Periorbital edema (<5%)  
  - Petechiae (<5%)  
  - Pruritus (>5%)  
  - Pseudolymphoma [2]  
  - Purpura [2]  
  - Rash (>5%) [7]  
  - Steven-Johnson syndrome [11]  
  - Toxic epidermal necrolysis [7]  
  - Vasculitis [3]  

- **Hair**  
  - Alopecia (7%) [22]  
  - Curly hair [6]  
  - Hirsutism [2]  

- **Nails**  
  - Nail pigmentation [2]  

- **Mucosal**  
  - Gingival hyperplasia hypertrophy [8]  
  - Glossitis (<5%)  
  - Stomatitis (<5%)  

- **Central Nervous System**  
  - Akathisia (<3%)  
  - Cerebral edema [2]  
  - Cogitative impairment [2]  
  - Coma [3]  
  - Confusion [2]  
  - Delirium [2]  
  - Dysgeusia (taste perversion) (<5%)  
  - Encephalopathy [17]  
  - Gait instability [3]  
  - Headache [2]  
  - Neurotoxicity [4]  
  - Paresthesias (<5%)  
  - Parkinsonism [15]  
  - Sedation [3]  
  - Somnolence (drowsiness) [11]  
  - Tremor [14]  
  - Vertigo (dizziness) [7]  

- **Neuromuscular/Skeletal**  
  - Asthenia (<5%)  
  - Osteoporosis [3]  

- **Gastrointestinal/Hepatic**  
  - Constipation (<5%) [2]  

- **Genitourinary**  
  - Urinary retention (<5%)  

- **Ocular**  
  - Vision blurred (<5%)  

**VALDECOCIB**

**Trade name:** Valcyte (Roche)  
**Indications:** Cytomegalovirus retinitis (CMV) in patients with AIDS, prevention of CMV disease in high-risk transplant patients  
**Class:** Antiviral, Guanine nucleoside analog  
**Half-life:** 4 hours (in severe renal impairment up to 68%)  
**Clinically important, potentially hazardous interactions with:** abacavir, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, cobimetinib, gefitinib, ganciclovir, hydralazine, imatinib, irinotecan, megestrol, meperidine, mirtazapine, omeprazole, olanzapine, oxcarbazepine, paliperidone, paroxetine hydrochloride, phenelzine, phenytoin, pimozide, quinidine, rifampin, selegiline, St John's wort, ticlopidine, ticlopidine, tizanidine, topotecan, valproate sodium, valproic acid, vorinostat, zidovudine, zinc, zuclopenthixol  
**Pregnancy category:** N/A (May cause fetal toxicity based on findings in animal studies)  
**Important contra-indications noted in the prescribing guidelines for:** nursing mothers  
**Note:** Valganciclovir is rapidly converted to ganciclovir in the body.  
**Warning:** HEMATOLOGIC TOXICITY, IMPAIRMENT OF FERTILITY, FETAL TOXICITY, MUTAGENESIS AND CARCINOGENESIS  

**Mucosal**  
- Oral candidiasis [2]  

**Central Nervous System**  
- Fever [3]  
- Headache [2]  
- Neurotoxicity [2]  
- Paresthesias (>5%)  

**Hematologic**  
- Neutropenia [8]  

**Other**  
- Allergic reactions (<5%)  
- Infection (<5%)  

**VALPROIC ACID**

**Synonyms:** valproate sodium; divalproex  
**Trade names:** Depacon (AbbVie), Depakene (AbbVie), Depakote (AbbVie)  
**Indications:** Seizures, migraine  
**Class:** Anticonvulsant, Antipsychotic  
**Half-life:** 616 hours  
**Clinically important, potentially hazardous interactions with:** amitriptyline, aspirin, cefotibipro, cholestyramine, clobazam, clozapine, doripenem, eslicarbazepine, ethosuximide, indinavir, itraconazole, ketoconazole, MAO inhibitors, megestrol, meperidine, meprazone, mephenterm, meropenem, & vaborbactam, olanzapine, oxcarbazepine, paliperidone, risperidone, rufinamide, tenofovir, tipranavir, vorinostat, zidovudine, zinc, zuclopenthixol  
**Pregnancy category:** D  
**Warning:** LIFE THREATENING ADVERSE REACTIONS  

- **Skin**  
  - Anticonvulsant hypersensitivity syndrome [6]  
  - Dress syndrome [9]  
  - Ecchymoses (<5%) [4]  
  - Edema [3]  
  - Erythema multiforme [3]  
  - Erythroderma [3]  
  - Exanthes (<5%) [3]  
  - Facial edema (>5%)  
  - Furunculosis (<5%)  
  - Hypersensitivity [5]  
  - Lupus erythematosus [5]  
  - Periorbital edema (<5%)  
  - Petechiae (<5%)  
  - Pruritus (>5%)  
  - Pseudolymphoma [2]  
  - Purpura [2]  
  - Rash (>5%) [7]  
  - Steven-Johnson syndrome [11]  
  - Toxic epidermal necrolysis [7]  
  - Vasculitis [3]  

- **Hair**  
  - Alopecia (7%) [22]  
  - Curly hair [6]  
  - Hirsutism [2]  

- **Nails**  
  - Nail pigmentation [2]  

- **Mucosal**  
  - Gingival hyperplasia hypertrophy [8]  
  - Glossitis (<5%)  
  - Stomatitis (<5%)  

- **Central Nervous System**  
  - Brain atrophy [2]  
  - Cerebral edema [2]  
  - Cogitative impairment [2]  
  - Coma [3]  
  - Confusion [2]  
  - Delirium [2]  
  - Dysgeusia (taste perversion) (<5%)  
  - Encephalopathy [17]  
  - Gait instability [3]  
  - Headache [2]  
  - Neurotoxicity [4]  
  - Paresthesias (<5%)  
  - Parkinsonism [15]  
  - Sedation [3]  
  - Somnolence (drowsiness) [11]  
  - Tremor [14]  
  - Vertigo (dizziness) [7]  

- **Neuromuscular/Skeletal**  
  - Asthenia (<5%)  
  - Osteoporosis [3]  

- **Gastrointestinal/Hepatic**  
  - Constipation [2]  
  - Dyspepsia [2]  
  - Hepatic steatosis (<5%)  
  - Hypertoxicity [19]  
  - Nausea [4]  
  - Pancreatitis [32]  

- **Other**  
  - Allergic reactions (<5%)  
  - Infection (<5%)  

- **Gastrointestinal/Hepatic**  
  - Constipation (<5%) [2]  

- **Neuromuscular/Skeletal**  
  - Asthenia (<5%)  

- **Central Nervous System**  
  - Akathisia (<3%)  
  - Cerebral edema [2]  
  - Gait instability (<4%)  
  - Impaired concentration (<5%)  
  - Restlessness (<3%)  
  - Sedation (<11%)  
  - Somnolence (drowsiness) (<11%) [4]  
  - Vertigo (dizziness) (<4%)  

- **Neuromuscular/Skeletal**  
  - Arthralgia (2%)  
  - Asymptomatic (fatigue) (<11%) [5]  

- **Gastrointestinal/Hepatic**  
  - Constipation (<5%) [2]
**Fetal Toxicity**

- Tyrosine kinase inhibitor
- Antibiotic, glycopeptide

- 511 hours
- Medullary thyroid cancer
- 19 days

- Angiotensin II receptor antagonist
  - Byvalson (Forest), Diovan (Novartis), Diovan HCT (Novartis), Exforge (Novartis), Valturna (Novartis)
  - Diovan (Novartis), Diovan HCT (Novartis), Exforge (Novartis), Valturna (Novartis)

**Valrubicin**

See: [www.drugerruptiondata.com/drug/id/964](http://www.drugerruptiondata.com/drug/id/964)

**Valsartan**

**Trade names:**
- Byvalson (Forest), Diovan (Novartis), Diovan HCT (Novartis), Exforge (Novartis), Valturna (Novartis)

**Indications:**
- Hypertension
  - Angiotensin II receptor antagonist (blocker), Antihypertensive

**Half-life:**
- 9 hours

**Clinically important, potentially hazardous interactions with:**
- None known

**Pregnancy category:**
- D

**Important contra-indications noted in the prescribing guidelines for:**
- Nursing mothers; pediatric patients

**Note:**
- Byvalson is valsartan and nebivolol; Exforge is valsartan and amlodipine; Valturna is valsartan and aliskiren; Diovan HCT is valsartan and hydrochlorothiazide. Hydrochlorothiazide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

- See also separate profile for Sacubitril/Valsartan.

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**Vandetanib**

**Trade name:**
- Caprelsa (AstraZeneca)

**Indications:**
- Medullary thyroid cancer
- Tyrosine kinase inhibitor

**Half-life:**
- 19 days

**Clinically important, potentially hazardous interactions with:**
- Amiodarone, amoxapine, antiarhythmics, arsenic, carbamazepine, chloroquine, clarithromycin, CYP3A4 inducers, dexamethasone, disopyramide, doxifluridine, dostaferon, efavirenz, griseofulvin, haloperidol, methadone, moricizine, paroxetine, phenobarbital, phenytoin, pimozide, procarbazine, QT prolonging agents, rifabutin, rifampin, rifaximin, sotalol, St John's wort, telavancin
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Contra-indicated in patients with congenital long QT syndrome.
Warning: QT PROLONGATION, TORSADES DE POINTES, AND SUDDEN DEATH

**VARDENAFIL**

Trade name: Levitra (Bayer)
Indications: Erectile dysfunction
Class: Phosphodiesterase type 5 (PDE5) inhibitor
Half-life: 45 hours
Clinically important, potentially hazardous interactions with: allopurinol, alpha blockers, amyl nitrate, antifungals, antihypertensives, azathioprine, bepotastine, bosentan, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil fumarate, conivaptan, CYP3A4 inhibitors, darunavir, dolutegravir, disopyramide, doxazosin, erythromycin, etavirine, fosamprenavir, grapefruit juice, high-fat foods, indinavir, irinotecan, ketoconazole, lopinavir, macrolide antibiotics, nefluramine, niconardil, nifedipine, nitrates, nitroglycerin, nitroprusside, phosphodiesterase 5 inhibitors, protease inhibitors, riociguat, ritonavir, saquinavir, tamsulosin, telaprevir, terazosin, tipranavir

**Skin**

Acneform eruption (35%) [4]
Folliculitis [5]
Hand-foot syndrome [4]
Photosensitivity (13%) [8]
Phototoxicity [3]
Pigmentation [6]
Pruritus (11%) [2]
Rash (53%) [34]
Stevens-Johnson syndrome [2]
Toxicity [9]
Xerosis (15%) [3]

**Hair**

Hair changes [2]

**Nails**

Paronychia [5]
Splinter hemorrhage [2]

**Mucosal**

Mucositis [2]
Stomatitis [2]

**Cardiovascular**

Hypertension (33%) [24]
QT prolongation (14%) [25]

**Central Nervous System**

Anorexia [3]
Depression (10%) [2]
Headache (26%) [4]
Insomnia (13%) [2]
Neurotoxicity [2]

**Neuromuscular/Skeletal**

Asthenia (fatigue) (15–24%) [17]

**Gastrointestinal/Hepatic**

Abdominal pain (21%) [2]
Constipation [2]
Diarrhea (57%) [44]
Dyspepsia (11%) [2]
Hepatotoxicity [4]
Nausea (33%) [14]
Vomiting (15%) [5]

**Respiratory**

Cough (11%)
Dyspnea [3]
Nasopharyngitis (11%)

**Endocrine/Metabolic**

ALT increased (51%) [2]
Appetite decreased (21%) [3]
Hypocalcemia (11%)
Hypothyroidism [2]
Thyroid dysfunction [2]
Weight loss (10%) [2]

**Renal**

Proteinuria (10%) [2]

**Hematologic**

Anemia [3]
Hemorrhage [2]
Hemotoxicity [2]
Myelosuppression [2]
Neutropenia [5]
Platelets decreased (9%)

**Other**

Adverse effects [6]
Death [3]

**Neuromuscular/Skeletal**

Arthralgia (<2%)
Back pain (<2%)
Cramps (<2%)
Myalgia/Myopathy (<2%)

**Gastrointestinal/Hepatic**

Abdominal pain (<2%)
Diarrhea (<2%)
Dyspepsia [3]
Gastritis (<2%)
Gastroesophageal reflux (<2%)
Nausea (<2%)
Vomiting (<2%)

**Respiratory**

Dyspnea (<2%)
Flu-like syndrome (3%)
Rhinitis (9%) [10]
Sinusitis (3%)

**Endocrine/Metabolic**

ALT increased (<2%)
Creatine phosphokinase increased (<2%)

**Genitourinary**

Erection (<2%)
Priapism (<2%)

**Otic**

Hearing loss [2]
Tinnitus (<2%)

**Ocular**

Conjunctivitis (<2%)
Dyschromatopsia (<2%)
Intraocular pressure increased (<2%)
Ocular hyperemia (<2%)
Ocular pain (<2%)
Photophobia (<2%)
Visual disturbances (<2%)

**Other**

Allergic reactions (<2%)

**VARENCLIN**

Trade names: Champix (Pfizer), Chantix (Pfizer)
Indications: Smoking deterrent
Class: Nicotinic antagonist
Half-life: 24 hours
Clinically important, potentially hazardous interactions with: none known

**Central Nervous System**

Anemia (<2%)
Dysesthesia (<2%)
Headache (71%) [16]
Pain (<2%)
Paresthesias (<2%)
Sleep related disorder (<2%)
Somnolence (drowsiness) (<2%)
Syncope (<2%)
Vertigo (dizziness) (2%) [3]

**Skin**

AGEP [3]
Rash (<3%)

**Mucosal**

Xerostomia (4–6%)

**Cardiovascular**

Cardiotoxicity [5]

**Central Nervous System**

Abnormal dreams (9–13%) [16]
Aggression [3]
Anorexia (<2%)
Anxiety [5]
Depression [9]
**VEMURAFENIB**

**Trade name**: Zelboraf (Roche)

**Indications**: Melanoma (metastatic or unresectable)

**Class**: BRAF inhibitor

**Half-life**: 57 hours

**Clinically important, potentially hazardous interactions with**: amoxapine, arsenic, atazanavir, carbamazepine, clarithromycin, CYP substrates, dolutegravir, efavirenz, indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, paezopanib, phenobarbital, phenytoin, rifabutin, rifampin, rifapentine, ritonavir, saquinavir, telavancin, telithromycin, voriconazole, warfarin

**Pregnancy category**: D

**Important contra-indications noted in the prescribing guidelines for**: nursing mothers; pediatric patients

**Skin**
- Acneform eruption [6]
- Actinic keratoses [4]
- DRESS syndrome [4]
- Eczma squamous syringometoplasia [2]
- Erythema (14%) [2]
- Exanthenes [8]
- Granulomas [2]
- Grover's disease [4]
- Hand-foot syndrome [8]
- Hyperkeratosis (24%) [17]
- Keratoses [4]
- Keratosis pilaris [10]
- Lymphoma [2]
- Melanoma [2]
- Milia [2]
- Neoplasms [2]

**Locomotor System**
- Back pain (4%) [3]

**Gastrointestinal/Hepatic**
- Abdominal pain [7]
- Colitis [5]
- Crohn's disease (exacerbation) [2]
- Nausea (9%) [9]
- Vomiting [4]

**Respiratory**
- Bronchitis (4%)
- Cough (3%) [3]
- Influenza (4%)
- Nasosphyaryngitis (13%) [11]
- Sinusitis (3%)
- Upper respiratory tract infection (7%) [7]

**Hematologic**
- Anemia [4]

**Other**
- Adverse effects [7]
- Cancer [2]
- Infection [5]

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**VASOPRESSIN**

**Trade name**: Vasostrict (Par)

**Indications**: Diabetes insipidus, prevention and treatment of postoperative abdominal distension, hypotension in adults with vasodilatory shock (Vasostrict)

**Class**: Antidiuretic hormone

**Half-life**: 1020 minutes

**Clinically important, potentially hazardous interactions with**: none known

**Pregnancy category**: C

**Important contra-indications noted in the prescribing guidelines for**: pediatric patients

**Skin**
- Bullous dermatitis [4]
- Diaphoresis (<10%)
- Ecchymoses [2]
- Pallor (<10%)
- Purpura [2]
- Urticaria (<10%)

**Central Nervous System**
- Tremor (<10%)

**Neuromuscular/Skeletal**
- Rhabdomyolysis [6]

**Endocrine/Metabolic**
- SIADH [2]

**Local**
- Injection-site inflammation [7]

**Other**
- Death [3]

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**VARICELLA VACCINE**

**Trade names**: Varilrix (GSK), Varivax (Merck)

**Indications**: Immunization, varicella

**Class**: Vaccine

**Half-life**: N/A

**Clinically important, potentially hazardous interactions with**: none known

**Pregnancy category**: C

**Skin**
- Herpes zoster [10]
- Rash [10]
- Stevens-Johnson syndrome [2]

**Central Nervous System**
- Fever (15%) [3]

**Ocular**
- Uveitis [2]

**Local**
- Injection-site edema (19%)
- Injection-site erythema (19%)
- Injection-site hematoma (19%)
- Injection-site induration (19%)
- Injection-site pain (19%)
- Injection-site pruritus (19%)
- Injection-site reactions [4]

**VEMURAFENIB**

**Trade name**: Entyvio (Takeda)

**Indications**: Ulcerative colitis, Crohn's disease

**Class**: Integrin receptor antagonist, Monoclonal antibody

**Half-life**: 25 days

**Clinically important, potentially hazardous interactions with**: live vaccines, natalizumab, TNF blockers

**Pregnancy category**: B

**Important contra-indications noted in the prescribing guidelines for**: nursing mothers; pediatric patients

**Skin**
- Pruritus (3%)
- Rash (3%) [2]

**Mucosal**
- Oropharyngeal pain (3%)

**Central Nervous System**
- Fever (9%) [5]
- Headache (12%) [11]

**Neuromuscular/Skeletal**
- Arthralgia (12%) [8]
- Asthenia (fatigue) (6%) [6]
- Back pain (4%) [3]

**Pain in extremities (3%)**
Nevi [6]
Panniculitis [9]
Papillomas (21%) [9]
Popular lesions (5%) [9]
Peripheral edema (17%) [27]
Photosensitivity (33%) [27]
Pruritus (23%) [10]
Radiation recall dermatitis [2]
Rash (37%) [23]
Squamous cell carcinoma (24%) [35]
 Stevens-Johnson syndrome [4]
Sunburn (10%) [9]
Toxic epidermal necrolysis [5]
Toxicity [10]
Vasculitis [2]
Verruca vulgaris [2]
Verrucous lesions [3]
Vitiligo [2]
Warts [2]
Xerosis [5]

Hair
Alopecia (45%) [18]
Hair changes [2]

Nails
Paronychia [3]
Pyogenic granuloma [2]

Mucosal
Gingival hyperplasia/hypertrophy [2]

Cardiovascular
QT prolongation [2]

Central Nervous System
Dysgeusia (taste perversion) (14%) [7]
Fever (19%) [5]
Headache (23%) [2]
Paralysis [2]

Neuromuscular/Skeletal
Arthralgia (53%) [19]
Asthma (fatigue) (38%) [18]
Back pain (8%) [9]
Bone or joint pain (8%) [9]
Myalgia/Myopathy (8–13%) [2]
Pain in extremities (18%) [9]

Gastrointestinal/Hepatic
Constipation (12%) [9]
Diarrhea (28%) [7]
Hepatotoxicity [4]
Nausea (35%) [8]
Vomiting (18%) [3]

Respiratory
Cough (8%) [9]

Endocrine/Metabolic
ALT increased [5]
Appetite decreased (18%) [2]
AST increased [5]
GGT increased [2]

Ocular
Chorioretinopathy [2]
Uveitis [3]
Vision blurred [2]

Other
Adverse effects [11]

VENETOCLAX

Trade name: Venclexta (AbbVie)

Indications: Chronic lymphocytic leukemia in patients with 17p deletion, as detected by an FDA approved test, who have received at least one prior therapy

Class: BCL-2 inhibitor

Half-life: 26 hours

Clinically important, potentially hazardous interactions with: amiodarone, azithromycin, bosentan, captopril, carbamazepine, carvedilol, ciprofloxacin, clarithromycin, conivaptan, cyclosporine, digoxin, diltiazem, dronedarone, efavirenz, erythromycin, etravirine, everolimus, felodipine, fluconazole, grapefruit juice, indinavir, itraconazole, ketoconazole, live vaccines, lopinavir, modafinil, nafcillin, phenytoin, posaconazole, quercetin, quinidine, ranolazine, rifampin, ritonavir, sirolimus, St John's wort, strog or moderate P-gp inhibitors or substrates, strong or moderate CYP3A inducers or inhibitors, telaprevir, ticagrelor, verapamil, voriconazole

Pregnancy category: N/A (May cause fetal harm)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Concomitant use of strong CYP3A inhibitors during initiation and ramp-up phase is contra-indicated.

Skin
Peripheral edema (11%) [9]
Tumor lysis syndrome (6%) [7]

Central Nervous System
Fever (16%) [3]
Headache (15%) [2]

Neuromuscular/Skeletal
Asthma (fatigue) (21%) [3]
Back pain (10%) [9]

Gastrointestinal/Hepatic
Constipation (14%) [9]
Diarrhea (35%) [5]
Nausea (32%) [6]
Vomiting (15%) [9]

Respiratory
Cough (13%) [9]
Pneumonia (8%) [3]

Endocrine/Metabolic
Hyperkalemia (20%) [9]
Hyperphosphatemia (15%) [9]
Hyperuricemia (6%) [9]
Hypocalcemia (9%) [9]
Hypokalemia (12%) [9]

Hematologic
Anemia (29%) [5]
Febrile neutropenia [3]
Neutropenia (45%) [7]
Thrombocytopenia (22%) [5]

Other
Death [3]

VENLAFAXINE

Trade name: Effexor (Wyeth), Effexor XL (Wyeth)

Indications: Major depressive disorder

Class: Antidepressant, Serotonin-norepinephrine reuptake inhibitor

Half-life: 37 hours

Clinically important, potentially hazardous interactions with: SHTI agonists, artemether/ lumefantrine, aspirin, atomoxetine, clobazapine, desvenlafaxine, dextubuprofen, diclofenac, duloxetine, entacapone, haloperidol, indinavir, isocarboxazid, ketonozole, linezolid, lithium, MAO inhibitors, meloxicam, metoclopramide, metoprolol, mirtazapine, moclobemide, naranipran, NSAIDs, phenelzine, selegiline, sibutramine, SNRIs, SSRIs, St John's wort, sumatriptan, tramadol, tranylcypromine, trazodone, trimipramine, tiptans, voriconazole, warfarin

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Skin
Diaphoresis [7]
Ecchymoses [2]
Hyperhidrosis [2]
Pruritus (<10%) [9]
Rash (3%)

Hair
Alopecia [2]

Mucosal
Xerostomia (22%) [10]

Cardiovascular
Cardiac failure [2]
Cardiomyopathy [3]
Hypertension [7]
Myocardial infarction [2]
Orthostatic hypotension [2]
Preeclampsia [2]

Central Nervous System
Akathisia [2]
Delirium [2]
Dysgeusia (taste perversion) (2%) [2]
Insomnia [5]
Mania [10]
Paranoid delusions ([3%])
Restless leg syndrome [3]
Seizures [7]
Serotonin syndrome [22]
Somnolence (drowsiness) [9]
Tremor (<10%) [3]
Vomiting [10]

Other
Adverse effects [11]
Gastrointestinal/Hepatic
Constipation [6]
Hepatotoxicity [8]
Nausea [16]
Vomiting [3]

Respiratory
Pneumonitis [3]

Endocrine/Metabolic
Appetite decreased [2]
Galactorrhea [4]
Hyponatremia [4]
Lidod increased [2]
Mastodynia [2]
SIADH [6]
Weight gain [2]

Genitourinary
Ejaculatory dysfunction [2]
Sexual dysfunction [8]
Urinary incontinence [2]

Ocular
Glaucoma [2]
Hallucinations, visual [3]

Other
Adverse effects [3]
Bruxism [7]

VERAPAMIL

Trade names: Calan (Pfizer), Covera-HS (Pfizer), Isoptin (AbbVie), Tarka (AbbVie), Verelan (Schwarz)

Indications: Angina, arrhythmias, hypertension

Class: Antiarhythmic class IV, Calcium channel blocker, CYP3A4 inhibitor

Half-life: 28 hours

Clinically important, potentially hazardous interactions with: acebutolol, alflmilb, aliskiren, amiodarone, amitriptyline, amprenavir, aspirin, azithromycin, atenolol, atorvastatin, avanafil, beta-blockers, betaxolol, betrixaban, bisoprolol, carbamazepine, cilostazol, colchicine, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, colchicine, dabigatran, delavirdine, digoxin, disopyramide, dofetilide, dronedarone, dutasteride, epirubicin, darifenacin, defazacort, delavirdine, digoxin, doxetilie, dromedane, dutasteride, epirubicin, eplerenone, erythromycin, esmolol, everolimus, fentanyl, filanben, inductarol, lovastatin, metoprolol, mifepristone, nadolol, naldemedine, naloxegol, nalbazine, naprazine, olarapin, oxprenolol, oxtriphylline, palbociclib, penbutolol, pindolol, posaconazole, prazosin, quinidine, ranolazine, sibutramine, silodosin, simvastatin, telaprevir, telithromycin, timolol, trabeptedien, venoctaxol

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Tarka is verapamil and trandolapril.

Skin
Angioedema [3]
Diaphoresis [2]
Diathema multiforme [4]
Exanths [8]

Exfoliative dermatitis [2]
Hyperkeratosis (palms) [2]
Lupus erythematosus [2]
Peripheral edema (<10%)
Photosensitivity [4]
Pruritus [6]
Rash [2]
Stevens-Johnson syndrome [5]
Urticaria [5]
Vasculitis [2]

Hair
Alopecia [5]

Muscosal
Gingival hyperplasia/hypertrophy (19%) [10]

Cardiovascular
Atrial fibrillation [2]
Atrioventricular block [2]
Bradyarrhythmia [10]
Congestive heart failure [2]
Flushing (<7%) [4]
Hypotension [2]
Torsades de pointes [2]

Central Nervous System
Parkinsonism [2]
Seizures [3]

Neuromuscular/Skeletal
Rhabdomyolysis [2]

Endocrine/Metabolic
Gynecomastia [8]

Other
Side effects [2]

VERNAKALANT

See: www.drugerupptiondata.com/drug/id/1406

VERTEPORFIN

Trade name: Visudyne (Novartis)

Indications: Neovascular (wet) age-related macular degeneration

Class: Photosensitizer

Half-life: 56 hours

Clinically important, potentially hazardous interactions with: none known

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Eczea (<10%)
Photosensitivity (<10%) [2]

Muscosal
Burnung mouth syndrome (<10%)

Cardiovascular
Atrial fibrillation (<10%)
Chest pain [2]
Hypertension (<10%)

Central Nervous System
Fever (<10%)
Hypotension (<10%)
Sleep related disorder (<10%)
Vertigo (dizziness) (<10%)

Neuromuscular/Skeletal
Arthralgia (<10%)
Asthenia (fatigue) (<10%)
Back pain (<10%)
Myasthenia gravis (<10%)

Gastrointestinal/Hepatic
Constipation (<10%)
Nausea (<10%)

Respiratory
Flu-like syndrome (<10%)
Pharyngitis (<10%)

Endocrine/Metabolic
Creatine phosphokinase increased (<10%)

Genitourinary
Albuminuria (<10%)

Hematologic
Anemia (<10%)
Leukocytosis (<10%)
Leukopenia (<10%)

Otic
Hearing loss (<10%)

Ocular
Blepharitis (<10%)
Cataract (<10%)
Conjunctivitis (<10%)
Diplopia (<10%)
Endophthalmitis [2]
Intraocular inflammation [2]
Lacrimation (<10%)
Ocular itching (<10%)
Vision loss (severe) (<5%)
Visual disturbances (10-30%)
Xerophthalmia (<10%)

Local
Infusion-site pain (<10%)
Injection-site reactions (10-30%)

Other
Cancer (gastrointestinal) (<10%)

VIDARABINE

See: www.drugerupptiondata.com/drug/id/739

VIGABATRIN

Trade name: Sabril (Lundbeck)

Indications: Epilepsy, infantile spasms (West's syndrome)

Class: Anticonvulsant, Antiepileptic

Half-life: 7.5 hours

Clinically important, potentially hazardous interactions with: antipsychotics, chloroquine, hydroxychloroquine, MAO inhibitors, melloquine, orlistat, phenytoin, rufinamide, SSIRs, St John's wort, tricyclic antidepressants

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Warning: VISION LOSS

Skin
Peripheral edema (5-7%)
Rash (6%) [2]
Cardiovascular
- Chest pain (<5%)

Central Nervous System
- Abnormal dreams (<5%)
- Anxiety (4%)  
- Confusion (4–14%)  
- Depression (8%) [4]  
- Dysarthria (2%)  
- Encephalopathy [4]  
- Fever (4–7%)  
- Gait instability (6–12%)  
- Headache (18%)  
- Hypoesthesia (4–5%)  
- Hyporeflexia (4–5%)  
- Impaired concentration (9%)  
- Insomnia (7%)  
- Irritability (7%)  
- Memory loss (7%)  
- Nervousness (2–5%)  
- Peripheral neuropathy (4%)  
- Psychosis [2]  
- Sedation (4%)  
- Seizures (11%) [4]  
- Somnolence (drowsiness) (17%) [3]  
- Status epilepticus (2–5%)  
- Tremor (7%)  
- Vertigo (dizziness) (15%)  

Neuromuscular/Skeletal
- Arthralgia (5–10%)  
- Asthenia (fatigue) (16%) [2]  
- Back pain (4–7%)  
- Muscle spasm (3%)  
- Myalgia/Myopathy (3–5%)  
- Pain in extremities (2–4%)  

Gastrointestinal/Hepatic
- Abdominal distension (2%)  
- Abdominal pain (2–3%)  
- Constipation (5–8%)  
- Diarrhea (7%)  
- Dyspepsia (4–5%)  
- Nausea (7%)  
- Vomiting (6%)  

Respiratory
- Bronchitis (5%)  
- Cough (2–14%)  
- Influenza (5–7%)  
- Nasopharyngitis (10%)  
- Pharyngolaryngeal pain (7–14%)  
- Upper respiratory tract infection (10%)  

Endocrine/Metabolic
- Appetite increased (<5%)  
- Weight gain (10%) [4]  

Genitourinary
- Dysmenorrhea (5–9%)  
- Erectile dysfunction (5%)  
- Urinary tract infection (4–5%)  

Hematologic
- Anemia (6%)  

Otic
- Tinnitus (2%)  

Ocular
- Diplopia (6%)  
- Nystagmus (7%)  
- Ocular pain (5%)  
- Optic atrophy [2]  
- Retinopathy [12]  
- Vision blurred (6%)  

Vision impaired [20]  

Other
- Adverse effects [3]  
- Dipsia (thirst) (2%)  
- Tootthache (2–5%)  

VILAZODONE

Trade name: Viibryd (Merck KGaA)  
Indications: Major depressive disorder  
Class: Antidepressant, Serotonin-norepinephrine reuptake inhibitor  
Half-life: 25 hours  

Important contra-indications noted in the prescribing guidelines for: nursing mothers, pediatric patients  

Warning: SUICIDALITY AND ANTIDEPRESSANT DRUGS  

Mucosal
- Xerostomia (8%)  

Cardiovascular
- Palpitation (2%)  

Central Nervous System
- Abnormal dreams (4%)  
- Headache [3]  
- Insomnia (6%) [4]  
- Paresthesias (3%)  
- Restlessness (3%)  
- Somnolence (drowsiness) (3%) [2]  
- Tremor (2%)  
- Vertigo (dizziness) (9%) [2]  

Neuromuscular/Skeletal
- Arthralgia (3%)  
- Asthenia (fatigue) (4%)  

Gastrointestinal/Hepatic
- Abnormal dreams (4%)  
- Headache [3]  
- Insomnia (6%) [4]  
- Paresthesias (3%)  
- Restlessness (3%)  
- Somnolence (drowsiness) (3%) [2]  
- Tremor (2%)  
- Vertigo (dizziness) (9%) [2]  

Endocrine/Metabolic
- Appetite increased (2%)  
- Libido decreased (4-5%)  

Genitourinary
- Ejaculatory dysfunction (2%)  
- Erectile dysfunction (2%)  
- Sexual dysfunction (3%) [2]  

Other
- Adverse effects [3]  

VILDAGLIPTIN  

See: www.drugeruptiondata.com/drug/id/1338

VINBLASTINE

Trade names: Velban (Lilly), Velbe (Lilly), Velsar (Lilly)  
Indications: Lymphomas, melanoma, carcinomas  
Class: Antimitotic, Vinca alkaloid  
Half-life: initial: 3.7 minutes; terminal: 24.8 hours  

Clinically important, potentially hazardous interactions with: aldesleukin, aprepitant, erythromycin, fluconazole, itraconazole, ketoconazole, lopinavir, miconazole, posaconazole  

Pregnancy category: D  

Important contra-indications noted in the prescribing guidelines for: nursing mothers  

Skin
- Acral necrosis [2]  
- Dermatitis (<10%)  
- Photosensitivity (>5%) [2]  
- Pigmentation [3]  
- Radiation recall dermatitis [2]  
- Rash (<10%)  
- Raynaud’s phenomenon (<10%) [17]  

Hair
- Alopecia (>10%)  

Mucosal
- Xerostomia [2]  
- Oral lesions (<5%)  
- Stomatitis (>10%)  

Central Nervous System
- Dysesthesia (taste perversion) (metallic taste) (>10%)  
- Paresthesias (<10%)  

Neuromuscular/Skeletal
- Myalgia/Myopathy (<10%)  

Endocrine/Metabolic
- SIADH [4]  

Renal
- Nephrotoxicity [2]  

Hematologic
- Hemolytic uremic syndrome [2]  
- Neutropenia [2]  

Otic
- Tinnitus [2]  

Local
- Injection-site necrosis [2]  

Other
- Adverse effects [2]  

VINCRISTINE

Synonym: oncovin  
Trade name: Vincasar (Teva)  
Indications: Leukemias, lymphomas, neuroblastoma, Wilms’s tumor  
Class: Antimitotic, Vinca alkaloid  
Half-life: 24 hours  

Clinically important, potentially hazardous interactions with: aldesleukin, aprepitant, bromelain, fluconazole, gadobenate, influenza vaccine, itraconazole, ketoconazole, lopinavir, miconazole, nifedipine, posaconazole, thalidomide
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers

Skin
Erythroderma [2]
Exanthems [3]
Hand-foot syndrome [2]
Rash (<10%)
Raynaud’s phenomenon [2]

Hair
Alopecia (2070%) [9]

Nails
Beau’s lines (transverse nail bands) [2]
Leukonychia (Mees’ lines) [5]

Mucosal
Oral lesions (<10%) [2]
Oral ulceration (<10%)

Cardiovascular
Hypertension [2]
Phlebitis (<10%)

Central Nervous System
Anorexia [2]
Dysgeusia (taste perversion) (<10%)
Neurotoxicity [16]
Paresthesias (<10%)
Peripheral neuropathy [10]
Seizures [6]

Neuromuscular/Skeletal
Asthenia (fatigue) [2]
Myalgia/Myopathy (<10%)

Gastrointestinal/Hepatic
Abdominal pain [2]

Respiratory
Pneumonia [2]

Endocrine/Metabolic
Hyponatremia [2]
SIADH [10]

Hematologic
Febrile neutropenia [5]
Hemolytic uremic syndrome [4]
Hemotoxicity [2]
Leukopenia [3]
Neutropenia [9]
Thrombocytopenia [9]

Ocular
Ptosis [4]

Local
Injection-site cellulitis (>10%)
Injection-site necrosis (>10%)

Other
Adverse effects [7]
Death [6]
Infection [3]

VITAMIN A

Skin
Squamous cell carcinoma [2]
Toxicity [2]

Hair
Alopecia (64%) [22]

Central Nervous System
Ageusia (taste loss) (11%) [6]
Anorexia [2]
Dysgeusia (taste perversion) (55%) [19]

Neuromuscular/Skeletal
Arthralgia (16%) [2]
Asthenia (fatigue) (40%) [15]
Muscle spasm (72%) [19]
Myalgia/Myopathy [5]

Gastrointestinal/Hepatic
Constipation (21%)
Diarrhea (29%) [7]
Hepatotoxicity [3]
Nausea (30%) [7]
Vomiting (14%) [2]

Endocrine/Metabolic
Amenorrhea [2]
Appetite decreased (25%) [6]
Hyperglycemia [2]
Hyponatremia (4%) [3]
Hypophosphatemia [2]
Weight loss (45%) [15]

Genitourinary
Azotemia (2%) [2]

Other
Adverse effects [9]
Death [3]

VITAMIN A

Trade name: Aquasol A (aapHarma)
Indications: Vitamin A deficiency
Class: Vitamin
Half-life: 2844 hours

Clinically important, potentially hazardous interactions with: acitretin, alitretinoin, bexarotene, cholestyramine, fish oil supplements, isotretinoin, minocycline, orlistat, prednisone, tetracycline, warfarin

Pregnancy category: A (the pregnancy category will be X if used in doses above the RDA)

Skin
Dermatitis [7]
Pruritus [2]
Xerosis (<10%)

Hair
Alopecia [11]

Mucosal
Oral mucosal eruption [2]

VINORELBINE

Trade name: Navelbine (Kyowa)
Indications: Non-small cell lung cancer
Class: Antimitotic, Vinca alkaloid
Half-life: 2844 hours

Clinically important, potentially hazardous interactions with: aldesleukin, itraconazole

VISMODEGIB

Trade name: Erivedge (Genentech)
Indications: Basal cell carcinoma
Class: Hedgehog (Hh) signaling pathway inhibitor
Half-life: 4–12 days

Clinically important, potentially hazardous interactions with: none known
VITAMIN E

Synonym: alpha tocopherol
Trade name: Aquasol E (aaiPharma)
Indications: Vitamin E deficiency
Class: Vitamin
Half-life: N/A
Clinically important, potentially hazardous interactions with: amiphenrazine, cholestyramine, orlistat, tipranavir, warfarin
Pregnancy category: A (the pregnancy category will be C if used in doses above the RDA)

BLEEDING RISK

Vitamin E deficiency

Safety and effectiveness in pediatric patients established.

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Contra-indicated in patients with a history of stroke, transient ischemic attack, or intracranial hemorrhage, or with active pathological bleeding.

WARNING: BLEEDING RISK

Skin

Dermatitis [13]
Erythema multiforme [3]
Sclerosing lipogranuloma [2]

Genitourinary

Prostate cancer (increased risk) [4]

VORICONAZOLE

Trade name: Vfend (Pfizer)
Indications: Invasive aspergillosis
Class: Antibiotic, triazole, Antifungal, azole, CYP3A4 inhibitor
Half-life: 624 hours (dose dependent)

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Safety and effectiveness in pediatric patients < 12 years of age have not been established.

Skin

Actinic keratoses [2]

Anaphylactoid reactions/Anaphylaxis (<2%)
Angioedema (<2%)
Cellulitis (<2%)
Contact dermatitis (<2%)
Cyanosis (<2%)
Dermatitis (<2%)
Diaphoresis (<2%) [2]
Eccymoses (<2%)
Eczema (<2%)
Edema (<2%)
Erythema [3]
Erythema multiforme (<2%)
Exfoliative dermatitis (<2%)
Facial edema (<2%)
Fixed eruption (<2%)
Furunculosis (<2%)
Graft-versus-host reaction (<2%)
Granulomas (<2%)
Herpes simplex (<2%)
Lentigo [2]
Lupus erythematosus (<2%) [5]
Lymphadenopathy (<2%)
Malignancies [2]
Melanoma (<2%)
Melanosis (<2%)
Peripheral edema (<2%)
Petechiae (<2%)
Photosensitivity (8%) [18]
Phototoxicity [13]
Pigmentation (<2%)
Pruritus (8%)
Psoriasis (<2%)
Purpura (<2%)
Rash (5%) [7]
Squamous cell carcinoma (<2%) [8]
Steens-Johnson syndrome (<2%) [4]
Toxic epidermal necrolysis (<2%) [4]
Urticaria (<2%)
Xerosis (<2%) [2]

Hair

Alopecia (<2%) [4]

Nails

Nail changes [3]

Mucosal

Cheilitis (<2%) [4]
Gingival bleeding (<2%)
Gingival hyperplasia/hyperptrophy (<2%)
Gingivitis (<2%)
Glossitis (<2%)
Rectal hemorrhage (<2%)
Stomatitis (<2%)
Tongue edema (<2%)
Xerostomia (<2%)

Cardiovascular

Arrhythmias (<2%)
Atrial fibrillation (<2%)
Arteriovenous block (<2%)
Bradyarrhythmia (<2%)
Bundle branch block (<2%)
Cardiac arrest (<2%)
Cardiomyopathy (<2%)
Chest pain (<2%)
Congestive heart failure (<2%)
Extrasystoles (<2%)
Hypertension (<2%)
Hypotension (<2%)
Myocardial infarction (<2%)
Pulpatation (<2%)
Phlebitis (<2%)

Rash (<2%) [18]
Phlebitis (<2%)

VORICONAZOLE

Trade name: Vfend (Pfizer)
Indications: Invasive aspergillosis
Class: Antibiotic, triazole, Antifungal, azole, CYP3A4 inhibitor
Half-life: 624 hours (dose dependent)

Clinically important, potentially hazardous interactions with: abiraterone, afantil, aflozofin, almotripitan, aloseron, amphotericin B, antineoplastics, aipakaban, aprepitant, artermether- lumefantrine, atazanavir, atrovastatin, barbiturates, benzozadiazepines, boceprevir, bortezomib, bosentan, bratignit, brinzolamide, buspiron, busulfan, cabazitaxel, cabozanitib, calcified, calcium channel blockers, carbamazine, carvediol, chloramphenicol, chloroquine, ciclesonide, colostazol, cinicalact, ciprofloxacin, ciasapride, cipogadogel, cobicistat/ elvitravir/embractine/tenofovir alanamnide, cobicistat/elvitravir/embractine/tenofovir disoproxil, colchicine, convaptan, copalisib, coumarins, crizotinib, cyclosporin, CYP2C19 inhibitors and inducers, CYP2C9 inhibitors and substrates, CYP3A4 substrates, daruravain, dazepam, diclofenac, didanosine, dienogest, docetaxel, dolefilit, dronedare, dutasteride, eflavirenz, eleritapian, eplerenone, ergo alkaloids, ergotamine, erlotinib, esomeprazole, estrogens, eszocilone, etarivine, everolyn, fentanyl, fesoterodine, food, gadobutrol, gefitinib, grapefruit juice, guanfacine, halofantrine, HMG-CoA reductase inhibitors, ibrtenib, ibuprofen, imatinib, irinotecan, isabepoline, lactanib, lomipitade, loprinavir, losartan, macrolide antibiotics, maraviroc, meloxicam, methadone, methlygeronovine, methyfadpinol, methylprednisolone, methylsergide, midazolam, midostaurin, mifepristone, monetasone, mertanib, nilotinib, nizolidine, olapir, ombtisan/parlparev/ ritonavir, omeprazole, oxycodeone, palbocibcl, pantoprozole, paricalclit, paszaparin, PEG-interferon, phenobarbital, phenytoin, phosphodiesterease 5 inhibitors, pimecrolimus, pinozide, ponatinib, prasugrel, prostegins, progestogens, protease inhibitors, proton pump inhibitors, QT prolonging agents, quetiapine, quinidine, quinine, ranelmoine, ranolazine, reboxetine, regorafenib, repaglindide, ribocibci, rifabin, rifampin, rifapentine, rilvivirine, rilavarin, rivaroxaban, romidepian, ruxulotinib, salmeterol, saquinariv, saxaglptin, sldosolin, simprevepre, simvastain, sirolmus, solifenacin, soridegib, sorafenib, St John's wort, sulfafureas, sufinid, tacrolimus, tazaflu, tamusolus, telprevar, temsrolimus, tetrabenzaine, thioldiazine, ticagelor, tolerodine, tolvapian, vemurafenib, venetoclax, venlafaxine, vitamin K antagonists, ziprasidone, zolpidem

Pregnancy category: D

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Note: Safety and effectiveness in pediatric patients < 12 years of age have not been established.

Skin

Actinic keratoses [2]
VORICONAZOLE

Central Nervous System
Abnormal dreams (<2%)
Ageusia (taste loss) (<2%)
Agitation (<2%)
Akhathisia (<2%)
Anesthesia (<2%)
Anorexia (<2%)
Anxiety (<2%)
Cerebral edema (<2%)
Cerebral hemorrhage (<2%)
Cerebral ischemia (<2%)
Cerebrovascular accident (<2%)
Chills (<2%)
Coma (<2%)
Confusion (<2%)
Delirium (<2%)
Dementia (<2%)
Depersonalization (<2%)
Depression (<2%)
Dysgeusia (taste perversion) (<2%)
Encephalitis (<2%)
Encephalopathy (<2%)
Euphoria (<2%)
Extrapyramidal symptoms (<2%)
Fever (6%)
Guillain-Barré syndrome (<2%)
Hallucinations (2%)
Headache (3%) [3]
Hypoesthesia (<2%)
Insomnia (<2%)
Intracranial pressure increased (<2%)
Neurotoxicity [6]
Nystagmus (<2%)
Night blindness (<2%)
Oculogyric crisis (<2%)
Ocular adverse effects [2]
Ocular hemorrhage (<2%)
Ocular pain (<2%)
Ocular toxic reactions (<2%)
Optic atrophy (<2%)
Optic neuritis (<2%)
Papilledema (<2%)
Photophobia (2%)
Retinitis (<2%)
Scleritis (<2%)
Uveitis (<2%)
Visual disturbances [19%] [14]
Xerophthalmia (<2%)

Endocrine/Metabolic
ALP increased (4%)
ALT increased [2]
AST increased [2]
Creatine phosphokinase increased (<2%)
Diabetes insipidus (<2%)
GGT increased (<2%)
Glucose intolerance (<2%)
Hepatic dysfunction (<2%)
Hepatitis (<2%)
Hypoglycemia (<2%)
Hypokalemia (<2%)
Hypomagnesemia (<2%)
Hypercalcemia (<2%)
Hypercholesterolemia (<2%)
Hyperphosphatemia (<2%)
Hyperuricemia (<2%)
Hyperthyroidism (<2%)
Hypothyroidism (<2%)
Hypothroidism (<2%)
Hypothyroidism (<2%)
Lidocaine decreased (<2%)
Pseudoporphyria [6]

Genitourinary
Anuria (<2%)
Cystitis (<2%)
Dysmenorrhea (<2%)
Dysuria (<2%)
Epididymitis (<2%)
Erectile dysfunction (<2%)
Hematuria (<2%)
Hoarseness (<2%)
Impotence (<2%)
Oliguria (<2%)
Urinary incontinence (<2%)
Urinary retention (<2%)
Urinary tract infection (<2%)
Uterine bleeding (<2%)
Vaginal bleeding (<2%)

Renal
Nephrotoxicity (<2%)
Renal tubular necrosis (<2%)

Hematologic
Agranulocytosis (<2%)
Anemia (<2%)
Bone marrow suppression (<2%)
Eosinophilia (<2%)
Hemolytic anemia (<2%)
Leukopenia (<2%)
Pancytopenia (<2%)
Prothrombin time increased (<2%)
Sepsis (<2%)
Thrombocytopenia (<2%)

Ocular
Abnormal vision (19%)
Accommodation disorder (<2%)
Blepharitis (<2%)
 Conjunctivitis (<2%)
Corneal opacity (<2%)
Diplopia (<2%)
Hallucinations, visual [4]
Keratitis (<2%)
Keratoconjunctivitis (<2%)
Mydriasis (<2%)
Night blindness (<2%)
Nystagmus (<2%)
Ocular adverse effects [2]
Ocular hemorrhage (<2%)
Ocular pain (<2%)
Ocular toxic reactions (<2%)
Optic atrophy (<2%)
Optic neuritis (<2%)
Papilledema (<2%)
Photophobia (2%)
Retinitis (<2%)
Scleritis (<2%)
Uveitis (<2%)
Visual disturbances [19%] [14]
Xerophthalmia (<2%)

Local
Injection-site infection (<2%)
Injection-site inflammation (<2%)
Injection-site pain (<2%)

Other
Adverse effects (20%) [11]
Infection (<2%)
Multigorgan failure (<2%)
Periodontal infection (<2%)

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VORINOSTAT

Trade name: Zolinza (Merck)
Indications: Cutaneous T-cell lymphoma
Class: Antineoplastic, Histone deacetylase (HDAC) inhibitor
Half-life: ~2 hours
Clinically important, potentially hazardous interactions with: alfuzosin, artemether/lumefantrine, chloroquine, ciprofloxacin, coumarins, dronedarone, gadobutrol, nilotinib, pimozide, QT prolonging agents, quinine, tetrabenazine, thioridazine, valproic acid, vitamin K antagonists, ziprasidone
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Exanthems [2]
- Peripheral edema (13%)
- Pruritus (12%)

Hair
- Alopecia (19%) [2]

Mucosal
- Mucositis [2]
- Xerostomia (16%)

Cardiovascular
- QT prolongation [3]

Central Nervous System
- Anorexia [5]
- Chills (16%)
- Dysgeusia (taste perversion) (28%)
- Fever (10%)
- Headache (12%)
- Vertigo (dizziness) (15%)

Neuromuscular/Skeletal
- Asthenia (fatigue) (52%) [11]

Gastrointestinal/Hepatic
- Abdominal pain [2]
- Constipation [2]
- Diarrhea [7]
- Nausea [10]
- Vomiting [4]

Respiratory
- Cough (11%)
- Upper respiratory tract infection (10%)

Endocrine/Metabolic
- Creatine phosphokinase increased [2]
- Dehydration [2]
- Hyperglycemia [3]
- Weight loss [4]

Renal
- Renal failure [2]

Hematologic
- Anemia (14%) [7]
- Febrile neutropenia [2]
- Hematoxidocity [2]
- Leukopenia [2]
- Lymphopenia [5]
- Neutropenia [9]
- Thrombocytopenia [15]

Other
- Adverse effects [2]

VORTIOXETINE

Trade name: Trintellix (formerly Brintellix) (Takeda)
Indications: Major depressive disorder
Class: Antidepressant, Serotonin receptor agonist, Serotonin receptor antagonist, Serotonin reuptake inhibitor
Half-life: ~66 hours
Clinically important, potentially hazardous interactions with: bupropion, carbamazepine, fluoxetine, MAO inhibitors, paroxetine hydrochloride, phenytoin, quinidine, rifampin

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Warning: SUICIDAL THOUGHTS AND BEHAVIORS

Skin
- Hyperhidrosis [6]
- Pruritus (<3%)

Mucosal
- Xerostomia (6–8%) [16]

Central Nervous System
- Abnormal dreams (<3%) [2]
- Anxiety [2]
- Headache [24]
- Insomnia [6]
- Somnolence (drowsiness) [3]
- Vertigo (dizziness) (6–9%) [15]

Neuromuscular/Skeletal
- Asthenia (fatigue) [7]

Gastrointestinal/Hepatic
- Constipation (3–6%) [11]
- Diarrhea (7–10%) [13]
- Flatulence (<5%) [32]
- Nausea (21–32%) [32]
- Vomiting (3–6%) [15]

Respiratory
- Nasopharyngitis [5]
- Upper respiratory tract infection [2]

Endocrine/Metabolic
- Weight gain [2]

Genitourinary
- Sexual dysfunction (<5%) [10]

Other
- Adverse effects [2]
WARFARIN

Trade name: Coumadin (Bristol-Myers Squibb)
Indications: Thromboembolic disease, pulmonary embolism
Class: Anticoagulant, Coumarin
Half-life: 1-2.5 days (highly variable)

Clinically important, potentially hazardous interactions with:
- acemetacin, amiodarone, amobarbital, ampicillin, antithyroid agents, aprotinin, aprobarbital, aspirin, atanazavir, atorvastatin, azathioprine, azithromycin, barbiturates, beclomethasone, betamethasone, bezafibrate, bismuth, bivalirudin, boceprevir, bosentan, butabarbital, capcetabine, cefixime, celecoxib, cerdinib, chondroitin, cimetidine, ciprofloxacin, clarithromycin, clofibrate, clopidogrel, clarazepate, co-trimoxazole, cobicistat/elvitegravir/emericitabine/tenofovir alafenamide, cobicistat/elvitegravir/emericitabine/tenofovir disoproxil, colesvevam, cyclosporine, danazol, daptomycin, danavar, delavirdine, desvenlafaxine, desmethasone, dextubrofen, dexlansoprazole, diclofenac, dicloxacillin, dirithromycin, disulfiram, dronedarone, duloxetine, econazole, efavirenz, enzalutamide, ergotamine, erlotinib, erythromycin, eslicarbazepine, etoricoxib, exenatide, fenofibrate, fluconazole, flunisolide, fluoxymesterone, fosamprenavir, gefitinib, gemfibrozyl, glucagon, grapefruit juice, heparin, imatinib, influenza vaccine, itraconazole, ketoconazole, leflunomide, lepirudin, levofloxacin, levothyroxine, liothyronine, liraglutide, lomitapide, lopinavir, menadione, mephobarbital, methimazole, methyl salicylate, methylprednisolone, methyltestosterone, metronidazole, miconazole, mifepristone, moricizine, moxifloxacin, nafcillin, nalidixic acid, nandrolone, nilotamilb, norfloxacin, obeticholic acid, ofloxacin, omeprazole, oritavancin, orlistat, pantoprazole, PEG-interferon, penicillin G, penicillin V, propoxyphene, propranolol, propylthiouracil, quinidine, quinine, rabeprazole, resveratrol, rifampin, rifapentine, rofecoxib, romidepsin, ropinore, rosuvastatin, roxithromycin, salicylates, secobarbital, simvastatin, sitaxentan, sorafenib, St John's wort, stanozolol, sulfamethoxazole, sulfipryrazine, sulfosazoxide, sulfamethizone, sulindac, tamsulosin, tegafur/gimeracil/oteracil, telaprevir, telithromycin, teriflunomide, testosterone, tibolone, tigecycline, tinidazole, tolmetin, tolerodine, triamcinolone, trolenzamycin, uracil/tegafur, valdecoxib, vemurafenib, venlafaxine, vilazodone, vitamin A, vitamin E, zafirlukast, zileuton

Pregnancy category: X (category D for women with mechanical heart valves)

Note: Alternative remedies, including herbal, may potentially increase the risk of bleeding or potentiate the effects of warfarin therapy. Some of these include the following: angelica root, arnica flower, anise, asafetida, bogbean, borage seed oil, bromelain, dan-shen, devil's claw, fenugreek, feverfew, garlic, ginger, ginkgo biloba, ginseng, horse chestnut, lovage root, meadowsweet, onion, parsley, passionflower

Warning: BLEEDING RISK

Skin
- Bullous dermatitis [2]
- Calcification [3]
- Dermatitis [2]
- Eczema [2]
- Gangrene [6]
- Hematoma [2]
- Hypersensitivity [3]
- Necrosis (> 10%) [117]
- Pruritus [2]
- Purpuric erythema (feet and toes) [8]
- Purpura [3]
- Rash [2]
- Urticaria [3]
- Vasculitis [7]

Hair
- Alopecia (> 10%) [6]

Central Nervous System
- Headache [2]
- Intracranial hemorrhage [2]
- Vertigo (dizziness) [2]

Neuromuscular/Skeletal
- Rhabdomyolysis [2]

Gastrointestinal/Hepatic
- Black stools [2]
- Gastrointestinal bleeding [5]

Genitourinary
- Priapism [4]

Renal
- Nephrotoxicity [3]

Hematologic
- Anticoagulation [3]

Other
- Adverse effects [8]
- Death [2]

Note: Alternative remedies, including herbal, may potentially increase the risk of bleeding or potentiate the effects of warfarin therapy. Some of these include the following: angelica root, arnica flower, anise, asafetida, bogbean, borage seed oil, bromelain, dan-shen, devil’s claw, fenugreek, feverfew, garlic, ginger, ginkgo biloba, ginseng, horse chestnut, lovage root, meadowsweet, onion, parsley, passionflower

Warning: BLEEDING RISK

Hair
- Alopecia (> 10%) [6]

Central Nervous System
- Headache [2]
- Intracranial hemorrhage [2]
- Vertigo (dizziness) [2]

Neuromuscular/Skeletal
- Rhabdomyolysis [2]

Gastrointestinal/Hepatic
- Black stools [2]
- Gastrointestinal bleeding [5]

Genitourinary
- Priapism [4]

Renal
- Nephrotoxicity [3]

Hematologic
- Anticoagulation [3]

Other
- Adverse effects [8]
- Death [2]
### YELLOW FEVER VACCINE

**Trade names:** Stamaril (Sanofi Pasteur), YF-VAX (Sanofi Pasteur)

**Indications:** Immunization against yellow fever

**Class:** Vaccine

**Half-life:** N/A

**Clinically important, potentially hazardous interactions with:** azathoprine, belimumab, corticosteroids, fingolimod, hydroxychloroquine, immunosuppressants, interferon-gamma, leflunomide, mercaptopurine, prednisone, tocolzumab, ustekinumab

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with hypersensitivity to egg or chick embryo protein.

**Skin**
- Anaphylactoid reactions/Anaphylaxis [8]
- Hypersensitivity [2]
- Rash (3%)
- Urticaria [2]

**Central Nervous System**
- Encephalopathy [4]
- Fever (low-grade) (<5%) [3]
- Headache (<30%) [2]
- Myelitis [2]
- Neurotoxicity [11]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (10–30%) [2]
- Myalgia/Myopathy (2%) [2]

**Gastrointestinal/Hepatic**
- Diarrhea (<10%) [2]
- Nausea (10%–30%)
- Vomiting (<10%) [2]

**Respiratory**
- Influenza [2]

**Local**
- Infusion-site erythema (<5%) [2]
- Infusion-site pain (<5%) [2]

**Other**
- Adverse effects [14]
- Death [13]
- Multisystem failure [3]
- Viscerotropic disease [20]

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### ZAFIRLUKAST

**Trade name:** Accolate (AstraZeneca)

**Indications:** Asthma

**Class:** Leukotriene receptor antagonist

**Half-life:** 10 hours

**Clinically important, potentially hazardous interactions with:** aminophylline, aspirin, carvedilol, CYP2C9 substrates, CYP3A4 substrates, erythromycin, high protein foods, interferon alfa, prilidone, vitamin K antagonists, warfarin

**Pregnancy category:** B

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Note:** Contra-indicated in patients with hepatic impairment including hepatic cirrhosis.

**Skin**
- Chung-Strauss syndrome [6]

**Central Nervous System**
- Fever (2%)
- Headache (13%)
- Pain (generalized) (2%)
- Vertigo (dizziness) (2%)

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (2%)
- Back pain (2%)
- Myalgia/Myopathy (2%)

**Gastrointestinal/Hepatic**
- Abdominal pain (2%)
- Diarrhea (3%)
- Nausea (3%)
- Vomiting (2%)

**Respiratory**
- Cough [2]

**Other**
- Infection (4%) [2]

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### ZALCITABINE

**Synonyms:** didexoyxctidine; ddC

**Trade name:** Hivid (Roche)

**Indications:** Advanced HIV infection

**Class:** Antiretroviral, Nucleoside analog reverse transcriptase inhibitor

**Half-life:** 2.9 hours

**Clinically important, potentially hazardous interactions with:** none known

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** the elderly; nursing mothers; pediatric patients

**Skin**
- Edema [3]
- Exanthems [9]
- Pruritus (35%)
- Rash (21.9%) [2]
- Urticaria (3%)

**Mucosal**
- Aphthous stomatitis [6]
- Oral lesions (4073%) [3]
- Oral ulceration (364%) [4]
- Stomatitis (3%) [6]

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### ZALEPLON

**Trade name:** Sonata (Wyeth)

**Indications:** Insomnia

**Class:** Hypnotic, non-benzodiazepine

**Half-life:** 1 hour

**Clinically important, potentially hazardous interactions with:** alcohol, cimetidine, erythromycin, imipramine, ketoconazole, promethazine, rifampin, rifapentine, thioridazine

**Pregnancy category:** C

**Important contra-indications noted in the prescribing guidelines for:** nursing mothers; pediatric patients

**Cardiovascular**
- Tachycardia [2]

**Central Nervous System**
- Amnesia (2–4%)
- Anorexia (<2%)
- Confusion [2]
- Depersonalization (<2%)
- Hallucinations [3]
- Headache (30–42%) [3]
- Hypoesthesia (<2%)
- Paresthesias (3%)
- Parosmia (<2%)
- Slurred speech [2]
- Somnambulism [2]
- Somnolence (drowsiness) (5–6%) [4]
- Tremor (2%)
- Vertigo (dizziness) (7–9%) [4]

**Neuromuscular/Skeletal**
- Asthenia (fatigue) (5–7%)
- Ataxia [2]

**Gastrointestinal/Hepatic**
- Abdominal pain (6%)
- Nausea (6–8%)
- Vomiting [2]

**Genitourinary**
- Dysmenorrhea (3–4%)

**Otic**
- Hyperacusis (<2%)

**Ocular**
- Ocular pain (3–4%)

**Other**
- Adverse effects [2]
- Viscerotropic disease [2]

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### ZANAMIVIR

**Trade name:** Relenza (GSK)

**Indications:** Influenza A and B

**Class:** Antiviral, Neuraminidase inhibitor

**Half-life:** 2.55–1.1 hours

**Clinically important, potentially hazardous interactions with:** live attenuated influenza vaccine
Skin

Urticaria (<2%) RX

Mucosal

Nasal discomfort (12%) RX

Central Nervous System

Anorexia (4%) RX
Chills (5–9%) RX
Fever (5–9%) RX
Headache (13–24%) [2]
Vertigo (dizziness) (<2%) RX

Neuromuscular/Skeletal

Arthralgia (<2%)
Asthenia (fatigue) (5–8%)
Bone or joint pain (6%)
Myalgia/Myalgia (9%) RX

Gastrointestinal/Hepatic

Abdominal pain (<2%)
Diarrhea (3%) [2]
Nausea (3%) [2]

Respiratory

Bronchitis (2%)
Bronchospasm [3]
Cough (7–17%)
Respiratory failure [2]
Sinusitis (2%)
Upper respiratory tract infection (3–13%) [2]

Endocrine/Metabolic

Appetite decreased (4%) RX
Appetite increased (4%)

Other

Infection (2%)

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ZICONOTIDE

Trade name: Prialt (Jazz)
Indications: Analgesic, severe chronic pain
Class: Neuronal calcium channel blocker
Half-life: 4.6 hours
Clinically important, potentially hazardous interactions with: CNS depressants
Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Note: Ziconotide is a synthetic analog of a substance isolated from the venom of carnivorous oceanic snails that sting their prey with a cocktail of neurotoxins injected through a harpoon-like tube. Ziconotide is 100 to 1,000 times more powerful than morphine.

Warning: NEUROPSYCHIATRIC ADVERSE REACTIONS

Skin

Cellulitis (~2%)
Diaphoresis (5%)
Ecchymoses (~2%)
Edema (~2%)
Pruritus (7%)
Xerosis (~2%)

Mucosal

Xerostomia (~2%)

Cardiovascular

Atrial fibrillation (~2%)
Chest pain (~2%)
Hypertension (~2%)
Hypotension (~2%)
Tachycardia (~2%)

Central Nervous System

Amnesia (8%)
Anorexia (6%)
Anxiety (8%)
Chills (~2%)
Confusion (15%) [5]
Depression (~2%)
Dysarthria (7%)
Dysesthesia (7%)
Dysgeusia (taste perversion) (5%)
Fever (5%)
Hallucinations [3]
Headache (13%) RX
Hyperkalemia (~2%)
Insomnia (6%)
Myalgia/Myalgia (~2%)
Paresthesias (7%)
Rigors (7%)
Seizures (<2%)
Somniaesthesia (drowsiness) (17%) [3]
Suicidal ideation (<2%)
Tremor (7%)
Vertigo (dizziness) (47%) [8]

Neuromuscular/Skeletal

Arthralgia (~2%)
Asthenia (fatigue) (18%)
Ataxia (14%)
Back pain (<2%)
Muscle spasm (6%)
Myalgia/Myalgia (2%) RX
Rhabdomyolysis (<2%)

Gastrointestinal/Hepatic

Abdominal pain (~2%)
Diarrhea (18%)
Nausea (40%) [3]
Vomiting (16%) [2]

Respiratory

Flu-like syndrome (~2%)
Sinusitis (5%)

Respiratory

Flu-like syndrome (~2%)
Sinusitis (5%)

Genitourinary

Urinary retention (9%) [3]

Otic

Tinnitus (~2%)

Ocular

Dioplopia (~2%)
Nystagmus (8%) [2]
Periorbital edema (~2%)
Photophobia (~2%)
Vision blurred (12%) [2]
Visual disturbances (10%)

Other

Adverse effects [3]
Infection (~2%)

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ZIDOVUDINE

Synonyms: azidothymidinie; AZT
Trade names: CombiVIR (ViiV), Retrovir (ViiV), Trizivir (ViiV)
Indications: HIV infection
Class: Antiretroviral, Nucleoside analog reverse transcriptase inhibitor
Half-life: 0.5–3 hours

Clinically important, potentially hazardous interactions with: atovaquone, bone marrow suppressives, clarithromycin, darunavir, dicyclomine, doxorubicin, fluconazole, ganciclovir, indinavir, interferon alfa, interferon beta, lipzanavir, meloxicam, methadone, NSAIDs, PEG-interferon, phenytoin, probenecid, pyrimethamine, ribavirin, rifampin, rifapentine, stavudine, tipranavir, valproic acid

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers

Note: CombiVIR is zidovudine and lamivudine; Trizivir is zidovudine, abacavir and lamivudine.

Warning: HEMATOLOGICAL TOXICITY, MYOPATHY, LACTIC ACIDOSIS AND SEVERE HEPATOMEGALY, AND EXACERBATIONS OF HEPATITIS B

Skin

Acneform eruption (~5%) RX
Bromhidrosis (~5%) RX
Diaphoresis (51%) RX
Edema of lips (<5%) RX
Erythema multiforme [2]
Exanthems (~5%) [6]
Lipoatrophy [2]
Lipodystrophy [2]
Pigmentation [10]
Pruritus [4]
Rash (<1%) [8]
Stevens-Johnson syndrome [4]
Toxic epidermal necrolysis [3]
Urticaria (~5%) [2]
Vasculitis [2]

Hair

Alopecia [2]
Hypertrichosis (eyelashes) [2]

Nails

Nail pigmentation [27]

Mucosal

Xerostomia (~2%)

Central Nervous System

Dysgeusia (taste perversion) (~19%) [2]
Headache [3]
Paresthesias (<8%)

Neuromuscular/Skeletal

Asthenia (fatigue) [1]
Myalgia/Myalgia [5]

Gastrointestinal/Hepatic

Abdominal pain [3]
Diarrhea [2]
Hepatotoxicity [2]
Nausea [3]
ZIDOVUDINE

- Pancreatitis [3]
- Vomiting [2]

Endocrine/Metabolic
- Acidosis [6]

Hematologic
- Anemia [13]

Neutropenia [3]

Other
- Adverse effects [9]
- Teratogenicity [2]

ZILEUTON

Trade name: Zyflo (AbbVie)
Indications: Asthma
Class: Leukotriene receptor antagonist
Half-life: 2.5 hours

Clinically important, potentially hazardous interactions with: aminoglycosides, loop diuretics, nephrotoxics

Half-life: 7 hours

Clinically important, potentially hazardous interactions with: aminoglycosides, loop diuretics, nephrotoxics

Trade name: Geodon (Pfizer)
Indications: Schizophrenia, bipolar I disorder
Class: Antipsychotic
Half-life: 7 hours

Clinically important, potentially hazardous interactions with: acetylsalicylic acid, aspirin, clopidogrel, dextran sulfate, fenofibrate, furosemide, glibenclamide, warfarin

Skin
- Angioedema [2]
- Diaphoresis (2%)
- DRESS syndrome [2]
- Fungal dermatitis [2]
- Furunculosis (2%)
- Lupus erythematosus [2]
- Rash (4%)
- Urticaria (5%)

Mucosal
- Rectal hemorrhage (2%)
- Sialorrhea (4%)
- Tongue edema (3%)
- Xerostomia (<5%)

Cardiovascular
- Bradycardia (2%)
- Chest pain (3%)
- Hypertension (2-3%)
- Postural hypotension (5%)
- QT prolongation [22]
- Tachycardia (2%) [2]
- Torsades de pointes [6]

Central Nervous System
- Agitation (2%) [3]
- Akathisia (2-10%) [5]
- Anxiety (2-5%) [2]
- Depression [2]
- Dyskinesia (<10%) [2]
- Extrapyramidal symptoms (2-31%) [5]
- Headache (3-18%) [3]
- Hyperthermia (<2%)
- Hypokinesia (<5%)
- Insomnia (3%) [5]
- Mania [2]

ZINC

Trade name: Cold-Eeze (The Quigley Corp)
Indications: Supplement to intravenous solutions given for total parenteral nutrition (TPN)
Class: Food supplement, Trace element
Half-life: N/A

Clinically important, potentially hazardous interactions with: aminoglycosides, loop diuretics, nephrotoxics

Skin
- Churg-Strauss syndrome [2]
- Dermatitis [4]

Mucosal
- Oral mucosal irritation [2]

Central Nervous System
- Anosmia [2]
- Dysgeusia (taste perversion) [5]

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ZOLEDRONATE

Synonym: zoledronic acid
Trade names: Aclasta (Novartis), Reclast (Novartis), Zometa (Novartis)

Indications: Hypercalcemia of malignancy, Paget’s disease, osteoporosis
Class: Bisphosphonate
Half-life: 7 days

Clinically important, potentially hazardous interactions with: aminoglycosides, bisphosphonates, loop diuretics, nephrotoxics
Pregnancy category: D
Important contra-indications noted in the prescribing guidelines for: the elderly; nursing mothers; pediatric patients

Skin
- Candidiasis (12%)
- Dermatitis (11%)
- Dermatomyositis [3]
- Edema [3]
- Neoplasms (malignant / aggregated) (20%)
- Peripheral edema (5–21%)
- Rash [3]

Hair
- Alopecia (12%)

Mucosal
- Mucositis (5–10%)
- Stomatitis (8%)

Cardiovascular
- Atrial fibrillation [3]
- Chest pain (5–10%)
- Hypotension (11%)

Central Nervous System
- Agitation (13%)
- Anorexia (9–22%)
- Anxiety (11–14%)
- Chills [2]
- Confusion (7–13%)
- Depression (14%)
- Fever (32–44%) [20]
- Headache (5–19%) [4]
- Hypoesthesia (12%)
- Insomnia (15–16%)
- Paresthesias (15%)
- Rigors (11%)
- Seizures [2]
- Somnolence (drowsiness) (5–10%)
- Vertigo (dizziness) (18%)

Neuromuscular/Skeletal
- Arthralgia (5–10%) [9]
- Back pain (15%)
- Bone or joint pain (12–55%) [15]
- Fractures [4]
- Myalgia/Myopathy (23%) [7]
- Osteonecrosis [52]
- Pain in extremities (14%)

Gastrointestinal/Hepatic
- Abdominal pain (14–16%)
- Constipation (27–31%) [3]
- Diarrhea (17–24%) [2]
- Dyspepsia (10%)
- Dysphagia (5–10%)
- Hepatotoxicity [3]
- Nausea (29–46%) [12]
- Vomiting (14–32%) [2]

Respiratory
- Cough (12–22%)
- Dyspnea (22–27%)
- Flu-like syndrome [8]
- Pharyngolaryngeal pain (8%)
- Upper respiratory tract infection (10%)

Endocrine/Metabolic
- Appetite decreased (13%)
- Creatine phosphokinase increased [2]
- Dehydration (5–14%)
- Hyperparathyroidism [2]
- Hypocalcemia (5–10%) [25]

Hypokalemia (12%)
- Hypomagnesemia (11%)
- Hypophosphatemia (13%) [3]
- Weight loss (16%)

Genitourinary
- Urinary tract infection (12–14%)

Renal
- Fanconi syndrome [2]
- Nephrotoxicity [14]
- Renal failure [4]
- Renal function abnormal [2]

Hematologic
- Anemia (22–33%) [8]
- Granulocytopenia (5–10%)
- Neutropenia (12%)
- Pancytopenia (5–10%)
- Thrombocytopenia (5–10%)

Ocular
- Ocular adverse effects [2]
- Ocular inflammation [3]
- Scleritis [2]
- Uveitis [10]

Other
- Adverse effects [6]
- Infection (5–10%)

ZOLMITRIPTAN

Trade name: Zomig (AstraZeneca)
Indications: Migraine attacks
Class: 5-HT1 agonist, Serotonin receptor agonist, Triptan
Half-life: 3 hours
Clinically important, potentially hazardous interactions with: alcohol, antihistamines, azatidine, azelastine, buprenorphine, butalbital, chlorpheniramine, chlorpromazine, cimetidine, clemastine, codeine, cobicistat/elvitegravir/emeritricatinab/enoforin alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide, cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil, delalcalain, dexamfetamine, erthyromycin, imipramine, ketoconazole, medline, pizotifen, rameletone, rifampin, rifapentine, ronitazol, telaprevir, voriconazole

Pregnancy category: C
Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
- Rash (2%)

Mucosal
- Xerostomia (3%) [3]

Cardiovascular
- Palpitation (2%)
- Tachycardia [2]
- Torsades de pointes [2]

Central Nervous System
- Amnesia [16]
- Anxiety [2]
- Compulsions [2]
- Confusion [3]
- Delirium [5]
- Depression (2%)
- Dizziness (taste perversion) [4]
- Gait instability [3]
- Hallucinations [13]
- Nightmares [2]
- Seizures [7]
- Sleep related disorder [19]
- Sturred speech [2]
- Somnambulism [16]
- Somnolence (drowsiness) (2–8%) [10]
- Vertigo (dizziness) (<5%) [12]

Neuromuscular/Skeletal
- Asthenia (fatigue) (3%) [4]
- Ataxia [3]
- Back pain (3%)
- Fractures [2]
- Myalgia/Myopathy (7%)
Gastrointestinal/Hepatic
Abdominal pain (2%)
Constipation (2%)
Diarrhea (<3%)
Hepatotoxicity [2]
Nausea [5]
Vomiting [2]

Respiratory
Flu-like syndrome (2%)
Pharyngitis (3%)
Sinusitis (4%)

Ocular
Hallucinations, visual [8]

Other
Adverse effects [8]
Allergic reactions (4%)

ZONISAMIDE
Trade name: Zonegran (Concordia)
Indications: Epilepsy
Class: Anticonvulsant, Antiepileptic, sulfonamide
Half-life: 63 hours
Clinically important, potentially hazardous interactions with: caffeine, metformin
Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients
Note: Zonisamide is a sulfonamide and can be absorbed systemically. Sulfonamides can produce severe, possibly fatal, reactions such as toxic epidermal necrolysis and Stevens-Johnson syndrome.

Skin
DRESS syndrome [3]
Ecchymoses (2%)
Hypersensitivity [4]
Oligohydrosis [8]
Purpura (2%)
Rash (3%) [6]
Stevens-Johnson syndrome [3]

Mucosal
Xerostomia (2%)

Central Nervous System
Agitation (9%) [4]
Anorexia (13%) [9]
Anxiety (3%)
Cognitive impairment (6%) [4]
Confusion (6%)
Depression (6%) [4]
Dysgeusia (taste perversion) (2%)
Fever [2]
Headache (10%) [7]
Insomnia (6%)
Irritability (9%) [4]
Mania [2]
Nervousness (2%)
Neuropathic malignant syndrome [2]
Paresthesias (4%)
Psychosis [3]
Restless legs syndrome [3]

Schizophrenia (2%)
Somnolence (drowsiness) (17%) [22]
Speech disorder (2-5%)
Suicidal ideation [2]
Vertigo (dizziness) (13%) [18]

Neuromuscular/Skeletal
Asthenia (fatigue) (7-8%) [9]
Ataxia (6%) [3]

Gastrointestinal/Hepatic
Abdominal pain (6%)
Constipation (2%)
Diarrhea (5%)
Dyspepsia (3%)
Nausea (9%) [2]
Vomiting [2]

Respiratory
Flu-like syndrome (4%)
Pneumonitis [2]

Endocrine/Metabolic
Appetite decreased [7]
Weight loss (3%) [20]

Renal
Nephrolithiasis [4]
Nephrotoxicity [2]

Ocular
Diplopia (6%) [2]
Nystagmus (4%)

Other
Adverse effects [12]
Side effects [4]
Teratogenicity [2]

ZOSTER VACCINE
Trade name: Zostavax (Oka/Merck)
Indications: To reduce the risk of developing herpes zoster (in people over 60)
Class: Vaccine
Half-life: N/A

Clinically important, potentially hazardous interactions with: none known
Pregnancy category: C

Skin
Herpes zoster [7]
Rash [2]

Central Nervous System
Fever (<2%)
Headache [4]

Respiratory
Flu-like syndrome (<2%)

Local
Injection-site edema [2]
Injection-site erythema [2]
Injection-site pain [2]
Injection-site reactions [8]

Other
Adverse effects [2]
Death [2]

Skin
Rash (<6%)
Xerosis (<13%)

Cardiovascular
Cardiotoxicity [4]
Myocardial infarction [3]
Subacute thrombosis [2]

Central Nervous System
Headache (4–13%)

Gastrointestinal/Hepatic
Abdominal pain (<6%)
Diarrhea (<6%)

Genitourinary
Hematuria (<13%)

Local
Application-site reactions (13–63%)
Injection-site reactions (13–38%)

ZOTAROLIMUS
Trade names: Endeavor (Medtronic), ZoMaxx
Drug-Eluting Coronary Stent (AbbVie)

Indications: Ischemic heart disease, restenosis
Class: Angiogenesis inhibitor, Macrolide immunosuppressant (derivative of sirolimus), mTOR inhibitor
Half-life: 33–36 hours

Clinically important, potentially hazardous interactions with: ketoconazole, sirolimus

Pregnancy category: C

Important contra-indications noted in the prescribing guidelines for: nursing mothers; pediatric patients

Skin
Rash (<6%)
Xerosis (<13%)

Cardiovascular
Cardiotoxicity [4]
Myocardial infarction [3]
Subacute thrombosis [2]

Central Nervous System
Headache (4–13%)

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Abdominal pain (<6%)
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ZUCLOPENTHIXOL
See: www.drugeruptiondata.com/drug/id/1344

ZUCLOPENTHIXOL ACETATE
See: www.drugeruptiondata.com/drug/id/1273

ZUCLOPENTHIXOL DECANOATE
See: www.drugeruptiondata.com/drug/id/1272

ZUCLOPENTHIXOL DIHYDROCHLORIDE
See: www.drugeruptiondata.com/drug/id/1274
Acanthosis nigricans
Acanthosis nigricans (AN) is a process characterized by a soft, velvety, brown or grayish-black thickening of the skin that is symmetrically distributed over the axillae, neck, inguinal areas and other body folds.

While most cases of AN are seen in obese and prepubertal children, it can occur as a marker for various endocrinopathies as well as in female patients with elevated testosterone levels, irregular menses, and hirsutism.

It is frequently a concomitant of an underlying malignant condition, principally an adenocarcinoma of the intestinal tract.

Acneform lesions
Acneform eruptions are inflammatory follicular reactions that resemble acne vulgaris and that are manifested clinically as papules or pustules. They are monomorphic reactions, have a monomorphic appearance, and are found primarily on the upper parts of the body. Unlike acne vulgaris, there are rarely comedones present. Consider a drug-induced acneform eruption if:

- The onset is sudden
- There is a worsening of existing acne lesions
- The appearance is monomorphic
- The localization is unusual for acne, for example, when the distal extremities are involved
- The patient’s age is unusual for regular acne
- There is an exposure to a potentially responsible drug.

The most common drugs responsible for acneform eruptions are: ACTH, androgenic hormones, anticonvulsants (hydantoin derivatives, phenobarbital, trimethadione), corticosteroids, danazol, disulfiram, halogens (bromides, chlorides, iodides), lithium, oral contraceptives, tuberculostatics (ethionamide, isoniazid, rifampin), vitamins B₆, B₁₂, and B₁₂.

Acute febrile neutrophilic dermatosis
Acute febrile neutrophilic dermatosis is a disorder that appears more frequently in females and has several characteristic features.

- The lesions - tender, erythematous or purple, annular plaques or nodules - appear suddenly and are most prominent on the face, neck and upper extremities. Pain and fever often accompany the eruption.

While the cause is unknown, about 15% of the patients have some type of myeloproliferative disorder, primarily leukemias.

- Drugs commonly reported to cause Sweet’s syndrome are clofazimine, co-trimoxazole, furosemide, granulocyte-colony stimulating factor and minocycline.

Acute generalized exanthematous pustulosis
Arising on the face or intertriginous areas, acute generalized exanthematous pustulosis (AGEP) is characterized by a rapidly evolving, widespread, scarlatiniform eruption covered with hundreds of small superficial pustules.

Often accompanied by a high fever, AGEP is most frequently associated with acetaminophen, carbamazepine, penicillin and macrolide antibiotics, and usually occurs within 24 hours of the drug exposure.

Ageusia
Ageusia is the loss of taste functions of the tongue, essentially the inability to detect sweet, sour, bitter, or salty substances, and umami (the taste of monosodium glutamate).

Atorvastatin, captopril, enalapril, indomethacin, and paroxetine are some of the drugs that can occasion ageusia.

Alopecia
Many drugs have been reported to occasion hair loss. Commonly appearing as a diffuse alopecia, it affects women more frequently than men and is limited in most instances to the scalp. Axillary and pubic hairs are rarely affected except with anticoagulants.

The hair loss from cytostatic agents, which is dose-dependent and begins about 2 weeks after the onset of therapy, is a result of the interruption of the anagen (growing) cycle of hair. With other drugs the hair loss does not begin until 2-5 months after the medication has been begun. With cholesterol-lowering drugs, diffuse alopecia is a result of interference with normal keratinization.

The scalp is normal and the drug-induced alopecia is almost always reversible within 1-3 months after the therapy has been discontinued. The regrown hair is frequently depigmented and occasionally more curly.

The most frequent offenders are cytostatic agents and anticoagulants, but hair loss can occur with a variety of common drugs, including hormones, anticonvulsants, amantadine, amiodarone, captopril, cholesterol-lowering drugs, cimetidine, colchicine, etretinate, isotretinoin, ketoconazole, heavy metals, lithium, penicillin, valproic acid, and propranolol.

Angioedema
Angioedema is a term applied to a variant of urticaria in which the subcutaneous tissues, rather than the dermis, are mainly involved.

Also known as Quincke’s edema, giant urticaria, and angioneurotic edema, this acute, evanescent, skin-colored, circumscribed edema usually affects the most distensible tissues: the lips, eyelids, earlobes, and genitalia. It can also affect the mucous membranes of the tongue, mouth, and larynx.

Symptoms of angioedema, frequently unilateral, asymmetrical and non-pruritic, last for an hour or two but can persist for 2-5 days.

The etiological factors associated with angioedema are as varied as that of urticaria (see separate entry).

Anosmia
Anosmia, or odor blindness, is the total absence of the sense of smell. It can be either temporary or permanent.

Some of the drugs that can cause anosmia are ciprofloxacin, doxycycline, enalapril, paroxetine and sparfloxacin.

Aphthous stomatitis
Aphthous stomatitis – also known as canker sores – is a common disease of the oral mucous membranes.

Aphthous sores develop into small (2-5 mm in diameter), round, shallow ulcerations having a grayish, yellow base surrounded by a thin red border.

Located predominantly over the labial and buccal mucosae, these aphthae heal without scarring in 10-14 days. Recurrences are common.
Baboon syndrome (SDRIFE)

Baboon syndrome or symmetric drug-related intertriginous and flexural exanthema (SDRIFE) is an unusual presentation of a drug eruption with a characteristic intertriginous distribution pattern. Several drugs have been implicated, notably mercury, nickel, heparin, aminophylline, pseudoepephrine, terbinafine, IVIG, various antibiotics (amoxicillin, ampicillin), and food additives.

Originally described as a type of systemic contact dermatitis characterized by a pruritic exanthem involving the buttocks and major flexures – groins and axillae, some investigators believe that this entity is a form of recall phenomenon. In children, it is important in the differential diagnosis of viral exanthems.

Black tongue (lingua villosa nigra)

Black hairy tongue (BHT) represents a benign hyperplasia of the filiform papillae of the anterior two-thirds of the tongue.

These papillary elongations, usually associated with black, brown, or yellow pigmentation attributed to the overgrowth of pigment-producing bacteria, may be as long as 2 cm.

Occurring only in adults, BHT has been associated with the administration of oral antibiotics, poor dental hygiene, and excessive smoking.

Bullous dermatitis

Bullous and vesicular drug eruptions are diseases in which blisters and vesicles occur as a complication of the administration of drugs. Blisters are a well-known manifestation of cutaneous reactions to drugs.

In many types of drug reactions, bullae and vesicles may be found in addition to other manifestations. Bullae are usually noted in erythema multiforme; Stevens-Johnson syndrome; toxic epidermal necrolysis; fixed eruptions when very intense; urticaria; vasculitis; porphyria cutanea tarda; multiforme; Stevens–Johnson syndrome; toxic epidermal necrolysis; fixed drug eruptions, these flat, barely raised, erythematous patches, from one to several millimeters in diameter, are usually bilateral and symmetrical. They may be accompanied by pruritus and a mild fever.

DRESS syndrome

The DRESS syndrome is an acronym for Drug Rash with Eosinophilia and Systemic Symptoms. It is also known as the Drug-Induced Pseudolymphoma and Drug Hypersensitivity Syndrome.

The symptoms of DRESS syndrome usually begin 1 to 8 weeks after exposure to the offending drug. Common causes include carbamazepine, phenobarbital, phenytoin, terbinafine, and valproic acid.

Erythema multiforme

Erythema multiforme is a relatively common, acute, self-limited, inflammatory reaction pattern that is often associated with a preceding herpes simplex or mycoplasma infection. Other causes are associated with connective tissue disease, physical agents, X-ray therapy, pregnancy and internal malignancies, to mention a few. In 50% of the cases, no cause can be found. In a recent prospective study of erythema multiforme, only 10% were drug related.

The eruption rapidly occurs over a period of 12 to 24 hours. In about half the cases there are prodromal symptoms of an upper respiratory infection accompanied by fever, malaise, and varying degrees of muscular and joint pains.

Clinically, bluish-red, well-demarcated, macular, papular, or urticarial lesions, as well as the classical ‘iris’ or ‘target lesions’, sometimes with central vesicles, bullae, or purpura, are distributed preferentially over the distal extremities, especially over the dorsa of the hands and extensor aspects of the forearms. Lesions tend to spread peripherally and may involve the palms and trunk as well as the mucous membranes of the mouth and genitalia. Central healing and overlapping lesions often lead to arciiform, annular and gyrate patterns. Lesions appear over the course of a week or 10 days and resolve over the next two weeks.

The following drugs have been most often associated with erythema multiforme: allopurinol, barbiturates, carbamazepine, estrogens/progestins, gold, lamotrigine, NSAIDs, penicillamine, phenytoin, sulfonamides, tetracycline, tolbutamide and valproic acid.

Erythema nodosum

Erythema nodosum is a cutaneous reaction pattern characterized by erythematous, tender or painful subcutaneous nodules commonly distributed over the anterior aspect of the lower legs, and occasionally elsewhere.

More common in young women, erythema nodosum is often associated with increased estrogen levels as occurs during pregnancy and with the ingestion of oral contraceptives. It is also an occasional manifestation of streptococcal infection, sarcodiosis, secondary syphilis, tuberculosis, certain deep fungal infections, Hodgkin’s disease, leukemia, ulcerative colitis, and radiation therapy and is often preceded by fever, fatigue, arthralgia, vomiting, and diarrhea.

The incidence of erythema nodosum due to drugs is low and it is impossible to distinguish clinically between erythema nodosum due to drugs and that caused by other factors.

Some of the drugs that are known to occasion erythema nodosum are: antibiotics, estrogens, amiodarone, gold, NSAIDs, oral contraceptives, sulfonamides, and opiates.

Exanthems

Exanthems, commonly resembling viral rashes, represent the most common type of cutaneous drug eruption. Described as maculopapular or morbilliform eruptions, these flat, barely raised, erythematous patches, from one to several millimeters in diameter, are usually bilateral and symmetrical. They commonly begin on the head and neck or upper torso and progress downward to the limbs. They may present or develop into confluent areas and may be accompanied by pruritus and a mild fever.

The exanthems caused by drugs can be classified as:

• Morbilliform eruptions: finger-nail-sized erythematous patches
• Scarlatiniform eruptions: punctate, pinpoint, or pinhead-sized lesions in erythematous areas that have a tendency to coalesce. Circumoral pallor and the subsequent appearance of scaling may also be noted.
Exfoliative dermatitis
Exfoliative dermatitis is a rare but serious reaction pattern that is characterized by erythema, pruritus and scaling over the entire body (erythroderma).

Drug-induced exfoliative dermatitis usually begins a few weeks or longer following the administration of a culpable drug. Beginning as erythematous, edematous patches, often on the face, it spreads to involve the entire integument. The skin becomes swollen and scarlet and may ooze a straw-colored fluid; this is followed in a few days by desquamation.

High fever, severe malaise and chills, along with enlargement of lymph nodes, often coexist with the cutaneous changes.

Of the most dangerous of all reaction patterns, exfoliative dermatitis can be accompanied by any or all of the following: hypoesthesia, fluid and electrolyte loss, cardiac failure, and gastrointestinal hemorrhage. Death may supervene if the drug is continued after the onset of the eruption. Secondary infection often complicates the course of the disease. Once the active dermatitis has receded, hyperpigmentation as well as loss of hair and nails may ensue.

The following drugs, among others, can bring about exfoliative dermatitis: barbiturates, captopril, carbamazepine, cimetidine, furosemide, gold, isoniazid, lithium, nitrofurantoin, NSAIDs, penicillamine, phenytoin, pyrazolones, quinidine, streptomyacin, sulfonamides, and thiazides.

Fixed eruption
A fixed eruption is an unusual hypersensitivity reaction characterized by one or more well-demarcated erythematous plaques that recur at the same cutaneous (or mucosal) site or sites each time exposure to the offending agent occurs. The sizes of the lesions vary from a few millimeters to as much as 20 centimeters in diameter. Almost any drug that is ingested, injected, inhaled, or inserted into the body can trigger this skin reaction.

The eruption typically begins as a sharply marginated, solitary edematous plaque, occasionally surrounded by a large bulla—which usually develops 30 minutes to 8 hours following the administration of a drug. If the offending agent is not promptly eliminated, the inflammation intensifies, producing a dusky red, violaceous or brown patch that may crust, desquamate, or blister within 7 to 10 days. The lesions are rarely pruritic. Favored sites are the hands, feet, face, and genitalia—especially the glans penis.

The reason for the specific localization of the skin lesions in a fixed drug eruption is unknown. The offending drug cannot be detected at the skin site. Certain drugs cause a fixed eruption at specific sites, for example, tetracycline and ampicillin often elicit a fixed eruption on the penis, whereas aspirin usually causes skin lesions on the face, limbs and trunk.

Common causes of fixed eruptions are: ampicillin, aspirin, barbiturates, dapsone, metronidazole, NSAIDs, oral contraceptives, phenolphthalein, phenytoin, quinidine, sulfonamides, and tetracyclines.

Gingival hyperplasia/hypertrophy
Gingival hyperplasia, a common, undesirable, non-allergic drug reaction begins as a diffuse swelling of the interdental papillae.

Particularly prevalent with phenytoin therapy, gingival hyperplasia begins about 3 months after the onset of therapy, and occurs in 30 to 70% of patients receiving it. The severity of the reaction is dose-dependent and children and young adults are more frequently affected. The most severe cases are noted in young women.

In many cases, gingival hyperplasia is accompanied by painful and bleeding gums. There is often superimposed secondary bacterial gingivitis. This can be so extensive that the teeth of the maxilla and mandible are completely overgrown.

While it is characteristically a side effect of hydantoin derivatives, it may occur during the administration of phenobarbital, nifedipine, diltiazem and other medications.

Hand-foot syndrome
Hand-foot syndrome (also known as acral erythema, palmar-plantar erythrodysaesthesia, palmpplanter erythrodysaesthesia, palmar-plantar erythema, and Bergdorff’s reaction) is a syndrome that is characterized by well-demarcated painful erythema, edema, nummness and desquamation over the palms and soles that may develop following treatment with a variety of chemotherapeutic agents including bleomycin, cisplatin, cyclophosphamide, hydroxyurea, idarubicin, methotrexate, sorafenib, sunitinib, and others. Tenderness involving the skin overlying the fingers and toes, followed by bulla formation and subsequent desquamation, often supervenes.

This side effect results when a small amount of the culprit drug leaks out of the blood vessels, damaging tissues. This reaction predominates over the palms and soles, where eccrine glands are more numerous, and also as a result of the increased friction and heat that extremities are exposed to through daily activities.

Lichenoid (lichen planus-like) eruptions
Lichenoid eruptions are so called because of their resemblance to lichen planus, a papulosquamous disorder that characteristically presents as multiple, discrete, violaceous, flat-topped papules, often polygonal in shape and which are extremely pruritic.

Not infrequently, lichenoid lesions appear weeks or months following exposure to the responsible drug. As a rule, the symptoms begin to recede a few weeks following the discontinuation of the drug.

Common drug causes of lichenoid eruptions are: antimalarials, beta-blockers, chlorpropamide, furosemide, gold, methylldopa, phenothiazines, quinidine, thiazides, and tolazamide.

Lupus erythematosus
A reaction, clinically and pathologically resembling idiopathic systemic lupus erythematosus (SLE), has been reported in association with a large variety of drugs. There is some evidence that drug-induced SLE, invariably accompanied by a positive ANA reaction with 90% having antihistone antibodies, may have a genetically determined basis. These symptoms of SLE, a relatively benign form of lupus, recede within days or weeks following the discontinuation of the responsible drug. Skin lesions occur in about 20% of cases. Drugs cause fewer than 8% of all cases of SLE.

The following drugs have been commonly associated with inducing, aggravating or unmasking SLE: beta-blockers, carbamazepine, chlorpromazine, estrogens, griseofulvin, hydralazine, isoniazid (INH), lithium, methyl-dopa, minoxidil, oral contraceptives, penicillamine, phenytoin (diphenylhydantoin), procainamide, propylthiouracil, quinidine, and testosterone.

Onycholysis
Onycholysis, the painless separation of the nail plate from the nail bed, is one of the most common nail disorders.

The unattached portion, which is white and opaque, usually begins at the free margin and proceeds proximally, causing part or most of the nail plate to become separated. The attached, healthy portion of the nail, by contrast, is pink and translucent.

Paresthesias
Paresthesias are abnormal neurological sensations such as burning, prickling, numbness, pruritus, formication, or tingling, often described as ‘pins and
neurodermatitis, or of a limb being 'asleep'. It is a symptom of partial damage to a peripheral nerve, as occurs from a head or spinal injury, lack of blood supply to a nerve, or in many cases medications.

Paresthesias can affect various parts of the body; hands, fingers, and feet are common sites but all areas are possibilities.

Scores of generic drugs have been reported to occasion paresthesia including alprazolam, allopurinol, buspirone, celecoxib, ciprofloxacin, cyclosporine, enalapril, glipizine and many others.

**Pemphigus vulgaris**

Pemphigus vulgaris (PV) is a rare, serious, acute or chronic, blistering disease involving the skin and mucous membranes.

Characterized by thin-walled, easily ruptured, flaccid bullae that are seen to arise on normal or erythematous skin and over mucous membranes, the lesions of PV appear initially in the mouth (in about 60% of the cases) and then spread, after weeks or months, to involve the axillae and groin, scalp, face and neck. The lesions may become generalized.

Because of their fragile roofs, the bullae rupture leaving painful erosions and crusts may develop principally over the scalp.

**Peyronie’s disease**

First described in 1743 by the French surgeon, Francois de la Peyronie, Peyronie’s disease is a rare, benign connective tissue disorder involving the growth of fibrous plaques in the soft tissue of the penis. Beginning as a localized inflammation, it often develops into a hardened scar. Affecting as many as 1% of men, it may cause deformity, pain, cord-like lesions, or abnormal curvature of the penis when erect.

It has been associated with several drugs, including all the adrenergic blocking agents (beta-blockers), methotrexate, colchicine and others.

**Photosensitivity**

A photosensitive reaction is a chemically induced change in the skin that makes an individual unusually sensitive to electromagnetic radiation (light). On absorbing light of a specific wavelength, an oral, injected or topical drug may be chemically altered to produce a reaction ranging from macules and papules, vesicles and bullae, edema, urticaria, or an acute eczematous reaction.

Any eruption that is prominent on the face, the dorsa of the hands, the ‘V’ of the neck, and the prepontal area should suggest an adverse reaction to light. The distribution is the key to the diagnosis.

Initially the eruption, which consists of erythema, edema, blistering, weeping and desquamation, involves the forehead, rim of the ears, the nose, the malar eminences and cheeks, the sides and back of the neck, the extensor surfaces of the forearms and the dorsa of the hands. These reactions commonly spare the shaded areas: those under the chin, under the nose, behind the ears and inside the fold of the upper eyelids. There is usually a sharp cut-off at the site of jewelry and at clothing margins. All light-exposed areas need not be affected equally.

There are two main types of photosensitive reactions: the phototoxic and the photoallergic reaction.

Phototoxic reactions, the most common type of drug-induced photosensitivity, resemble an exaggerated sunburn and occur within 5 to 20 hours after the skin has been exposed to a photosensitizing substance and light of the proper wavelength and intensity. It is not a form of allergy – prior sensitization is not required – and, theoretically, could occur in anyone given enough drug and light. Phototoxic reactions are dose-dependent both for drug and sunlight. Patients with photosensitivity reactions are commonly sensitive to ultraviolet A (UVA radiation), the so-called ‘tanning rays’ at 320–400 nm. Phototoxic reactions may cause onycholysis, as the nailbed is particularly susceptible because of its lack of melanin protection.

Patients with a true photoallergy (the interaction of drug, light and the immune system), a less common form of drug-induced photosensitivity, are often sensitive to UVB radiation, the so-called ‘burning rays’ at 290–320 nm. Photoallergic reactions, unlike phototoxic responses, represent an immunologic change and require a latent period of from 24 to 48 hours during which sensitization occurs. They are not dose-related.

If the photosensitizer acts internally, it is a photodrug reaction; if it acts externally, it is photocontact dermatitis.

Drugs that are likely to cause phototoxic reactions are: amiodarone, nalidixic acid, various NSAIDs, phenothiazines (especially chlorpromazine), and tetracyclines (particularly demeclocycline).

Photoallergic reactions may occur as a result of exposure to systemically-administered drugs such as griseofulvin, NSAIDs, phenothiazines, quinidine, sulfonamides, sulfonureas, and thiazide diuretics as well as to external agents such as para-aminobenzoic acid (found in sunscreens), bithionol (used in soaps and cosmetics), paraphenylenediamine, and others.

**Pigmentation**

Drug-induced pigmentation on the skin, hair, nails, and mucous membranes is a result of either melanin synthesis, increased lipofuscin synthesis, or post-inflammatory pigmentation.

Color changes, which can be localized or widespread, can also be a result of a deposition of bile pigments (jaundice), exogenous metal compounds, and direct deposition of elements such as carotene or quinacrine.

Post-inflammatory pigmentation can follow a variety of drug-induced inflammatory cutaneous reactions; fixed eruptions are known to leave a residual pigmentation that can persist for months.

The following is a partial list of those drugs that can cause various pigmentary changes: anticonvulsants, antimalarials, cytostatics, hormones, metals, tetracyclines, phenothiazine tranquilizers, psoralens and amiodarone.

**Pityriasis rosea-like eruption**

Pityriasis rosea, commonly mistaken for ringworm, is a unique disorder that usually begins as a single, large, round or oval pinkish patch known as the ‘mother’ or ‘herald’ patch. The most common sites for this solitary lesion are the chest, the back, or the abdomen. This is followed in about 2 weeks by a blossoming of small, flat, round or oval, scaly patches of similar color, each with a central collarette scale, usually distributed in a Christmas tree pattern over the trunk and, to a lesser degree, the extremities. This eruption seldom itch and usually limits itself to areas from the neck to the knees.

While the etiology of idiopathic pityriasis rosea is unknown, various medications have been reported to give rise to this disorder. These include: barbiturates, beta-blockers, bismuth, captopril, clonidine, gold, griseofulvin, isotretonin, labetalol, meprobamate, metronidazole, penicillin, and triplelennamine.

In drug-induced pityriasis rosea, the ‘herald patch’ is usually absent, and the eruption will often not follow the classic pattern.

**Pruritus**

Generalized itching, without any visible signs, is one of the least common adverse reactions to drugs. More frequently than not, drug-induced itching – moderate or severe – is fairly generalized.

For most drugs it is not known in what way they elicit pruritus; some drugs can cause itching directly or indirectly through cholestasis. Pruritus may develop by different pathogenetic mechanisms: allergic, pseudoallergic (histamine release), neurogenic, by vasodilatation, cholestatic effect, and others.

A partial list of those drugs that can cause pruritus are as follows: aspirin, NSAIDs, penicillins, sulfonamides, chloroquine, ACE-inhibitors, amiodarone, nicotinic acid derivatives, lithium, bleomycin, tamoxifen, interferons, gold,
penicillamine, methoxsalen and isotretinoin.

**Pseudolymphoma**

Pseudolymphoma is not a specific disease. It is an inflammatory response to various stimuli – known or unknown – that results in a lymphomatous-appearing, but benign, accumulation of inflammatory cells. It may resemble true lymphoma clinically and histologically. Localized, nodular pseudolymphomas typically mimic B-cell lymphoma.

The following drugs, among others, are known to occasion pseudolymphoma: alprazolam, carbamazepine, co-trimoxazole, gold, lamotrigine, lithium, methotrexate, etc.

**Pseudoporphyria**

Pseudoporphyria is an uncommon, reversible, photoinduced, cutaneous bullous disorder with clinical, histologic and immunofluorescent similarities to porphyria cutanea tarda but without the accompanying biochemical porphyrin abnormalities.

It is commonly seen as localized bullae and skin fragility on sun-exposed skin, often on the dorsum of the hands and fingers. While pseudoporphyria has been linked with numerous causes, including chronic renal failure, dialysis, and ultraviolet radiation, several medications, primarily naproxen and other nonsteroidal inflammatory drugs, have been reported to trigger this reaction pattern. Blue/grey eye color appears to be an independent risk factor for the development of pseudoporphyria.

**Psoriasis**

Many drugs, as a result of their pharmacological action, have been implicated in the precipitation or exacerbation of psoriasis or psoriasiform eruptions.

Psoriasis is a common, chronic, papulosquamous disorder of unknown etiology with characteristic histopathological features and many biochemical, physiological, and immunological abnormalities.

Drugs that can precipitate psoriasis are, among others, beta-blockers and lithium. Drugs that are reported to aggravate psoriasis are antimalarials, beta-blockers, lithium, NSAIDs, quinidine, and photosensitizing drugs. The effect and extent of these drug-induced psoriatic eruptions are dose-dependent.

**Purpura**

Purpura, a result of hemorrhage into the skin, can be divided into thrombocytopenic purpura and non-thrombocytopenic purpura (vascular purpura). Both thrombocytopenic and vascular purpura may be due to drugs, and most of the drugs producing purpura may do so by giving rise to vascular damage and thrombocytopenia. In both types of purpura, allergic or toxic (nonallergic) mechanisms may be involved.

Some drugs combine with platelets to form an antigen, stimulating formation of antibody to the platelet-drug combination. Thus, the drug appears to act as a hapten; subsequent antigen-antibody reaction causes platelet destruction leading to thrombocytopenia.

The purpuric lesions are usually more marked over the lower portions of the body, notably the legs and dorsal aspects of the feet in ambulatory patients.

Other drug-induced cutaneous reactions – erythema multiforme, erythema nodosum, fixed eruption, necrotizing vasculitis, and others – can have a prominent purpuric component.

A whole host of drugs can give rise to purpura, the most common being: NSAIDs, thiazide diuretics, phenothiazines, cytostatics, gold, penicillamine, hydantoins, thiouracils, and sulfonamides.

**Raynaud’s phenomenon**

Raynaud’s phenomenon is the paroxysmal, cold-induced constriction of small arteries and arterioles of the fingers and, less often, the toes.

Although estimates vary, recent surveys show that Raynaud’s phenomenon may affect 5 to 10 percent of the general population in the United States. Occurring more frequently in women, Raynaud’s phenomenon is characterized by blanching, pallor, and cyanosis. In severe cases, secondary changes may occur: thinning and ridging of the nails, telangiectases of the nail folds, and, in the later stages, sclerosis and atrophy of the digits.

**Rhabdomyolysis**

Rhabdomyolysis is the breakdown of muscle fibers, the result of skeletal muscle injury, that leads to the release of potentially toxic intracellular contents into the plasma. The causes are diverse: muscle trauma from vigorous exercise, electrolyte imbalance, extensive thermal burns, crush injuries, infections, various toxins and drugs, and a host of other factors.

Rhabdomyolysis can result from direct muscle injury by myotoxic drugs such as cocaine, heroin and alcohol. About 10-40% of patients with rhabdomyolysis develop acute renal failure.

The classic triad of symptoms of rhabdomyolysis is muscle pain, weakness and dark urine. Most frequently, the involved muscle groups are those of the back and lower calves. The primary diagnostic indicator of this syndrome is significantly elevated serum creatine phosphokinase.

Some of the drugs that have been reported to cause rhabdomyolysis are salicylates, amphetotinic, quinine, statin drugs, SSRIs, theophylline, and amphetamines.

**Stevens-Johnson syndrome**

The Stevens-Johnson syndrome (erythema multiforme major), a severe and occasionally fatal variety of erythema multiforme, has an abrupt onset and is accompanied by any or all of the following: fever, myalgia, malaise, headache, arthralgia, ocular involvement, with occasional bullae and erosions covering less than 10% of the body surface. Painful stomatitis is an early and conspicuous symptom. Hemorrhagic bullae may appear over the lips, mouth and genital mucous membranes. Patients are often acutely ill with high fever. The course from eruption to the healing of the lesions may extend up to six weeks.

The following drugs have been most often associated with Stevens-Johnson syndrome: allopurinol, barbiturates, carbamazepine, estrogen/progestins, gold, lamotrigine, NSAIDs, penicillamine, phenytoin, sulfonamides, tetracycline, tolbutamide, and valproic acid.

**Tinnitus**

Tinnitus (from the Latin word to tinkle or ring like a bell) is the perception of sound—ringing, buzzing, hissing, humming, whistling, whining, roaring, or ticking, clicking, banging, beeping, pulsating—in the human ear, when none exists. It has also been described as a ‘whooshing’ sound, like wind or waves, ‘crickets’ or ‘tree frogs’ or ‘locusts’. To some it’s a chirping, clanging, sizzling, rumbling, or a dreadful shrieking noise. And it can be like rushing water, breaking glass or chain saws running. Nearly 40 million Americans suffer from this disorder.

There are more than 200 drugs listed in the Litt’s Drug Eruption & Reaction Database that have been reported to trigger tinnitus, the more common being aspirin, quinine, aminoglycoside antibiotics, cytotoxic drugs, diuretics, and NSAIDs.

**Toxic epidermal necrolysis (TEN)**

Also known as Lyell’s syndrome, toxic epidermal necrolysis is a rare, serious, acute exfoliative, bullous eruption of the skin and mucous membranes that usually develops as a reaction to diverse drugs. TEN can also be a result of a
bacterial or viral infection and can develop after radiation therapy or vaccinations.

In the drug-induced form of TEN, a morbilliform eruption accompanied by large red, tender areas of the skin will develop shortly after the drug has been administered. This progresses rapidly to blistering, and a widespread exfoliation of the epidermis develops dramatically over a very short period accompanied by high fever. The hairy parts of the body are usually spared. The mucous membranes and eyes are often involved.

The clinical picture resembles an extensive second-degree burn; the patient is acutely ill. Fatigue, vomiting, diarrhea and angina are prodromal symptoms. In a few hours the condition becomes grave.

TEN is a medical emergency and unless the offending agent is discontinued immediately, the outcome may be fatal in the course of a few days.

Drugs that are the most common cause of TEN are: allopurinol, ampicillin, amoxicillin, carbamazepine, NSAIDs, phenobarbital, pentamidine, phenytoin (diphenylhydantoin), pyrazolones, and sulfonamides.

Urticaria
Urticaria induced by drugs is, after exanthems, the second most common type of drug reaction. Urticaria, or hives, is a vascular reaction of the skin characterized by pruritic, erythematous wheals. These welts – or wheals – caused by localized edema, can vary in size from one millimeter in diameter to large palm-sized swellings, favor the covered areas (trunk, buttocks, chest), and are, more often than not, generalized. Urticaria usually develops within 36 hours following the administration of the responsible drug. Individual lesions rarely persist for more than 24 hours.

Urticaria may be the only symptom of drug sensitivity, or it may be a concomitant or followed by the manifestations of serum sickness. Urticaria may be accompanied by angioedema of the lips or eyelids. It may, on rare occasions, progress to anaphylactoid reactions or to anaphylaxis.

The following are the most common causes of drug-induced urticaria: antibiotics, notably penicillin (more commonly following parenteral administration than by ingestion), barbiturates, captopril, levamisole, NSAIDs, quinine, rifampin, sulfonamides, thiopental, and vancomycin.

Vasculitis
Drug-induced cutaneous necrotizing vasculitis, a clinicopathologic process characterized by inflammation and necrosis of blood vessels, often presents with a variety of small, palpable purpuric lesions most frequently distributed over the lower extremities: urticaria-like lesions, small ulcerations, and occasional hemorrhagic vesicles and pustules. The basic process involves an immunologically mediated response to antigens that result in vessel wall damage.

Beginning as small macules and papules, they ultimately eventuate into purpuric lesions and, in the more severe cases, into hemorrhagic blisters and frank ulcerations. A polymorphonuclear infiltrate and fibrinoid changes in the small dermal vessels characterize the vasculitic reaction.

Drugs that are commonly associated with vasculitis are: ACE-inhibitors, amiodarone, ampicillin, cimetidine, coumadin, furosemide, hydantoins, hydralazine, NSAIDs, pyrazolones, quinidine, sulfonamides, thiazides, and thiouracils.

Vertigo
Vertigo, a specific type of dizziness, is a feeling of unsteadiness. It is the sensation of spinning or swaying while actually remaining stationary with respect to the surroundings. It is a result of either motion sickness, a viral infection of the organs of balance, low blood sugar, or medications. It is a symptom of multiple sclerosis, carbon monoxide poisoning, and Meniere’s disease.

Vertigo is one of the most common health problems in adults. According to the National Institutes of Health, about 40% of people in the United States experience vertigo at least once during their lifetime. Prevalence is higher in women and increases with age.

Classes of drugs that have been reported to trigger vertigo include, aminoglycoside antibiotics, antihypertensives, diuretics, vasodilators, phenothiazines, tranquilizers, antidepressants, anticonvulsants, hypnotics, analgesics, alcohol, caffeine, and tobacco.

Xerostomia
Xerostomia is a dryness of the oral cavity that makes speaking, chewing and swallowing difficult. Some people also experience changes in taste and salivary gland enlargement. Lack of saliva may predispose one to oral infection, such as candidiasis, and increase the risk of dental caries.

Resulting from a partial or complete absence of saliva production, xerostomia can be caused by more than 400 generic drugs.
DRUGS THAT CAUSE IMPORTANT REACTIONS

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**Acute febrile neutrophilic dermatosis**

- Abacavir
- Acelofenac
- Aclidesleukin
- Allopurinol
- Amoxapine
- Azacitidine
- Azathioprine
Acute generalized exanthematous pustulosis

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**Acute generalized exanthematous pustulosis**

- Acarbose
- Acetaminophen
- Acetazolamide
- Aldesleukin
- Allopurinol
- Aminolevulinic Acid
- Amiloride
- Amantadine
- Allopurinil
- Anastrozole
- Aspirin
- Atoverstatin
- Azelastine
- Betaxolol
- Candesartan
- Capotopril
- Carbamazepine
- Cetirizine
- Chlorhexidine
- Clindamycin
- Clopidogrel
- Cocaine
- Cyclosporin
- Dofexubicin
- Enalapril
- Eslicarbazepine
- Etidronate
- Fluoxetine
- Fluvoxamine
- Fosinipril
- Grepafloxacin
- Hydroxychloroquine
- Indomethacin
- Interferon Alfa
- Isoretinoin
- Iosartan
- Methimazole
- Nefazodone
- Nitroglycerin
- Paroxetine Hydrochloride
- Penicillamine
- Phenybutazone
- Phenytion
- Propofol
- Propylthiouracil
- Ramipril
- Rifabutin
- Rifaximin
- Rimantadine
- Rivaroxaban
- Rivastigmine
- Sonideib
- Sulindac
- Terbinafine
- Tiagabine
- Tioconizine
- Topiramate
- Valproic Acid
- Venlafaxine
- Vismodegib
- Voriconazole
- Zalcitabine

**Allopecia**

- Abemacilidib
- Acetohexamide
- Actretin
- Acyclovir
- Adalimumab
- Ado-Trastuzumab Emtansine
- Aflatinib
- Affibercept
- Albendazole
- Alectinib
- Altretinoin
- Allopurinol
- Alotretin
- Amantadine
- Amiloride
- Aminolevulinic Acid
- Aminosalicylate Sodium
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DRUGS THAT CAUSE IMPORTANT REACTIONS

Peplomycin, Topotecan, Bevacizumab, Diclofenac
Pergolide, Trabectedin, Be zal fibrate, Dicumarol
Perutuzumab, Trametinib, Bismuth, Diethylstilbestrol
Phentermine, Trastuzumab, Bloemycin, Diflunisal
Phenytoin, Trazodone, Brivaracetam, Dihydrocodeine
Piroxicam, Trifluridine & Tipiracil, Brompheniramine, Ditiazem
Pramipexole, Trimethadione, Budesonide, Dimethylhydrinate
Prazosin, Trimipramine, Bupropion, Diphenhydramine
Prednisolone, Triptorelin, Butabarbital, Dipryridamole
Prednisone, Ursodiol, Canagliflozin, Disulfiram
Procarbazine, Valdecoxib, Candesartan, Dofetilide
Propafenone, Valproic Acid, Captopril, Doxazosin
Propranolol, Vandetanib, Carbamazepine, Doxorubicin
Propylthiouracil, Valsopresin, Carisoprodol, Doxycycline
Propripyline, Venumafenib, Carvedilol, Droserodarone
Pyridostigmine, Venlafaxine, Cefaclor, Droperidol
Quetiapine, Verapamil, Cefadroxil, Drotaverine
Quinidine, Vinblastine, Cefixime, Efalizumab
Rabeprazole, Vinorelbine, Cefoxitin, Eanalpril
Ralitrexed, Vismodegib, Cefprozil, Enoxaparin
Ramipril, Warfarin, Cefuroxime, Estramustine
Regorafenib, Wafarin, Cephalexin, Estrogens
Ribavirin, Wafarin, Cefuroxime, Estramustine
Ribocilb, Wafarin, Cefuroxime, Estramustine
Riluzole, Wafarin, Cefuroxime, Estramustine
Risperidone, Zonisamide, Cer tizine, Etanercept
Ritonavir, Zost er Vaccine, Chlorzoxazone, Etamineb tol
Rituximab, Zopolrestat, Chloramphenicol, Eto dodlac
Rivastigmine, Zoster Vaccine, Cloteryl, Estrogens
Rofecoxib, Angioedema, Cloteryl, Estrogens
Ropinirole, Acetaminophen, Cloteryl, Estrogens
Rucaparb, Acetylcysteine, Cloteryl, Estrogens
Selenium, Acetaminophen, Cloteryl, Estrogens
Sertraline, Acyclovir, Cloteryl, Estrogens
Sodium Oxyb ate, Adalumumab, Cloteryl, Estrogens
Sonidegb, Alendazole, Cloteryl, Estrogens
Sorafenib, Aldesleukin, Cloteryl, Estrogens
Sotalol, Alefcept, Cloteryl, Estrogens
Sparfloxacin, Almestuzumab, Cloteryl, Estrogens
Spinosad, Alendronate, Cloteryl, Estrogens
Spiro luxtone, Aliskiren, Cloteryl, Estrogens
Strontium Ranelate, Allopurinol, Cloteryl, Estrogens
Sulfasalazine, Al洛gitin, Cloteryl, Estrogens
Sulfasoleazo, Alprazolam, Cloteryl, Estrogens
Sulindac, Alteplase, Cloteryl, Estrogens
Sunitinib, Aminoglutethimide, Cloteryl, Estrogens
Tacrine, Aminosalicylate Sodium, Cloteryl, Estrogens
Tacroli nus, Amiodarone, Co-Trimoxazole, Gold & Gold Compounds
Tamoxifen, Amitriptyline, Cofaine, Griseofulvin
Tegafur/Gimeracil/Oteracil, Amlo dipine, Codeine, Griseofulvin
Temozolomide, Ammodial, Cotrimoxazole, Griseofulvin
Temsirolimus, Ammodialgine, Cytotec, Griseofulvin
Teniposide, Ampicillin, Cytotec, Griseofulvin
Terbinaine, Ampicillin/Sulbactam, Cytotec, Griseofulvin
Terfenadine, Anidulafungin, Cyp roheptadine, Griseofulvin
Teriflunomide, Anthrax Vaccine, Cyclophosphamide, Hydrochlorothiazide
Testoster one, Ascorbic Acid, Cyclophosphamide, Hydrochlorothiazide
Thalidomide, Asenapine, Dacarbazine, Hydrochlorothiazide
Thallium, Asparaginase, Danazol, Hydrochl orothiazide
Thioguanine, Aspartame, Danazol, Hydrochl orothiazide
Thiopeta, Aspin, Darsavir, Hydroxychloroquine
Tiagabine, Atorvastatin, Darsavir, Hydroxychloroquine
Timolol, Atracurium, Dasbuvir/Ombitasvir/Paritaprevir/Ritonavir, Ibrutinomab
Tinzaparin, Azadazine, Daunorubicin, Ibuprofen
Tiogronin, Azathioprine, Deferoxamine, Icatibant
Tizanidine, Azithromycin, Deflazacort, Iloperidone
Tocainide, Aztreonam, Delavirdine, Imipramine
Tolcapone, Benzepiril, Desipramine, Imipramine
Topiramate, Benzidazole, Diazepam, Imipramine
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- Adleskulin
- Alectinib
- Alendronate
- Alloprimolin
- Amifostine
- Aminosalicylate Sodium
- Amiodarone
- Amlodipine
- Amoxicillin
- Amphoterin B
- Ampicillin
- Anthrax Vaccine
- Arsenic
- Aspirin
- Atovaquone/Proguanil
- Atropine Sulfate
- Avelumab
- Azathioprine
- Aztreonam
- Benzimidazole
- Bezafibrate
- Bortezomib
- Bosutinib
- Bumetanide
- Buspropion
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- Butalbital
- Candesartan
- Carbamazepine
- Carbasaprole
- Cefaclor
- Cefadroxil
- Cefamandole
- Cefazime
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- Cefazolin
- Cefazidime
- Ceftriazone
- Cefuroxime
- Celecoxib
- Cephalexin
- Cephalexin
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- Chlorambucil
- Chloramphenicol
- Chloroazepine
- Chloropropionate
- Chlorpromazine
- Chlorpromazine
- Clindamycin
- Clotifbrate
- Clotiazem
- Co-Trimoxazole
- CODEINE
- Collagen (Bovine)
- Crizotinib
- Cyclobenzaprin
- Cyclophosphamide
- Danazol
- Dapsone
- Delavirdine
- Desomethasone
- Dexamethasone
- Diclofenac
- Dicloxacillin
- Didanosine
- Diffusional
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- Gentamocil
- Glucagon
- Glyburide
- Gold & Gold Compounds
- Griseofulvin
- Hepatitis B Vaccine
- Human Papillomavirus (HPV)
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Litt’s Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC
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324 Litt's Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC
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**Photosensitivity**

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**Raynaud's phenomenon**
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- Ampirazole
- Arsenic
- Atenolol
- Bisoprolol
- Bleomycin
- Bromocriptine
- Carboplatin
- Carteolol
- Cisplatin
- Cocaine
- Cyclosporine
- Dextroamphetamine
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Telbivudine
Telithromycin
Telmisartan
Temozolomide
Tenofvir Disoproxil
Terazosin
Terbutaline
Teriparatide
Tetrabenazine
Tetracaine & Oxymetazoline
Thalidomide
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Thalidomide
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Tocilizumab
Tofacitinib
Tocapone
Tolterodine
Tolvaptan
Topiramate
Torsemide
Tositumomab & Iodine
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Tramadol
Trametinib
Trandolapril
Tranylcypromine
Trastuzumab
Trazodone
Treprostinil
Trimipramine
Triptorelin
Triglizatone
Trospium
Trovalofloxacin
Typhoid Vaccine
Ulipristal
Unoprostone
Urapidil
Ursodiol
Ustekinumab
Valbenzine
Valproic Acid
Valproic Acid
Valrubicin
Valsartan
Vancomycin
Vardenafil
Varenicline
Varicella Vaccine
Vela/gherase Alfa
Venlafaxine
Verapamil

Verteporfin
Vigabatrin
Vilazodone
Vildagliptin
Zafirlukast
Zaleplon
Zanamivir
Ziconotide
Zidovudine
Ziprasidone
Zofenopril
Zoledronate
Zolmitriptan
Zolpidem
Zonisamide
Zoster Vaccine
Zuclopenthixol

Bisoprolol
Botulinum Toxin (A & B)
Brexpiprazole
Brimonidline
Brinzolamide
Bromocriptine
Brompheniramine
Bumetanide
Buprenorphine
Buspirone
Butorphanol
Caberrogline
Cangilfoxizin
Captopril
Cariprazine
Carisoprodol
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Convaptan
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Dihydroergotamine

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<td>Voriconazole</td>
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<td>Vorinostat</td>
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# Main Classes of Drugs

## 5-HT1 agonist
- Almotriptan
- Eletriptan
- Frovatriptan
- Naratriptan
- Rizatriptan
- Sumatriptan
- Zolmitriptan

## 5-HT3 antagonist
- Alosetron
- Dolasetron
- Granisetron
- Ondansetron
- Palonosetron

## ACE inhibitor
- Benazepril
- Captopril
- Cilazapril
- Enalapril
- Fosinopril
- Imidapril
- Lisinopril
- Moexipril
- Perindopril
- Quinapril
- Ramipril
- Trandolapril
- Zofenopril

## Adrenergic alpha-receptor agonist
- Clonidine
- Dexmedetomidine
- Dopamine
- guanabenz
- guanadrel
- guanethidine
- guanfacine
- Methyldopa
- Midodrine
- Mirtazapine
- Phenylephrine
- Phenylpropanolamine
- Polythiazide
- Pseudoephedrine

## Adrenergic alpha-receptor antagonist
- Alfuzosin
- Doxazosin
- Phenoxbenzamine
- Phentolamine
- Prazosin
- Silodosin
- Tamsulosin
- Terazosin
- Urapidil

## Adrenergic alpha2-receptor agonist
- Apraclonidine
- Brimonidine
- Tizanidine

## Adrenergic beta-receptor agonist
- Arbutamine
- Dobutamine
- Isoetharine
- Isoproterenol
- Isoxsuprine
- Metoprolol

## Adrenergic beta-receptor antagonist
- Betaxolol
- Carvedilol
- Esmolol
- LABetalol
- Nebivolol
- Pindolol
- Timolol

## Alloying agent
- Altretamine
- Bendamustine
- Busulfan
- Carboplatin
- Carmustine
- Chlorambucil
- Cisplatin
- Cyclophosphamide
- Dacarbazine
- Extramusitine
- Ifosfamide
- Lomustine
- Mechloethamine
- Melphan
- Mitomycin
- Oxaplatin
- Procarbazine
- Streptozocin
- Temozolomide
- Thiopeta

## Amphetamine
- Benzphetamine
- Dextroamphetamine
- Diethylpropion
- MDMA
- Methamphetamine
- Methylphenidate
- Pemoline
- Phendimetrazine
- Phentermine
- Prenylamine

## Analeptic
- Doxapram
- Modalfin

## Analgesic
- Non-narcotic
- Dextromethorphan
- Acetaminophen
- non-opioid
- Ketorolac
- opioid
- Alfentanil
- Dihydrocodeine
- Fentanyl
- Meptazinol
- Tapentadol

## Anesthetic
- Analgesic
- Narcotic
- Non-opioid
- Ketorolac
- Fentanyl
- Ketamine
- general
- Chloral Hydrate
- Propofol
- Sodium Oxibate
- Sufentanil

## Analgesic
- Narcotic
- Non-opioid
- Ketorolac
- Fentanyl
- Ketamine

## Angiogenesis II receptor antagonist (blocker)
- Azilsartan
- Canedsartan
- Eprosartan
- Irbesartan
- Losartan
- Olmesartan
- Telmisartan
- Valsartan

## Anti-inflammatory
- Amlexanox
- Amiodaquine
- Clofazimine
- Colchicine
- Fluprednisolone
- Roflumilast

## Antiarrhythmic
class Ia
- Disopyramide
- Procainamide
- Quinidine

## Antibiotic
- Aminoglycoside
- Beta-lactam
- beta-lactam
- Ampicillin/Sulbactam
- Aztreonam
- Cefazidime & Avibactam

## Antibiotic
- Aminoglycoside
- Beta-lactam
- Ampicillin/Sulbactam
- Aztreonam
- Cefazidime & Avibactam

## Antibiotic
- Aminoglycoside
- Beta-lactam
MAIN CLASSES OF DRUGS

Cefolozane & Tazobactam
Flucloxacillin
fluoroquinolone
Besifloxacin
Ciprofloxacin
Delafloxacin
Enoxacin
Finafloxacine
Gatifloxacin
Gemifloxacin
Levofloxacin
Lomefloxacine
Moxifloxacin
Norfloxacine
Ofloxacin
 Sparfloxacine
Tosfloxacine
glycopeptide
Daptomycin
Telcoyclamine
Vancymycin
imidazole
Clotrimazole
Ketoconazole
Mebendazole
Miconazole
Sertaconazole
Myconazole
Thiabendazole
lincosamide
Clindamycin
Clindamycin/Tretinoin
Lincomycin
macrolide
Azithromycin
Clarithromycin
Dirithromycin
Erythromycin
Fidaxomycin
Roxithromycin
Telithromycin
Troleandomycin
nitrofuran
Furazolidone
Nitrofurazone
nitroimidazole
Benznidazole
Metronidazole
Secnidazole
Tinidazole
oxazolidinone
Linezolid
Tedizolid
penicillin
Amoxicillin
Ampicillin
Ampicillin/Sulbactam
Bacampicillin
Carbenicillin
Cloxacillin
Dicloxacillin
Metlicillin
Mexicillin
Nafcillin
Oxacillin
Penicillin G
Penicillin V
Piperacillin
Ticarcillin
quinolone
Cinoxacin
Grepafloxacin
Nalidixic Acid
Trovafloxacin
rifamycin
Rifabutin
Rifampin
Rifapentine
Rifaximin
streptogramin
Pristinamycin
Quinupristin/Dalfopristin
sulfonamide
Co-Trimoxazole
Sulfacetamide
Sulfadiazine
Sulfadoxine
Sulfathiazole
tetacycline
Chlorotetracycline
Demeclocycline
Doxycycline
Lymecycline
Minocycline
Oxytetracycline
Tetracycline
Tigecycline
topical
Mupirocin
Retapamulin
triazole
Flunozalone
Itraconazole
Posaconazole
Terconazole
Voriconazole
miscellaneous
Aminosalicylate Sodium
Bacitracin
Capreomycin
Ceftolozane
Chloramphenicol
Cycloserine
Dapsone
Ethionamide
Fosfomycin
Isoniazid
Methenamine
Nitrofurantoin
Picolmycin
Pyrazinamide
Quinacrine
Spectinomycin
Tigecycline
trimethoprim
Anticonvulsant
Brivaracetam
Carbamazepine
Ezogabine
Felbamate
Gabapentin
Lacosamide
Lamotrigine
Levetiracetam
Mephentoin
Oxcarbazepine
Perampanel
Phencemide
Phenobarbital
Phensuximide
Phencyclidine
Pregabaline
Primidone
Trazepam
Tiagabine
Topirimate
Valproic Acid
Vigabatrin
Zonisamide
Antiepileptic
Brivaracetam
Clozapam
Eticarbazepine
Lacosamide
Lamotrigine
Perampanel
Rufinamide
Vigabatrin
Antiemetic
Chlorpromazine
Aprepitant
Antidepressant
Imipramine
Doxepin
Desipramine
Clomipramine
Venlafaxine
Mirtazapine
Mianserin
Mirtazapine
tricyclic
Antimycobacterial
Bedaquiline
Clofazimine
Dapsone
Ethambutol
Flucytosine
Isoniazid
Potassium Iodide
Echinocandin
Anidulafungin
Litt’s Drug Eruption & Reaction Manual
Antineoplastic
Anastrozole
Arsenic
Asparaginase
Asparaginase Erwinia
chrysanthemi
Azacitidine
Bexarotene
Cabazitaxel
Capecitabine
Carboplatin
Cetuximab
Cisplatin
Cladribine
Cytarabine
Dacarbazine
Dasatinib
Decitabine
Denileukin
Docetaxel
Eribulin
Erlotinib
Everolimus
Floxuridine
Fludarabine
Fluorouracil
Gefitinib
Gemcitabine
Gemtuzumab
Hydroxyurea
Ibritumomab
Imatinib
Irinotecan
Ixabepilone
Lapatinib
Levamisole
Mercaptopurine
Mitotane
Mitoxantrone
Nelarabine
Nilotinib
Nilutamide
Oxaliplatin
Paclitaxel
Panitumumab
Pazopanib
Pegaspargase
Pentostatin
Porfimer
Raltitrexed
Sorafenib
Streptozocin
Sunitinib
Tegafur/Gimeracil/Oteracil
Temozolomide
Temsirolimus
Teniposide
Testolactone
Thioguanine
Topotecan
Tositumomab & Iodine131
Trabectedin
Trastuzumab
Tretinoin
Trifluridine & Tipiracil
Vorinostat
Antiplatelet
Abciximab
Aspirin
Cangrelor

Cilostazol
Clopidogrel
Dipyridamole
Eptifibatide
Ticagrelor
Tirofiban
CPTP
Cangrelor
Ticagrelor
thienopyridine
Clopidogrel
Prasugrel
Ticlopidine
Antiprotozoal
Atovaquone
Chloroquine
Hydroxychloroquine
Mefloquine
Nitazoxanide
Pentamidine
Primaquine
Pyrimethamine
Quinidine
Quinine
Antipsychotic
Amisulpride
Aripiprazole
Asenapine
Brexpiprazole
Carbamazepine
Cariprazine
Chlorpromazine
Clozapine
Droperidol
Fluphenazine
Haloperidol
Iloperidone
Levomepromazine
Lithium
Lurasidone
Mesoridazine
Molindone
Olanzapine
Paliperidone
Perphenazine
Pimavanserin
Pimozide
Prochlorperazine
Promazine
Quetiapine
Risperidone
Sertindole
Thioridazine
Thiothixene
Trifluoperazine
Trimeprazine
Valproic Acid
Ziprasidone
Zuclopenthixol
Zuclopenthixol Acetate
Zuclopenthixol Decanoate
Zuclopenthixol
Dihydrochloride
tricyclic
Loxapine
Antiretroviral
Adefovir
Amprenavir
Atazanavir

MAIN CLASSES OF DRUGS
Cobicistat/Elvitegravir/
Emtricitabine/Tenofovir
Alafenamide
Cobicistat/Elvitegravir/
Emtricitabine/Tenofovir
Disoproxil
Darunavir
Delavirdine
Didanosine
Dolutegravir
Efavirenz
Emtricitabine
Enfuvirtide
Fosamprenavir
Hydroxyurea
Indinavir
Lamivudine
Lopinavir
Maraviroc
Nelfinavir
Nevirapine
Raltegravir
Rilpivirine
Ritonavir
Saquinavir
Stavudine
Tenofovir Disoproxil
Zalcitabine
Zidovudine
Antiviral
Acyclovir
Amantadine
Cytarabine
Entecavir
Famciclovir
Foscarnet
Ganciclovir
Imiquimod
Oseltamivir
Penciclovir
Peramivir
Podophyllotoxin
Rimantadine
Tenofovir Alafenamide
Trifluridine
Valacyclovir
Valganciclovir
Zanamivir
nucleoside analog
Ribavirin
Vidarabine
nucleotide analog
Cidofovir
topical
Acyclovir
Docosanol
Anxiolytic
Buspirone
Chlormezanone
Meprobamate
Tetrazepam
Barbiturate
Amobarbital
Aprobarbital
Butabarbital
Butalbital
Mephobarbital
Methohexital
Pentobarbital

Phenobarbital
Primidone
Secobarbital
Thiopental
Benzodiazepine
Alprazolam
Chlordiazepoxide
Clobazam
Clonazepam
Clorazepate
Diazepam
Estazolam
Flurazepam
Lorazepam
Midazolam
Nitrazepam
Oxazepam
Prazepam
Quazepam
Temazepam
Tetrazepam
Triazolam
Bisphosphonate
Alendronate
Etidronate
Ibandronate
Pamidronate
Risedronate
Tiludronate
Zoledronate
Calcium channel blocker
Amlodipine
Bepridil
Clevidipine
Diltiazem
Felodipine
Isradipine
Nicardipine
Nifedipine
Nimodipine
Nisoldipine
Prenylamine
Verapamil
Carbonic anhydrase inhibitor
Acetazolamide
Brinzolamide
Dichlorphenamide
Dorzolamide
Ethoxzolamide
Methazolamide
CB1 Cannabinoid receptor
antagonist
Rimonabant
Central muscle relaxant
Carisoprodol
Chlormezanone
Chlorzoxazone
Cyclobenzaprine
Meprobamate
Metaxalone
Methocarbamol
Orphenadrine
Cephalosporin
1st generation
Cefadroxil
Cefazolin
Cephalexin

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### MAIN CLASSES OF DRUGS

#### 2nd generation

- Cefaclor
- Cefamandole
- Cefmetazole
- Cefonicid
- Cefoperazone
- Cefoxitin
- Cefprozil
- Cefuroxime

#### 3rd generation

- Halcinonide
- Fluticasone Propionate
- Fluticasone Furoate
- Fluprednisolone
- Fluocinonide
- Fluocinolone
- Flumetasone
- Fludrocortisone
- Difluprednate
- Dexamethasone
- Desoximetasone
- Desonide
- Deflazacort
- Cortisone
- Clobetasol
- Cortisone
- Dehydrocortisone
- Dehydrocortisone
- Dexamethasone
- Diprophénylurea
- Difloroquinone
- Fluticasone Furoate
- Flulacronate
- Halcinonide

#### 4th generation

- Halobetasol
- Halometasone
- Hydrocortisone
- Lepetpredonal
- Methylprednisolone
- Mometasone
- Prednicarbate
- Prednisolone
- Prednisone
- Tixocortol
- Triamcinolone

#### 5th generation

- Mifepristone
- Misoprostol
- COX-2 inhibitor
- Celecoxib
- Etodolac
- Etoricoxib
- Meloxicam
- Valdecoxib

#### CYP3A4 inhibitor

- Amiodarone
- Apoptipant
- Boceprevir
- Chlorambucil
- Cimetidine
- Clarithromycin
- Conivaptan
- Dasabuvir/Ombitasvir/Paritaprevir/Ritonavir
- Delavirdine
- Diltiazem
- Erythromycin
- Fluvoxamine
- Imatinib
- Indinavir
- Itraconazole
- Ketoconazole
- Mifepristone
- Nelfinavir
- Norflaxacin
- Ombratavir/Ombitasvir/Paritaprevir/Ritonavir
- Ritonavir
- Ritonavir
- Saquinavir
- Telaprevir
- Telithromycin
- Verapamil
- Voriconazole

#### CNS stimulant

- Donepezil
- Edrophonium
- Galantamine
- Neostigmine
- Physostigmine
- Rivastigmine
- Succinylcholine
- Tacrine

#### Corticosteroid

- Alclometasone
- Amincinoide
- Beclomethasone
- Betamethasone
- Budesonide
- Ciclesonide
- Clobetasol
- Cortisone
- Diprophénylurea
- Difloroquinone
- Dexamethasone
- Diprophénylurea
- Fluocinonide
- Fluprednisolone
- Fluticasone Furoate
- Fluticasone Propionate
- Halcinonide

#### Disease-modifying antirheumatic drug (DMARD)

- Abatacept
- Adalimumab
- Azathioprine
- Bucillamine
- Certolizumab
- Chloroquine
- Cyclosporine
- Etoracptide
- Gold & Gold Compounds

#### Diuretic

- Acetazolamide
- Brinzolamide
- Dorzolamide
- Eplerenone
- Isosorbide
- Methazolamide
- Spironolactone

#### Epidermal growth factor receptor (EGFR) inhibitor

- Cetuximab
- Erlotinib
- Gefitinib

#### Epidermal growth factor receptor (EGFR) inhibitor

- Gefitinib
- Lapatinib
- Necitumumab
-Nilotinib
- Panitumumab
- Pazopanib
- Sorafenib
- Sunitinib

### Eugeroic

- Armolodafinil

### Fibrinolytic

- Alteplase
- Anistreplase
- Retepase
- Streptokinase
- Tenecteplase
- Urokinase

### Gonadotropin-releasing hormone (GnRH) agonist

- Buserelin
- Goserelin
- Histrinle
- Leuprolide
- Nafarelin
- Triptorelin

### Histamine

- EP receptor antagonist
- Alcaftadine
- Astemizole
- Azatadine
- Azelastine
- Bepotastine
- Brompheniramine
- Buclizine
- Carboxicamine
- Cetirizine
- Chlorpheniramine
- Cinnarizine
- Clemastine
- Cyproheptadine
- Desloratadine
- Dexamethasone
- Difenhydramine
- Epinastine
- Fexofenadine
- Hydroxyzine
- Ketotifen
- Levocetirizine
- Loratadine
- Medazine
- Mizolastine
- Olopatadine
- Phenindamine
- Promethazine
- Pyrilamine
- Rupatadine
- Terfenadine
- Trimazacine
- Trizolastamine
- Triprolidine

### H2 receptor antagonist

- Cimetidine
- Famotidine
- Nizatidine
**Hormone**
- Estradiol
- Levonorgestrel
- Oral Contraceptives
- Synthol

**Immunomodulator**
- Aldesleukin
- Efalizumab
- Glatiramer
- Imiquimod
- Immune Globulin IV
- Immune Globulin SC
- Interferon Alfa
- Interferon Beta
- Interferon Gamma
- Lenalidomide
- Levasiloxane
- Natalizumab
- Palivizumab
- PEG-Interferon
- Pimecrolimus
- Ponalidomide
- Sinecatechines

**Immunosuppressant**
- Acelascept
- Alemtuzumab
- Anti-Thymocyt Globulin (Equine)
- Anti-Thymocyte Immunoglobulin (Rabbit)
- Azathioprine
- Belactept
- Belimumab
- Cilostazol
- Daclizumab
- Everolimus
- Fingolimod
- Mizoribine
- Muromonab-CD3
- Mycophenolate
- Pirfenidone
- Rituximab
- Sirolimus
- Tacrolimus
- Thalidomide

**Mast cell stabilizer**
- Cromolyn
- Lodoxamide
- Nedocromil
- Pemirolast

**Monoamine oxidase (MAO) inhibitor**
- Isocarboxazid
- Phezeltine
- Tranlocromoline

**mTOR inhibitor**
- Everolimus
- Temsirolimus
- Zotarolimus

**Muscarinic antagonist**
- Amtriptilpine
- Atropine
- Atropine Sulfate
- Benactyzine
- Benztrapine
- Bipiperidin
- Chlorpheralinurine
- Chlorromazine
- Cinnarizine
- Clidinium
- Clomipramine
- Darinofacin
- Dicyclomine
- Diphenhydrine
- Disopyramide
- Doxepin
- Fesoterodine
- Flavoxate
- Glycopyrrolate
- Hydroxyzine
- Hyoscianine
- Imipramine
- Ipratropium
- Maprotiline
- Mepenzololate
- Olanzapine
- Orphenadrine
- Oxbutynin
- Phenelzine
- Prochlorperazine
- Procyclidine
- Propantheline
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**Main Classes of Drugs**

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CLASSES OF DRUGS THAT CAN CAUSE IMPORTANT INTERACTIONS

**ARBs**
Angiotensin II receptor antagonists (blockers)
- Candesartan
- Eprosartan
- Irbesartan
- Losartan
- Olmesartan
- Telmisartan
- Valsartan

**CYP 3A4 inhibitors**
- Amiodarone
- Anastrozole
- Azithromycin
- Cimetidine
- Clarithromycin
- Cyclosporine
- Danazol
- Delavirdine
- Dexamethasone
- Diltiazem
- Dirithromycin
- Disulfiram
- Entacapone
- Erythromycin
- Fluconazole
- Fluoxetine
- Fluvoxamine
- Grapefruit juice
- Indinavir
- Isoniazid
- Ketoconazole
- Metronidazole
- Mibefradil
- Nefazodone
- Nicardipine
- Nifedipine
- Nortriptyline
- Omeprazole
- Paroxetine
- Phenobarbital
- Phenytoin
- Propantheline
- Propoxyphene
- Quinidine
- Ranitidine
- Saquinavir
- Sertindole
- Sertraline
- Tegafur
- Troleandomycin
- Valproic acid

**MAOIs**
Monamine Oxidase Inhibitors
- Amitriptyline
- Amoxapine
- Atomoxetine
- Bupropion
- Clorgyline
- Desipramine
- Dextroamphetamine
- Fluoxetine
- Imipramine
- L-Deprenyl
- Nortriptyline
- Phenelzine
- Phenylpropanolamine
- Phenylethylamine
- Protriptyline
- Selegiline

**NSAIDs**
Non Steroidal Anti-Inflammatory Drugs
- Aspirin
- Celecoxib
- Diclofenac
- Diflunisal
- Etodolac
- Fenoprofen
- Flurbiprofen
- Ibuprofen
- Indomethacin
- Ketoprofen
- Magnesium salicylate sodium
- Meclofenamate sodium
- Mefenamic acid
- Meloxicam
- Nabumetone
- Naproxen
- Oxaprozin
- Piroxicam
- Rofecoxib
- Salicylate
- Sodium salicylate
- Sulindac
- Tolmetin
- Valdecoxib

**Statins**
HMG-CoA reductase inhibitors
- Atorvastatin
- Fluvastatin
- Lovastatin
- Pitavastatin
- Pravastatin
- Rosuvastatin
- Simvastatin

* Note that acetaminophen (Paracetamol; Tylenol) is not on this list; unlike other common analgesics such as aspirin and ibuprofen, it has no anti-inflammatory properties, and so it is not a member of the class of drugs known as non-steroidal anti-inflammatory drugs. Acetaminophen relieves pain in mild arthritis but has no effect on the underlying inflammation, redness and swelling of the joint. It belongs to a class of drugs called analgesics (pain relievers) and antipyretics (fever reducers) and is thought to relieve pain by elevating the pain threshold (that is, by requiring a greater amount of pain to develop before it is felt). It reduces fever through its action on the heat-regulating center of the brain; specifically, it tells the center to lower the body’s temperature when the temperature is elevated.
### CLASS REACTIONS

#### ACE INHIBITORS

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* The following conventions are followed in these tables:
  - * reaction noted (package inserts)
  - [3] number of published reports of a reaction
  - (8%) highest incidence that has ever been noted or reported
  - ✓ 20 reports or over or an incidence of 20% or over recorded for this reaction for a minority of drugs in the class
  - ✓ ✓ all drugs in the class selection have this reaction noted or reported
  - ✓ ✓ ✓ all drugs in the class selection have this reaction noted or reported

Note: reactions noted or reported for only one drug in a class selection have been excluded
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A = Amiodarone; Di = Disopyramide; Dr = Dronedarone; F = Flecainide; I = Ibutilide; L = Lidocaine; Pn = Procainamide; Pf = Propafenone; Pr = Propranolol; Q = Quinidine; S = Sotalol

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### Raynaud’s Phenomenon

- [3] (59%)

### Sjogren’s Syndrome

- [1]

### Stevens-Johnson Syndrome

- [1] [2]

### Toxic Epidermal Necrolysis

- [2] [1]

### Toxicity

- [5] [1] [1]

### Urticaria

- [1] [5] [1] [3] [1] ✓

### Vasculitis

- [6] [1] [5] [1] [1] ✓

### HAIR

- Alopecia

### MUCOSAL

- Oral lesions

- [1] (40%)

- [1] (>5%)

- Oral mucosal eruption

- [1]

- Oral ulcération

- [1]

- Sialorrhea

- (<10%)

- [1]

- Xerostomia

- [2] (40%)

- [1] [1] ✓

---

**Legend:**
- A: Amiodarone; Di: Disopyramide; Dr: Dronedarone; F: Flecainide; I: Ibutilide; L: Lidocaine; Pn: Procainamide; Pf: Propafenone; Pr: Propranolol; Q: Quinidine; S: Sotalol

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# Class Reactions

## Antibiotics, Macrolide

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A Azithromycin; C Clarithromycin; E Erythromycin
## ANTICONVULSANTS

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**B** Brivaracetam; **C** Carbamazepine; **G** Gabapentin; **Ls** Lamotrigine; **La** Levetiracetam; **O** Oxcarbazepine; **Phb** Phenobarbital; **Phy** Phenytoin; **Ti** Tiagabine; **To** Topiramate; **V** Valproic Acid; **Z** Zonisamide

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B = Brivaracetam; C = Carbamazepine; G = Gabapentin; L = Lamotrigine; L = Levetiracetam; O = Oxcarbazepine; Pb = Phenobarbital; Phy = Phenytoin; Ti = Tiagabine; To = Topiramate; V = Valproic Acid; Z = Zonisamide
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B Brivaracetam; C Carbamazepine; G Gabapentin; La Lamotrigine; Le Levetiracetam; O Oxcarbazepine; Phb Phenobarbital; Phy Phenytoin; Ti Tiagabine; To Topiramate; V Valproic Acid; Z Zonisamide
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Ami: Amitriptyline; Amo: Amoxapine; C: Clomipramine; I: Imipramine; N: Nortriptyline; T: Trimipramine;
## ANTIHISTAMINES (H1)

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Ce = Cetirizine; Ch = Chlorpheniramine; Des = Desloratadine; Dy = Diphenhydramine; Fex = Fexofenadine; H = Hydroxyzine; Lev = Levocetirizine; Lor = Loratadine; O = Olopatadine; P = Promethazine.

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Litt's Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC
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*Amo: Amodiaquine; A/L: Artemether/Lumefantrine; Art: Artesunate; A/P: Atovaquone/Proguanil; C: Chloroquine; H: Hydroxychloroquine; M: Mefloquine; P: Pyrimethamine; Quc: Quinacrine; Qud: Quinidine; Qun: Quinine; S: Sulfadoxine*
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**Ap** Aripiprazole; **As** Asenapine; **Chl** Chlorpromazine; **Clo** Clozapine; **H** Haloperidol; **L** Lurasidone; **O** Olanzapine; **Pal** Paliperidone; **Per** Perphenazine; **Q** Quetiapine; **R** Risperidone; **Z** Ziprasidone;
## ANTIPSYCHOTICS

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## HAIR

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| Alopecia |     | [1] | [3] |     | [1] | [2] | *   |     |     |     |     |     |
| Alopecia areata |     |     |     |     |     |     |     |     |     |     |     |     |

## MUCOSAL

|          |     |     |     |     |     |     |     |     |     |     |     |     |
| Epistaxis |     | (<10%) |     |     |     |     |     |     |     |     |     |     |
| Gingival bleeding |     |       |     |     |     |     |     |     |     |     |     |     |
| Gingivitis |     |       |     |     |     |     | [1] | *   |     |     |     |     |
| Glossitis |     |       |     |     |     |     |     |     | *   |     |     |     |
| Glossodynia |     | [1] |     |     |     |     |     |     |     |     |     |     |
| Nasal congestion |     |       |     |     |     |     |     |     | *   |     |     |     |
| Oral ulceration |     |       |     |     |     |     |     |     |     |     |     |     |
| Stomatitis |     |       |     |     |     |     |     |     | *   |     |     |     |
| Tongue edema |     |       |     |     |     |     |     |     | *   |     |     |     |
| Tongue pigmentation |     |       |     |     |     |     |     |     |     |     |     |     |

 Ap = Aripiprazole; As = Asenapine; Chl = Chlorpromazine; Clo = Clozapine; H = Haloperidol; L = Lurasidone; O = Olanzapine; Pal = Paliperidone; Per = Perphenazine; Q = Quetiapine; R = Risperidone; Z = Ziprasidone.
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A = Alprazolam; Cln = Clonazepam; Clo = Clorazepate; D = Diazepam; L = Lorazepam; M = Midazolam; O = Oxazepam

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### BETA BLOCKERS

#### CLASS REACTIONS

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| Alopecia | [1] |     | [6] |    | * |    |   |

| **MUCOSAL** |   |     |   |   |    |    |   |
| Keratosis | * |     | [1] |    | * |    |   |
## BIOLOGICS

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Ald: Aldesleukin; Alm: Alemtuzumab; Be: Bevacizumab; Bo: Bortezomib; C: Cetuximab; D: Dasatinib; E: Erlotinib; G: Gefitinib; I: Imatinib; In: Interferon Alfa; Ip: Ipilimumab; L: Lenalidomide; P: Panitumumab; R: Rituximab

Litt's Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC 369
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Ald Aldesleukin; Alm Alemtuzumab; Be Bevacizumab; Bo Bortezomib; C Cetuximab; D Dasatinib; E Erlotinib; G Gefitinib; Ii Imatinib; In Interferon Alfa; Ip Ipilimumab; L Lenalidomide; P Panitumumab; R Rituximab

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**Notes:**
- Ald: Aldesleukin
- Alm: Alentuzumab
- Be: Bevacizumab
- Bo: Bortezomib
- C: Cetuximab
- D: Dasatinib
- E: Erlotinib
- G: Gefitinib
- Ib: Imatinib
- In: Interferon Alfa
- Ip: Ipilimumab
- L: Lenalidomide
- P: Panitumumab
- R: Rituximab

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**Abbreviations:**
- **Ald:** Aldesleukin
- **Alm:** Alemtuzumab
- **Be:** Bevacizumab
- **Bo:** Bortezomib
- **C:** Cetuximab
- **D:** Dasatinib
- **E:** Erlotinib
- **G:** Gefitinib
- **Ib:** Imatinib
- **In:** Interferon Alfa
- **Ip:** Ipilimumab
- **L:** Lenalidomide
- **P:** Panitumumab
- **R:** Rituximab
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A: Alendronate; E: Etidronate; I: Ibandronate; P: Pamidronate; R: Risedronate; Z: Zoledronate
### CALCIUM CHANNEL BLOCKERS

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Amlodipine; D Diltiazem; F Felodipine; I Isradipine; Nic Nicardipine; Nif Nifedipine; Nis Nisoldipine; V Verapamil

Litt’s Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC 375
### Calcium Channel Blockers

**Class Reactions**

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**Legend:**

- A: Amlodipine
- D: Diltiazem
- F: Felodipine
- I: Isradipine
- Nic: Nicardipine
- Nif: Nifedipine
- Nis: Nisoldipine
- V: Verapamil

**Note:** Litt’s Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC
## CEPHALOSPORINS

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1st generation: Cdxl (Cefadroxil); 2nd generation: Cclor (Cefaclor), Ctan (Cefotetan), Coxm (Cefuroxime); 3rd generation: Coxm (Cefuroxime), Czim (Ceftazidime), Caxn (Ceftriaxone); 4th generation: Cpm (Cefepime); 5th generation: CF (Ceftaroline Fosamil), Cple (Ceftobiprole)
### DISEASE-MODIFYING ANTIRHEUMATIC DRUGS (DMARDS)

| Ab | Ad | Az | Ce | Cy | E  | G  | H  | I  | M  | P  | R  | S  | — |
|----|----|----|----|----|----|----|----|----|----|----|----|----|——|
| **SKIN** | | | | | | | | | | | | | |
| Abscess | [1] | | | | [2] | | | | [4] | [2] | | | |
| Acneiform eruption | [3] | [2] | [7] | [1] | | [6] | [1] | [87%] | | | | | |
| AGEP | [2] | | | | [1] | | [22] | [25%] | [2] | | | [3] | [1] |
| Angioma | | | | | | | | | | | | | |
| Atrophy | | | | | | | | | | | | (1) | |
| Bullous dermatitis | | | | | | [1] | | [2] | [1] | [4] | [3] | [1] | |
| Bullous pemphigoid | [1] | | | | [1] | | | | | | | |
| Burning | | | | | | | | | | | | | |
| Churg-Strauss syndrome | | | | | | | | | | | | | |
| Cicatricial pemphigoid | | | | | | [1] | | [2] | | | | | |
| Cyst | | | | | | [1] | | | | | | | |
| Dermatomyositis | [5] | | [4] | [1] | | | | | | | | [14] | |
| Diaphoresis | | | | | | | | | | | | [2] | (15%) | [1] |
| DRESS syndrome | | | | | | [2] | | [11] | [2]% | | | |
| Ecchymoses | | | | | | | | | | | | [1] | [1] |
| Eccrine squamous syringometaplasia | | | | | | [1] | | | | | | [1] |
| Erythema | [1] | (<5%) | | | | | | | | | | | |

**Ab** Abatacept; **Ad** Adalimumab; **Az** Azathioprine; **Ce** Certolizumab; **Cy** Cyclosporine; **E** Etanercept; **G** Golimumab; **H** Hydroxychloroquine; **I** Infliximab; **M** Methotrexate; **P** Penicillamine; **R** Rituximab; **S** Sulfasalazine
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Ab Abatacept; Ad Adalimumab; Az Azathioprine; Ce Certolizumab; Cy Cyclosporine; E Etanercept; G Golimumab; H Hydroxychloroquine; I Infliximab; M Methotrexate; P Penicillamine; R Rituximab; S Sulfasalazine
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**Ab** Abatacept; **Ad** Adalimumab; **Az** Azathioprine; **Ce** Certolizumab; **Cy** Cyclosporine; **E** Etanercept; **G** Golimumab; **H** Hydroxychloroquine; **I** Infliximab; **M** Methotrexate; **P** Penicillamine; **R** Rituximab; **S** Sulfasalazine

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### HAIR

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### NAILS

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### Notes:
- Ab: Abatacept; Ad: Adalimumab; Az: Azathioprine; Ce: Certolizumab; Cy: Cyclosporine; E: Etanercept; G: Golimumab; H: Hydroxychloroquine; I: Infliximab; M: Methotrexate; P: Penicillamine; R: Rituximab; S: Sulfasalazine
### DPP-4 INHIBITORS

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*Alog Alogliptin; Lina Linagliptin; Saxa Saxagliptin; Sita Sitagliptin*
### EGFR INHIBITORS

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© Cetuximab; E Erlotinib; G Gefitinib; L Lapatinib; Nec Necitumumab; Nil Nilotinib; P Panitumumab; Sor Sorafenib; Sun Sunitinib

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### CLASS REACTIONS

**EGFR INHIBITORS**

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| **NAILS** | | | | | | | | | |
| **Nail changes** | [1] (21%) | [3] (25%) | [1] (17%) | | | | | | |

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Litt's Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC
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C: Cetuximab; E: Erlotinib; G: Gefitinib; L: Lapatinib; Nec: Necitumumab; Nil: Nilotinib; P: Panitumumab; Sor: Sorafenib; Sun: Sunitinib

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## FLUOROQUINOLONES

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B Besifloxacin; C Ciprofloxacin; L Levofloxacin; M Moxifloxacin; N Norfloxacin
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B Besifloxacin; C Ciprofloxacin; L Levofloxacin; M Moxifloxacin; N Norfloxacin
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A: Aspirin; C:Celecoxib; D:Diclofenac; E:Etodolac; F:Flurbiprofen; Ib:Ibuprofen; In:Indomethacin; Ktp:Ketoprofen; Ktl:Ketorolac; Mx:Meloxicam; Np:Naproxen; O:Oxaprozin; P: Piroxicam; S:Sulindac
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A: Aspirin; C: Celecoxib; D: Diclofenac; E: Etodolac; F: Flurbiprofen; Ib: Ibuprofen; In: Indomethacin; Ktp: Ketoprofen; Ktl: Ketorolac; Mx: Meloxicam; Np: Naproxen; O: Oxpaxin; P: Piroxicam; S: Sulindac.
## PROTON PUMP INHIBITORS (PPI)

### CLASS REACTIONS

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D: Dexlansoprazole; E: Esomeprazole; L: Lansoprazole; O: Omeprazole; P: Pantoprazole; R: Rabeprazole; () Class occurrence

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D: Deslansoprazole; E: Esomeprazole; L: Lansoprazole; O: Omeprazole; P: Pantoprazole; R: Rabeprazole.
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A: Atorvastatin; F: Fluvastatin; L: Lovastatin; Pi: Pitavastatin; Pr: Pravastatin; R: Rosuvastatin; S: Simvastatin
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A Adalimumab; C Certolizumab; E Etanercept; G Golimumab; I Infliximab
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A Adalimumab; C Certolizumab; E Etanercept; G Golimumab; I Infliximab
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<th>TNF Inhibitors</th>
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<td>HAIR</td>
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<td>Alopecia areata</td>
<td>[7]</td>
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<tr>
<td>Follicular mucinosis</td>
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A: Adalimumab; C: Certolizumab; E: Etanercept; G: Golimumab; I: Infliximab

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## TYROSINE-KINASE INHIBITORS

### CLASS REACTIONS

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<tr>
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<th>Aft</th>
<th>Axt</th>
<th>Cbo</th>
<th>Crz</th>
<th>Dsa</th>
<th>Erl</th>
<th>Gft</th>
<th>Imt</th>
<th>Lpt</th>
<th>Lnv</th>
<th>Nlo</th>
<th>Nnt</th>
<th>Srf</th>
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<td>(32) (46–85%)</td>
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<td>(6) &lt;10%</td>
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Aft: Afatinib; Axt: Axitinib; Cbo: Cabozantinib; Crz: Crizotinib; Dsa: Dasatinib; Erl: Erlotinib; Gft: Gefitinib; Imt: Imatinib; Lpt: Lapatinib; Lnv: Lenvatinib; Nlo: Nilotinib; Nnt: Nintedanib; Srf: Sorafenib; Snt: Sunitinib; Vnd: Vandetanib

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<td>Jaundice (25%)</td>
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<tr>
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<tr>
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<td>Lichen planus (5)</td>
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<td>Neurofibromas</td>
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<tr>
<td>Nevus</td>
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<tr>
<td>Palmar-plantar hyperkeratosis (1)</td>
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<td>Panniculitis (38%)</td>
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<tr>
<td>Papulopustular eruption (9%) (21%)</td>
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<tr>
<td>Peripheral edema (6) (28%)</td>
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<td>Photosensitivity (2) (1)</td>
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<td>Pigmentation</td>
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<td>Pruritus (2) (13%) (18%)</td>
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<td>Pustula</td>
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<td>Seborrheic dermatitis (1)</td>
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### Class Reactions

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<tr>
<td>TYROSIINE-KINASE INHIBITORS</td>
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<td>Sweet’s syndrome</td>
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<td>Ulcerations</td>
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<td>Vasculitis</td>
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<td>Wound complications</td>
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* Tafinib; Aft Afatinib; Axt Axitinib; Cbo Cabozantinib; Crz Crizotinib; Das Dasatinib; Erl Erlotinib; Gft Gefitinib; Imt Imatinib; Lpt Lapatinib; Leu Lenvatinib; Nlo Nilotinib; Net Nintedanib; Srf Sorafenib; Snt Sunitinib; Vnd Vandetanib

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**CONCORDANCE**

- insulin glargine
- amodiaquine
- co-trimoxazole
- doxorubicin
- avelumab
- cefadroxil
- delafloxacin
- piroxicam
- immune globulin IV
- nilosipine
- clindamycin
- fentanyl
- camptothecine
- beclometasone
- influenza vaccine
- phentermine
- belinostat
- atropine sulfate
- collagen (bovine)
- atropine sulfate
- metoprolol
- suvorexant
- loratadine
- diphenhydramine, pseudoephedrine
- diphenhydramine
- cefotaxime
- ceftriaxone
- probenecid
- lindane
- olmesartan
- sodium saccharin
- dextromethorphan, diphenhydramine
- clindamycin
- cyclobenzaprine
- penicillin G
- immune globulin IV
- verapamil
- levothyroxine
- cyanocobalamin
- buspirone
- inotuzumab ozogamicin
- atenolol
- sotalol
- sotalol
- interferon beta
- metoprolol
- mirabegron
- sotalol
- chlorhexidine
- interferon beta
- metoprolol
- cyanocobalamin
- betaxolol
- betaxolol
- betaxolol
- betrixaban
- aspirin
- meningococcal group B vaccine
- dimethyl fumarate
- ketoprofen
- clarithromycin
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ursodiol

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Litt’s Drug Eruption & Reaction Manual © 2018 by Taylor & Francis Group, LLC
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Canagliflozin
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| J | jactin, jadelle, jadenu, jayln, janumet, januvia, jardiance, jenamicin, jetrea, jezil, jodaturn, jodid, jubila, jumex, jurnista, juvederm, juxtapapid |
| K | kabikinase |

<p>| Kabikinase | ado-trastuzumab emtansine, morphine, praziquantel, lopinavir, ritonavir, potassium iodide, buspirone, alprazolam, atenolol, amiloride, ivacofor, kanamycin, kanamycin, kanamycin, amikacin, kanamycin, kanamycin, kanamycin, sebelipase alfa, phytonadione, prothrombin complex concentrate (human), ketoprofen, cephalaxin, cephalaxin, cefaclor, cephalaxin, ketorolac, penicillamine, metoprolol, cangrelor, ciprofloxacin, palifermin, levitiracetam, betaxolol, betaxolol, tavadonol, tamoxifen, ketamine, ketamine, ketamine, ketoconazole, ketoconazole, ketamine, ketorolac, halidomidone, sarilumab, pembrolizumab, desvenlafaxine, potassium iodide, asparaginase, potassium iodide, lindane, anakinra, quinidine, ribociclib, clarithromycin, clarithromycin, enoxaparin, clonazeparn, chloramphenicol, clozapine, carbamazepine |</p>
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Ursodiol
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Lystra
Luvox
Luzu
Lyetin
Lynparza
Lyvac
Lypse
Lyrina
Lysago
Lysacte rt-PA
Lyxumia

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Maloxx
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Laxapine
Nicardipine
Lopatine
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Pregabalin
Oxybutynin
Mefenamic acid
Alteplase
Lixisenatide
Quinine
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Alemizone
Busulfan
Rituximab
Clarithromycin
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Nitrofurantoin
Peganaptin
Chloroquine
Atovaquone/proguanil
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Dapsone
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Acetaminophen
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Phenoxymethylpenicillin  phentoin  Pravasine
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Phenytek  phentoin  Praxbind
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Phytomenadione  amphotoline  Preactil
Picato  ingenol mebutate  Pred-G
Pildal  nifedipine  Prefrin Liquid
Pilo Grin  pilocarpine  Pres
Pilogel  pilocarpine  Pres
Pilopine  pilocarpine  Pres
totton  pilocarpine  Pres
tiandol  pimeozide  Pres
Pink Bismuth  bismuth  Prescal
Frimeceidan  pyrimethamine  Presinol
Pitocin  oxytocin  Preskin
Pitressin  vasopressin  Preslo
Placil  clomipramine  Prestalia
Plan B  levonorgestrel  Pretz-D
Planphyline  aminophylline  Prevacad
Planum  temazepam  Prevalite
Plasenil  hydroxychloroquine  Preveon
Plaquelin  hydroxychloroquine  Prevmar
Plasnomtrim  arteunate  Prevap
Plasticin  cisplatin  Pretx
Plat blatin  cisplatin  Prezcobix
Platinex  cisplatin  Prezista
Platinol-AQ  cisplatin  Priadel
Platine  cisplatin  Prialt
Plasticil  cisplatin  Prioden
Plavix  clopidogrel  Priloces
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Pletal  cilostazol  Primafen
Plurimeen  selegline  Primate  Mist
PMS-Baclofen  baclofen  Primaten
PMS-Cholestyramine  cholestyramine  Primiprost
PMS-Isoniazid  isoniazid  Priminil
PMS-Lindane  lindane  Primoscept
PnCOPM  pneumococcal vaccine  Primisol
Pneumovax II  pneumococcal vaccine  Principen
Pnu-Imp  pneumococcal vaccine  Princol
Polinal  methylodopa  Prinil
Poly-Pred  neomycin  Prinivil
Polygram S/D  immune globulin IV  Prinzone
Polygys  griseofulvin  Pro-Stiq
Polytrim  trimethoprim  Pro-Amox
Pomalyst  pomalidomide  Pro-Ampl
Ponstan  mefenamic acid  Pro-Cure
Ponest  mefenamic acid  Pro-Depo
Ponystyl  mefenamic acid  Pro-Trin
Portrazza  necitumumab  Probalan
pot  marinhana  Probephine
Potiga  eizogabine  Procan SR
PPV  pneumococcal vaccine  Procan
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**Notes:**

- Rybnex is not a standard drug name, and its use is not widespread.
- Rybinex is not a recognized drug name as per the Litt's Drug Eruption & Reaction Manual.
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CONCORDANCE Litt's Drug Eruption & Reaction Manual

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