Litt's

D.E.R.M.

Drug Eruptions & Reactions Manual

16th Edition

Jerome Z. Litt MD

informa
healthcare

Litt's

D.E.R.M.

Drug Eruptions & Reactions Manual

16th Edition

Jerome Z. Litt, MD
Assistant Clinical Professor of Dermatology
Case Western Reserve University School of Medicine
Cleveland, Ohio, USA

informa
healthcare

New York London

This edition is published in 2010 by Informa Healthcare, Telephone House, 69–77 Paul Street, London EC2A 4LQ. Informa Healthcare is a trading division of Informa UK Ltd. Registered Office: 37/41 Mortimer Street, London W1T 3JH. Registered in England and Wales number 1072954.

A CIP record for this book is available from the British Library.

Library of Congress Cataloguing-in-Publication Data

Data available on application

ISBN-13: 978-1-8418-4723-8

Orders
Informa Healthcare
Sheepen Place
Colchester
Essex CO3 3LP
UK
Telephone: +44 (0)20 7017 5540
Email: CSDhealthcarebooks@informa.com

CONTENTS

To Vel – my Muse

Foreword

Any drug has the potential to cause an adverse effect. An adverse effect, be it an adverse drug reaction (ADR) or an adverse drug event, 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 5–15% 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. More and 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.

The FDA reports that 319,741 people in the United States were hospitalized as a result of serious adverse drug events in 2008, and of these cases, 15.6% – almost 50,000 – patients died. In fact, from January 2000 to June 2009 the FDA has reported nearly 2 million cases of serious adverse drug events, of which 17 % (336,448) have resulted in death. About 5% of hospital admissions in the United States are estimated to be for the treatment of ADRs. Moreover, as many as one-third of all emergency department and urgent care-center visits are drug related.

Prevention, diagnosis and treatment of adverse drug events are becoming more and more complex, and it is to be expected that physicians in all specialties and medical students are often perplexed by the nature of ADRs. To this end, I now offer a new, improved book that has evolved from the treasured drug eruption reference manual of previous editions. I hope that you will find this comprehensive new edition informative and valuable.

Enjoy!
Jerome Z. Litt, M.D.
January, 2010

The Drug Eruptions & Reactions Manual (D.E.R.M.) – what's new

For 15 years, this title has been a reference manual for cutaneous eruptions. The 16th edition has been expanded and enhanced to present a comprehensive listing of all adverse drug reactions (ADRs), side effects, drug interactions and other safety information for prescription and over-the-counter medications. The aims of this book are:

1. To help medical practitioners make informed decisions: when diagnosing and when prescribing, and also when generally seeking information.
2. To provide physicians, lecturers, educators, pharmacists and students with an easy-to-use and reliable reference tool.

Drugs: This manual describes and catalogues the adverse side effects of more than 1350 commonly prescribed and over-the-counter generic drugs – more than 90 of which are new to this edition. All drugs have also been indexed by their Trade (Brand) names for easy accessibility.

ADRs: Under each drug profile is a list of related adverse drug reactions. To create this improved book, drug entries have been enhanced by over 2700 adverse events listings. In addition, these adverse events have been newly classified under the following categories:

Skin, Hair, Nails, Mucosal, Cardiovascular, Central nervous system, Neuromuscular/Skeletal, Gastrointestinal/Hepatic, Respiratory, Endocrine/Metabolic, Hematologic, Renal, Genitourinary, Otic, Ocular, and Local.

In addition to the improved listing of ADRs, this manual still retains its comprehensive documentation of cutaneous eruptions and mucosal adverse effects.

Drug interactions: As with previous editions, D.E.R.M. #16 contains details of many severe, hazardous drug-drug interactions. Only clinically significant drug interactions that have been reported to trigger potential harm and that could be life-threatening have been included. These interactions are predictable and well documented in controlled studies; they should be avoided.

Some generic drugs from earlier editions have been eliminated from the print copy because either they have either been withdrawn from the marketplace or they are rarely, if ever, prescribed today. These drug profiles (together with all the information in this book) are available – and always will be – to subscribers on our website: www.drugeruptiondata.com

Where has all this data come from?

In the past, several reference works were consulted in the course of compiling the very first few editions of this manual. These included:

(2002): Stockley IH, Stockley's Drug Interactions, Pharmaceutical Press, London and Chicago
(1998): Kauppinen K et al, Skin Reactions to Drugs, CRC Press, Boca Raton
(1996): Bruinsma W, A Guide to Drug Eruptions, The File of Medicines, PO Box 21, 1474 HJ Oosthuizen, Netherlands.
(1994): Goldstein S & Wintroub BU, Adverse Cutaneous Reactions to Medication, CoMedica, New York.
(1992): Zürcher K & Krebs A, Cutaneous Drug Reactions, Karger, Basel.
(1992): Breathnach SM & Hintner H, Adverse Drug Reactions and the Skin, Blackwell, Oxford.
(1988): Bork K, Cutaneous Side Effects of Drugs, WB Saunders, Philadelphia.

Now, the majority of the information in this Manual has been gleaned from the ~19 million citations assembled under PubMed® by the U.S. National Library of Medicine® (NLM).

Journal article citations for many of the reactions listed come from the *J Am Acad Dermatol, Arch Dermatol, Cutis, Int J Dermatol, Contact Dermatitis, Br J Dermatol, JAMA, Lancet, BMJ, Aust J Dermatol, N Engl J Med, Ann Intern Med*, and many other prominent and easily accessible journals. There are occasional allusions to the incidence of many of the listed ADRs. Percentages are obtained from these peer reviewed and published articles.

Online resources such as the eMC (Electronic Medicines Compendium) and the FDA (U.S. Food and Drug Administration) have also been referred to when compiling drug profiles.

Observations (read anecdotes) are derived from information obtained via the Internet from more than 1500 reliable and responsible dermatologists worldwide, and via Dr Litt's personal correspondence.

A number of drug profiles have been researched by the Editorial team at Informa Healthcare. Thanks for these additions are due to Dr Kelly Cornish, PhD, Mario Christodoulou, BSc. and Malavika Ramaswamy, MSc.

We are continuously adding to **Litt's D.E.R.M. database** (the online ADR checking tool from which the D.E.R.M. printed book is created) and we welcome any ADR related observations that you may have. Email us with observations at support@drugeruptiondata.com. All relevant input will be catalogued and you will be given appropriate attribution and recognition on our website: www.drugeruptiondata.com

Author's note on ADRs

Adverse drug reactions are the most common iatrogenic illness, complicating, at times, up to 15% of therapeutic drug courses. Despite the frequency and sometimes life-threatening nature of ADRs, they remain underreported and thus are an underestimated cause of morbidity and mortality.

ADRs can be very broadly classified as immunologic or non-immunologic, and can have a wide ranging effect on patients. Some examples include:*

Immunologic Drug Reactions	**Examples**	**Notes**
IgE-mediated	Anaphylaxis from Beta-lactam antibiotics	Could be severe and life-threatening
Cytotoxic	Hemolytic anemia from penicillin	Could be serious
Immune complex	Serum sickness from tetanus antitoxin	Could be serious
Cell-mediated, delayed	Contact dermatitis from nickel	Minor, not serious

Non-immunologic Drug Reactions	Examples	Notes
Specific T-cell activation	Exanthem from sulfonamides	Minor, not serious
Fas/Fas ligand induced	Stevens-Johnson syndrome; Toxic epidermal necrolysis	Both these ADRs are severe and life threatening.
Miscellaneous	Anticonvulsant hypersensitivity syndrome; Lupus-like syndrome	Could be severe and serious
Pharmacologic side effect	Dry mouth from antihistamine	Mild, not serious
Secondary pharmacologic side effect	Candidiasis from oral antibiotics	Moderate level of seriousness (but could be severe and life-threatening in immunocompromised patients)
Toxicity	Hepatotoxicity from methotrexate	Could be serious
Drug–drug interactions	Seizure from theophylline while taking erythromycin	Could be serious
Overdose	Excessive lidocaine causing anaphylaxis or hypersensitivity	Could be serious
Pseudoallergic	Anaphylactoid reactions from radiocontrast media	Significant risk of being a serious reaction
Idiosyncratic	Hemolytic anemia from primaquine or dapsone	Could be serious
Intolerance	Tinnitus from aspirin	Mild, not serious or severe

* This table has been adapted from American Family Physician, November 1, 2003, M. Riedel and A. Casillas

ADRs have also been classified into these six types:

- Dose-related, e.g. digoxin toxicity
- Non-dose-related, e.g. immunological reactions
- Dose-related and time-related, e.g. corticosteroids
- Time-related, e.g. tardive dyskinesia
- Withdrawal, e.g. opiate or beta-blocker withdrawal
- Unexpected failure of therapy, e.g. inadequate dose of an oral contraceptive

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

1. Patient-related factors:

- Age – geriatric, pediatric, middle-aged, adolescent . . . Older patients are taking more medications-hence more of a possibility of developing reactions; pediatric patients have more delicate skins; hormonal changes in adolescents. All these factors play roles in the development of possible adverse reactions.
- Sex – 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 – for example 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.
- 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 and topical administrations are more likely to cause hypersensitivity reactions; oral medications are less likely to result in drug hypersensitivity.

With all of the facts listed both in this section and in my foreword, one would have thought that prevention, diagnosis and treatment of ADRs were complex enough. . . Unfortunately, the situation is *further complicated* by the variety of ways in which we talk about adverse drug reactions! 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. Herbals and supplements such as St. John's Wort, ginkgo biloba, and echinacea can be responsible for various hypersensitivity reactions. For instance, St. John's Wort, in particular, interacts adversely with SSRIs and tricyclic antidepressents.

Listen to your patients! They will often tell you what you need to know when it comes to adverse effects of medication.

Contents of the book, and how to use them

This book has three parts.

1. **The A–Z**
   The major portion of the manual – the body of the work – lists in A–Z order the 1300-odd generic drugs and supplements, and the adverse reactions that can arise from their use. A note outlining hazardous interactions only appears alongside those drugs for which severe/hazardous drug interactions are reported.

   In several instances, appropriate references are included below the listed adverse effects in order to provide clinical evidence and support for the occurrence of the side effect with that particular drug. A maximum of two references per ADR are included so that this 16th edition cites more than 20,800 references and sources: from journal articles and books along with observations from dermatologists from all over the world. These references date back to 1980.

   (You will find over 41,000 references on our website, from as far back as 1922. Visit www.drugeruptiondata.com where you could request a free trial to the database.)

   On some occasions, there are very few or no adverse reactions to a specific drug. These drugs are still included in the manual as there is a positive significance in negative findings.

2. **The Index**
   The next part of the manual is an index of all the generic drugs and their corresponding Trade names (over 6000). If you need to look up a Trade name drug, use the index to find the corresponding generic name so that you can then look-up the relevant entry in the A–Z section.

3. **Common eruptions**
   This manual includes a description of the most common eruption patterns; acting as a quick reference section for those cutaneous reactions that occur most often. This section describes 35 eruptions in alphabetical order, from Acanthosis nigricans to Vasculitis.

   (Descriptions to several other reactions can be found on our website – www.drugeruptiondata.com)

Notes on style and conventions

Drug information

- The **Generic drug** name is at the top of each drug profile. A listing of Synonyms (where applicable) follows.
- **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 is marketing 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, when known.
- On occasion, an important or pertinent **Note** (most often pertaining to potentially severe drug-drug interactions) will follow.

Reactions

- These are the **Adverse Reactions** to the particular generic drug. They are classified into seventeen different categories: Skin, Hair, Nails, Mucosal, Cardiovascular, Central Nervous System, Neuromuscular/Skeletal, Gastrointestinal/Hepatic, Respiratory, Endocrine/Metabolic, Hematologic, Renal, Genitourinary, 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. However, there are occasional allusions to the incidence of many of the listed ADRs in percentages.
- 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.
- Many of the listed ADRs carry supporting references.

References

- The term **passim** (most often used after a cited reference) means 'in passing'.
- As a departure from the official, conventional and established style, references are listed as follows:
  - The year in parentheses
  - Last name and initial(s) of the principal author
  - A plus sign (+) after the author's name represents one or more co-authors
  - Journal name (standard abbreviation where possible), in italics
  - Volume number (often followed by a parenthetical part or supplemental number).
  - First page-number of the article
- Books when cited are italicized, followed by the publisher and page number.

ABACAVIR

Trade names: Trizivir (GSK); Ziagen (GSK)
Indications: HIV infections in combination with other antiretrovirals
Category: Nucleoside analog reverse transcriptase inhibitor
Half-life: 1.5 hours
Clinically important, potentially hazardous interactions with: arbutamine, argatroban, arsenic, lopinavir

---

Skin
Acute febrile neutrophilic dermatosis (Sweet's syndrome)
(2004): Del Giudice P+, *J Am Acad Dermatol* 51(3), 474
Anaphylactoid reactions/Anaphylaxis (3%)
(2001): Frissen PH+, *AIDS* 15, 289
(1999): Spruance SL, *Skin and Allergy News* October, 37 (3–4%)
Edema
(1999): Spruance SL, *Skin and Allergy News* October, 37
Erythema multiforme
Erythroderma
(2001): Shapiro M+, *The AIDS Reader* 11, 222
Exanthems
(1999): Nathanson N (generalized) (from Internet) (observation)
(1999): Spruance SL, *Skin and Allergy News* October, 37
Hypersensitivity (5%)
(2007): Luther J+, *Am J Clin Dermatol* 8(4), 221
(2006): James JS, *AIDS Treat News* 419, 6
Lipoatrophy
(2005): Nolan D+, *Sex Health* 2(3), 153
(2004): McComsey GA+, *Clin Infect Dis* 38(2), 263
Lipodystrophy
(2002): Bernasconi E+, *J Acquir Immune Defic Syndr* 31(1), 50
Pruritus
(1998): Saag M+, *AIDS* 12, F203
Rash (10–69%)
(2003): Lanzafame M+, *Infez Med* 11(1), 40
(2002): Kessler HA+, *Clin Infect Dis* 34(4), 535
Stevens–Johnson syndrome
(2002): Bossi P+, *Clin Infect Dis* 35(7), 902
Toxic epidermal necrolysis

Mucosal
Mucocutaneous lymph node syndrome (Kawasaki syndrome)
(2002): Toerner JG+, *Clin Infect Dis* 34(1), 131
Oral ulceration
(1999): Spruance SL, *Skin and Allergy News* October, 37
Oral vesiculation
(2002): Fantry LE+, *AIDS Patient Care STDS* 16(1), 5

Central Nervous System
Chills
(1999): Escaut L+, *AIDS* 13, 1419
Fever
(2003): Lanzafame M+, *Infez Med* 11(1), 40
Headache
(2006): Castillo SA+, *Drug Saf* 29(9), 811 (16%) (with lamivudine)
Paresthesias
Perioral paresthesias
(2001): McMahon D+, *Antivir Ther* 6(2), 105
Vertigo
(2006): Castillo SA+, *Drug Saf* 29(9), 811 (27%) (with lamivudine)

Neuromuscular/Skeletal
Myalgia/Myositis/Myopathy/Myotoxicity
(1999): Escaut L+, *AIDS* 13, 1419
(1999): Spruance SL, *Skin and Allergy News* October, 37
Rhabdomyolysis
(2005): Fontaine C+, *AIDS* 19(16), 1927 (with ciprofibrate)

Respiratory
Cough
(2002): Peyriere H+, *Allerg Immunol* (Paris) 34(10), 359
(2001): Hetherington S+, *Clin Ther* 23(10), 1603 (10%)

Renal
Nephrotoxicity
(2006): Ahmad M, *J Postgrad Med* 52(4), 296 (Fanconi syndrome)

Other
Death
(2003): Peyriere H+, *Ann Pharmacother* 37(10), 1392 (1.8%)

ABARELIX

Trade name: Plenaxis (Praecis)
Indications: Prostate cancer (advanced)
Category: Gonadotropin-releasing hormone antagonist
Half-life: 13.2 days
Clinically important, potentially hazardous interactions with: amiodarone, procainamide, quinidine, sotalol

---

Skin
Allergic reactions
(2006): Beer TM+, *Anticancer Drugs* 17(9), 1075
Cellulitis
Herpes simplex
Hot flashes (79%)
Peripheral edema (15%)
Pruritus
Urticaria

Central Nervous System
Headache (12%)
Pain (31%)
Vertigo (12%)

Neuromuscular/Skeletal
Asthenia (10%)
Back pain (31%)
Mastodynia (20%)

Respiratory
Upper respiratory infection (12%)

Endocrine/Metabolic
Gynecomastia (30%)

ABATACEPT

Trade name: Orencia (Bristol-Myers Squibb)
Indications: Rheumatoid arthritis
Category: T-cell co-stimulation modulator
Half-life: 12–23 days
Clinically important, potentially hazardous interactions with: certolizumab pegol, tnf antagonists

---

Skin
Anaphylactoid reactions/Anaphylaxis
Hypersensitivity (<1%)
Infections
(2006): Nogid A+, *Clin Ther* 28(11), 1764 (53.8%)
Pruritus (<1%)

Rash (4%)
Urticaria (<1%)

Cardiovascular
Flushing (<1%)
Hypertension
(2005): Allison C, *Issues Emerg Health Technol* 73, 1 (7%)
Hypotension (<1%)

Central Nervous System
Headache
(2006): Nogid A+, *Clin Ther* 28(11), 1764 (18.2%)
(2005): Allison C, *Issues Emerg Health Technol* 73, 1 (18%)
Vertigo (9%)

Neuromuscular/Skeletal
Back pain
(2005): Allison C, *Issues Emerg Health Technol* 73, 1

Respiratory
Cough (8%)
Nasopharyngitis
(2006): Nogid A+, *Clin Ther* 28(11), 1764
Upper respiratory infection
(2006): Nogid A+, *Clin Ther* 28(11), 1764 (12.7%)

Local
Injection-site reactions

ABCIXIMAB

Synonym: C7E3
Trade name: ReoPro (Lilly) (Centocor)
Indications: Thrombotic arterial disease
Category: Antiplatelet; Glycoprotein IIb / IIIa inhibitor
Half-life: 10–30 minutes – given intravenously
Clinically important, potentially hazardous interactions with: fondaparinux, reteplase

---

Skin
Acute generalized exanthematous pustulosis (AGEP)
Allergic reactions
Anaphylactoid reactions/Anaphylaxis
(2002): Pharand C+, *Pharmacotherapy* 22(3), 380
(2001): Iakovou Y+, *Cardiology* 95(4), 215
Cellulitis (0.3%)
Edema
(2002): Pharand C+, *Pharmacotherapy* 22(3), 380
Peripheral edema (1.6%)
Petechiae (0.3%)
Pruritus (0.3%)
(2002): Pharand C+, *Pharmacotherapy* 22(3), 380

Mucosal
Gingival bleeding
(2005): Lee DH+, *Acta Radiol* 46(5), 534 (2 cases)

Cardiovascular
Hypotension
(2003): Hawkins C+, *Allergy* 58(7), 688
Myocardial infarction
(2004): Kastrati A+, *N Engl J Med* 350(3), 232
(2003): Ajani AE+, *Cardiovasc Radiat Med* 4(1), 12 (1%)

Central Nervous System
Headache
Hyperesthesia (1%)

Neuromuscular/Skeletal
Myalgia/Myositis/Myopathy/Myotoxicity (0.3%)

Hematologic
Hemorrhage
(2002): Choi RK+, *Mayo Clin Proc* 77(12), 1340

Local
Injection-site reactions (3.6%)
(2004): Dery JP+, *Am J Cardiol* 93(8), 979

Other
Death
(2006): McCorry RB+, *J Invasive Cardiol* 18(6), E173
(2006): Usman MH+, *Heart Lung* 35(6), 423

ACAMPROSATE

Trade names: Aotal; Campral (Forest) (Lipha)
Indications: Alcohol dependence
Category: Antialcoholism
Half-life: 20–33 hours
Clinically important, potentially hazardous interactions with: None

---

Skin
Abscess (<1%)
Acne (<1%)
Allergic reactions (<1%)
Dermatitis
(2002): Soyka M+, *Drugs R D* 3(1), 1
Diaphoresis (2%)
Ecchymoses (<1%)
Eczema (<1%)
Erythema
Erythema multiforme
(1992): Fortier-Beaulieu M+, *Lancet* 339(8799), 991
Exanthems (<1%)
Exfoliative dermatitis (<1%)
Facial edema (<0.1%)
Infections (>1%)
Peripheral edema (>1%)
Photosensitivity (<0.1%)
Pruritus (4%)
(2003): Oscar MA+, *Therapie* 58(4), 371
(2002): Soyka M+, *Drugs R D* 3(1), 1 (37 cases)
Rash (>1%)
Urticaria (<1%)
Vesiculobullous eruption (<1%)
Xerosis (<1%)

Hair
Alopecia

Mucosal
Dysgeusia (>1%)
Oral ulceration (<0.1%)
Sialorrhea (<0.1%)
Xerostomia (2%)

Cardiovascular
Chest pain (>1%)
Phlebitis (<1%)

Central Nervous System
Chills (>1%)
Depression (5%)
Fever (<1%)
Headache (>1%)
(2002): Soyka M+, *Drugs R D* 3(1), 1 (28 cases)

Pain (3%)
Paresthesias (2%)
Seizures (<1%)
Twitching (<0.1%)
Vertigo (3%)

Neuromuscular/Skeletal
Arthralgia (>1%)
Asthenia (6%)
(2002): Soyka M+, *Drugs R D* 3(1), 1 (16 cases)
Back pain (>1%)
Leg cramps (<1%)
Myalgia/Myositis/Myopathy/Myotoxicity (>1%)
Tremor (>1%)

Gastrointestinal/Hepatic
Abdominal pain (>1%)
Dysphagia (<1%)

Respiratory
Cough (>1%)
Flu-like syndrome (>1%)
Rhinitis (>1%)

Genitourinary
Vaginitis (<1%)

Otic
Tinnitus (<1%)

Ocular
Amblyopia (<1%)
Diplopia (<1%)
Ophthalmitis (<0.1%)
Photophobia (<0.1%)

Other
Death (<0.1%)

ACARBOSE

Trade names: Glucobay; Glumida; Prandase; Precose (Bayer)
Indications: Non-insulin dependent diabetes type II
Category: Alpha-glucosidase inhibitor
Half-life: 2.7–9 hours

Skin
Acute generalized exanthematous pustulosis (AGEP)
(2003): Poszepczynska-Guigne E+, *Ann Dermatol Venereol* 130(4), 439
Erythema (<1%)
(2000): Schmutz JL+, *Ann Dermatol Venereol* 127, 869 (polymorphous)
Erythema multiforme
(1999): Kono T+, *Lancet* 354, 396 (generalized)
Rash
Urticaria (<1%)

Mucosal
Ageusia
(1996): Martin Bun N+, *Med Clin* (Barc) (Spanish) 28, 399

Gastrointestinal/Hepatic
Hepatotoxicity
(2006): Hsiao SH+, *Ann Pharmacother* 40(1), 151
(2002): Chitturi S+, *Semin Liver Dis* 22(2), 169

ACEBUTOLOL

Trade names: Acecor; Acetanol; Alol; Apo-Acebutolol; Monitan; Neptal; Novo-Acebutolol; Nu-Acebutolol; Prent; Rhodiasectral; Rhotral; Sectral
Indications: Hypertension, angina, ventricular arrhythmias
Category: Adrenergic beta-receptor antagonist; Antiarrhythmic class II
Half-life: 3–7 hours
Clinically important, potentially hazardous interactions with: clonidine, verapamil

Note: Cutaneous side effects of beta-receptor blockaders are clinically polymorphous. They apparently appear after several months of continuous therapy. Atypical psoriasiform, lichen planus-like, and eczematous chronic rashes are mainly observed. (1983): Hödl St, *Z Hautkr* (German) 1:58, 17

Skin
Dermatitis
Diaphoresis
(1995): Schmutz JL+, *Dermatology* 190, 86
Edema (1–10%)
Erythema multiforme (<1%)
Exanthems (4%)
(1985): Singh BN+, *Drugs* 29, 531
Exfoliative dermatitis
Facial edema (<1%)
Hyperkeratosis (palms and soles)
Lichenoid eruption
(1982): Taylor AEM+, *Clin Exp Dermatol* 7, 219
Lupus erythematosus (<1%)
(2005): Fenniche S+, *Skin Pharmacol Physiol* 18(5), 230
(1997): Burlingame RW, *Clin Lab Med* 17, 367
Pigmentation
Pityriasis rubra pilaris
Pruritus (<2%)
Psoriasis
(1986): Czernielewski J+, *Lancet* 1, 808
(1984): Arntzen N+, *Acta Derm Venereol* (Stockh) 64, 346
Rash (1–10%)
Raynaud's phenomenon
(1984): Eliasson K+, *Acta Med Scand* 215, 333
Toxic epidermal necrolysis
Urticaria
(2005): Chiffoleau A+, *Therapie* 60(6), 593
Vasculitis
(1988): Bonnefoy M+, *Ann Dermatol Venereol* (French) 115, 27
Xerosis

Hair
Alopecia

Nails
Nail dystrophy
Nail pigmentation
Onycholysis
Pincer nails (reverse transverse curvature of the nails)
(1998): Greiner D+, *J Am Acad Dermatol* 39, 486

Mucosal
Dysgeusia
Oral lichenoid eruption
Xerostomia (<1%)

Cardiovascular
Bradycardia
(2000): Joye F, *Presse Med* 29(18), 1027

Hypotension
(2000): Joye F, *Presse Med* 29(18), 1027

Central Nervous System
Hyperesthesia (<2%)
Myasthenia gravis
(1990): Confavreux C+, *Eur Neurol* 30(5), 279

Neuromuscular/Skeletal
Myalgia/Myositis/Myopathy/Myotoxicity (1–10%)

Genitourinary
Peyronie's disease
(1979): Pryor JP+, *Lancet* 1, 331

Ocular
Oculo-mucocutaneous syndrome
(1982): Cocco G+, *Curr Ther Res* 31, 362

ACECLOFENAC

Trade names: Aflamin; Arrestin; Beofenac; Preservex (UCB Pharma)
Indications: Ankylosing spondylitis, Osteoarthritis, inflammatory disease of the joints
Category: Analgesic; Non-steroidal anti-inflammatory
Half-life: 4 hours
Clinically important, potentially hazardous interactions with: lithium

---

Skin
Anaphylactoid reactions/Anaphylaxis
(2006): Rojas-Hijazo B+, *Allergy* 61(4), 511
Contact dermatitis
(2006): Pitarch Bort G+, *Contact Dermatitis* 55(6), 365
(2001): Goday Bujan JJ+, *Contact Dermatitis* 45(3), 170
Fixed eruption
(2007): Linares T+, *Contact Dermatitis* 56(5), 291
Hypersensitivity
(1993): Gomez Rodriguez N+, *Med Clin* (Barc) 101(6), 239
Photosensitivity
(2007): Vargas F+, *Pharmazie* 62(5), 337
(2001): Goday Bujan JJ+, *Contact Dermatitis* 45(3), 170
Pruritus
Psoriasis (Pustular) (Generalized)
(2006): Vergara A+, *J Eur Acad Dermatol Venereol* 20(8), 1028
Purpura
Rash
Stevens–Johnson syndrome
(2003): Ludwig C+, *Dtsch Med Wochenschr* 128(10), 487
Toxic epidermal necrolysis
(2003): Ludwig C+, *Dtsch Med Wochenschr* 128(10), 487
Urticaria
Vasculitis
(1997): Morros R+, *Br J Rheumatol* 36(4), 503
(1995): Epelde F+, *Ann Pharmacother* 29(11), 1168

Mucosal
Dysgeusia
Stomatitis

Central Nervous System
Confusion
(1994): Pallares Querol M, *Aten Primaria* 13(6), 331
Headache
Vertigo
(1996): Kornasoff D+, *Rheumatol Int* 15(6), 225

Gastrointestinal/Hepatic
Abdominal pain
Hepatotoxicity
(2006): Lapeyre-Mestre M+, *Fundam Clin Pharmacol* 20(4), 391
(2001): Fernandez-Avala Novo M+, *Rev Clin Esp* 201(10), 616

Respiratory
Dyspnea

Other
Death
(2003): Palop Larrea V+, *Aten Primaria* 32(2), 122 (following injection)

ACENOCOUMAROL

Trade names: Acenox; Acitrom; Sinthrome (Alliance); Sintrom (Alliance)
Indications: Thromboembolic diseases
Category: Anticoagulant
Half-life: 8–11 hours
Clinically important, potentially hazardous interactions with: allopurinol, amiodarone, aspirin, cimetidine, danazol, disulfiram, econazole, heparin

---

Skin
Allergic reactions
Blue toe syndrome
(2001): Righini M+, *Thromb Haemost* 85(4), 744
Bullae
(1993): Elis A+, *J Intern Med* 234(6), 615
Exanthems
(1998): Kamm W+, *Rev Med Suisse Romande* 118(6), 565
Hypersensitivity
Necrosis
(2004): Muniesa C+, *Br J Dermatol* 151(2), 502
(2004): Valdivielso M+, *J Eur Acad Dermatol Venereol* 18(2), 211
Purpura
(2007): Aouam K+, *Pharmacoepidemiol Drug Saf* 16(1), 113
(2004): Borras-Blasco J+, *Ann Pharmacother* 38(2), 261
Rash
(2007): Aouam K+, *Pharmacoepidemiol Drug Saf* 16(1), 113
Urticaria
Vasculitis
(2007): Aouam K+, *Pharmacoepidemiol Drug Saf* 16(1), 113
(1999): Jimenez-Gonzalo FJ+, *Haematologica* 84(5), 462

Hair
Alopecia

Cardiovascular
Chest pain
Stroke

Central Nervous System
Confusion
Fever
(2007): Aouam K+, *Pharmacoepidemiol Drug Saf* 16(1), 113
(1996): Renou C+, *Rev Med Interne* 17(1), 93
Headache
Vertigo

Neuromuscular/Skeletal
Back pain

Gastrointestinal/Hepatic
Abdominal pain
(2006): Arnaiz Garcia AM+, *An Med Interna* 23(11), 558
Hepatotoxicity

(1997): Quintana MR+, *Haematologica* 82(6), 732

Respiratory
Dyspnea
(1998): Kamm W+, *Rev Med Suisse Romande* 118(6), 565

Endocrine/Metabolic
Appetite decreased

Genitourinary
Priapism
(2004): Touloupidis S+, *Andrologia* 36(1), 47

Ocular
Vision blurred

ACETAMINOPHEN

Synonyms: APAP; paracetamol
Trade names: Abenol; Anacin-3 (Wyeth); Anaflon; Ben-U-Ron; Bromo-Seltzer; Darvocet-N (aaiPharma); Datril; Doliprane; Excedrin (Bristol-Myers Squibb); Geluprane; Liquiprin; Lorcet (Forest); Mapap; Neopap; Panadol (GSK); Percocet (Endo); Percogesic; Phenaphen; Sinutab; Tylenol (Ortho-McNeil); Valadol; Vicodin (Abbott)
Indications: Pain, fever
Category: Analgesic, non-narcotic
Half-life: 1–3 hours
Clinically important, potentially hazardous interactions with: alcohol, cholestyramine, didanosine, dong quai, exenatide, melatonin

Note: Acetaminophen is the active metabolite of phenacetin

Skin
Acute generalized exanthematous pustulosis (AGEP)
(2004): Wohl Y+, *Skinmed* 3(1), 47
(2003): Mashiah J+, *Arch Dermatol* 139(9), 1181
Allergic granulomatous angiitis (Churg–Strauss syndrome)
(2005): Masuzawa A+, *Intern Med* 44(5), 496
Anaphylactoid reactions/Anaphylaxis
(2005): Daghfous R+, *Therapie* 60(5), 523
(2002): Bachmeyer C+, *South Med J* 95(7), 759
Angioedema (<1%)
(2002): Litt JZ, Beachwood, OH (personal case) (observation) (patient inadvertently re-challenged herself)
(1997): de Almeida MA+, *Allergy Asthma Proc* 18, 313
Anticonvulsant hypersensitivity syndrome
(2006): Gaig P+, *J Investig Allergol Clin Immunol* 16(5), 321
Dermatitis
(1997): Mathelier-Fusada P+, *Contact Dermatitis* 36, 267
(1996): Szczurko C+, *Contact Dermatitis* 35, 299
Diaphoresis
DRESS syndrome
(2006): Gaig P+, *J Investig Allergol Clin Immunol.* 16(5), 321
Erythema
(1985): Stricker BH+, *BMJ* 291, 938
Erythema multiforme
(1995): Dubey NK+, *Indian Pediatr* 32, 1117
(1984): Hurvitz H+, *Isr J Med Sci* 20, 145
Erythema nodosum (<1%)
Exanthems
(1997): Foong H, Malaysia (from Internet) (observation)
(1985): Matheson I+, *Pediatrics* 76, 651
Exfoliative dermatitis
(1984): Guerin C+, *Therapie* (French) 39, 47
Fixed eruption (<1%)
(2006): Ayala F+, *Dermatitis* 17(3), 160 (bullous)
(2006): Nnoruka EN+, *Int J Dermatol* 45(9), 1062 (3%)
Hypersensitivity (<1%)
(2007): Kidon MI+, *Int Arch Allergy Immunol* 144(1), 51
(2001): Grant JA+, *Ann Allergy Asthma* 87(3), 227 (rare)
Lichenoid keratoses
(2007): Wohl Y+, *J Eur Acad Dermatol Venereol* 21(4), 548
Linear IgA dermatosis
(2003): Avci O+, *J Am Acad Dermatol* 48(2), 299
Neutrophilic eccrine hidradenitis
(2006): EL Sayed F+, *J Eur Acad Dermatol Venereol* 20(10), 1338
(1988): Kuttner BJ+, *Cutis* 41, 403
Pemphigus
(1990): Brenner S+, *Acta Derm Venereol* 70, 357
Penile edema
(1997): Cabanes Higuero N+, *Med Clin* (Barc) (Spanish) 109, 685
Photosensitivity
(1999): Popescu C, Bucharest, Romania (from Internet) (observation)
Pigmented purpuric eruption (Schamberg's disease)
(1992): Abeck D+, *J Am Acad Dermatol* 27, 123
Pityriasis rosea
(1993): Yosipovitch G+, *Harefuah* (Israel) 124, 198; 247
Pruritus
(2001): Grant JA+, *Ann Allergy Asthma Immunol* 87(3), 227 (rare)
(1985): Stricker BH+, *BMJ* 291, 938
Purpura
(2006): Santoro D+, *Clin Nephrol* 66(2), 131 (with codeine)
(1998): Kwon SJ+, *J Dermatol* 25, 756
Purpura fulminans
(1993): Guccione JL+, *Arch Dermatol* 129, 1267
Pustules
(2005): Daghfous R+, *Therapie* 60(5), 523 (30%)
Rash (<1%)
Sensitivity
(1998): Mendizabal SL+, *Allergy* 53, 457
Stevens–Johnson syndrome
(1995): Kuper K+, *Ophthalmologue* (German) 92, 823
(1985): Ting HC+, *Int J Dermatol* 24, 587
Toxic epidermal necrolysis
(2004): Bygum A+, *Pediatr Dermatol* 21(3), 236
(2002): Cordova M, (Lima) (Peru) March AAD Poster
Urticaria
(2007): Tsujino Y+, *J Dermatol* 34(3), 224
(2006): Santoro D+, *Clin Nephrol* 66(2), 131 (with codeine)
Vasculitis
(1995): Harris A+, *Br J Dermatol* 133, 790
(1988): Dussarat GV+, *Presse Med* (French) 17, 1587
Xanthoderma
(2007): Haught JM+, *J Am Acad Dermatol* 57(6), 1051

Hair
Alopecia
(1998): Litt JZ, Beachwood, OH (personal case) (observation)

Nails
Nail changes

Mucosal
Dysgeusia

Cardiovascular
Flushing
(1985): Stricker BH+, *BMJ* 291, 938

Central Nervous System
Headache

Neuromuscular/Skeletal
Rhabdomyolysis
(2007): Nelson H+, *Pharmacotherapy* 27(4), 608 (overdose)

(2001): Yang CC+, *Vet Hum Toxicol* 43(6), 344 (overdose)

Gastrointestinal/Hepatic
Hepatotoxicity
(2006): Antoniades CG+, *Hepatology* 44(1), 34
(2006): Holubek WJ+, *Hepatology* 43(4), 880

Renal
Nephrotoxicity
(2006): Jochum E+, *Med Klin* (Munich) 101(10), 830
(2005): Mour G+, *Ren Fail* 27(4), 381

Other
Death
(2002): Sheen CL+, *Br J Clin Pharmacol* 54(4), 430
(2001): Stevenson R+, *Scott Med J* 46(3), 84 (overdose)

ACETAZOLAMIDE

Trade names: Acetazolam; Ak-Zol; Dazamide; Defiltran; Diamox (Wyeth); Diuramid; Novo-Zolamide
Indications: Epilepsy, glaucoma
Category: Carbonic anhydrase inhibitor; Diuretic
Half-life: 2–6 hours
Clinically important, potentially hazardous interactions with: ephedra, lithium, mivacurium

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
Acute generalized exanthematous pustulosis (AGEP)
(1995): Moreau A+, *Int J Dermatol* 34, 263 (passim)
(1992): Ogoshi M+, *Dermatology* 184, 142
Anaphylactoid reactions/Anaphylaxis
(2002): Gallerani M+, *Am J Emerg Med* 20(4), 371
(2000): Gerhards LJ+, *Ned Tijdschr Geneeskd* (Dutch) 144, 1228
Bullous dermatitis (<1%)
Erythema multiforme
Exanthems
Frostbite
(2001): Laemmle T, *Wilderness Environ Med* 12(4), 290
Lupus erythematosus
Photosensitivity
Pruritus
Psoriasis
(1995): Kuroda K+, *J Dermatol* 22, 784
Purpura
Pustules
(1992): Ogoshi M+, *Dermatology* 184, 142
Rash (<1%)
Rosacea
(1993): Shah P+, *Br J Dermatol* 129, 647
Stevens–Johnson syndrome
(2006): Ogasawara K+, *Neurol Med Chir (Tokyo)* 246(3), 161
(1981): Sud RN+, *Indian J Ophthalmol* 29(2), 101
Toxic epidermal necrolysis (<1%)
Urticaria

Hair
Hirsutism

Mucosal
Ageusia
Anosmia
Dysgeusia (>10%) (metallic taste)
(1997): Martinez-Mir I+, *Ann Pharmacother* 31, 373
(1990): Miller LG+, *J Fam Pract* 31, 199
Xerostomia (<1%)

Cardiovascular
Extravasation
(1994): Callear A+, *Br J Ophthalmol* 78, 731

Central Nervous System
Headache
Paresthesias (<1%)
(1981): Lichter PR, *Ophthalmol* 88, 266

Neuromuscular/Skeletal
Myalgia/Myositis/Myopathy/Myotoxicity
(2002): Ikeda K+, *Intern Med* 41(9), 743

Otic
Tinnitus

Ocular
Glaucoma
(2007): Lee GC+, *Clin Experiment Ophthalmol* 35(1), 55

ACETOHEXAMIDE

Trade names: Dimelin; Dimelor; Dymelor (Barr)
Indications: Non-insulin dependent diabetes type II
Category: Sulfonylurea
Half-life: 1–6 hours
Clinically important, potentially hazardous interactions with: phenylbutazones

Note: Acetohexamide 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
Diaphoresis
Eczema
Erythema (<1%)
Exanthems (<1%)
Jaundice
Lichenoid eruption
Photosensitivity (1–10%)
Pruritus (<1%)
Rash (1–10%)
Urticaria (1–10%)

Hair
Alopecia

Central Nervous System
Coma
Headache
Paresthesias

Endocrine/Metabolic
Porphyria cutanea tarda

ACETYLCYSTEINE

Synonyms: N-acetylcysteine; L-Cysteine; NAC
Trade names: Agisolvan; Alveolex; Ecomucyl; Encore; Exomuc; Fabrol; Fluimicil; Mucofillin; Mucolit; Mucolitico; Mucoloid; Mucomiste; Mucomyst (Bioniche); Mucomyst-10; Mucosil-10; Parvolex; Siran
Indications: Emphysema, bronchitis, tuberculosis, bronchiectasis, tracheostomy care, antidote for acetaminophen toxicity
Category: Antidote; Antioxidant
Half-life: N/A
Clinically important, potentially hazardous interactions with: carbamazepine, nitroglycerin

---

Skin
Adverse effects
(2003): Kao LW+, *Ann Emerg Med* 42(6), 741
Anaphylactoid reactions/Anaphylaxis
(2006): Kanter MZ, *Am J Health Syst Pharm* 63(19), 1821
(2002): Appelboam AV+, *Emerg Med J* 19(6), 594 (fatal)
Angioedema
(2001): Tas S+, *Br J Dermatol* 145(5), 856
(1999): Schmidt LE+, *Ugeskr Laeger* 161(18), 2669
Clammy skin
Dermatitis
(2002): Davison SC+, *Contact Dermatitis* 47(4), 238
Diaphoresis
Hypersensitivity
(1984): Tenenbein M, *Vet Hum Toxicol* 26, 3
Pruritus
(1999): Schmidt LE+, *Ugeskr Laeger* 161(18), 2669
(1984): Tenenbein M, *Vet Hum Toxicol* 26(Suppl 2), 3
Rash
(1999): Schmidt LE+, *Ugeskr Laeger* 161(18), 2669
(1994): Chan TY+, *Hum Exp Toxicol* 13(8), 542
Urticaria
(1984): Tenenbein M, *Vet Hum Toxicol* 26(Suppl 2), 3

Mucosal
Stomatitis

Cardiovascular
Flushing
(1999): Schmidt LE+, *Ugeskr Laeger* 161(18), 2669
(1992): Bonfiglio MF+, *Ann Pharmacother* 26(1), 22

Central Nervous System
Chills
Fever
(1994): Chan TY+, *Hum Exp Toxicol* 13(8), 542
Seizures
(1996): Hershkovitz E+, *Isr J Med Sci* 32(11), 1102

Local
Injection-site pain
(1984): Casola G+, *Radiology* 152(1), 233

Other
Death
(1997): Ardissino D+, *J Am Coll Cardiol* 29(5), 941

ACIPIMOX

Trade names: Monted; Olbemox; Olbetam (Pharmacia)
Indications: Hyperlipoproteinemia.
Category: Cholesterol antagonist
Half-life: 2 hours
Clinically important, potentially hazardous interactions with: fibrates, statins

---

Skin
Anaphylactoid reactions/Anaphylaxis
Angioedema
Edema
(1999): Alcocer L+, *Int J Tissue React* 21(3), 85
Erythema
Pruritus
Rash
Urticaria

Cardiovascular
Flushing
(2000): Lanes R+, *J Pediatr Endocrinol Metab* 13(8), 1115
(1999): Alcocer L+, *Int J Tissue React* 21(3), 85

Central Nervous System
Headache
(1999): Alcocer L+, *Int J Tissue React* 21(3), 85
Pyrexia
(1989): Lavezzari M+, *J Int Med Res* 17(4), 373

Neuromuscular/Skeletal
Arthralgia
(1999): Alcocer L+, *Int J Tissue React* 21(3), 85
Asthenia
Myalgia/Myositis/Myopathy/Myotoxicity

Gastrointestinal/Hepatic
Dyspepsia
Nausea
(1999): Alcocer L+, *Int J Tissue React* 21(3), 85
Vomiting
(1999): Alcocer L+, *Int J Tissue React* 21(3), 85

Respiratory
Bronchospasm

Ocular
Keratoconjunctivitis

ACITRETIN

Trade names: Neotigason; Soriatane (Roche)
Indications: Psoriasis
Category: Retinoid
Half-life: 49 hours
Clinically important, potentially hazardous interactions with: alcohol, bexarotene, chloroquine, cholestyramine, corticosteroids, danazol, ethanolamine, isotretinoin, lithium, medroxyprogesterone, methotrexate, minocycline, progestins, tetracycline, vitamin A

Skin
Atrophy (10–25%)
Bullous dermatitis (1–10%)
Clammy skin (1–10%)
Dermatitis (1–10%)
Diaphoresis (1–10%)

(1997): Buccheri L+, *Arch Dermatol* 133, 711 (18.2%)
(1988): Geiger J-M+, *Dermatologica* 176, 182 (9%)
Edema
(2006): Tey HL+, *J Dermatol* 33(5), 372
(2001): Liss WA, Pleasanton, CA (from Internet) (observation)
Erythema (18%)
(1997): Buccheri L+, *Arch Dermatol* 133, 711 (18.2%)
Erythema gyratum
(2003): Bryan ME+, *J Drugs Dermatol* 2(3), 315
Erythroderma
(2006): Mahe E+, *J Eur Acad Dermatol Venereol* 20(9), 1133
(2001): Liss WA, Pleasanton, CA (from Internet) (observation)
Exanthems (2–25%)
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
(1990): Ruzicka T+, *Arch Dermatol* 126, 482 (2%)
Exfoliative dermatitis (25–50%)
(2001): Blumenthal HL, Beachwood, OH (observation)
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7 (25–50%)
Fissures (1–10%)
Fragility
Hyperkeratosis
Milia
(1993): Chang A+, *Acta Derm Venereol* 73, 235
Palmar–plantar desquamation (20–80%)
(2001): *Ami* (from Internet) (observation) (severe)
(2001): Berbis P, *Ann Dermatol Venereol* 128(6), 737
Phototoxicity
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
Pruritus (10–50%)
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
(1997): Buccheri L+, *Arch Dermatol* 133, 711 (54.5%)
Psoriasis (1–10%)
Purpura (1–10%)
Pyogenic granuloma (1–10%)
(2002): Diederen PVMM+, *World Congress Dermatol* Poster, 0099
Rash (>10%)
Seborrhea (1–10%)
Stickiness (3–50%)
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
(1997): Buccheri L+, *Arch Dermatol* 133, 711 (18%)
Sunburn (1–10%)
Ulcerations (1–10%)
Urticaria
Xerosis (25–50%)
(2001): Berbis P, *Ann Dermatol Venereol* 128(6), 737
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7 (15–25%)

Hair

Alopecia (10–75%)
(2001): Berbis P, *Ann Dermatol Venereol* 128(6), 737
(2001): Popescu C, Bucharest, Romania (from Internet) (observation)
Alopecia totalis
(2003): Chave TA+, *Br J Dermatol* 148(5), 1063
(2002): Chave TA+, *World Congress Dermatol* Poster 0092 (regrowth in 6 months)
Alopecia universalis
(1998): Haycox CL, Seattle, WA (from Internet) (observation)
(1998): Nadel RS, Springfield, MA (from Internet) (observation)
Pili torti
(2001): Davidson DM, Groton, CT (from Internet) (observation)

Nails

Brittle nails
(1991): Murray HE+, *J Am Acad Dermatol* 24, 598 (27%)
(1990): Ruzicka T+, *Arch Dermatol* 126, 482
Nail changes (25–50%)
Paronychia (10–25%)
(2002): Hirsch R, Brooklyn, NY (from Internet) (observation)
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
Periungual granuloma
(1997): Buccheri L+, *Arch Dermatol* 133, 711 (9.1%)
Pyogenic granuloma
(1999): Guzick N, Houston, TX (from Internet) (observation)
Subungual hemorrhages
(2007): Aydogan K+, *Int J Dermatol* 46(5), 494

Mucosal

Bromhidrosis (1–10%)
(2004): Goiham M, Caracas, Venezuela (from Internet) (observation)
(2001): Liss WA, Pleasanton, CA (from Internet) (observation)
Cheilitis (>75%)
(2001): Berbis P, *Ann Dermatol Venereol* 128(6), 737
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7 (>75%)
Dry mucous membranes
(2001): Berbis P, *Ann Dermatol Venereol* 128(6), 737
Gingivitis (1–10%)
Oral lesions
(1988): Geiger J-M+, *Dermatologica* 176, 182 (6%)
Sialorrhea (1–10%)
Stomatitis (1–10%)
Ulcerative stomatitis (1–10%)
Xerostomia (10–60%)
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
(1997): Buccheri L+, *Arch Dermatol* 133, 711 (63.6%)

Cardiovascular

Capillary leak syndrome
(2007): Vos LE+, *J Am Acad Dermatol* 56(2), 339
(2004): Estival JL+, *Br J Dermatol* 150(1), 150
Stroke
(2002): Royer B+, *Ann Pharmacother* 36(12), 1879

Central Nervous System

Chills
(2001): Liss WA, Pleasanton, CA (from Internet) (observation)
Depression
(2005): Starling J 3rd+, *J Drugs Dermatol* 4(6), 690
Hyperesthesia (10–25%)
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
Neurotoxicity
(2003): Tsambaos D+, *Skin Pharmacol Appl Skin Physiol* 16(1), 46
(2002): Chroni E+, *Clin Neuropharmacol* 25(6), 310
Paresthesias (10–25%)
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
Pseudotumor cerebri
(2005): Starling J 3rd+, *J Drugs Dermatol* 4(6), 690
(1999): Katz HI+, *J Am Acad Dermatol* 41, S7
Suicidal ideation
(2006): Arican O+, *J Eur Acad Dermatol Venereol* 20(4), 464

Neuromuscular/Skeletal

Gouty tophi
(1998): Vanhooteghem O+, *Clin Exp Dermatol* 23, 274
Myalgia/Myositis/Myopathy/Myotoxicity
(1996): Lister RK+, *Br J Dermatol* 134, 989
Tremor

Gastrointestinal/Hepatic

Hepatotoxicity
(2002): Kreiss C+, *Am J Gastroenterol* 97(3), 775

Genitourinary

Vulvovaginal candidiasis
(1995): Sturkenboom MC+, *J Clin Epidemiol* 48, 991

Otic

Hearing loss

(2005): Mahasitthiwat V, *J Med Assoc Thai* 88(Suppl 1), S79

Ocular
Maculopathy
(2004): Lois N+, *Arch Ophthalmol* 122(6), 928

ACTINOMYCIN-D

(See DACTINOMYCIN)

ACYCLOVIR

Synonyms: aciclovir; ACV; acycloguanosine
Trade names: Acifur; Acyclo-V; Acyvir; Avirax; Herpefug; Zovirax (GSK); Zyclir
Indications: Herpes simplex, herpes zoster
Category: Antiviral; Antiviral, topical; Guanine nucleoside analog
Half-life: 3 hours (adults)
Clinically important, potentially hazardous interactions with: meperidine, tenofovir

---

Skin
Acne (<3%)
Anaphylactoid reactions/Anaphylaxis (<1%)
Burning (topical)
Dermatitis
(2001): Lammintausta K+, *Contact Dermatitis* 45(3), 181
(2000): Serpentier-Daude A+, *Ann Dermatol Venereol* 127, 191
Diaphoresis
Edema
(1991): Medina S+, *Int J Dermatol* 30, 305
Erythema
(2002): Carrasco L+, *Clin Exp Dermatol* 27(2), 132
Erythema nodosum
(1983): Richards DM+, *Drugs* 26, 378
Exanthems (1–5%)
(1991): Whitley R+, *N Engl J Med* 324, 444
(1985): Robinson GE+, *Genitourin Med* 61, 62
Facial edema (3–5%)
(2000): Colin J+, *Ophthalmology* 107, 1507
Fixed eruption
(1997): Montoro J+, *Contact Dermatitis* 36, 225
Herpes zoster (recurrent)
(1993): Murphy F, *The Schoch Letter* 43, 28, #104 (observation)
Hypersensitivity
(2001): Kawsar M+, *Sex Transm Infect* 77(3), 204
Lichenoid eruption
(1985): Robinson GE+, *Genitourin Med* 61, 62
Peripheral edema
(1991): Medina S+, *Int J Dermatol* 30, 305
(1988): Hisler BM+, *J Am Acad Dermatol* 18, 1142
Photo-recall
(2002): Carrasco L+, *Clin Exp Dermatol* 27(2), 132
(2001): *Ann Dermatol Venereol* 128(2), 184
Photosensitivity
(2001): Schmutz JL+, *Ann Dermatol Venereol* 128, 184
Pityriasis rosea
(2007): Mavarkar L, *Indian J Dermatol Venereol Leprol* 73(3), 200
Pruritus (1–10%)
(1993): Goldberg LH+, *Arch Dermatol* 129, 582 (passim)
Rash (<3%)
(1985): Lundgren G+, *Scand J Infect Dis* Suppl 47, 137
(1983): Balfour HH+, *N Engl J Med* 308, 1448
Stevens–Johnson syndrome
(1995): Fazal BA+, *Clin Infect Dis* 21, 1038
Stinging (topical)
Urticaria (1–5%)
(1985): Robinson GE+, *Genitourin Med* 61, 62
(1983): Richards DM+, *Drugs* 26, 378
Vasculitis
(1983): Richards DM+, *Drugs* 26, 378
Vesiculation
(1993): Buck ML+, *Ann Pharmacother* 27, 1458

Hair
Alopecia (<3%)

Mucosal
Dysgeusia (0.3%)

Central Nervous System
Agitation
(2007): Yang HH+, *Int J Dermatol* 46(8), 883
Delirium
(2007): Yang HH+, *Int J Dermatol* 46(8), 883
Headache
(2004): Sra KK+, *Skin Therapy Lett* 9(8), 1
Neurotoxicity
(2006): Chevret L+, *Pediatr Transplant* 10(5), 632
(2005): Orion E+, *Clin Dermatol* 23(2), 182
Paresthesias (<1%)
(1993): Goldberg LH+, *Arch Dermatol* 129, 582 (passim)

Neuromuscular/Skeletal
Tremor

Gastrointestinal/Hepatic
Abdominal pain
(2004): Sra KK+, *Skin Therapy Lett* 9(8), 1

Renal
Nephrotoxicity
(2006): Bassioukas K+, *J Eur Acad Dermatol Venereol* 20(9), 1151
(2006): De Deyne S+, *Rev Med Interne* 27(11), 892

Genitourinary
Vaginitis (candidal)
(1993): Goldberg LH+, *Arch Dermatol* 129, 582 (passim)

Otic
Auditory hallucinations
(2007): Yang HH+, *Int J Dermatol* 46(8), 883

Ocular
Periorbital edema (3–5%)
(2000): Colin J+, *Ophthalmology* 107, 1507
Visual hallucinations
(2007): Yang HH+, *Int J Dermatol* 46(8), 883

Local
Injection-site inflammation (>10%)
(1989): O'Brien JJ+, *Drugs* 37, 233
Injection-site necrosis
(1987): Fayol J+, *Therapie* (French) 42(2), 249
Injection-site thrombophlebitis (9%)
(1988): Arndt KA, *J Am Acad Dermatol* 18, 188
Injection-site vesicular eruption
(1986): Sylvester RK+, *JAMA* 255, 385

ADALIMUMAB

Synonym: D2E7
Trade name: Humira (Abbott)
Indications: Rheumatoid arthritis
Category: Cytokine inhibitor; TNF inhibitor
Half-life: 10–20 days
Clinically important, potentially hazardous interactions with: None

Note: TNF blocking agents may lead to serious infections, lymphoma, or fatalities, particularly in patients receiving concomitant immunosuppressive therapy. Patients should be evaluated for latent tuberculosis prior to treatment with adalimumab.

Skin
- Acne
  - (2008): Sun G+, *J Drugs Dermatol* 7(1), 69
- Allergic reactions (1%)
- Angioedema
  - (2006): Sanchez-Cano D+, *Clin Exp Rheumatol* 24(5 Suppl 42), S128
- Bacterial infections
  - (2005): Botsios C, *Autoimmun Rev* 4(3), 162
- Carcinoma
- Cellulitis
  - (2008): Van L+, *Arch Dermatol* 144(6), 804
- Eosinophilic cellulitis
  - (2006): Boura P+, *Ann Rheum Dis* 65(6), 839
- Erysipelas
- Erythema
  - (2005): Sfikakis PP+, *Arthritis Rheum* 52(8), 2513 (1 case)
- Erythema multiforme
  - (2004): Beuthien W+, *Arthritis Rheum* 50(5), 1690
- Fixed eruption
- Fungal dermatitis
- Herpes zoster
- Infections (5%)
  - (2006): Bongartz T+, *JAMA* 295(19), 2275
  - (2006): Moul DK+, *Arch Dermatol* 142(9), 1110
- Lupus erythematosus (<0.1%)
  - (2007): Ramos-Casals M+, *Medicine* (Baltimore) 86(4), 242 (15 cases)
  - (2007): Sheth N+, *Clin Exp Dermatol* 32(5), 593
- Lupus syndrome
  - (2005): Botsios C, *Autoimmun Rev* 4(3), 162
- Lymphoma
  - (2006): Moul DK+, *Arch Dermatol* 142(9), 1110
- Malignancies
  - (2006): Bongartz T+, *JAMA* 295(19), 2275
- Melanoma
- Peripheral edema
- Pruritus
  - (2004): Youdim A+, *Inflamm Bowel Dis* 10(4), 333
- Psoriasis
  - (2007): Heymann WR, *J Am Acad Dermatol* 56(2), 327 (pustular)
  - (2007): Ubriani R+, *Arch Dermatol* 143(2), 270
- Rash (12%)
- Side effects
  - (2006): van der Heijde D+, *Arthritis Rheum* 54(7), 2136 (75%)
- Squamous cell carcinoma
  - (2008): Van L+, *Arch Dermatol* 144(6), 804
- Urticaria
  - (2006): George SJ+, *Dermatol Online J* 12(2), 4
  - (2006): Sanchez-Cano D+, *Clin Exp Rheumatol* 24(5 Suppl 42), S128
- Vasculitis
  - (2007): Ramos-Casals M+, *Medicine* (Baltimore) 86(4), 242 (5 cases)
  - (2006): Orpin SD+, *Br J Dermatol* 154(5), 998
- Vitiligo
  - (2008): Smith DI+, *J Am Acad Dermatol* 58(2 Suppl), S50

Hair
- Alopecia areata
  - (2006): Garcia Bartels N+, *Arch Dermatol* 142(12), 1654
- Alopecia universalis
  - (2006): Garcia Bartels N+, *Arch Dermatol* 142(12), 1654
- Follicular mucinosis
  - (2005): Dalle S+, *Br J Dermatol* 153(1), 207

Nails
- Onychocryptosis
  - (2005): Sfikakis PP+, *Arthritis Rheum* 52(8), 2513 (3 cases)
- Onycholysis
  - (2005): Sfikakis PP+, *Arthritis Rheum* 52(8), 2513 (3 cases)
- Subungual hyperkeratosis
  - (2005): Sfikakis PP+, *Arthritis Rheum* 52(8), 2513 (3 cases)

Central Nervous System
- Headache
- Multiple sclerosis
  - (2007): Bensouda-Grimaldi L+, *J Rheumatol* 34(1), 239
- Neurotoxicity
  - (2008): Van L+, *Arch Dermatol* 144(6), 804
- Paresthesias
  - (2005): Berthelot CN+, *J Am Acad Dermatol* 53(5 Suppl 1), S260

Neuromuscular/Skeletal
- Back pain (6%)
  - (2008): Van L+, *Arch Dermatol* 144(6), 804
  - (2004): *MMWR Morb Mortal Wkly Rep* 6;53(30), 683
- Tendinopathy/Tendon rupture
- Tremor

Respiratory
- Flu-like syndrome (7%)
  - (2008): Van L+, *Arch Dermatol* 144(6), 804
- Pulmonary fibrosis
  - (2006): Huggett MT+, *Rheumatology* (Oxford) 45(10), 1312
- Upper respiratory infection (17%)
  - (2006): Moul DK+, *Arch Dermatol* 142(9), 1110

Renal
- Nephrotoxicity

Ocular
- Optic neuritis
  - (2006): Chung JH+, *J Neurol Sci* 244(1–2), 133

Local
- Injection-site edema (15.2%)
- Injection-site erythema (15.2%)
- Injection-site pain (12%)
- Injection-site reactions
  - (2005): Papadakis KA+, *Am J Gastroenterol* 100(1), 75
  - (2005): Scheinfeld N, *Expert Opin Drug Saf* 4(4), 637

Other
- Death

ADAPALENE

Trade names: Adaferin; Differin (Galderma)
Indications: Acne vulgaris
Category: Retinoid
Half-life: N/A
Clinically important, potentially hazardous interactions with: resorcinol, salicylates

---

Skin
- Acne (<1%)
- Burning (<1%)
  - (2001): Nyirady J+, *J Dermatolog Treat* 12(3), 149
  - (2001): Tu P+, *J Eur Acad Dermatol Venereol* 15 (Suppl 3), 31
- Dermatitis (<1%)
- Eczema (<1%)
- Erythema (<1%)
  - (2001): Leyden J+, *Cutis* 67(6 Suppl), 17
  - (2001): Nyirady J+, *J Dermatolog Treat* 12(3), 149
- Irritation (<1%)
  - (2003): Brand B+, *Cutis* 72(6), 455
  - (2003): Brand B+, *J Am Acad Dermatol* 49(3 Suppl), S227
- Pruritus (<1%)
  - (2001): Nyirady J+, *J Dermatolog Treat* 12(3), 149
  - (2001): Tu P+, *J Eur Acad Dermatol Venereol* 15 (Suppl 3), 31
- Rash (<1%)
- Scaling (<1%)
  - (2001): Tu P+, *J Eur Acad Dermatol Venereol* 15 (Suppl 3), 31
  - (1998): Ellis CN+, *Br J Dermatol* 139, Suppl 52:41
- Xerosis (<1%)
  - (2001): Leyden J+, *Cutis* 67(6 Suppl), 17
  - (2001): Tu P+, *J Eur Acad Dermatol Venereol* 15 (Suppl 3), 31

Ocular
- Conjunctivitis
- Eyelid edema (<1%)

ADEFOVIR

Synonym: GS840
Trade names: Hepsera (Gilead); Preveon
Indications: HIV infection, Hepatitis B infection
Category: Antiretroviral; Nucleotide analog reverse transcriptase inhibitor
Half-life: 16–18 hours
Clinically important, potentially hazardous interactions with: amikacin, amphotericin B, delavirdine, drugs causing kidney toxicity, foscarnet, gentamicin, hydroxyurea, pentamidine, tobramycin

---

Skin
- Hot flashes
- Pruritus
- Rash

Central Nervous System
- Headache
  - (1998): *Treatment update* 10(1), 1
- Pain
  - (1998): *Treatment update* 10(1), 1

Neuromuscular/Skeletal
- Asthenia
  - (1998): *Treatment update* 10(1), 1

Renal
- Nephrotoxicity
  - (2005): Izzedine H+, *Am J Kidney Dis* 45(5), 804
  - (2004): Izzedine H+, *Kidney Int* 66(3), 1153 (mild)

ADENOSINE

Trade names: Adenic; Adeno-Jec; Adenocard (Astellas); Adenocur; Adenoject; Adenoscan (King); Adrecar; Atp; Krenosin; Krenosine
Indications: Paroxysmal supraventricular tachycardia, varicose vein complications with stasis dermatitis
Category: Antiarrhythmic class IV; Neurotransmitter
Half-life: <10 seconds
Clinically important, potentially hazardous interactions with: aminophylline, carbamazepine, dipyridamole

---

Skin
- Burning (<1%)
- Diaphoresis (<1%)
- Rash

Mucosal
- Dysgeusia (<1%)

Cardiovascular
- Arrhythmias
  - (1990): Parker RB+, *Clin Pharm* 9(4), 261
- Atrial fibrillation
  - (2006): Cummings M+, *J Nucl Cardiol* 13(4), 576
  - (2006): Kaltman JR+, *Pediatr Emerg Care* 22(2), 113
- Bradycardia
  - (1990): Parker RB+, *Clin Pharm* 9(4), 261
- Chest pain
  - (2004): Sadigh-Lindell B+, *J Pain* 5(9), 469
  - (1990): Parker RB+, *Clin Pharm* 9(4), 261
- Coronary Vasospasm
  - (2006): Faganello G+, *Int J Cardiol* 113(3), E84
- Flushing (18%)
- Pulmonary edema
  - (2006): Hersi A+, *Can J Cardiol* 22(3), 259
- Tachycardia
  - (2006): Burki NK+, *Respir Res* 7, 139
- Torsades de pointes
  - (1994): Celiker A+, *Pacing Clin Electrophysiol* 17(11 Pt 1), 1814
- Ventricular tachycardia
  - (2006): Sandler DA, *J Cardiovasc Electrophysiol* 17(11), 1251

Central Nervous System
- Headache
- Hypesthesia (1%)
- Paresthesias (1%)
- Vertigo (1%)

Neuromuscular/Skeletal
- Tendinopathy/Tendon rupture

AFAMELANOTIDE (Clinuvel)

Synonym: CUV1647
Trade names: EpiTan; Melanotan (Clinuvel)
Indications: Erythropoetic protoporphyria, Polymorphous light eruption, Photodamage
Category: Melanocyte stimulating hormone A agonist; Photoprotective
Half-life: N/A

Note: AFAMELANOTIDE is an Orphan Drug

Skin
Pigmentation
(2006): Fitzgerald LM+, *Peptides* 27(2), 388
(2004): Dorr RT+, *Arch Dermatol* 140(7), 827

Cardiovascular
Flushing
(1997): Ugwu SO+, *Biopharm Drug Dispos* 18(3), 259

Central Nervous System
Somnolence
(1996): Dorr RT+, *Life Sci* 58(20), 1777

Neuromuscular/Skeletal
Asthenia
(1996): Dorr RT+, *Life Sci* 58(20), 1777

Endocrine/Metabolic
Appetite decreased
(1998): Wessells H+, *J Urol* 160(2), 389
Increased libido
(2005): Hadley ME, *Peptides* 26(10), 1687

Genitourinary
Priapism
(2005): Hadley ME, *Peptides* 26(10), 1687
(2003): Porst H, *Urologe A* 42(10), 1330

AGALSIDASE

Trade name: Fabrazyme (Genzyme)
Indications: Fabry disease
Category: Enzyme
Half-life: 45–102 minutes
Clinically important, potentially hazardous interactions with: None

---

Skin
Edema of lip
Hypersensitivity
Pallor (14%)
Pruritus
Rash
Urticaria

Cardiovascular
Chest pain (17%)
Hypertension
Hypotension

Central Nervous System
Anxiety
Chills
Depression (10%)
Fever (48%)
Headache (45%)
Pain (21%)
Paresthesias (14%)
Rigors
Vertigo (14%)

Neuromuscular/Skeletal
Myalgia/Myositis/Myopathy/Myotoxicity

Gastrointestinal/Hepatic
Abdominal pain

Respiratory
Bronchospasm
Rhinitis (38%)
Sinusitis (7%)

Local
Application-site reactions (~50%)
Injection-site reactions
(2006): Ries M+, *Pediatrics* 118(3), 924

ALBENDAZOLE

Trade names: ABZ; Albenza (GSK); Albezole; Alzol; Bendex; Eskazole; Vermin; Zentel
Indications: Nematode infections, hydatid cyst disease
Category: Antihelmintic
Half-life: 8–12 hours
Clinically important, potentially hazardous interactions with: dexamethasone

---

Skin
Adverse effects
(2002): Supali T+, *Trop Med Int Health* 7(10), 894
(with diethylcarbamazine)
Allergic reactions (<1%)
Angioedema
(2006): Olson BG+, *Pediatr Infect Dis J* 25(5), 466
(with ivermectin and praziquantel)
Dermatitis
(1991): Macedo NA+, *Contact Dermatitis* 25, 73
Fixed eruption
(1998): Mahboob A+, *Int J Dermatol* 37, 833
(1998): Mahboob A+, *JPMA J Pak Med Assoc* 48, 316
Pruritus (<1%)
(2002): Supali T+, *Trop Med Int Health* 7(10), 894
(with diethylcarbamazine)
Rash (<1%)
Stevens–Johnson syndrome
(1997): Dewardt S+, *Acta Derm Venereol* 77, 411
Urticaria (<1%)
(2006): Olson BG+, *Pediatr Infect Dis J* 25(5), 466
(with ivermectin and praziquantel)
(1991): Macedo NA+, *Contact Dermatitis* 25, 73

Hair
Alopecia (<1%)
(1993): Tomas S+, *Enferm Infecc Microbiol Clin* (Spanish) 11, 113
(1990): Pilar-Garcia-Muret M+, *Int J Dermatol* 29, 669

Mucosal
Xerostomia (<1%)

Central Nervous System
Fever
(2006): Olson BG+, *Pediatr Infect Dis J* 25(5), 466
(with ivermectin and praziquantel)

Neuromuscular/Skeletal
Myalgia/Myositis/Myopathy/Myotoxicity

(2002): Supali T+, *Trop Med Int Health* 7(10), 894
(with diethylcarbamazine)

Gastrointestinal/Hepatic
Abdominal pain
(2006): Olson BG+, *Pediatr Infect Dis J* 25(5), 466
(with ivermectin and praziquantel)
(2004): Garcia HH+, *N Engl J Med* 350(3), 249
(with dexamethasone)

ALBUTEROL

Synonym: salbutamol
Trade names: AccuNeb (DEY); Asmaven; Broncho-Spray; Cobutolin; Combivent (Boehringer Ingelheim); Duoneb (DEY); Proventil (Schering); Salbulin; Ventolin (GSK); Ventoline; Volmax (Muro)
Indications: Bronchospasm associated with asthma
Category: Adrenergic beta-receptor agonist; Tocolytic
Half-life: 3–6 hours
Clinically important, potentially hazardous interactions with: atomoxetine, epinephrine, insulin detemir, insulin glulisine

Note: Combivent is albuterol and ipratropium

Skin
Angioedema
Dermatitis
(2006): Tsuruta D+, *Contact Dermatitis* 54(2), 121
(1994): Smeenk G+, *Contact Dermatitis* 31, 123
Diaphoresis (1–10%)
(1989): Price AH+, *Drugs* 38, 77
Erythema (palmar) (with infusion)
(1992): Lebre C+, *Ann Dermatol Venereol* (French) 119, 293
(1990): Morin Leport LRM+, *Br J Dermatol* 122, 116
Erythema multiforme
Exanthems
Lupus erythematosus (pseudo-lupus)
(1987): Lacour JP+, *Presse Med* (French) 16, 1599
Pallor
Palmar erythema
(2007): Serrao R+, *Am J Clin Dermatol* 8(6), 347
Pruritus
(1991): Hatton MQ+, *Lancet* 337, 1169
Rash
Stevens–Johnson syndrome
Urticaria
(1991): Hatton MQ+, *Lancet* 337, 1169

Mucosal
Dysgeusia (1–10%)
Xerostomia (1–10%)

Cardiovascular
Atrial fibrillation
(2004): Kingma JH+, *J Am Coll Cardiol* 44(11), 2117
Flushing (1–10%)
Myocardial infarction
(2006): Tomcsanyi J+, *Orv Hetil* 147(47), 2283

Central Nervous System
Chills
Headache

Neuromuscular/Skeletal
Tremor

Otic
Tinnitus

ALCLOMETASONE

Trade names: Aclovate (GSK); Modrasone (Pliva)
Indications: Dermatoses
Category: Corticosteroid, topical
Half-life: N/A
Clinically important, potentially hazardous interactions with: licorice, live vaccines

---

Skin
Allergic reactions
(1995): Lepoittevin JP+, *Arch Dermatol* 131(1), 31
Bruising
Burning
Dermatitis
(1999): Iwakiri K+, *Contact Dermatitis* 41(4), 218
(1991): Reitamo S+, *Contact Dermatitis* 25(1), 78
Edema
Infections
Photoallergic reaction
(1996): Stitt WZ+, *Am J Contact Dermat* 7(3), 166
Pruritus
Rash
Sensitivity
Side effects
(1985): Thornfeldt C+, *J Int Med Res* 13(5), 276
Thinning
Urticaria
(1987): Kuokkanen K+, *Clin Ther* 9(2), 223 (1 case)

ALDESLEUKIN

Synonyms: IL-2; interleukin-2
Trade names: Aerovent; Atem; Atronase; Narilet; Proleukin (Chiron)
Indications: Metastatic renal cell carcinoma
Category: Immunomodulator; Interleukin-2
Half-life: 6–85 minutes
Clinically important, potentially hazardous interactions with: altretamine, amikacin, aminoglycosides, antineoplastics, bleomycin, busulfan, carboplatin, carmustine, chlorambucil, cisplatin, corticosteroids, cyclophosphamide, cytarabine, dacarbazine, dactinomycin, daunorubicin, docetaxel, doxorubicin, estramustine, etoposide, fludarabine, fluorouracil, gemcitabine, gentamicin, hydroxyurea, idarubicin, ifosfamide, indomethacin, kanamycin, levamisole, lomustine, mechlorethamine, melphalan, mercaptopurine, methotrexate, mitomycin, mitotane, mitoxantrone, neomycin, pentostatin, plicamycin, procarbazine, streptomycin, streptozocin, thioguanine, thiotepa, tobramycin, tretinoin, uracil, vinblastine, vincristine, vinorelbine

---

Skin
Allergic granulomatous angiitis (Churg–Strauss syndrome)
(1997): Shiota Y+, *Inren Med* 36, 709
Allergic reactions (<1%)
Angioedema
(1992): Baars JW+, *Ann Oncol* 3, 243
Bullae
(2005): Hofmann M+, *Dermatology* 210, 74
Bullous dermatitis
(1991): Staunton MR, *J Natl Cancer Inst* 83, 56
Bullous pemphigoid
(1993): Fellner MJ, *Clin Dermatol* 11, 515

Dermatitis
(1989): Kerker BJ+, *Semin Dermatol* 8, 173
(1987): Gaspari AA+, *JAMA* 258, 1624 (1–5%)
Desquamation
(2001): Chi KH+, *Oncology* 60, 110
Edema (47%)
(1994): Rosenberg SA+, *JAMA* 271, 907
(1990): Chien CH+, *Pediatrics* 86, 937
Erythema (41%)
(1993): Wolkenstein P+, *J Am Acad Dermatol* 28, 66
(1992): Blessing K+, *J Pathol* 167, 313
Erythema multiforme
(2003): Chodorowska G+, *Ann Univ Mariae Curie Sklodowska [Med]* 58(2), 7
Erythema nodosum
(2003): Chodorowska G+, *Ann Univ Mariae Curie Sklodowska [Med]* 58(2), 7
(1989): Kerker BJ+, *Semin Dermatol* 8, 173
Erythroderma
(1992): Blessing K+, *J Pathol* 167, 313
(1991): Siegel JP+, *J Clin Oncol* 9, 694 (>5%)
Exanthems
(2003): Chodorowska G+, *Ann Univ Mariae Curie Sklodowska [Med]* 58(2), 7
(1991): Dummer R+, *Dermatologica* 183, 95
Exfoliative dermatitis (14%)
(1993): Larbre B+, *Ann Dermatol Venereol* (French) 120, 528
Graft-versus-host reaction
(1995): Costello R+, *Bone Marrow Transplant* 16, 199
Intertrigo
(1996): Prussick R+, *J Am Acad Dermatol* 35, 705
Kaposi's sarcoma
(1989): Krigel RL+, *J Biol Response Mod* 8, 359
Linear IgA dermatosis
(2002): Cohen LM+, *J Am Acad Dermatol* 46, S32 (passim)
(1996): Tranvan A+, *J Am Acad Dermatol* 35, 865
Necrosis
(1993): Wolkenstein P+, *J Am Acad Dermatol* 28, 66
(1988): Rosenberg SA+, *Ann Intern Med* 108, 853 (3%)
Pemphigus
(1995): Wolkenstein P+, *Arch Dermatol* 130, 890
(1994): Prussick R+, *Arch Dermatol* 130, 890
Peripheral edema (1–10%)
Petechiae (4%)
Photosensitivity
(1992): Blessing K+, *J Pathol* 167, 313
Pruritus (48%)
(2001): Chi KH+, *Oncology* 60(2), 110
(1995): Wahlgren CF+, *Arch Dermatol Res* 287, 572
Psoriasis
(1991): Siegel JP+, *J Clin Oncol* 9, 694 (>5%)
(1989): Kerker BJ+, *Semin Dermatol* 8, 173
Purpura (4%)
(1989): Kerker BJ+, *Semin Dermatol* 8, 173
Rash (26%)
Sarcoidosis
(2000): Blanche P+, *Clin Infect Dis* 31, 1493
Scleroderma
(1994): Boni R, *Dermatology* 189, 330
(1994): Puett DW+, *J Rheumatol* 21, 752
Stevens–Johnson syndrome
(2003): Chodorowska G+, *Ann Univ Mariae Curie Sklodowska [Med]* 58(2), 7
Toxic epidermal necrolysis
(2003): Chodorowska G+, *Ann Univ Mariae Curie Sklodowska [Med]* 58(2), 7
(1992): Wiener JS+, *South Med J* 85, 656
Urticaria (2%)
(2003): Chodorowska G+, *Ann Univ Mariae Curie Sklodowska [Med]* 58(2), 7
(1993): Wolkenstein P+, *J Am Acad Dermatol* 28, 66
Vasculitis
(2003): Chodorowska G+, *Ann Univ Mariae Curie Sklodowska [Med]* 58(2), 7
Vitiligo
(1996): Rosenberg SA+, *J Immunother Emphasis Tumor Immunol* 19, 81
(1995): Wolkenstein P+, *Arch Dermatol* 130, 890
Xerosis (15%)

Hair
Alopecia (<1%)
(1989): Jost LM+, *Schweiz Med Wochenschr* (German) 119, 137
(1987): Gaspari AA+, *JAMA* 258, 1624 (10%)

Mucosal
Aphthous stomatitis
(1987): Gaspari AA+, *JAMA* 258, 1624 (5%)
Dysgeusia (7%)
Glossitis
(1987): Gaspari AA+, *JAMA* 258, 1624 (30%)
Oral mucosal eruption
(1989): Kerker BJ+, *Semin Dermatol* 8, 173
(1987): Gaspari AA+, *JAMA* 258, 1624
Oral ulceration
(1990): Chien CH+, *Pediatrics* 86, 937
Stomatitis (32%)
Xerostomia
(2001): Chi KH+, *Oncology* 60, 110

Cardiovascular
Myocarditis
(2006): Ingkanisorn WP+, *J Cardiovasc Magn Reson* 8(2), 353

Central Nervous System
Depression
(2004): Capuron L+, *Brain Behav Immun* 18(3), 205
(2004): Patten SB+, *Psychother Psychosom* 73(4), 207
Headache
Myasthenia gravis
(2002): Fraenkel PG+, *J Immunother* 25(4), 373
(1996): Rohde D+, *Eur J Clin Pharmacol* 50(6), 471

Neuromuscular/Skeletal
Myalgia/Myositis/Myopathy/Myotoxicity (6%)
Rhabdomyolysis
(1995): Anderlini P+, *Cancer* 76(4), 678

Local
Injection-site inflammation
(2002): Assmann K+, *Hautarzt* 53(8), 554
(1999): Asadullah K+, *Arch Dermatol* 135, 187
Injection-site nodules
(2002): Assmann K+, *Hautarzt* 53(8), 554
(1993): Klapholtz L+, *Bone Marrow Transplant* 11, 443
Injection-site panniculitis
(1992): Baars JW+, *Br J Cancer* 66, 698
Injection-site reactions (3%)
(2002): Assmann K+, *Hautarzt* 53(8), 554

Other
Death

ALEFACEPT

Trade name: Amevive (Biogen)
Indications: Chronic plaque psoriasis (in adults)
Category: Immunosuppressant
Half-life: 270 hours
Clinically important, potentially hazardous interactions with: None

---

Skin
Adverse effects (2.5%)
(2002): Krueger GG+, *J Am Acad Dermatol* 47(6), 821
(2001): Ellis CN+, *N Engl J Med* 345(4), 248
Allergic reactions
Angioedema
(2002): Cather J+, *Am J Clin Dermatol* 3(3), 159
Herpes simplex
(2002): Cather J+, *Am J Clin Dermatol* 3(3), 159
Hypersensitivity
Infections (0.7–1.5%)
(2002): Krueger GG+, *J Am Acad Dermatol* 47(6), 821
(2001): Ellis CN+, *N Engl J Med* 345(4), 248
Lipodermatosclerosis
(2005): Gribetz CH+, *J Am Acad Dermatol* 53(1), 73
Lymphoma (3 cases)
Malignancies (1.3%)
Necrotizing cellulitis
Nevi
(2006): Bovenschen HJ+, *Br J Dermatol* 154(5), 880
Pruritus (2–5%)
(2005): Scheinfeld N, *Expert Opin Drug Saf* 4(6), 975
Psoriasis
(2004): Thaler D, Monona, WI (from Internet) (observation) (recurrence)
Urticaria (<1%)

Central Nervous System
Chills (transient) (<2%)
(2003): Kimball AB+, *Poster, American Academy of Dermatology Meeting* San Francisco, CA
(2002): Krueger GG+, *J Am Acad Dermatol* 47(6), 821
Headache
(2007): Strober BE+, *Dermatol Ther* 20(4), 270 (passim)
(2006): Koo JY+, *J Drugs Dermatol* 5(7), 623
Vertigo (<2%)
(2001): Ellis CN+, *N Engl J Med* 345(4), 248

Neuromuscular/Skeletal
Arthralgia
(2005): Scheinfeld N, *Expert Opin Drug Saf* 4(6), 975
Asthenia
(2005): Gribetz CH+, *J Am Acad Dermatol* 53(1), 73
(2005): Scheinfeld N, *Expert Opin Drug Saf* 4(6), 975
Myalgia/Myositis/Myopathy/Myotoxicity (2–5%)
(2005): Gribetz CH+, *J Am Acad Dermatol* 53(1), 73

Gastrointestinal/Hepatic
Hepatotoxicity
(2007): Strober BE+, *Dermatol Ther* 20(4), 270 (passim)

Respiratory
Cough (<2%)
(2005): Gribetz CH+, *J Am Acad Dermatol* 53(1), 73
(2001): Ellis CN+, *N Engl J Med* 345(4), 248
Flu-like syndrome
(2007): Strober BE+, *Dermatol Ther* 20(4), 270 (passim)
(2002): Cather J+, *Am J Clin Dermatol* 3(3), 159
Nasopharyngitis
(2007): Strober BE+, *Dermatol Ther* 20(4), 270 (passim)
Rhinitis
(2005): Scheinfeld N, *Expert Opin Drug Saf* 4(6), 975
Sinusitis
(2006): Koo JY+, *J Drugs Dermatol* 5(7), 623
Upper respiratory infection
(2007): Strober BE+, *Dermatol Ther* 20(4), 270 (passim)
(2006): Koo JY+, *J Drugs Dermatol* 5(7), 623

Local
Injection-site bleeding (4%)
Injection-site edema (2%)
Injection-site hypersensitivity
Injection-site inflammation (4%)
Injection-site pain (7%)
(2005): Gribetz CH+, *J Am Acad Dermatol* 53(1), 73
Injection-site reactions
(2007): Strober BE+, *Dermatol Ther* 20(4), 270 (passim)

ALEMTUZUMAB

Synonyms: Campath-1H; DNA-derived Humanized Monoclonal Antibody; Humanized IgG1 Anti-CD52 Monoclonal Antibody
Trade names: Campath (Berlex); MabCampath (Schering)
Indications: B-cell chronic lymphcyotic leukemia, non-Hodgkin's lymphoma
Category: Immunosuppressant; Monoclonal antibody
Half-life: 12 days

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

---

Skin
Abscess
Allergic reactions (<1%)
Anaphylactoid reactions/Anaphylaxis (<1%)
Angioedema (<1%)
Bullous dermatitis (<1%)
Cellulitis (<1%)
Facial edema (<1%)
Guillain–Barré syndrome
(2007): Laros-van Gorkom BA+, *Neth J Med* 65(9), 333 (3%)
Hematoma (<1%)
Herpes simplex
(2007): Laros-van Gorkom BA+, *Neth J Med* 65(9), 333 (6%)
(2003): Lundin J+, *Blood* 101(11), 4267
Herpes zoster
(2007): Laros-van Gorkom BA+, *Neth J Med* 65(9), 333 (9%)
(2004): Wendtner CM+, *Leukemia* 18(6), 1093
Infections
(2007): Lim Z+, *J Infect* 54(2), e83 (Opportunistic) (Toxoplasmosis)
(2007): Peleg AY+, *Clin Infect Dis* 44(2), 204 (opportunistic) (10%)
Lymphoproliferative disease (64% to 70%)
Malignant lymphoma (<1%)
Peripheral edema (13%)
Pruritus
Purpura (8%)
Rash
(2003): Ferrajoli A+, *Cancer* 98(4), 773
Squamous cell carcinoma (<1%)
(2003): Lundin J+, *Blood* 101(11), 4267
Toxoplasmosis
(2007): Lim Z+, *J Infect* 54(2), e83

Urticaria
(2000): Tang SC+, *Leuk Lymphoma* 24(1-2), 93

Mucosal
Dysgeusia (<1%)
Gingivitis (<1%)
Stomatitis (14%)
Stomatodynia

Cardiovascular
Flushing
(2000): Tang SC+, *Leuk Lymphoma* 24(1-2), 93
Phlebitis (<1%)
Thrombophlebitis (<1%)

Central Nervous System
Chills
(2000): Flynn JM+, *Curr Opin Oncol* 12(6), 574
Depression (7%)
Dysesthesia (15%)
Fever
(2007): Laros-van Gorkom BA+, *Neth J Med* 65(9), 333 (72%)
(2003): Ferrajoli A+, *Cancer* 98(4), 773 (38%)
Headache

Neuromuscular/Skeletal
Asthenia
(2007): Laros-van Gorkom BA+, *Neth J Med* 65(9), 333 (22%)
Myalgia/Myositis/Myopathy/Myotoxicity (<1%)
Polymyositis (<1%)

Respiratory
Dyspnea
(2007): Laros-van Gorkom BA+, *Neth J Med* 65(9), 333 (17%)
Flu-like syndrome
(2006): Osterborg A+, *Semin Oncol* 33(2 suppl 5), S29
Pneumonia
(2007): Laros-van Gorkom BA+, *Neth J Med* 65(9), 333 (25%)
Sinusitis
(2004): Wendtner CM+, *Leukemia* 18(6), 1093

Endocrine/Metabolic
Inappropriate secretion of antidiuretic hormone (SIADH)
(2005): Kunz JS+, *Leuk Lymphoma* 46(4), 635

Local
Application-site reactions
(2003): Lynn A+, *Oncol Nurs Forum* 30(4), 689
(2002): Rai KR+, *J Clin Oncol* 20(18), 3891 (with fludarabine)
Injection-site pruritus (30–40%)
Injection-site reactions
(2006): Osterborg A+, *Semin Oncol* 33(2 Suppl 5), S29
(2002): Keating MJ+, *Blood* 99(10), 3554

Other
Cytomegalovirus reactivation
(2007): Cheung WW+, *Am J Hematol* 82(2), 108
(2006): O'Brien SM+, *Clin Lymphoma Myeloma* 7(2), 125
Death
(2006): Martin SI+, *Clin Infect Dis* 43(1), 16
(2004): Enblad G+, *Blood* 103(8), 2920 (5 cases)

ALENDRONATE

Trade names: Fosalan; Fosamax (Merck)
Indications: Osteoporosis in postmenopausal women, Paget's disease
Category: Bisphosphonate
Half-life: >10 years

Skin
Angioedema
Erythema (<1%)
(1996): Keen RW+, *Br J Clin Pract* 50, 211
Erythema gyratum
(2003): High WA+, *J Am Acad Dermatol* 48(6), 945
Erythema multiforme
(2000): Madnani N, Mumbai, India (from Internet) (observation)
Exanthems
(2000): Madnani N, Mumbai, India (from Internet) (observation)
Fixed eruption
(1998): McCarthy J, Ft. Worth, TX (from Internet) (observation)
Hypersensitivity
(1996): Kirk JK+, *Am Fam Physician* 54, 2053
Peripheral edema
Petechiae
(1997): Berger R, St. George, UT (from Internet) (observation)
Photosensitivity
Pruritus (0.6%)
(2000): Madnani N, Mumbai, India (from Internet) (observation)
(1997): Kyriakidou-Himonas M+, *Advances in Therapy* 14, 281
Rash (<1%)
(1997): Berger R, St. George, UT (from Internet) (observation)
(1996): Freedholm D+, *Osteoporosis Int* 6, 261
Stevens–Johnson syndrome
Toxic epidermal necrolysis
Urticaria

Mucosal
Dysgeusia (0.6%)
(1997): Kyriakidou-Himonas M+, *Advances in Therapy* 14, 281
Oral ulceration
(2004): Krasagakis K+, *J Am Acad Dermatol* 50(4), 651
(1999): Demerjian N+, *Clin Rheumatol* 18, 349
Stomatitis (Contact)
(2006): Rubegni P+, *N Engl J Med* 355(22), e25

Central Nervous System
Headache
Seizures
(2002): MacIsaac RJ+, *J R Soc Med* 95(12), 615

Neuromuscular/Skeletal
Osteonecrosis
(2007): Heras Rincon+, *Med Oral Patol Oral Cir Bucal* 12(4), E267 (passim)
(2006): Nase JB+, *J Am Dent Assoc* 137(8), 1115

Gastrointestinal/Hepatic
Abdominal pain
(2003): Segal E+, *Isr Med Assoc J* 5(12), 859 (42.8%)

Ocular
Conjunctivitis
(2003): Frauenfelder FW+, *N Engl J Med* 348, 1187
Ocular stinging
(2003): Frauenfelder FW+, *N Engl J Med* 348, 1187
Ophthalmitis
(1999): Mbekeani JN+, *Arch Ophthalmol* 117, 837
Uveitis
(2006): Richards JC+, *Cornea* 25(9), 1100
(2004): Asensio Sanchez VM+, *Arch Soc Esp Oftalmol* 79(2), 85
Visual disturbances
(2004): Coleman CI+, *Pharmacotherapy* 24(6), 799 (rare)

ALFENTANIL

Trade names: Alfenta (Akorn); Rapifen
Indications: General anesthesia, post-operative pain
Category: Analgesic, opioid; Anesthetic
Half-life: 83–97 minutes (adults)
Clinically important, potentially hazardous interactions with: erythromycin, ranitidine, ritonavir

---

Skin
Clammy skin (<1%)
Pruritus (<1%)
(1999): Kyriakides K+, *Br J Anaesth* 82, 439
Rash (<1%)
Shivering (3–9%)
(2004): Crozier TA+, *Eur J Anaesthesiol* 21(1), 20 (41%)
Urticaria (<1%)

Cardiovascular
Bradycardia
(1995): Korpinen R+, *Can J Anaesth* 42(4), 298
(1990): Venuti FS+, *Minerva Anestesiol* 56(4), 113
Hypotension
(2001): Maguire AM+, *Br J Anaesth* 86(1), 90 (4 cases)

Central Nervous System
Dysesthesia

ALFUZOSIN

Trade names: Uroxatral (Sanofi-Aventis); Xatral
Indications: Benign prostatic hyperplasia
Category: Adrenergic alpha-receptor antagonist
Half-life: 10 hours
Clinically important, potentially hazardous interactions with: atenolol, cimetidine, diltiazem, itraconazole, ketoconazole, ritonavir

---

Skin
Allergic reactions
(1997): Lopatkin NA+, *Urol Nefrol* (Mosk) 941(5), 14
Angioedema
Dermatomyositis
(1998): Vela-Casasempere P+, *Br J Rheumatol* 37(10), 1135
Edema
Rash
Toxic epidermal necrolysis
(2006): Wang YS+, *Arch Dermatol* 142(7), 938

Cardiovascular
Chest pain
Hypotension
(2006): Hartung R+, *J Urol* 175(2), 624
QT prolongation
(2004): Abriel H+, *Swiss Med Wkly* 134(47-48), 685

Central Nervous System
Headache (3%)
Pain (1–2%)
Vertigo (6%)
(2006): Elhilali M+, *BJU Int* 97(3), 513 (3%)
(2006): Hartung R+, *J Urol* 175(2), 624 (5%)

Neuromuscular/Skeletal
Asthenia (3%)

Gastrointestinal/Hepatic
Abdominal pain (1–2%)

Respiratory
Sinusitis (1–2%)
Upper respiratory infection (3%)

Genitourinary
Priapism
(2006): Qazi HA+, *Urology* 68(4), 890.e5 (stuttering)

ALGLUCERASE

Trade name: Ceredase (Genzyme)
Indications: Gaucher disease
Category: Enzyme, glucocerebrosidase
Half-life: 3.6–10.4 minutes
Clinically important, potentially hazardous interactions with: None

---

Skin
Angioedema
Hot flashes
Hypersensitivity
(1999): Rosenberg M+, *Blood* 93(6), 2081
Peripheral edema
Pruritus
(1999): Rosenberg M+, *Blood* 93(6), 2081
Urticaria
(1999): Rosenberg M+, *Blood* 93(6), 2081

Mucosal
Oral ulceration
Parosmia

Cardiovascular
Flushing
(1999): Rosenberg M+, *Blood* 93(6), 2081
Hypertension
(1997): Harats D+, *Acta Haematol* 98(1), 47
(1996): Dawson A+, *Ann Intern Med* 125(11), 901

Central Nervous System
Chills
Fever
Headache

Neuromuscular/Skeletal
Asthenia

Local
Injection-site burning
Injection-site edema

ALGLUCOSIDASE ALFA

Trade name: Myozyme (Genzyme)
Indications: Pompe disease (Glycogen storage disease Type II), GAA deficiency
Category: Alfa-glucosidase; Enzyme
Half-life: 2–3 hours
Clinically important, potentially hazardous interactions with: N/A

Note: Pompe disease is an autosomal recessive muscular disorder caused by the deficiency or lack of the enzyme acid alpha-glucosidase, which is essential for normal muscle development and function. The

disease, which usually results in death from respiratory failure, is rapidly fatal in the newborn

Skin
Anaphylactoid reactions/Anaphylaxis
Angioedema
Dermatitis
Hyperhidrosis
Hypersensitivity
Livedo reticularis
Pallor
Pruritus
Rash (54%)
Urticaria (21%)

Mucosal
Oral candidiasis (31%)

Cardiovascular
Bradycardia (21%)
Flushing (21%)
Tachycardia (23%)

Central Nervous System
Fever (97%)
Headache

Neuromuscular/Skeletal
Asthenia

Respiratory
Cough (46%)
Pneumonia (46%)
Rhinitis
Upper respiratory infection (44%)

Otic
Otitis (44%)

Ocular
Periorbital edema

Local
Application-site reactions (51%)

ALISKIREN

Trade name: Tekturna (Novartis)
Indications: Hypertension
Category: Antihypertensive; Renin inhibitor
Half-life: 24 hours
Clinically important, potentially hazardous interactions with: furosemide, ketoconazole

Skin
Angioedema
Rash (1%)

Central Nervous System
Headache
(2006): Vaidyanathan S+, *Int J Clin Pract* 60(11), 1343
Vertigo

Gastrointestinal/Hepatic
Abdominal pain

Respiratory
Cough
(2006): Vaidyanathan S+, *Int J Clin Pract* 60(11), 1343

Ocular
Periorbital edema

ALITRETINOIN

Trade name: Panretin (Ligand)
Indications: Kaposi's sarcoma cutaneous lesions
Category: Retinoid
Half-life: N/A

Skin
Abrasion
Adverse effects
(2000): Duvic M+, *Arch Dermatol* 136, 1461 (17%)
Bullous dermatitis
Burning
(2002): Morganroth GS, *Arch Dermatol* 138, 542
Edema (3–8%)
(2000): Duvic M+, *Arch Dermatol* 136, 1461 (3%)
Exfoliative dermatitis (3–9%)
Photosensitivity
Pigmentation (3%)
(2000): Duvic M+, *Arch Dermatol* 136, 1461 (3%)
Pruritus (8–11%)
Rash (25–77%)
(2000): Duvic M+, *Arch Dermatol* 136, 1461 (69%)
Toxicity
(2002): Miles SA+, *AIDS* 16(3), 421
Ulcerations (2%)
(2000): Duvic M+, *Arch Dermatol* 136, 1461
Xerosis (10%)
(2000): Duvic M+, *Arch Dermatol* 136, 1461 (10%)

Hair
Alopecia

Cardiovascular
Flushing

Central Nervous System
Headache
(2002): Miles SA+, *AIDS* 16(3), 421 (13 cases)
Pain
(2000): Duvic M+, *Arch Dermatol* 136, 1461 (18%)
Paresthesias (3–22%)

Neuromuscular/Skeletal
Myalgia/Myositis/Myopathy/Myotoxicity

Local
Application-site dermatitis
(2002): Morganroth GS, *Arch Dermatol* 138, 542
Application-site reactions
(1999): Walmsley S+, *J Acquir Immune Defic Syndr* 22, 325

ALLOPURINOL

Trade names: Allo 300; Allo-Puren; Alloprin; Atisuril; Bleminol; Caplenal; Hamarin; Novo-Purol; Purinol; Unizuric; Zyloprim (Prometheus); Zyloric
Indications: Gouty arthritis
Category: Purine analog; Xanthine oxidase inhibitor
Half-life: 1–3 hours
Clinically important, potentially hazardous interactions with: acenocoumarol, amoxicillin, ampicillin, azathioprine, dicumarol, imidapril, mercaptopurine, pantoprazole, uracil/tegafur, vidarabine, zofenopril

---

Skin

Acute generalized exanthematous pustulosis (AGEP)
(2002): Lun K+, *Australas J Dermatol* 43(2), 140
(1995): Moreau A+, *Int J Dermatol* 34, 263 (passim)

Adverse effects
(2006): Chandeclerc ML+, *Allergy* 61(12), 1492
(2003): Chubar Y+, *Br J Haematol* 122(5), 768

Allergic reactions (severe)
(1999): Tanna SB+, *Ann Pharmacother* 33, 1180

Angioedema
(1996): Yale SH+, *Hosp Pract Off Ed* 31, 92

Diaphoresis (<1%)

DRESS syndrome
(2005): Markel A, *Isr Med Assoc J* 7(10), 656
(2004): Cordel N+, *Ann Dermatol Venereol* 131(12), 1059 (2 cases)

Ecchymoses (<1%)

Eosinophilic pustular folliculitis
(2006): Ooi CG+, *Australas J Dermatol* 47(4), 270
(2002): Maejima H+, *Acta Derm Venereol* 82(4), 316

Erythema multiforme (<1%)
(2001): Perez A+, *Contact Dermatitis* 44, 113 (with amoxicillin)
(1999): Fonseka MM+, *Ceylon Med J* 44, 190

Exanthems (1–5%)
(2003): Masaki T+, *Acta Derm Venereol* 83(2), 128
(2001): Fam AG+, *Arthritis Rheum* 44, 231

Exfoliative dermatitis (>10%)
(2004): Rodevand E+, *Tidsskr Nor Laegeforen* 21;124(20), 2618
(2001): Dominguez Ortega J+, *An Med Intern* 18(1), 27

Fixed eruption (<1%)
(2004): Teraki Y+, *Dermatology* 209(1), 29
(2001): Dominguez Ortega J+, *An Med Intern* 18(1), 27

Graft-versus-host reaction
(1998): Jappe U+, *Hautarzt* (German) 49, 126

Granuloma annulare (disseminated)
(1996): Brechtel B+, *Hautarzt* 47(2), 143
(1995): Becker D+, *Hautarzt* (German) 46, 343

Hypersensitivity
(2007): Dainichi T+, *Dermatology* 215(1), 86
(2006): Kano Y+, *J Am Acad Dermatol* 55(4), 727

Ichthyosis

Lichen planus (<1%)

Lupus erythematosus
(1980): Condemi JJ, *Geriatrics* 35(3), 81

Lymphocytoma cutis
(1988): Raymond JZ+, *Cutis* 41, 323

Necrotizing vasculitis

Perforating foot ulceration
(1997): Bouloc A+, *Clin Exp Dermatol* 21, 351

Petechiae

Photosensitivity
(1986): Lerman S, *Ophthalmology* 93, 304

Pityriasis rosea
(2006): Atzori L+, *Dermatology Online Journal* 12(1), 1 (with hydrochlorothiazide)

Pruritus (<1%)
(2003): Mete N+, *J Investig Allergol Clin Immunol* 13(4), 281
(2002): Lun K+, *Australas J Dermatol* 43(2), 140

Pseudolymphoma
(1993): Kerl H+, *Dermatology in General Medicine* McGraw-Hill New York

Purpura (>10%)
(1979): Lang GP+, *South Med J* 72, 1361

Pustules
(2002): Lun K+, *Australas J Dermatol* 43(2), 140

Pustuloderma
(1994): Fitzgerald DA+, *Clin Exp Dermatol* 19, 243

Rash (>10%)
(2005): Choi SH+, *Korean J Hepatol* 11(1), 80
(2003): Mete N+, *J Investig Allergol Clin Immunol* 13(4), 281

Sensitivity
(1979): Haughey DB+, *Am J Hosp Pharm* 36, 1377

Stevens–Johnson syndrome (>10%)
(2008): Halevy S+, *J Am Acad Dermatol* 58(1), 25
(2008): Lee HY+, *J Am Acad Dermatol* 59(2), 352

Toxic epidermal necrolysis
(2008): Halevy S+, *J Am Acad Dermatol* 58(1), 25
(2008): Lee HY+, *J Am Acad Dermatol* 59(2), 352

Toxic erythema
(1995): Rademaker M, *N Z Med J* 108, 165

Toxic pustuloderma
(1994): Boffa MJ+, *Br J Dermatol* 131, 447
(1994): Fitzgerald DA+, *Clin Exp Dermatol* 19, 243

Urticaria (>10%)
(2001): Dominguez Ortega J+, *An Med Interna* 18(1), 27
(1999): Litt JZ, Beachwood, OH (personal case) (observation)

Vasculitis (<1%)
(2001): Dominguez Ortega J+, *An Med Intern* 18(1), 27
(1998): Choi HK+, *Clin Exp Rheumatol* 16, 743

Hair

Alopecia (1–10%)

Nails

Onycholysis (<1%)

Mucosal

Dysgeusia

Mucocutaneous eruption

Oral ulceration
(1984): Chau NY+, *Oral Surg Oral Med Oral Pathol* 58, 397 (lichenoid)
(1979): Lang GP+, *South Med J* 72, 1361

Stomatitis
(1981): McInnes GT+, *Ann Rheum Dis* 40, 245

Tongue edema (<1%)

Cardiovascular

Polyarteritis nodosa

Thrombophlebitis (<1%)

Central Nervous System

Chills (1–10%)

Fever
(2005): Choi SH+, *Korean J Hepatol* 11(1), 80
(2003): Mete N+, *J Investig Allergol Clin Immunol* 13(4), 281

Headache

Paresthesias (<1%)

Psychosis
(2007): Gomberg R, *Schizophr Res* 93(1-3), 409

Neuromuscular/Skeletal

Myalgia/Myositis/Myopathy/Myotoxicity
(2002): Terawaki H+, *Nippon Jinzo Gakkai Shi* 44, 50