

KEY WORDS FOR KEY DRUGS

The following list is a compilation of the drugs that are most likely to appear on the USMLE examination (and on UCSF exams as well). The brief descriptions serve as a rapid review. Use the list in two ways: first, cover the column of properties and test your ability to provide some descriptive information about drugs picked at random from the left column; second, cover the left column and attempt to name a drug that fits the properties described.

Abbreviations: ACE, angiotensin-converting enzyme; ANS, autonomic nervous system; AV, atrioventricular; BP, blood pressure; BPH, benign prostatic hyperplasia; CHF, congestive heart failure; CNS, central nervous system; CV cardiovascular system; ECG, electrocardiogram; ENS, enteric nervous system; EPS, extrapyramidal system; GI, gastrointestinal; HR, heart rate; HTN, hypertension; MI, myocardial infarction; NM, neuromuscular; PANS, parasympathetic autonomic nervous system; SANS, sympathetic autonomic nervous system; Tox, toxicity; WBC, white blood cells.

Drug	Properties
Abciximab	Monoclonal antibody to fibrin receptor (glycoprotein IIb/IIIa) on platelets. Used to prevent clotting after coronary angioplasty
Acetaminophen	Antipyretic analgesic: very weak cyclooxygenase inhibitor; not anti-inflammatory. Less toxic than aspirin but more dangerous in overdose (causes hepatic necrosis—antidote: acetylcysteine)
Acetazolamide, dorzolamide	Carbonic anhydrase inhibitor diuretic: produces a NaHCO_3 diuresis, results in bicarbonate depletion, and therefore has self-limited action. Used in glaucoma and mountain sickness. Dorzolamide is a topical analog for glaucoma
Acetylcholine	Cholinomimetic prototype: transmitter in CNS, ENS, all ANS ganglia, parasympathetic postganglionic synapses, sympathetic postganglionic fibers to sweat glands, and some skeletal muscle vasodilator synapses
Acyclovir	Antiviral: inhibits DNA synthesis in herpes simplex and varicella zoster. Requires activation by viral thymidine kinase (TK^- strains are resistant). Tox: behavioral effects and nephrotoxicity (crystalluria), but not myelosuppression
Adenosine	Antiarrhythmic: unclassified ("Group V"); parenteral only. Hyperpolarizes AV nodal tissue, blocks conduction for 10–15 sec. Used for nodal reentry arrhythmias
Allopurinol	Antigout: inhibitor of xanthine oxidase; reduces production of uric acid
Albuterol, metaproterenol, terbutaline	Important β_2 -agonists; used mainly for asthma.
Alprazolam	Benzodiazepine sedative-hypnotic: widely used in anxiety states, selectivity for panic attacks and phobias; possible antidepressant actions. Tox: psychologic and physical dependence, additive effects with other CNS depressants
Alteplase (rt-PA)	Thrombolytic: human recombinant tissue plasminogen activator. Used in acute MI to recanalize the occluded coronary. Occasionally used in pulmonary embolism, stroke. Tox: bleeding
Amiloride	K^+ -sparing diuretic: blocks Na^+ channels in cortical collecting tubules
Aminoglutethimide	Nonsteroid inhibitor of steroid synthesis: reduces conversion of cholesterol to the hormone precursor, pregnenolone. Used in metastatic breast cancer

Amiodarone	Group IA and III antiarrhythmic: broad spectrum, blocks sodium, potassium, calcium channels, beta receptors. High efficacy and very long half-life (weeks-months). Tox: deposits in tissues; hypo- or hyperthyroidism; pulmonary fibrosis
Amitriptyline	Tricyclic antidepressant: blocks reuptake of norepinephrine and serotonin. Tox: atropine-like, postural hypotension, sedation; cardiac arrhythmias in overdose, additive effects with other CNS depressants
Amoxicillin	Penicillin: wider spectrum than pen G with activity similar to ampicillin but greater oral bioavailability; less adverse effects on GI tract than ampicillin. Susceptible to penicillinases unless used with clavulanic acid. Tox: penicillin allergy
Amphetamine	Indirectly acting sympathomimetic: displaces stored catecholamines in nerve endings. Marked CNS stimulant actions; high abuse liability. Tox: psychosis, HTN, MI, seizures
Amphotericin B	Antifungal: polyene drug of choice for most systemic mycoses; binds to ergosterol to disrupt fungal cell membrane permeability. Tox: chills and fever, hypokalemia, hypotension, nephrotoxicity (dose-limiting, possibly less with liposomal forms)
Ampicillin	Penicillin: wider-spectrum than pen G, susceptible to penicillinases unless used with sulbactam. Activity similar to pen G, plus <i>E coli</i> , <i>H influenzae</i> , <i>P mirabilis</i> , <i>Shigella</i> . Synergy with aminoglycosides versus enterococci and listeria. Tox: penicillin allergy; more adverse effects on GI tract than other penicillins; maculopapular skin rash
Anistreplase (APSAC)	Thrombolytic: bacterial streptokinase complexed with human plasminogen. Longer acting in body than other thrombolytics (rt-PA, streptokinase, urokinase). Tox: bleeding, allergy to streptococcal protein
Aspirin	NSAID prototype: inhibits cyclooxygenase (COX) I and II irreversibly. Potent antiplatelet agent as well as antipyretic analgesic anti-inflammatory drug
Atenolol	Beta ₁ -selective blocker: low lipid solubility, less CNS effect; used for HTN. (Note mnemonic for beta ₁ -selective blockers: their names start with A through M. [Exceptions: carteolol & labetalol are not selective])
Atropine	Muscarinic cholinergic blocker prototype: lipid soluble, CNS effects. Tox: "red as a beet, dry as a bone, mad as a hatter," urinary retention, mydriasis
Azithromycin	Antibiotic: similar to erythromycin, but greater activity versus chlamydia and streptococci; long half-life due to tissue accumulation. Tox: GI distress, but no inhibition of drug metabolism
Baclofen	GABA analog, orally active: spasmolytic; activates GABA _B receptors in the spinal cord
Benztrapine	Centrally acting antimuscarinic prototype for parkinsonism
Bethanechol	Muscarinic agonist: choline ester with good resistance to cholinesterase; used for atonic bowel or bladder
Botulinum	Toxin: enzyme produced by <i>Clostridium botulinum</i> ; interacts with fusion/docking proteins to block release of acetylcholine vesicles
Bromocriptine	Ergot derivative: dopamine agonist in CNS; inhibits prolactin release. Used in parkinsonism and hyperprolactinemia. Tox: CNS, dyskinesias, hypotension
Bupivacaine	Long-acting amide local anesthetic prototype: greater CV toxicity than most local anesthetics
Buspirone	Anxiolytic: atypical drug that interacts with 5HT _{1A} receptors; slow onset. Minimal potentiation of CNS depressants including ethanol; negligible abuse liability

Captopril	ACE inhibitor prototype: used in HTN, diabetic renal disease, and CHF. Tox: hyperkalemia, fetal renal damage, cough ("sore throat")
Carbachol	Nonselective muscarinic and nicotinic agonist: choline ester with good resistance to cholinesterase; used for glaucoma (not a first-line drug)
Carbamazepine	Anticonvulsant: tricyclic derivative used for tonic-clonic and partial seizures; blocks Na ⁺ channels in neuronal membranes. Drug of choice for trigeminal neuralgia; back-up drug in mania. Tox: CNS depression, hematotoxic, induces liver drug-metabolizing enzymes
Cefazolin	First-generation cephalosporin prototype: bactericidal beta-lactam inhibitor of cell wall synthesis. Active against gram-positive cocci, <i>E coli</i> , <i>K pneumoniae</i> , but does not enter CSF. Tox: potential allergy; partial cross-reactivity with penicillins
Cefoxitin	Second-generation cephalosporin: active against a wide spectrum of gram-negative bacteria including anaerobes (<i>B fragilis</i>). Does not enter the CNS
Ceftriaxone	Third-generation cephalosporin: active against resistant bacteria including gonococci, <i>H influenzae</i> , and other gram-negative organisms. Crosses the blood-brain barrier
Celecoxib, rofecoxib	First COX-II-selective NSAIDs. Reduced GI toxicity
Chloramphenicol	Antibiotic: broad spectrum agent; inhibits protein synthesis (50S); uses restricted to back-up drug for bacterial meningitis, infections due to anaerobes, <i>Salmonella</i> . Tox: reversible myelosuppression, aplastic anemia, gray baby syndrome
Chloroquine	Antimalarial: blood schizonticide used for treatment and as a chemosuppressant where <i>P falciparum</i> is susceptible. Tox: GI distress and skin rash at low doses; peripheral neuropathy, skin lesions, auditory and visual impairment, quinidine-like myocardial depression at high doses
Chlorpheniramine	Antihistamine H ₁ blocker prototype: Tox: sedation, antimuscarinic
Chlorpromazine	Phenothiazine antipsychotic drug prototype: blocks most dopamine receptors in the CNS. Tox: atropine-like, EPS dysfunction, hyperprolactinemia, postural hypotension, sedation, seizures (in overdose), additive effects with other CNS depressants
Cholestyramine, colestipol	Bile acid-binding resins: sequester bile acids in gut and divert more cholesterol from the liver to bile acids instead of circulating lipoproteins. Tox: constipation, bloating; interfere with absorption of some drugs
Cimetidine	H ₂ blocker prototype: used in acid-peptic disease. Tox: inhibits hepatic drug metabolism; antiandrogen effects. Less toxic analogs: ranitidine, famotidine, nizatidine
Ciprofloxacin	Fluoroquinolone antibiotic: bactericidal inhibitor of topoisomerases; active against many gram-negative rods including <i>E coli</i> , <i>H influenzae</i> , <i>Campylobacter</i> , <i>Enterobacter</i> , <i>Pseudomonas</i> , <i>Shigella</i> . Tox: CNS dysfunction, GI distress, superinfection, collagen damage (avoid in children and pregnant women). Interactions: caffeine, theophylline, warfarin
Cisplatin	Platinum-containing alkylating cancer chemotherapeutic agent. Used for several solid tumors (eg, testes, lung). Carboplatin is similar.
Clindamycin	Lincosamide antibiotic: bacteriostatic inhibitor of protein synthesis (50S); active against gram-positive cocci, <i>B fragilis</i> . Tox: GI distress, pseudomembranous colitis
Clomiphene	Estrogen partial agonist: synthetic used in infertility to induce ovulation
Clonidine	Alpha ₂ agonist: acts centrally to reduce SANS outflow, lowers BP. Tox: rebound HTN if stopped suddenly

Clozapine	Atypical antipsychotic: low affinity for dopamine D ₂ receptors, higher for D ₄ and 5-HT _{2A} receptors; less EPS adverse effects than other antipsychotic drugs. Tox: ANS effects, agranulocytosis (infrequent but significant)
Cocaine	Indirectly acting sympathomimetic: blocks amine reuptake into nerve endings. Local anesthetic (ester type). Marked CNS stimulation, euphoria; high abuse liability. Tox: psychosis, cardiac arrhythmias, seizures
Colchicine	Microtubule assembly inhibitor: reduces mobility and phagocytosis by WBCs in gout-inflamed joints; useful in acute, not chronic gout. Tox: GI, hepatic, renal damage
Cyclopentolate, tropicamide	Antimuscarinics for ophthalmology: shorter duration than atropine (a few hours or less); cause cycloplegia and mydriasis
Cyclophosphamide	Antineoplastic, immunosuppressive: cell cycle-nonspecific alkylating agent. Tox: alopecia, gastrointestinal distress, hemorrhagic cystitis, myelosuppression
Cyclosporine	Immunosuppressant: antibiotic; inhibits interleukin-2 synthesis, suppresses T cells. Tox: HTN, hirsutism, nephrotoxicity (dose-limiting), seizures (in overdose). Not a myelosuppressant
Dantrolene	Blocks Ca ²⁺ release from sarcoplasmic reticulum of skeletal muscle. Used in muscle spasm (cerebral palsy, multiple sclerosis, cord injury) and in emergency treatment of hyperthermia caused by malignant hyperthermia, malignant neuroleptic syndrome, and serotonin syndrome
DDAVP	ADH analog: synthetic peptide used for pituitary diabetes insipidus
DDT	Insecticide: prevents inactivation of sodium channels, causes uncontrolled neuronal activity. Stored for years in body fat in mammals, birds, fish
Deferoxamine	Chelator: bacterial product; chelates iron very avidly, aluminum less so
Dexfenfluramine	5-HT reuptake inhibitor and receptor agonist previously used as anorexic. Tox: produced cardiac valve damage when used in combination with phentermine
Dexamethasone	Glucocorticoid: very potent, long-acting; no mineralocorticoid activity
Diazepam	Benzodiazepine prototype: binds to BDZ receptors of the GABA _A receptor-chloride ion channel complex; facilitates the inhibitory actions of GABA by increasing <i>frequency</i> of channel opening. Uses: anxiety states, ethanol detoxication, muscle spasticity, status epilepticus. Tox: psychologic and physical dependence, additive effects with other CNS depressants
Didanosine (DDI)	Antiviral: nucleoside inhibitor of HIV reverse transcriptase. Tox: peripheral neuropathy, pancreatitis
Digitoxin	Cardiac glycoside: half-life 168 h, excreted in the bile (partially as digoxin); subject to enterohepatic circulation. See digoxin
Digoxin	Cardiac glycoside prototype: positive inotropic drug for CHF, half-life 40 h; renal excretion; inhibits Na ⁺ /K ⁺ ATPase, also a cardiac parasympathomimetic. Tox: calcium overload arrhythmias, GI upset
Diltiazem	Calcium channel (L-type) blocker prototype: like verapamil, has more depressant effect on heart than dihydropyridines (eg, nifedipine). Tox: AV block, CHF, edema, constipation
Dimercaprol (BAL)	Chelator (British AntiLewisite): used for arsenic, lead, and mercury poisoning

Dioxin (TCDD)	Toxin: byproduct of the manufacture of herbicides 2,4-D and 2,4,5-T. Tox: extremely potent carcinogen in guinea pigs; poorly documented in humans except for chloracne, a skin disorder that occurs acutely upon exposure
Diphenhydramine	Antihistamine H ₁ blocker prototype: used in hayfever, motion sickness, dystonias. Tox: antimuscarinic, anti-alpha, sedative
Disopyramide	Group IA antiarrhythmic: used for ventricular arrhythmias. Tox: strong antimuscarinic; may cause CHF
Dopamine	Neurotransmitter and agonist drug at dopamine receptors: used in shock to increase renal blood flow, stimulate heart
Doxorubicin	Antineoplastic: anthracycline drug (cell cycle-nonspecific); intercalates between base pairs to disrupt DNA functions and forms cytotoxic free radicals. Tox: cardiotoxicity, myelosuppression
Doxycycline	Tetracycline antibiotic: protein synthesis inhibitor (30S), more effective than other tetracyclines against bacillary dysentery. Unlike other tetracyclines, it is eliminated mainly in the feces. Tox: see tetracycline
Echothiophate	Organophosphate cholinesterase inhibitor: less lipid soluble than most organophosphates; used in glaucoma
Edetate (EDTA)	Chelating agent: used in lead poisoning. Tox: renal tubular necrosis
Edrophonium	Cholinesterase inhibitor: very short duration of action (15 min). Used to reverse NM blockade and as diagnostic test in myasthenia gravis
Enoxaparin	Low molecular weight heparin. Primary effect is anti-factor X. Other low molecular weight heparin-like products: dalteparin, danaparoid. Tox: bleeding
Ephedrine	Indirectly acting sympathomimetic: like amphetamine but less CNS stimulation, more smooth muscle effects
Epinephrine	Adrenoceptor agonist prototype: product of adrenal medulla, some CNS neurons. Affinity for all alpha and all beta receptors. Used in asthma; as hemostatic and adjunct with local anesthetics; drug of choice in anaphylaxis
Ergonovine	Ergot alkaloid: uterine effect prototype, causes prolonged uterine contraction. Used in post-partum bleeding
Ergotamine	Ergot alkaloid: vascular effect prototype, causes prolonged vasoconstriction, uterine contraction. Used in migraine, obstetrics
Erythromycin	Macrolide antibiotic: inhibitor of protein synthesis (50S); activity includes gram-positive cocci and bacilli, <i>M pneumoniae</i> , <i>Legionella pneumophila</i> , <i>C trachomatis</i> . Tox: cholestatic jaundice, inhibits liver drug-metabolizing enzymes, interactions with astemizole, theophylline, terfenadine, warfarin
Ethacrynic acid	Loop diuretic: not a sulfa derivative. Tox: like furosemide but does not increase serum uric acid.
Ethanol	Sedative-hypnotic: acute actions include impaired judgment, ataxia, loss of consciousness, vasodilation, and cardiovascular and respiratory depression. Chronic use leads to dependence and liver, cardiovascular, endocrine, gastrointestinal, hepatic, and nervous system pathology. Note: zero-order elimination kinetics
Ethosuximide	Anticonvulsant: used in absence seizures; may block T-type Ca ²⁺ channels in thalamic neurons. Tox: GI distress but safe in pregnancy

Etidronate, pamidronate, alendronate	Bisphosphonates: reduce turnover of bone calcium. Used in Paget's disease, osteoporosis; alendronate increases bone formation. Tox: severe esophageal ulceration
Fexofenadine	2nd generation antihistamine; does not enter CNS, little or no sedation
Finasteride	Steroid inhibitor of 5 α -reductase: inhibits synthesis of dihydrotestosterone, the active androgen in prostate. Used in BPH
Flecainide	Group IC antiarrhythmic prototype: used in ventricular tachycardia and rapid atrial arrhythmias with Wolff-Parkinson-White syndrome. Tox: arrhythmogenic, CNS excitation
Fluconazole	Imidazole antifungal: used for esophageal candidiasis and in coccidioidomycoses; high CSF levels provide prophylaxis versus fungal meningitis in immunosuppressed patients
Fludrocortisone	Synthetic corticosteroid: high mineralocorticoid and moderate glucocorticoid activity; long duration of action
Flumazenil	Benzodiazepine receptor antagonist: used to reverse CNS depressant effects of benzodiazepines (overdose or when used in anesthesia)
Fluorouracil	Antineoplastic: pyrimidine antimetabolite (cell cycle-specific) causes "thymine-less" cell death; used mainly for solid or superficial tumors. Tox: GI distress, myelosuppression
Fluoxetine	Antidepressant: serotonin selective reuptake inhibitor (SSRI) prototype. Less ANS adverse effects and cardiotoxic potential than tricyclics. Tox: CNS stimulation, seizures in overdose
Flutamide	Androgen receptor inhibitor: nonsteroid used in prostatic carcinoma
Furosemide	Loop diuretic prototype: blocks Na ⁺ /K ⁺ /2Cl ⁻ transporter; high efficacy; used in acute pulmonary edema, refractory edematous states, hypercalcemia. Tox: ototoxicity, K ⁺ wasting, hypovolemia, increased serum uric acid
Foscarnet	Antiviral: effective against CMV and HSV (including TK ⁻ strains); Tox: electrolyte imbalance, nephrotoxicity
Ganciclovir	Antiviral: effective against CMV; requires bioactivation via thymidine kinase. Tox: myelosuppression, nephrotoxicity
Gemfibrozil, clofibrate	Antilipemics: stimulate lipoprotein lipase in peripheral tissues. Used in hypertriglyceridemias and mixed triglyceridemia/hypercholesterolemia
Gentamicin	Aminoglycoside prototype: bactericidal inhibitor of protein synthesis (30S); active against many aerobic gram-negative bacteria. Narrow therapeutic window; dose reduction required in renal impairment. Tox: renal dysfunction, ototoxicity; once-daily dosing is effective (post-antibiotic effect) and less toxic
Glipizide, glyburide	Oral hypoglycemics: second generation, very potent. Like other sulfonylureas, act by closing K channels in pancreatic B cells, causing depolarization and release of insulin. Tox: hypoglycemia
Glucagon	Hormone product of pancreatic A cells. Increases blood sugar via increased cAMP
Guanethidine	Postganglionic sympathetic neuron blocker: enters nerve ending by means of uptake-1 and is stored in the ending (effect reversed by TCAs, cocaine). Tox: severe orthostatic hypotension, sexual dysfunction
Haloperidol	Antipsychotic butyrophenone: blocks brain dopamine D ₂ receptors. Tox: marked EPS dysfunction, hyperprolactinemia; less ANS adverse effects than phenothiazines

Halothane	General anesthetic prototype: inhaled halogenated hydrocarbon. Causes cardiovascular and respiratory depression and relaxes skeletal and smooth muscle. Use has decreased due to sensitization of heart to catecholamines, and occurrence (rare) of hepatitis and malignant hyperthermia
Heparin	Anticoagulant: large polymeric molecule with antithrombin, and anti-factor X activity. Primary rapid onset, in vitro and in vivo anticoagulation. Antidote: protamine. See also enoxaparin
Hydralazine	Antihypertensive: arteriolar vasodilator, orally active; used in HTN, CHF. Tox: Tachycardia, salt and water retention, lupus-like syndrome
Hydrochlorothiazide	Thiazide diuretic prototype: acts in distal convoluted tubule; blocks Na^+/Cl^- transporter; used in HTN, CHF, chronic renal stone syndrome. Tox: increased serum lipids, uric acid, glucose; K^+ wasting
Ibuprofen	NSAID prototype: short duration. Inhibits cyclooxygenase (both I and II) reversibly. Used in arthritis, dysmenorrhea, muscle inflammation. Tox: peptic ulcer, renal damage
Imipenem	Antibiotic: carbapenem beta-lactam active against many aerobic and anaerobic bacteria including penicillinase-producing organisms; a bactericidal inhibitor of cell wall synthesis. Used with cilastatin (which inhibits metabolism by renal dehydropeptidases). Tox: allergy (partial cross-reactivity with penicillins), seizures (overdose)
Imipramine	Tricyclic antidepressant prototype: blocks reuptake of norepinephrine and serotonin. Tox: ANS (alpha and muscarinic) blockade, cardiac arrhythmias
Indinavir	Antiviral; HIV protease inhibitor used as component of combination regimens in AIDS. Tox: anemia, nephrolithiasis, inhibits P-450 drug metabolism reactions. Other protease inhibitors: ritonavir, nelfinavir, saquinavir
Indomethacin	NSAID prototype: highly potent. Usually reserved for acute inflammation (eg, acute gout), not chronic; neonatal patent ductus arteriosus. Tox: GI (bleeding), renal damage
Insulin	Hypoglycemic peptide hormone of B (beta) cells of the pancreas: stimulates transport of glucose into cells and glycogen formation; inhibits lipolysis and protein catabolism
Interferon- α	Important cytokine for the treatment of hepatitis B and C infection.
Iopodate	Antithyroid: iodine-containing radiocontrast medium; also used in thyrotoxicosis. Reduces peripheral conversion of T_4 to T_3 ; may also reduce release of hormone from thyroid
Ipratropium	Antimuscarinic agent: aerosol for asthma, COPD. Good bronchodilator in 20–30% of patients. Not as effective as β_2 agonists
Isoniazid	Antimycobacterial: primary drug in combination regimens for tuberculosis; used as sole agent in prophylaxis. Metabolic clearance via N-acetyltransferases (genetic variability). Tox: hepatotoxicity (age-dependent), peripheral neuropathy (reversed by pyridoxine), hemolysis (in G6PD deficiency)
Isoproterenol	Beta ₁ , beta ₂ agonist catecholamine prototype: bronchodilator, cardiac stimulant. Always causes tachycardia because both direct and reflex actions increase HR. Tox: arrhythmias, angina
Ketoconazole	Antifungal azole prototype: active systemically; inhibits the synthesis of ergosterol. Used for <i>C albicans</i> , dermatophytes and for non-life-threatening systemic mycoses. Tox: hepatic dysfunction, inhibits steroid synthesis and P450-dependent drug metabolism
Labetalol	Alpha- and beta-blocker: used in HTN. Tox: AV block, hypotension

Leuprolide	GnRH analog: synthetic peptide used in pulse therapy to stimulate gonadal steroid synthesis (infertility); used in continuous or depot therapy to shut off steroid synthesis, especially in prostate carcinoma
Levodopa	Dopamine precursor: used in parkinsonism, usually combined with carbidopa (a peripheral inhibitor of dopamine metabolism). Tox: dyskinesias, hypotension, on-off phenomena, behavioral changes
Lidocaine	Local anesthetic, medium duration amide prototype: highly selective use-dependent Group IB antiarrhythmic; used for nerve block and post MI ischemic ventricular arrhythmias. Tox: CNS excitation
Lithium	Antimanic prototype: drug of choice in mania and bipolar affective disorders; blocks recycling of the phosphatidyl inositol second messenger system. Tox: tremor, diabetes insipidus, goiter, seizures (in overdose), teratogenic potential (Ebstein's malformations)
Lovastatin	Antilipemic HMG-CoA reductase inhibitor prototype: acts in liver to reduce synthesis of cholesterol. Other statins: atorvastatin, fluvastatin, pravastatin, simvastatin. Tox: liver damage (elevated enzymes), muscle damage
LSD	Lysergic acid diethylamide, "Acid:" semisynthetic ergot derivative; orally active; hallucinogen
Malathion	Organophosphate insecticide cholinesterase inhibitor: pro-drug converted to malaoxon. Less toxic in mammals and birds because metabolized to inactive products
Meperidine	Opioid analgesic: synthetic, equivalent to morphine in efficacy, but orally bioavailable. Strong agonist at mu opioid receptors; blocks muscarinic receptors. Tox: see morphine
Mestranol	Synthetic estrogen: used in many oral contraceptives
Metformin, phenformin	Oral biguanide hypoglycemics: mechanism not understood, different from sulfonylurea oral hypoglycemics. Some efficacy in the <i>absence</i> of functioning pancreatic B cells
Methadone	Opioid analgesic: synthetic mu agonist, equivalent to morphine in efficacy, but orally bioavailable with longer half-life (used to suppress withdrawal symptoms and in maintenance programs). Tox: see morphine
Methotrexate	Antineoplastic, immunosuppressant: cell cycle-specific drug that inhibits dihydrofolate reductase. Major dose reduction required in renal impairment. Tox: gastrointestinal distress, myelosuppression. Leucovorin rescue used to reduce toxicity after very high doses
Methyldopa	Antihypertensive: prodrug of methylnorepinephrine, a CNS-active α_2 agonist. Reduces SANS outflow from vasomotor center. Tox: positive Coombs test, hemolysis
Methysergide	Ergot alkaloid: used as prophylactic in migraine. Tox: retroperitoneal and subendocardial fibroplasia
Metoprolol	Beta ₁ -selective blocker: used in HTN and for prevention of post-MI sudden death arrhythmias
Metronidazole	Antiprotozoal antibiotic: drug of choice in extraluminal amebiasis and trichomoniasis; active against bacterial anaerobes including <i>B fragilis</i> and in antibiotic-induced colitis due to <i>C difficile</i> . Tox: peripheral neuropathy, gastrointestinal distress, ethanol intolerance, mutagenic potential
Mexiletine	Group IB antiarrhythmic drug: like lidocaine but orally active
Mifepristone (RU 486)	Progesterone and glucocorticoid inhibitor: abortifacient, antineoplastic

Minoxidil	Antihypertensive: pro-drug of minoxidil sulfate, a high efficacy arteriolar vasodilator. Used in HTN; topically for baldness. Tox: tachycardia, salt and water retention, pericardial effusion
Misoprostol	PGE ₁ derivative: orally active prostaglandin used to prevent peptic ulcers in patients taking NSAIDs for arthritis. Tox: diarrhea
Morphine	Opioid analgesic prototype: strong mu receptor agonist. Poor oral bioavailability. Effects include analgesia, constipation, emesis, sedation, respiratory depression, miosis, and urinary retention. Tolerance may be marked; high potential for psychologic and physical dependence. Additive effects with other CNS depressants
Nafcillin	Penicillinase-resistant penicillin prototype: used for suspected or known staphylococcal infections; not active against methicillin-resistant staphylococci. Tox: penicillin allergy
Nalbuphine	Opioid: mixed agonist-antagonist analgesic that activates kappa and weakly blocks mu receptors. Effective analgesic, but with lower abuse liability and less respiratory depressant effects than most strong opioid analgesics
Naloxone	Opioid mu receptor antagonist: used to reverse CNS depressant effects of opioid analgesics (overdose or when used in anesthesia)
Neostigmine	Cholinesterase inhibitor prototype: quaternary nitrogen carbamate with little CNS effect
Nevirapine	Prototype nonnucleoside inhibitor of HIV reverse transcriptase (NNRTI). Others : efavirenz, delavirdine
Niacin	Antilipemic: reduces release of VLDL from liver into circulation. Tox: flushing
Nifedipine	Calcium channel blocker prototype: vasoselective (less cardiac depression); used in angina, HTN. Tox: constipation, headache
Nitroglycerin	Antianginal vasodilator prototype: releases NO in smooth muscle of veins, less in arteries, and causes relaxation. Standard of therapy in angina (both atherosclerotic and variant). Tox: tachycardia, orthostatic hypotension, headache
Norepinephrine	Adrenoceptor agonist prototype: acts at all alpha and at beta ₁ adrenoceptors; used as vasoconstrictor. Causes reflex bradycardia. Tox: ischemia, arrhythmias, HTN
Norfloxacin	Fluoroquinolone antibiotic: inhibits bacterial DNA gyrase; active against many urinary pathogens including <i>E coli</i> , <i>H influenzae</i> , <i>Klebsiella</i> , <i>Enterobacter</i> , <i>Pseudomonas</i> , <i>Serratia</i> . Tox: see ciprofloxacin
Norgestrel	Progestin: used in many oral contraceptives and Norplant implantable contraceptive
Olanzapine	Atypical antipsychotic; high affinity antagonist at 5HT _{2A} with minimal extrapyramidal side effects; improves both positive and negative symptoms of schizophrenia
Omeprazole	Antiulcer: irreversible blocker of H ⁺ /K ⁺ ATPase proton pump in parietal cells of stomach. Used in Zollinger-Ellison syndrome, gastroesophageal reflux disease (GERD)
Ondansetron, granisetron	5-HT ₃ receptor blockers: very important antiemetics for cancer chemotherapy; also used post-operatively to reduce vomiting
Paraquat	Toxic herbicide: very small oral (but not inhaled) doses cause lethal pulmonary fibrosis
Parathion	Organophosphate acetylcholinesterase inhibitor prototype: used as insecticide. Pro-drug: converted in body to paraoxon. Other organophosphates: DFP, soman, tabun, echothiophate. Tox: "DUMBELS" mnemonic (Chapter 7)

Penicillamine	Chelator, immunomodulator: copper and sometimes lead, mercury, arsenic. Used in Wilson's disease and rheumatoid arthritis
Penicillin G	Penicillin prototype: active against common streptococci, gram-positive bacilli, gram-negative cocci, spirochetes, and enterococci (if used with an aminoglycoside); penicillinase-susceptible. Tox: penicillin allergy
Phenobarbital	Long-acting barbiturate prototype: used as a sedative and for tonic-clonic seizures. Facilitates GABA-mediated neuronal inhibition (by increasing <i>duration</i> of channel opening) and may block excitatory neurotransmitters. Partial renal clearance that can be increased by urinary alkalization. Chronic use leads to induction of liver drug-metabolizing enzymes and ALA synthase. Tox: psychologic and physical dependence liability; additive effects with other CNS depressants
Phenoxybenzamine	Alpha-blocker prototype: irreversible action. Used in pheochromocytoma
Phentolamine	Alpha-blocker prototype: reversible action. Used in pheochromocytoma
Phenytoin	Anticonvulsant: used for tonic-clonic and partial seizures; blocks Na ⁺ channels in neuronal membranes. Serum levels variable due to first-pass metabolism and dose-dependent nonlinear elimination kinetics. Tox: sedation, diplopia, gingival hyperplasia, hirsutism, respiratory depression in overdose, teratogenic potential. Drug interactions via effects on plasma protein binding or induction of hepatic metabolism
Physostigmine	Cholinesterase inhibitor prototype: alkaloid tertiary amine carbamate, enters eye and CNS readily. Used in glaucoma
Pilocarpine	Muscarinic agonist prototype: tertiary amine alkaloid. May cause paradoxical hypertension by activating excitatory muscarinic EPSP receptors in postganglionic sympathetic neurons. Used in glaucoma. Tox: muscarinic excess
Piroxicam	NSAID with longest duration of action ($t_{1/2}$ about 40 h)
Pralidoxime	Acetylcholinesterase regenerator: very high affinity for phosphorus in organophosphates
Prazosin, terazosin, doxazosin	Alpha ₁ -selective blockers: used in HTN. Tox: first-dose orthostatic hypotension
Prednisone	Glucocorticoid prototype: potent, short-acting; much less mineralocorticoid activity than cortisol but more than dexamethasone or triamcinolone
Probenecid	Uricosuric: inhibitor of renal weak acid secretion and reabsorption in S ₂ segment of proximal tubule; prolongs half-life of penicillin, accelerates clearance of uric acid. Used in gout
Probucol	Antilipemic: unknown mechanism; recently withdrawn but new evidence suggests efficacy in preventing restenosis of coronaries after angioplasty. Tox: causes arrhythmias
Procainamide	Group IA antiarrhythmic drug: short half-life; similar to quinidine but may cause lupus erythematosus
Propranolol	Nonselective beta-blocker prototype: local anesthetic action but no partial agonist effect. Used in HTN, angina, arrhythmias, migraine, hyperthyroidism, tremor. Tox: asthma, AV block, CHF
Propylthiouracil	Antithyroid drug prototype: reduces iodination of tyrosine and coupling of MIT and DIT in the thyroid; orally active. Tox: rash, agranulocytosis (rare)
Prostacyclin	PGI ₂ : prostaglandin vasodilator and inhibitor of platelet aggregation

Pyridostigmine	Cholinesterase inhibitor: long-acting (8 h) quaternary carbamate; used in myasthenia gravis
Quinidine	Group IA antiarrhythmic prototype: used in atrial and ventricular arrhythmias. Tox: cinchonism, GI upset, thrombocytopenic purpura, arrhythmogenic
Quinine	Antimalarial: blood schizonticide; no effect on liver stages. Isomer of quinidine, same toxicity
Ranitidine	H ₂ blocker: like cimetidine but less inhibition of hepatic drug metabolism; no antiandrogenic effects
Reserpine	Antihypertensive: selective inhibitor of vesicle catecholamine/H ⁺ antiporter; used in HTN, causes depletion of catecholamines and 5-HT from their stores. Tox: severe depression, suicide, ulcers
Rifampin	Antimicrobial: inhibitor of DNA-dependent RNA polymerase used in drug regimens for tuberculosis and the meningococcal carrier state. Tox: hepatic dysfunction, induction of liver drug-metabolizing enzymes (drug interactions), flu-like syndrome with intermittent dosing
Risperidone, olanzapine, sertindole	Newer atypical antipsychotics. Higher potency, more blocking of 5-HT ₂ receptors than older antipsychotic agents. Low extrapyramidal toxicity.
Selegiline	MAO-B inhibitor: selective inhibitor of the enzyme that metabolizes dopamine (no tyramine interactions). Used in parkinsonism as adjunct
Sildenafil	Viagra. Blocks phosphodiesterase that splits cGMP; enhanced smooth muscle relaxation causes erection. Important interaction with nitrates.
Streptokinase	Thrombolytic: protein from streptococci that accelerates plasminogen-to-plasmin conversion. Tox: bleeding, allergy
Succimer (DMSA)	Chelator: dimercaptosuccinic acid; used to chelate lead and arsenic
Succinylcholine	Depolarizing neuromuscular relaxant prototype: short duration (5 min) if patient has normal plasma cholinesterase (genetically determined). No antidote (compare with tubocurarine)
Sumatriptan, other "-triptans"	5-HT _{1D} receptor agonists: used to abort migraine attacks
Tamoxifen, raloxifen	Estrogen partial agonists "selective estrogen receptor modulators": used in breast carcinoma, osteoporosis
Tetracaine	Local anesthetic: long-acting ester prototype
Tetracycline	Antibiotic: tetracycline prototype; bacteriostatic inhibitor of protein synthesis (30S). Broad spectrum, but many resistant organisms. Used for Lyme disease, mycoplasmal, chlamydial, rickettsial infections, chronic bronchitis, acne, cholera; a back-up drug in syphilis. Tox: GI upset and superinfections (Candida, staphylococci), antianabolic actions, Fanconi's syndrome (outdated drug), photosensitivity, dental enamel dysplasia
Tetrodotoxin	Toxin: very potent sodium channel blocker; blocks action potential propagation in nerve, heart, and skeletal muscle. From puffer fish, California newt. Tox: paresthesias, paralysis
Thiazides	Diuretic prototype: block Na ⁺ /Cl ⁻ transporter in distal convoluted tubule; used in HTN, CHF, chronic stone formers. Tox: K ⁺ wasting; increased serum lipids, uric acid, and glucose

Thioridazine	Antipsychotic phenothiazine: blocks most dopamine receptors in the CNS. Tox: atropine-like effects (marked), ECG abnormalities, postural hypotension, retinal pigmentation, sedation, additive effects with other CNS depressants (but less EPS dysfunction than other phenothiazines)
Thyroxine, triiodothyronine	Major hormones produced by the thyroid: stimulate metabolism, growth, and development
Ticarcillin	Extended spectrum penicillin active against selected gram-negative bacteria including <i>Pseudomonas aeruginosa</i> (synergistic with aminoglycosides). Susceptible to penicillinases unless used with clavulanic acid. Tox: penicillin allergy
Ticlopidine, clopidogrel	Newer antiplatelet agents. Used to prevent strokes, postangioplasty occlusion.
Tolbutamide, tolazamide, chlorpropamide, acetohexamide	Oral hypoglycemics: older sulfonylurea group. (See glipizide.) Chlorpropamide has longest duration of action
Trimethoprim-sulfamethoxazole	Antimicrobial drug combination: causes synergistic sequential blockade of folic acid synthesis. Active against many gram-negative bacteria including <i>Aeromonas</i> , <i>Enterobacter</i> , <i>H influenzae</i> , <i>Klebsiella</i> , <i>Moraxella</i> , <i>Salmonella</i> , <i>Serratia</i> , <i>Shigella</i> . Possible back-up agent for methicillin-resistant staphylococci. Tox: mainly due to sulfonamide; includes hypersensitivity, hematotoxicity, kernicterus, and drug interactions due to competition for plasma protein binding
Tubocurarine	Nondepolarizing neuromuscular blocking agent prototype: competitive nicotinic blocker. Releases histamine and may cause hypotension. Analogues: pancuronium, atracurium, vecuronium, and other "-curiums" and "-curoniums." Antidote: cholinesterase inhibitor, eg, neostigmine
Tyramine	Indirectly acting sympathomimetic prototype: releases or displaces norepinephrine from stores in nerve endings. Usually inactive by the oral route because of high first pass effect but will cause potentially lethal hypertensive responses in patients taking MAO inhibitors
Valproic acid	Anticonvulsant: used in absence, clonic-tonic, and myoclonic seizure states, migraine prophylactic. Tox: GI distress, hepatic necrosis (rare), teratogenic (spina bifida); inhibits drug metabolism
Vancomycin	Glycopeptide bactericidal antibiotic: inhibits synthesis of cell wall precursor molecules. Drug of choice for methicillin-resistant staphylococci and effective in antibiotic-induced colitis. Dose reduction required in renal impairment (or hemodialysis). Tox: ototoxicity, hypersensitivity, renal dysfunction (rare)
Verapamil	Calcium channel blocker prototype: blocks "L-type" channels; cardiac depressant and vasodilator; used in HTN, angina, and arrhythmias. Tox: AV block, CHF, constipation
Vesamicol	Inhibitor of vesicle ACh/H ⁺ antiporter in cholinergic nerve endings: prevents storage of ACh. No clinical applications
Vincristine	Antineoplastic plant alkaloid: cell cycle (M phase)-specific agent; inhibits mitotic spindle formation. Tox: peripheral neuropathy. Compare with vinblastine, a congener that causes myelosuppression
Warfarin	Oral anticoagulant prototype: causes synthesis of nonfunctional versions of the vitamin K-dependent clotting factors (II, VII, IX, X). Tox: bleeding, teratogenic. Antidote: vitamin K, fresh plasma
Zanamivir, oseltamivir	Neuraminidase inhibitors that can be used to reduce severity and duration of influenza symptoms. Prevents penetration of the virion.

Zidovudine (AZT)	Antiviral: prototype nucleoside inhibitor of HIV reverse transcriptase (NRTI). Tox: severe myelosuppression. Others: lamivudine, stavudine, didanosine, zalcitabine.
Zolpidem	Non-benzodiazepine hypnotic, acts via the BDZ ₁ (omega ₁) receptor subtype and is reversed by flumazenil; less amnesia and muscle relaxation; lower dependence liability