List of antibiotics

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The following is a **list of antibiotics**. The highest division is between bactericidal antibiotics and bacteriostatic antibiotics. Bactericidals kill bacteria directly, whereas bacteriostatics prevent them from dividing. However, these classifications are based on laboratory behavior. In practice, both can effectively treat a bacterial infection.[1]

Contents

By coverage

The following are lists of antibiotics for specific microbial coverage.

MRSA

Antibiotics that cover methicillin-resistant *Staphylococcus aureus* (MRSA):

- Ceftobiprole<http://www.ncbi.nlm.nih.gov/pubmed/18572975>(5th generation)
- Ceftaroline (5th generation)
- Clindamycin
- Daptomycin
- Linezolid
- Mupirocin (topical)
- Tigecycline
- Vancomycin

Pseudomonas aeruginosa

Antibiotics that cover *Pseudomonas aeruginosa*:

- Aminoglycosides
- Carbapenems
- Ceftazidime (3rd generation)
- Cefepime (4th generation)
- Ceftobiprole (5th generation)
- Fluoroquinolones
- Piperacillin

- Ticarcillin

VRE

Antibiotics that cover vancomycin-resistant *Enterococcus* (VRE):

- Linezolid
- Streptogramins

By class

See also pathogenic bacteria for a list of antibiotics sorted by target bacteria.

Antibiotics by class

Generic name	Brand names	Common uses[2]	Possible side effects[2]	Mechanism of action
Aminoglycosides				
Amikacin	Amikin	Infections caused by Gram-negative bacteria, such as *Escherichia coli* and *Klebsiella* particularly *Pseudomonas aeruginosa*. Effective against Aerobic bacteria (not obligate/facultative anaerobes) and tularemia. All aminoglicocydes are ineffective to be taken orally. Intravenous, intramuscular and topical should be applied.	■ Hearing loss ■ Vertigo ■ Kidney damage	Binding to the bacterial 30S ribosomal subunit (some work by binding to the 50S subunit), inhibiting the translocation of the peptidyl-tRNA from the A-site to the P-site and also causing misreading of mRNA, leaving the bacterium unable to synthesize proteins vital to its growth.
Gentamicin	Garamycin			
Kanamycin	Kantrex			
Neomycin	Neo-Fradin[3]			
Netilmicin	Netromycin			
Tobramycin	Nebcin			
Paromomycin	Humatin			
Streptomycin		Tuberculosis		
Spectinomycin(Bs)	Trobicin	Gonorrhea		
Ansamycins				
Geldanamycin		Experimental, as antitumor antibiotics		
Herbimycin				
Rifaximin	Xifaxan	Traveler's diarrhea caused by *E. coli*		
Carbacephem				
Loracarbef	Lorabid	Discontinued		prevents bacterial cell division by inhibiting cell wall synthesis.
Carbapenems				
Ertapenem	Invanz	Bactericidal for both Gram-positive and Gram-negative organisms and therefore useful for empiric broad-spectrum antibacterial coverage. (Note MRSA resistance to this class.)	■ Gastrointestinal upset and diarrhea ■ Nausea ■ Seizures ■ Headache ■ Rash and allergic reactions	Inhibition of cell wall synthesis
Doripenem	Doribax			
Imipenem/Cilastatin	Primaxin			
Meropenem	Merrem			
Cephalosporins (First generation)				

Cefadroxil	Duricef	Good coverage against Gram-positive infections.	■ Gastrointestinal upset and diarrhea ■ Nausea (if alcohol taken concurrently) ■ Allergic reactions	Same mode of action as other beta-lactam antibiotics: disrupt the synthesis of the peptidoglycan layer of bacterial cell walls.
Cefazolin	Ancef			
Cefalotin or Cefalothin	Keflin (discontinued)			
Cefalexin	Keflex			
Cephalosporins (Second generation)				
Cefaclor	Distaclor	Less Gram-positive cover, improved Gram-negative cover.	■ Gastrointestinal upset and diarrhea ■ Nausea (if alcohol taken concurrently) ■ Allergic reactions	Same mode of action as other beta-lactam antibiotics: disrupt the synthesis of the peptidoglycan layer of bacterial cell walls.
Cefamandole	Mandol (discontinued)			
Cefoxitin	Mefoxin (discontinued)			
Cefprozil	Cefzil			
Cefuroxime	Ceftin, Zinnat (UK)			
Cephalosporins (Third generation)				
Cefixime (antagonistic with Chloramphenicol)[4]	Cefspan (Fujisawa)	Improved coverage of Gram-negative organisms, except *Pseudomonas*. Reduced Gram-positive cover. But still not cover *Mycoplasma* and *Chlamydia*	■ Gastrointestinal upset and diarrhea ■ Nausea (if alcohol taken concurrently) ■ Allergic reactions	Same mode of action as other beta-lactam antibiotics: disrupt the synthesis of the peptidoglycan layer of bacterial cell walls.
Cefdinir	Omnicef, Cefdiel			
Cefditoren	Spectracef, Meiact			
Cefoperazone [Unlike most third-generation agents, cefoperazone is active against *Pseudomonas aeruginosa*], combination Cefoperazone with Sulbactam makes more effective antibiotic, because Sulbactam avoid degeneration of Cefoperazone	Cefobid (discontinued)			
Cefotaxime	Claforan			
Cefpodoxime	Vantin			
Ceftazidime [Unlike most third-generation agents, ceftazidime is active against *Pseudomonas aeruginosa*, but less active against	Fortaz			

staphylococci and streptococci compare to other 3rd generation of Cephalosporins][5]				
Ceftibuten	Cedax			
Ceftizoxime	Cefizox (discontinued)			
Ceftriaxone [IV and IM, not orally, effective also for syphilis and uncomplicated gonorrhea]	Rocephin			
Cephalosporins (Fourth generation)				
Cefepime	Maxipime	Covers pseudomonal infections.	■ Gastrointestinal upset and diarrhea ■ Nausea (if alcohol taken concurrently) ■ Allergic reactions	Same mode of action as other beta-lactam antibiotics: disrupt the synthesis of the peptidoglycan layer of bacterial cell walls.
Cephalosporins (Fifth generation)				
Ceftaroline fosamil	Teflaro	Used to treat MRSA	■ Gastrointestinal upset and diarrhea ■ Allergic reaction	Same mode of action as other beta-lactam antibiotics: disrupt the synthesis of the peptidoglycan layer of bacterial cell walls.
Ceftobiprole	Zeftera	Used to treat MRSA (methicillin-resistant *Staphylococcus aureus*), penicillin-resistant *Streptococcus pneumoniae*, *Pseudomonas aeruginosa*, and enterococci	■ Gastrointestinal upset and diarrhea ■ Nausea (if alcohol taken concurrently) ■ Allergic reactions	Same mode of action as other beta-lactam antibiotics: disrupt the synthesis of the peptidoglycan layer of bacterial cell walls.
Glycopeptides				
Teicoplanin	Targocid (UK)	Active against aerobic and anaerobic Gram-positive bacteria including MRSA; Vancomycin is used orally for the treatment of *C. difficile*		inhibiting peptidoglycan synthesis
Vancomycin	Vancocin			
Telavancin	Vibativ			
Dalbavancin	Dalvance			
Oritavancin	Orbactiv			

Lincosamides(Bs)				
Clindamycin	Cleocin	Serious staph-, pneumo-, and streptococcal infections in penicillin-allergic patients, also anaerobic infections; clindamycin topically for acne	Possible *C. difficile*-related pseudomembranous enterocolitis	Bind to 50S subunit of bacterial ribosomal RNA thereby inhibiting protein synthesis
Lincomycin	Lincocin			
Lipopeptide				
Daptomycin	Cubicin	Gram-positive organisms, but is inhibited by pulmonary surfactant so less effective against pneumonias		Bind to the membrane and cause rapid depolarization, resulting in a loss of membrane potential leading to inhibition of protein, DNA and RNA synthesis
Macrolides(Bs)				
Azithromycin	Zithromax, Sumamed, Xithrone	Streptococcal infections, syphilis, upper respiratory tract infections, lower respiratory tract infections, mycoplasmal infections, Lyme disease	■ Nausea, vomiting, and diarrhea (especially at higher doses) ■ Prolonged cardiac QT interval (especially erythromycin) ■ Hearing loss (especially at higher doses) ■ Jaundice	inhibition of bacterial protein biosynthesis by binding reversibly to the subunit 50S of the bacterial ribosome, thereby inhibiting translocation of peptidyl tRNA.
Clarithromycin	Biaxin			
Dirithromycin	Dynabac (discontinued)			
Erythromycin	Erythocin, Erythroped			
Roxithromycin				
Troleandomycin	Tao (discontinued)			
Telithromycin	Ketek	Pneumonia	Visual Disturbance, Liver Toxicity.[6]	
Spiramycin	Rovamycine	Mouth infections		
Monobactams				
Aztreonam	Azactam	Gram-negative bacteria		Same mode of action as other beta-lactam antibiotics: disrupt the synthesis of the peptidoglycan layer of bacterial cell walls.
Nitrofurans				

Furazolidone	Furoxone	Bacterial or protozoal diarrhea or enteritis		
Nitrofurantoin(Bs)	Macrodantin, Macrobid	Urinary tract infections		
Oxazolidinones(Bs)				
Linezolid	Zyvox	VRSA	■ Thrombocytopenia ■ Peripheral neuropathy ■ Serotonin Syndrome	Protein synthesis inhibitor; prevents the initiation step
Posizolid	Phase II clinical trials			
Radezolid	Phase II clinical trials			
Torezolid	Phase II clinical trials			
Penicillins				
Amoxicillin	Novamox, Amoxil	Wide range of infections; penicillin used for streptococcal infections, syphilis, and Lyme disease	■ Gastrointestinal upset and diarrhea ■ Allergy with serious anaphylactic reactions ■ Brain and kidney damage (rare)	Same mode of action as other beta-lactam antibiotics: disrupt the synthesis of the peptidoglycan layer of bacterial cell walls.
Ampicillin	Principen (discontinued)			
Azlocillin				
Carbenicillin	Geocillin (discontinued)			
Cloxacillin	Tegopen (discontinued)			
Dicloxacillin	Dynapen (discontinued)			
Flucloxacillin	Floxapen (Sold to European generics Actavis Group)			
Mezlocillin	Mezlin (discontinued)			
Methicillin	Staphcillin (discontinued)			
Nafcillin	Unipen (discontinued)			
Oxacillin	Prostaphlin (discontinued)			
Penicillin G	Pentids (discontinued)			

Penicillin V	Veetids (Pen-Vee-K) (discontinued)			
Piperacillin	Pipracil (discontinued)			
Penicillin G	Pfizerpen			
Temocillin	Negaban (UK) (discontinued)			
Ticarcillin	Ticar (discontinued)			
Penicillin combinations				
Amoxicillin/clavulanate	Augmentin	Both Amoxicillin/clavulanate and Ampicillin/sulbactam are effective against non-recurrent acute otitis media[7] Only a few **oral**-antibiotics active for skin and soft tissue infections, one of it is Amoxicillin/clavulanate. Not to be given to children with less than 40 kilograms weight, for children are heavier, the dosage is same with adult, twice daily [8]		The second component prevents bacterial resistance to the first component
Ampicillin/sulbactam	Unasyn			
Piperacillin/tazobactam	Zosyn			
Ticarcillin/clavulanate	Timentin			
Polypeptides				
Bacitracin		Eye, ear or bladder infections; usually applied directly to the eye or inhaled into the lungs; rarely given by injection, although the use of intravenous colistin is experiencing a resurgence due to the emergence of multi drug resistant organisms.	Kidney and nerve damage (when given by injection)	Inhibits isoprenyl pyrophosphate, a molecule that carries the building blocks of the peptidoglycan bacterial cell wall outside of the inner membrane[9]
Colistin	Coly-Mycin-S			Interact with the Gram-negative bacterial outer

				membrane and cytoplasmic membrane, displacing bacterial counterions, which destabilizes the outer membrane. Act like a detergent against the cytoplasmic membrane, which alters its permeability. Polymyxin B and E are bactericidal even in an isosmotic solution.
Polymyxin B				
Quinolones/Fluoroquinolone				
Ciprofloxacin	Cipro, Ciproxin, Ciprobay	Urinary tract infections, bacterial prostatitis, community-acquired pneumonia, bacterial diarrhea, mycoplasmal infections, gonorrhea	Nausea (rare), irreversible damage to central nervous system (uncommon), tendinosis (rare)	inhibit the bacterial DNA gyrase or the topoisomerase IV enzyme, thereby inhibiting DNA replication and transcription.
Enoxacin	Penetrex			
Gatifloxacin	Tequin			
Gemifloxacin	Factive[10]			
Levofloxacin	Levaquin			
Lomefloxacin	Maxaquin			
Moxifloxacin	Avelox			
Nalidixic acid	NegGram			
Norfloxacin	Noroxin			
Ofloxacin	Floxin (discontinued), Ocuflox			
Trovafloxacin	Trovan	Withdrawn		
Grepafloxacin	Raxar	Withdrawn		
Sparfloxacin	Zagam	Withdrawn		
Temafloxacin	Omniflox	Withdrawn		
Sulfonamides(Bs)				
Mafenide	Sulfamylon	Urinary tract infections (except sulfacetamide, used for eye infections, and mafenide and silver sulfadiazine, used topically for burns)	■ Nausea, vomiting, and diarrhea ■ Allergy (including skin rashes) ■ Crystals in urine	Folate synthesis inhibition. They are competitive inhibitors of the enzyme dihydropteroate
Sulfacetamide	Sulamyd, Bleph-10			
Sulfadiazine	Micro-Sulfon			

Silver sulfadiazine	Silvadene			synthetase, DHPS. DHPS catalyses the conversion of PABA (*para*-aminobenzoate) to dihydropteroate, a key step in folate synthesis. Folate is necessary for the cell to synthesize nucleic acids (nucleic acids are essential building blocks of DNA and RNA), and in its absence cells cannot divide.
Sulfadimethoxine	Di-Methox, Albon			
Sulfamethizole	Thiosulfil Forte			
Sulfamethoxazole	Gantanol		■ Kidney failure ■ Decrease in white blood cell count ■ Sensitivity to sunlight	
Sulfanilimide (archaic)				
Sulfasalazine	Azulfidine			
Sulfisoxazole	Gantrisin			
Trimethoprim-Sulfamethoxazole (Co-trimoxazole) (TMP-SMX)	Bactrim, Septra			
Sulfonamidochrysoidine (archaic)	Prontosil			
Tetracyclines(Bs)				
Demeclocycline	Declomycin	Syphilis, chlamydial infections, Lyme disease, mycoplasmal infections, acne rickettsial infections, *malaria *Note: Malaria is caused by a protist and not a bacterium.	■ Gastrointestinal upset ■ Sensitivity to sunlight ■ Potential toxicity to mother and fetus during pregnancy ■ Enamel hypoplasia (staining of teeth; potentially permanent) ■ transient depression of bone growth	inhibiting the binding of aminoacyl-tRNA to the mRNA-ribosome complex. They do so mainly by binding to the 30S ribosomal subunit in the mRNA translation complex. But Tetracycline cannot be taken together with all dairy products, aluminium, iron and zinc minerals.
Doxycycline	Vibramycin			
Minocycline	Minocin			
Oxytetracycline	Terramycin			
Tetracycline	Sumycin, Achromycin V, Steclin			
Drugs against mycobacteria				
Clofazimine	Lamprene	Antileprotic		
Dapsone	Avlosulfon	Antileprotic		
Capreomycin	Capastat	Antituberculosis		
Cycloserine	Seromycin	Antituberculosis, urinary tract infections		

Ethambutol(Bs)	Myambutol	Antituberculosis		
Ethionamide	Trecator	Antituberculosis		Inhibits peptide synthesis
Isoniazid	I.N.H.	Antituberculosis		
Pyrazinamide	Aldinamide	Antituberculosis		
Rifampicin (Rifampin in US)	Rifadin, Rimactane	mostly Gram-positive and mycobacteria	Reddish-orange sweat, tears, and urine	Binds to the β subunit of RNA polymerase to inhibit transcription
Rifabutin	Mycobutin	*Mycobacterium avium* complex	Rash, discolored urine, GI symptoms	
Rifapentine	Priftin	Antituberculosis		
Streptomycin		Antituberculosis	Neurotoxicity, ototoxicity	As other aminoglycosides
Others				
Arsphenamine	Salvarsan	Spirochaetal infections (obsolete)		
Chloramphenicol(Bs)	Chloromycetin	Meningitis, MRSA, topical use, or for low-cost internal treatment. Historic: typhus, cholera. Gram-negative, Gram-positive, anaerobes	Rarely: aplastic anemia.	Inhibits bacterial protein synthesis by binding to the 50S subunit of the ribosome
Fosfomycin	Monurol, Monuril	Acute cystitis in women	This antibiotic is not recommended for children and 75 up of age	Inactivates enolpyruvyl transferase, thereby blocking cell wall synthesis
Fusidic acid	Fucidin			
Metronidazole	Flagyl	Infections caused by anaerobic bacteria; also amoebiasis, trichomoniasis, giardiasis	Discolored urine, headache, metallic taste, nausea; alcohol is contraindicated	Produces toxic free radicals that disrupt DNA and proteins. This non-specific mechanism is responsible for its activity against a variety of bacteria, amoebae, and protozoa.
Mupirocin	Bactroban	Ointment for impetigo, cream for infected cuts		Inhibits isoleucine t-RNA

				synthetase (IleRS) causing inhibition of protein synthesis
Platensimycin				
Quinupristin/Dalfopristin	Synercid			
Thiamphenicol		Gram-negative, Gram-positive, anaerobes. Widely used in veterinary medicine.	Rash. Lacks known anemic side-effects.	A chloramphenicol analog. May inhibit bacterial protein synthesis by binding to the 50S subunit of the ribosome
Tigecycline(Bs)	Tigacyl	Slowly Intravenous. Indicated for complicated skin/skin structure infections, soft tissues infections and complicated intra-abdominal infections. Effective for gram positive and negative and also anaerob antibiotics, against multi-resistant antibiotics bacteries such as *Staphylococcus aureus* (MRSA) and *Acinetobacter baumannii*, but not effective for *Pseudomonas* spp. and *Proteus* spp.	Teeth discoloration and same side effects as tetracycline. Not to be given for children and pregnant or lactate women. Relatively safe and no need dose adjusted when be given for mild to moderate liver function or renal patients	Similar structure with tetracycline, but 5 times stronger, big volume distribution and long half-time in the body
Tinidazole	Tindamax Fasigyn	Protozoal infections	Upset stomach, bitter taste, and itchiness	
Trimethoprim(Bs)	Proloprim, Trimpex	Urinary tract infections		
Generic Name	**Brand Names**	**Common Uses**[2]	**Possible Side Effects**[2]	**Mechanism of action**

Note: (Bs): Bacteriostatic

Antibiotic candidates

Separately are listed antibiotic candidates, and known antibiotics not yet mass produced.

Antibiotic candidates

Generic name	Origin	Susceptible phyla	Stage of development	Mechanism of action
Unclassified				
Teixobactin	*Eleftheria terrae*	Gram-positive, including antibiotic resistant *S. aureus* and *M. tuberculosis*	No human trials scheduled	Binds fatty acid precursors to cell wall

See also

- Timeline of antibiotics, listed by year of introduction
- Pathogenic bacteria

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