Pharmacology Test 2 Drug List

Categorized

Drug Name	Category	Comments
Allopurinol	Anti-Inflammatory; Anti-Gout	It inhibits **Xanthine Oxidase.** Can cause an attack of acute gouty arthritis when first administered, caused by resorption of uric acid from the tissues. Concurrent Colchicine can be given during the first week of therapy to prevent this side-effect. Drug Interactions: Increases blood levels of Mercaptopurines, Cyclophosphamide.
Colchicine	Anti-Inflammatory; Anti-Gout	Binds to tubulin to prevent polymerization of microtubules ------>**prevent granulocyte migration and phagocytosis of urate crystals** ------> prevent foreign-body granulomatous inflammation in joints. Adverse Effects: Alopecia, agranulocytosis, aplastic anemia. Myopathy, nausea, and vomiting.
Sulfinpyrazone	Anti-Inflammatory; Anti-Gout Uricosuric Platelet Inhibitor	Promotes the excretion of uric acid in the proximal tubule. Do not use when urinary uric acid levels are already high, as**urate calculi** may result. Adverse Effects: Allergic dermatitis, **GI disturbances**. Platelet Inhibitor: Blocks the chemical mediators of platelet aggregation. However, it also prolongs platelet survival, limiting its use in this capacity.
Probenecid	Anti-Inflammatory; Anti-Gout Uricosuric Agent Anti-Microbial; Anti-Bacterial Adjunct	Promotes the excretion of uric acid in the proximal tubule. Do not use when urinary uric acid levels are already high, as**urate calculi** may result. Adverse Effects: **Allergic dermatitis**, GI disturbances. **Penicillin Adjunct**: It blocks the urinary secretion of penicillin, prolonging its half-life.
Hydroxy - chloroquine	Anti-Inflammatory; Anti-RA Anti-Parasitic; Anti-Malarial	Low dose, long-term treatment for RA refractory to treatment with NSAID's. Contraindications: Porphyria, Psoriatic Arthritis.
Auranofin	Anti-Inflammatory; Anti-RA Gold Salts	29% gold, PO. Mech: Macrophages uptake the drug ------> suppress phagocytic and lysosomal activity. Gold accumulates in multiple tissues.
Aurothioglucose	Anti-Inflammatory; Anti-RA	50% gold, IM. Mech: Macrophages uptake the drug ------> suppress phagocytic and lysosomal activity. Gold accumulates in multiple tissues.

	Gold Salts	
Aurothiomalate	Anti-Inflammatory; Anti-RA Gold Salts	50% gold, IM. Mech: Macrophages uptake the drug ------> suppress phagocytic and lysosomal activity. Gold accumulates in multiple tissues.
D-Penicillamine	Anti-Inflammatory; Anti-RA Toxicity Metal Chelator	Analog of cysteine. Retards progression of bone and articular cartilege destruction. 3-4 month latency period required. Serious adverse effects: Leukopenia, thrombocytopenia, aplastic anemia. Cancels the effects of gold salts. **Chelator**: It chelates **copper**, mercury, zinc, lead. Indicated for**Wilson's Disease**. Used as adjunct in lead, mercury, gold, arsenic poisoning. Indicated for **gold salt toxicity**. **Cystinuria**: Forms a soluble penicillamine-cysteine complex, promoting the excretion of cysteine.
Acetominophen **(Tylenol)**	Anti-Inflammatory; Non-Opioid Analgesic	Lacks anti-inflammatory properties of other NSAID's, but is a good analgesic and anti-pyretic. Blocks prostaglandins only in the CNS. **Alcohol**and **starvation** can lead to fatal**hepatotoxicity**.
Phenacetin	Anti-Inflammatory; Non-Opioid Analgesic	*Pro-drug* that is rapidly converted to Acetominophen by Cyt-P450. Because of **severe nephrotoxicity**, phenacetin is not available in the United States. Also, metabolite,**phenetidine** causes methemoglobinemia.
Bufferin	Anti-Inflammatory; NSAID	Contains aspirin in**enteric-coated granules**, which are intended to prevent absorption of aspirin in the stomach, and protect the stomach mucosa from aspirin.
Diclofenac	Anti-Inflammatory; NSAID	**Hepatotoxic**, due to reactive**carboxy-glucuronidate**metabolites. Displaces warfarin from plasma proteins, and should not be used with warfarin.
Diflunisal	Anti-Inflammatory; NSAID	
Meclofenamate	Anti-Inflammatory; NSAID	
Sulindac	Anti-Inflammatory; NSAID	*Pro-Drug* must first be metabolized before it inhibits COX.
Tolmetin	Anti-Inflammatory; NSAID	Does not displace drugs from plasma binding proteins as much as others. Preferred drug for use with Warfarin.
Indomethacin	Anti-Inflammatory; NSAID Anti-Gout	Stronger and more toxic than other NSAID's.Indications: Osteoarthritis of the hip, **acute gouty arthritis**, ankylosing sponylitis, **patent ductus arteriosus**.
Phenylbutazone	Anti-Inflammatory; NSAID Anti-Gout	Potent **anti-inflammatory**, but weak analgesic and anti-pyretic. Indications: **Acute gouty arthritis**, **RA**that is refractory to treatment with other NSAID's.

		Adverse Effects: GI distress, peptic ulcer; can be worse than aspirin. Also soar throat, agranulocytosis.
Nabumetone **(Relafen)**	Anti-Inflammatory; NSAID Long-acting	Can be given only once a day to treat RA.
Oxaprozin **(Daypro)**	Anti-Inflammatory; NSAID Long-acting	Can be given only once a day to treat RA.
Piroxicam	Anti-Inflammatory; NSAID Long-acting	Can be given only once a day to treat RA. Causes GI disturbances in 20% of patients.
Acetylsalicylic Acid **(Aspirin)**	Anti-Inflammatory; NSAID Platelet Inhibitor	**Irreversibly**inhibits COX. Can cause **GI disturbances**, unlike other NSAID's. Has anti-platelet activity at low doses via its inhibition of**TXA_2.** Has anti-inflammatory properties at high doses via its inhibition of **PGE_1**.
Fenoprofen	Anti-Inflammatory; NSAID Propionic Acid Derivative	Short-acting. Must be given 4 times a day for RA.
Ibuprofen **(Motrin)**	Anti-Inflammatory; NSAID Propionic Acid Derivative	Short-acting. Must be given 4 times a day for RA. Does not displace drugs from plasma binding proteins as much as others. Preferred drug for use with Warfarin.
Ketoprofen **(Orudis)**	Anti-Inflammatory; NSAID Propionic Acid Derivative	Short-acting. Must be given 4 times a day for RA. Unique in that it inhibits**both cyclooxygenase and lipoxygenase.**Does not displace drugs from plasma binding proteins as much as others. Preferred drug for use with Warfarin.
Naproxen	Anti-Inflammatory; NSAID Propionic Acid Derivative	Longer acting than the other propionic-acid derivatives. Half-life of about 13 hours. Can be given twice a day for RA.
Cilastatin	Anti-Microbial; Anti-Bacterial Adjunct	**Dihydropeptidase Inhibitor** in the kidney. It is coadministered with the carbapenems (**imipenem**), in order to prevent its destruction in the kidney.
Clavulanic Acid	Anti-Microbial; Anti-Bacterial Adjunct	**beta-Lactamase Inhibitor** can be used as an adjunct, only with penicillins that are not already beta-Lactamase resistant. *It is counterproductive to use Clavulanic Acid with beta-Lactamase-Resistant penicillins:* Naficillin, Oxacillin, Cloxacillin, Methicillin.
Folinic Acid	Anti-Microbial; Anti-Bacterial Adjunct	Given with**Trimethoprim**, it is the reduced form of THF. It prevents the anti-folate side-effects of trimethoprim: Megaloblastic anemia, granulocytopenia, leukopenia.

Pyridoxine (Vit. B_6)	Anti-Microbial; Anti-Bacterial Adjunct	Given with**Isoniazid**, it prevents the peripheral neuritis side-effect that can be seen with this drug. The peripheral neuritis results from an anti-pyridoxine effect.
Sulbactam	Anti-Microbial; Anti-Bacterial Adjunct	**beta-Lactamase Inhibitor**, similar to Clavulinic Acid.
Dapsone	Anti-Microbial; Anti-Bacterial Anti-Mycobacterial	Indicated for treating **Leprosy**. Resistance is on the rise. Adverse Effects: Hemolytic anemia in people with G6PD deficiency, Erythema Nodosum, Methemoglobinemia.
Ethambutol	Anti-Microbial; Anti-Bacterial Anti-Mycobacterial; 1st-line	First line drug. Mech: probably inhibits**polyamine synthesis**. Gets into CNS. Adverse effect:**Optic Neuritis** with loss of visual acuity.
Isoniazid	Anti-Microbial; Anti-Bacterial Anti-Mycobacterial; 1st-line	First line drug, and used for chemoprophylaxis. Mech: it blocks**mycolic acid synthesis**. Gets into CNS. Adverse Effects:**Hepatotoxicity** in elderly, **peripheral neuritis** in slow acetylators. Optic neuritis, teratogenic.
Pyrazinamide	Anti-Microbial; Anti-Bacterial Anti-Mycobacterial; 1st-line	First-line drug. Adverse Effects: Hepatotoxicity, Hyperuricemia.
Rifampin	Anti-Microbial; Anti-Bacterial Anti-Mycobacterial; 1st-line	First line drug. Mech: It inhibits RNA synthesis by binding to the beta-subunit of bacterial **RNA-Polymerase**. Gets into CNS. Adverse Effects: Hepatotoxicity.
Capreomycin	Anti-Microbial; Anti-Bacterial Anti-Mycobacterial; 2nd-line	
Ethionamide	Anti-Microbial; Anti-Bacterial Anti-Mycobacterial; 2nd-line	Second-line drug. Mech: Analog of Isioniazid that also inhibits mycolic acid synthesis. Adverse Effects:**Intense gastric pain**, may be neurotoxic.
Para aminosalicylic acid (PAS)	Anti-Microbial; Anti-Bacterial Anti-Mycobacterial; 2nd-line	Second-line drug. PO. Mech: It blocks**dihydropteroate synthesis** in mycobacteria but not in other bacteria. This is same mode of action as the sulfonamides, but on different bugs. Adverse Effects:**Severe GI**disturbances and pain; hypersensitivity. Impaired liver function.
Cycloserine	Anti-Microbial; Anti-	Second-line anti-mycobacterial drug. Mech: It

	Bacterial Anti-Mycobacterial; 2nd-line ICWS	inhibits**alanine racemase**. Adverse Effects:**CNS Toxicity, drug-induced psychosis** greatly limit its use.
Ciprofloxacin	Anti-Microbial; Anti-Bacterial DNA Gyrase Inhibitor	Fluoroquinolone. PO or IV.
Nalidixic Acid	Anti-Microbial; Anti-Bacterial DNA Gyrase Inhibitor	Quinolone that blocks Topoisomerase II. Effective against gram-negatives.
Norfloxacin	Anti-Microbial; Anti-Bacterial DNA Gyrase Inhibitor	Fluoroquinolone. PO.
Ofloxacin	Anti-Microbial; Anti-Bacterial DNA Gyrase Inhibitor	Fluoroquinolone.
Imipenam	Anti-Microbial; Anti-Bacterial ICWS; Carbopenem	Broad-spectrum antibiotic.***Pseudomonas*** can develop resistance, so give this drug with an aminoglycoside. Must be coadministered with**cilistatin**, to prevent its degradation (by dihydropeptidase) in the kidney.
Meropenem	Anti-Microbial; Anti-Bacterial ICWS; Carbopenem	
Primaxin **(Imipenam + Cilistatin)**	Anti-Microbial; Anti-Bacterial ICWS; Carbopenem	Combination of imipenam and cilistatin is called primaxin.
Cefadroxil	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 1st generation	**PO** administration.
Cefazolin	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 1st generation	IV. Excreted mainly by glomerular filtration (rather than active tubular secretion), thus it has a longer half-life.

Cephalexin	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 1st generation	**PO** administration.
Cephalothin	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 1st generation	IV. Short-half life, due to active (probenecid-sensitive) tubular secretion.
Cefaclor	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 2nd generation	**PO** administration.
Cefamandole	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 2nd generation	May show Disulfarim-like reaction; don't take with EtOH. Cephalosporinase-resistant.
Cefonicid	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 2nd generation	Excreted mainly by glomerular filtration (rather than active tubular secretion), thus it has a longer half-life.
Ceforanide	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 2nd generation	
Cefoxitin	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 2nd generation	IV. Cephalosporinase-resistant.
Cefuroxine	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 2nd generation	IV

Cefixime	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 3rd generation	**PO** administration. Can penetrate into the CNS.
Cefoperazone	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 3rd generation	Active against*Pseudomonas.* Can penetrate into the CNS. Biliary excretion, longer half-life. Cephalosporinase-resistant. May show Disulfarim-like reaction; don't take with EtOH
Cefotaxime	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 3rd generation	IV. Can penetrate CNS. Cephalosporinase-resistant.
Ceftazidime	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 3rd generation	IV.
Ceftazidime	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 3rd generation	Active against*Pseudomonas*.
Ceftizoxime	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 3rd generation	Can penetrate CNS.
Ceftriaxone	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 3rd generation	IV. Biliary excretion, longer half-life

Pharmacology Test 2 Drug List

Drug Name	Category	Comments

Moxalactam	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 3rd generation	IV. Penetrates CNS. Adverse Effects: May show Disulfarim-like reaction; don't take with EtOH. May also see occassional bleeding.
Cefepine	Anti-Microbial; Anti-Bacterial ICWS; Cephalosporin 4th generation	Actually a **fourth generation**, brand new drug, with extended spectrum and greater resistance to beta-Lactamase inactivation.
Bacitracin	Anti-Microbial; Anti-Bacterial ICWS; Intracellular	Bactericidal. It is only used as a **topical**antibacterial. Severe nephrotoxicity prevents systemic use. Inhibits cell-wall synthesis intracellularly.
Vancomycin	Anti-Microbial; Anti-Bacterial ICWS; Intracellular	Given IV for gram-positives, or PO for GI superinfections (as a topical, intraluminal antibiotic). *It is not absorbed through the GI tract.* MECH = inhibit peptidoglycan synthesis intracellularly -- rather than extracellularly as in the beta-lactams. Resistance is a recent problem.
Aztreonam	Anti-Microbial; Anti-Bacterial ICWS; Monobactam	beta-Lactamase resistant. Effective against **gram-negative aerobes**such as *Pseudomonas, Serratia*. Little or no activity against gram-positives or anaerobes.
Augmentin **(Amoxicillin + Clavulanic Acid)**	Anti-Microbial; Anti-Bacterial ICWS; Penicillins	Combination of Amoxicillin and Clavulanic Acid is called Augmentin. Good choice for pediatric Otitis Media.
Benzathine Penicillin G	Anti-Microbial; Anti-Bacterial ICWS; Penicillins	Relatively insoluble salt of penicillin is given **IM** as a "depot" preparation, for long-term storage in muscle and sustained release.
Penicillin G	Anti-Microbial; Anti-Bacterial ICWS; Penicillins	Active against gram-positives.
Penicillin V	Anti-Microbial; Anti-Bacterial ICWS; Penicillins	**Acid-stable** Pencillin G, thus it can be given PO. Active against Gram-positives.
Amoxacillin	Anti-Microbial; Anti-Bacterial	**Broad-spectrum agent.** Increased gram-negative activity

	ICWS; Penicillins Broad-Spectrum	
Ampicillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Broad-Spectrum	**Broad-spectrum agent.** PO. Increased gram-negative activity. **Acid-stable**, but beta-lactamase sensitive. 90% of patients with Mononucleosis get a**rash** while receiving this drug.
Carbenicillin indamyl	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Extended-Spectrum	**Extended-Spectrum agent.** **Acid-stable** ester of carbenicillin, recently developed, that can be given orally.
Carbenicillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Extended-Spectrum	**IV**, acid-labile drug. **Extended-Spectrum agent.** *Proteus* and*Pseudomonas*. For*Pseudomonas*, use combination therapy with aminoglycoside, as rapid resistance can develop.
Mezlocillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Extended-Spectrum	**Extended-Spectrum agent.** *Proteus* and*Pseudomonas.*
Piperacillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Extended-Spectrum	**Extended-Spectrum agent.** *Proteus, Pseudomonas* and*Klebsiella*.
Ticarcillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Extended-Spectrum	**Extended-Spectrum agent.** *Proteus* and*Pseudomonas*.
Cloxacillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Penicillinase-Resistant	Similar to Penicillin G. PO. Highly protein-bound. **beta-Lactamase Resistant, Acid Stable**
Dicloxacillin	Anti-Microbial; Anti-Bacterial	Similar to Penicillin G. PO. Highly protein-bound. **beta-Lactamase Resistant, Acid Stable**

	ICWS; Penicillins Penicillinase-Resistant	
Floxacillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Penicillinase-Resistant	Similar to Penicillin G. PO. Highly protein-bound. **beta-Lactamase Resistant, Acid Stable**
Methicillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Penicillinase-Resistant	Given **only IV**, because it is acid-labile. **Altered PBP's**appears to be the mode of resistance in the case of *Staph. Aureus.* **beta-Lactamase Resistant.**
Nafcillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Penicillinase-Resistant	Similar to Penicillin G. PO. Unique **biliary excretion**. **beta-Lactamase Resistant, Acid Stable**
Oxacillin	Anti-Microbial; Anti-Bacterial ICWS; Penicillins Penicillinase-Resistant	Similar to Penicillin G. PO. Highly protein-bound. **beta-Lactamase Resistant, Acid Stable**
Colistmethate	Anti-Microbial; Anti-Bacterial Membrane-Active	Only used topically: ointment, or injection into pleural or joint cavities. Can be used topically for gram-negative bacterial overgrowth.
Polymixin B	Anti-Microbial; Anti-Bacterial Membrane-Active	Only used topically: ointment, or injection into pleural or joint cavities. Can be used topically for gram-negative bacterial overgrowth.
Trimethoprim	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor	Inhibits dihydrofolate reductase. Indicated for complicated UTI's. as a second-line drug, and AIDS*Pneumocystic*Pneumonia. Other uses too.
Co-Trimoxazole **(Sulfame thoxazole - Trimethoprim)**	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	Adverse Effects: May see adverse effects of either constituent drug, as well as fever, rashes, vomiting, diarrhea. Side-effects prominent in AIDS patients receiving the drug for the treatment of ***Pneumocystis*Pneumonia**.
Mafenide **(Sulfamylon)**	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	Does not have a *para*-amino group, thus it has a different structure and mode of action, and it is not an analog of PABA. It is not inactives by the presence of pus or

		necrotic tissue, thus it is ideal to use with**burn patients**.
Silver Sulfadiazine	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	**Topical**administration, for treating **burn patients**.
Sodium Sulfacetamide	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	**Ophthalmic**administration, for treating conjunctivitis.
Sulfacytine	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	
Sulfadiazine	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	Used to treat systemic infections.
Sulfamethoxazole	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	Used widely in UTI's.
Sulfapyridine	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	Used to treat**Dermatitis Herpetiformis**.
Sulfasalazine **(Salicyl-azosulfapyridine)**	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	Poorly absorbed in GI tract. Used for the topical treatment of**inflammatory bowel disease.** The drug is cleaved by bacteria in the colon, into sulfonamide and amino-salicylate.**Amino-salicylate**then has local anti-inflammatory effects in the colon.
Sulfisoxazole	Anti-Microbial; Anti-Bacterial Metabolic Inhibitor; Sulfonamide	Used widely in UTI's. Also used to treat Nocardiosis.
Chloramphenicol	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor	Indicated for CNS infections, *Salmonella*Typhoid Fever, *H. Influenzae.* Toxicity: (1) Dose-dependent anemia,**(2) aplastic anemia**,**(3) gray-baby syndrome,** due to lack of glucuronyl-transferase in babies.
Clindamycin	Anti-Microbial; Anti-Bacterial	Similar to erythromycin. *C. Difficile* is resistant, thus**Pseudomembranous**

	Synthesis Inhibitor	**Colitis** is a feared complication of the drug. Indicated for mixed anaerobic infections.
Spectinomycin	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor	Structurally related to aminoglycosides. Administered **IM** for treatment of**penicillin-resistant gonorrhea**.
Azithromycin	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Macrolide	
Clarithromycin	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Macrolide	
Erythrmoycin	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Macrolide	IV or PO. Orally, it must be given in an acid-resistant (enteric coated) capsule, to prevent acid-breakdown in the stomach. Often used in penicillin-allergic patients. Indications:*Chlamydia, Mycoplasma*Pneumonia, Cornybacteria, Legionnaire's Disease.
Erythromycin Estolate	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Macrolide	**Acid-resistant** ester of erythromycin can be given PO.**Cholestatic hepatitis** can occur with use.
Spiramycin	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Macrolide Anti-Parasitic	Indicated for treatment of**Cryptosporidiosis**.
Chlortetracycline	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Tetracycline	Very incomplete oral absorption. Like tetracycline.
Demeclocycline	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Tetracycline	Complete oral absorption. Intermediate half-life. Used to treat the Syndrome of Inappropriate ADH secretion (SIADH).**Photosensitive**: especially photosensitive and associated with Fanconi-like syndrome if it has been photo-degraded.
Doxycycline	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Tetracycline	Complete oral absorption. Exclusively hepatic clearance.
Minocycline	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor;	Complete oral absorption. Long-lasting.

	Tetracycline	
Oxytetracycline	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Tetracycline	Incomplete oral absorption
Tetracycline	Anti-Microbial; Anti-Bacterial Synthesis Inhibitor; Tetracycline	Incomplete oral absorption, but it's still given orally. Indicated for*Rickettsiae, Chlamydia, Mycoplasma*, Lyme Disease. It's a **broad-spectrum** antibiotic, so you can also see bacterial superinfection. It**chelates calcium:**never use during pregnancy, never give to children, do not take with food.
Amikacin	Anti-Microbial; Anti-Bacterial Synthesis Inhitor; Aminoglycoside	Newest agents. Currently effective against strains that are resistant to the other aminoglycosides.

Drug Name	Category	Comments
Gentamicin	Anti-Microbial; Anti-Bacterial Synthesis Inhitor; Aminoglycoside	Older drug. Popular choice for gram-negatives, in combination with penicillins.
Kanamycin	Anti-Microbial; Anti-Bacterial Synthesis Inhitor; Aminoglycoside	Older drug. Now only used as topical agent, due to severity of adverse effects.
Neomycin	Anti-Microbial; Anti-Bacterial Synthesis Inhitor; Aminoglycoside	Now only used as**topical** agent, due to severity of adverse effects.
Netilmicin	Anti-Microbial; Anti-Bacterial Synthesis Inhitor; Aminoglycoside	Newest agents. Currently effective against strains that are resistant to the other aminoglycosides.
Tobramycin	Anti-Microbial; Anti-Bacterial Synthesis Inhitor; Aminoglycoside	Newer drug. Popular choice for gram-negatives, in combination with penicillins. Slightly less nephrotoxic than gentamicin.

Streptomycin	Anti-Microbial; Anti-Bacterial Synthesis Inhitor; Aminoglycoside Anti-Mycobacterial; 1st-line	IM. Older drug with severe adverse effects. Now has widespread resistance. First-line drug for TB infections.
Nitrofurantoin	Anti-Microbial; Anti-Bacterial UTI Antiseptic	Used solely for treatment of **UTI's**. Cleared extremely quickly to urine, where it can have bacteriostatic or bactericidal effects. Mech = formation of oxidative intermediates in urinary tract.
Flucytosine	Anti-Microbial; Anti-Fungal	Gets into CNS. Converted to **5-fluorocytosine** by fungal enzymes, then it inhibits thymidilate synthetase and DNA synthesis. Resistance develops rapidly, so it is used in conjunction with Amphotericin-B. Relatively non-toxic. May see alopecia, bone-marrow suppression.
Griseofulvin	Anti-Microbial; Anti-Fungal	It binds to fungal microtubules, inhibiting their growth. It is only effective for skin infections. It is given **PO** and binds to **keratin**, thus it concentrates in skin. High fat meal increases absorption. Indications: skin infections, ring worm, athlete's foot. Adverse effects: allergic reactions, headache, malaise.
Potassium Iodide (KI)	Anti-Microbial; Anti-Fungal	Singularly effective against *Sporothrix Schenkii* cutaneous infection.
Fluconazole	Anti-Microbial; Anti-Fungal Imidazole (Systemic)	Pharmacokinetics: PO or IV. Readily enters CNS. Inhibits Cyt-P450 in liver. Primarily urinary excretion. Adverse Effects: Hepatotoxicity, nausea and vomiting. Indicated for**Cryptococcal Meningitis**.
Itraconazole	Anti-Microbial; Anti-Fungal Imidazole (Systemic)	Broader spectrum and fewer adverse effects than ketoconazole.
Ketoconazole	Anti-Microbial; Anti-Fungal Imidazole (Systemic)	Pharmacokinetics: PO, with good oral absorption. Inhibits Cyt-P450 in liver. Biliary excretion. Adverse Effects: Hepatotoxicity,**gynecomastia**.

		thrombophlebitis. Can be used in treatment of prostate cancer, due to anti-androgenic effects.
UK-109,496	Anti-Microbial; Anti-Fungal Imidazole (Systemic)	Experimental imidazole that binds so strongly to ergosterol, it is classified as fungicidal. Broad-spectrum of action, and effective against *Aspergillus*.
Miconazole	Anti-Microbial; Anti-Fungal Imidazole (Topical, Systemic)	Pharmacokinetics:**Topical** or IV. Not absorbed orally. Biliary excretion.x Adverse Effects:**Nausea and vomiting** when given IV. It potentiates**warfarin**.
Clotrimazole	Anti-Microbial; Anti-Fungal Imidazole (Topical)	**Topical** use only. Not absorbed orally.
Amphotericin B	Anti-Microbial; Anti-Fungal Polyene	Attacks ergosterol causing cell lysis. Broad-spectrum. Is not absorbed orally. Given IV for systemic infections, but doesn't readily penetrate CNS. Adverse Effects: "Amphoterrible" fever, chills,**nephrotoxicity**, anemia, hepatotoxicity.
Nystatin	Anti-Microbial; Anti-Fungal Polyene (Topical)	**Topical use only**. Drug is not absorbed orally, and side-effects are too severe for systemic use. Available OTC for dermal fungal infections, or used orally for intraluminal GI fungal overgrowth infections. Can also be used for intestinal amebiasis.
Mebendazole	Anti-Microbial; Anti-Parasitic Anti-Helminthitic	Given PO, but only about 10% is absorbed (**poorly absorbed**). It inhibits**microtubule synthesis** in**nematodes.**Indicated for**pinworms, hookworms, ascariasis**.
Piperazine	Anti-Microbial; Anti-Parasitic Anti-Helminthitic	Mech: It **inhibits acetylcholine** in helminths (*non-depolarizing*blockade). It thus antagonizes the effects of Pyrantel Pamoate.
Praziquantel	Anti-Microbial; Anti-Parasitic Anti-Helminthitic	**Well-absorbed**orally. It increases permeability of helminthitic cell membrane to**calcium,** causing contraction, paralysis, death. Indicated for**Schistosomiasis**and other **fluke**infections.
Pyrantel Pamoate	Anti-Microbial; Anti-Parasitic	**Poorly absorbed**orally. Triggers the release of acetylcholine in helminths.

	Anti-Helminthitic	causing**depolarizing neuromuscular blockade**, paralysis. Indicated for broad-spectrum treatment of**luminal intestinal infections**. Ascariasis, pinworm.
Thiabendazole	Anti-Microbial; Anti-Parasitic Anti-Helminthitic	**Well-absorbed**orally. It blocks microtubule synthesis., and may also inhibit**fumarate reductase** in the parasite. Indicated for nematode infections.
Amodiaquine	Anti-Microbial; Anti-Parasitic Anti-Malarial	Blood schizonticide.
Mefloquine	Anti-Microbial; Anti-Parasitic Anti-Malarial	Only PO. Primarily used for prophylaxis and treatment of Chloroquine-resistant *P. Falciparum* strains. Adverse Effects: Can have bad CNS and psychological effects.
Primaquine	Anti-Microbial; Anti-Parasitic Anti-Malarial	It is the one and only **tissue schizonticide**, required for treatment of *P. Ovale* and *P. Vivax*hypnozoite (dormant) tissue-infections. Adverse Effects: **Hemolytic anemia** in persons with G6PD-Deficiency.
Pyrimethamine	Anti-Microbial; Anti-Parasitic Anti-Malarial	Inhibits *Plasmodium***dihydrofolate reductase**, similar to trimepthoprim. Indicated for treatment of Chloroquine-resistant *P. Falciparum*. Adverse Effects: Anti-Folate effects, megaloblastic anemia.
Quinidine Gluconate	Anti-Microbial; Anti-Parasitic Anti-Malarial	
Chloroquine	Anti-Microbial; Anti-Parasitic Anti-Malarial Anti-Inflammatory; Anti-Arthritis	Usually PO, also IV, IM. Most popular blood schizonticide. Extensive tissue binding requires large loading dose. Resistance is common and occurs by *P. Falciparum*making phosphoglycoprotein pumps to pump out the drug. Adverse Effects: generally well-tolerated; long-term retinopathyy, myopathy, ototoxicity. Also: Low dose, long-term treatment for RA refractory to treatment with NSAID's.
Fansidar (Pyrimethamine-Sulfadoxine)	Anti-Microbial; Anti-Parasitic Anti-Malarial Anti-Protozoal	Similar to Co-Trimoxazole, except for parasites. Pyrimethamine: inhibit dihydrofolate reductase. Sulfadoxine: inhibit dihydropteroate synthetase. Slow-acting, and resistance can be a problem.
Diloxanide Furoate	Anti-Microbial; Anti-Parasitic	Given orally. Diloxinide is the active drug.

	Anti-Protozoal	released by gut bacteria. Mild drug used to combat intestinal amebiasis. Well-tolerated.
Melarsoprol	Anti-Microbial; Anti-Parasitic Anti-Protozoal	Indicated for the late meningeal stages of Trypanosomiasis (*T. Gambiense*).
Nifurtimox	Anti-Microbial; Anti-Parasitic Anti-Protozoal	Indicates for**Chagas Disease**(*T. Cruzi*)
Paromomycin	Anti-Microbial; Anti-Parasitic Anti-Protozoal	Indicated for intestinal amebiasis.
Pentamidine	Anti-Microbial; Anti-Parasitic Anti-Protozoal	IM or aerosol; not absorbed orally. Indications:**Trypanosomiasis**, first-line therapy for***Pneumocystic Cariini*** infection in AIDS patients. Second-line therapy for many other parasitic infections. Adverse Effects:**Histamine degranulation** can lead to life-threatening hypotension. Also can see hypoglycemia or hyperglycemia, TPP, nephrotoxicity, anemia.
Sodium Stibogluconate	Anti-Microbial; Anti-Parasitic Anti-Protozoal	Indicated for**Leshmaniasis.**
Suramin	Anti-Microbial; Anti-Parasitic Anti-Protozoal	Indicated for**Tryanosomiasis.**
Metronidazole	Anti-Microbial; Anti-Parasitic Anti-Protozoal Anti-Bacterial	Mech: Parasites reduce a nitro group on the drug and form **oxidative intermediates** that do oxidative damage. Indicated for a wide variety of intestinal and tissue parasitic infections:**Trichomoniasis, Giardiasis, Amebiasis, Leshmaniasis.**Also indicated for treating***Bacteroides*** and other serious anaerobic bacterial infections.

Drug Name	Category	Comments
Foscarnet	Anti-Microbial; Anti-Viral	Indicated for treatment of (1) **CMV Retinitis**(administer with Ganciclovir), and (2) Serious HSV or VZV infections that are resistant to treatment by Acyclovir. Serious Adverse Effect: It chelates Ca^{+2} which can lead to life-threatening**hypocalcemia**.
3- Deoxy thmidin- 2-ene (d4T)	Anti-Microbial; Anti-Viral	

(Stavudine)	Anti-AIDS; Nucleoside Analog	
Dideoxy cytosine (ddC)	Anti-Microbial; Anti-Viral Anti-AIDS; Nucleoside Analog	
Dideox yinosine (ddI)	Anti-Microbial; Anti-Viral Anti-AIDS; Nucleoside Analog	
Lamivudine (3TC)	Anti-Microbial; Anti-Viral Anti-AIDS; Nucleoside Analog	
Azidothymidine (AZT) **(Zidovudine)**	Anti-Microbial; Anti-Viral Anti-AIDS; Nucleoside Analog Immunosuppressant	Half-life of 1-3 hrs. Gets into CNS (60%). Mech: It is phosphorylates to the triphosphate form, which is the active form. Then, (1) It competitively inhibits HIV **Reverse Transcriptase**, and (2) It is a **chain-terminator** of HIV viral DNA synthesis. Resistance is common, due mutations in viral Reverse Transcriptase. Adverse Effects: May be severe. **Bone marrow depression**. Headaches, agitation, insomnia.
Indinavir	Anti-Microbial; Anti-Viral Anti-AIDS; Protease Inhibitor	
Ritonavir	Anti-Microbial; Anti-Viral Anti-AIDS; Protease Inhibitor	
Saquinavir	Anti-Microbial; Anti-Viral Anti-AIDS; Protease Inhibitor	Well tolerated, but low oral bioavilability (5%).
Interferon -alpha (IFN-alpha)	Anti-Microbial; Anti-Viral Endogenous Factor	Enhances host-cell resistance to viral infections, and possibly some tumors. Adverse effects: fever, malaise, headaches, anemia, GI distress.
Acyclovir	Anti-Microbial; Anti-Viral Nucleoside Analog	Indicated for HSV-1, HSV-2, VZV. Used topically for skin lesions, or IV for encephalitis or neonatal disease. It is activated by HSV viral**Thymidine Kinase** ------> (1) it binds and**inhibits viral DNA polymerase**, and (2) it is incorporated into viral DNA, where it

		acts as a **chain-terminator**. Resistance in HSV is due to mutations in Thymidine Kinase or the DNA Polymerase..
Ganciclovir	Anti-Microbial; Anti-Viral Nucleoside Analog	Indicated for **CMV**. Deoxyguanosine analog, it reversibly inhibits **viral DNA polymerase**. Works similar to Acyclovir. Adverse Effects are bad: **Neutropenia**(common), anemia, eosinophila. Also CNS changes (headache, behavioral changes, seizure, coma), fever, rash, phlebitis, nausea.
Ribavirin	Anti-Microbial; Anti-Viral Nucleoside Analog	Aerosol spray. Nucleoside analog blocks the formation of GTP. Indicated for severe **Respiratory Syncitial Virus (RSV)**infections in infants. No serious adverse effects.
Vidarabine (Ara-A)	Anti-Microbial; Anti-Viral Nucleoside Analog	Topical or IV. It inhibits DNA synthesis by affecting DNA polymerase. Indicated for **HSV, Varicella-Zoster**. Adverse effects are minimal: nausea, vomiting, possible neurotoxicity.
Amantidine	Anti-Microbial; Anti-Viral Uptake Inhibitor	It inhibits viral absorption and uptake. Indicated for**Influenza A**, Rubella. Used prophylactically after Influenza-A exposure.Adverse Effects: Insomnia, restlessness, nervousness, depression.
Rinantidine	Anti-Microbial; Anti-Viral Uptake Inhibitor	Longer half-life than Amantadine, biliary excretion. Perhaps fewer CNS effects.
Taxol	Chemotherapy Alkaloid; Paclitaxel	IV only; biliary excretion. Extensively metabolized by the liver. It **stabilizes** the mitotic spindle during metaphase, causing**metaphase arrest**. Indications: head and neck carcinomas, ovarian carcinomas, breast cancers, lung cancers. Adverse Effects: bone marrow suppression, peripheral neuropathy.
Etoposide (VP-16)	Chemotherapy Alkaloid; Podophyllotoxin	IV only; urinary excretion. It inhibits**topoisomerase II** ------> cause DNA strand breaks, increase DNA degradation. Indications: small-cell lung cancer, lymphomas and leukemias, testicular carcinoma.
Teniposide (VM-26)	Chemotherapy	

	Alkaloid; Podophyllotoxin	
Vinblastine	Chemotherapy Alkaloid; Vinca Alkaloid	IV only; biliary excretion. Binds to microtubules ------> inhibits the mitotic spindle, causing**metaphase arrest**. More likely to show bone marrow toxicity than Vincristine. Indications: Testicular carcinoma, breast cancers, lymphomas.
Vincristine	Chemotherapy Alkaloid; Vinca Alkaloid	IV only; biliary excretion. Binds to microtubules ------> inhibits the mitotic spindle, causing**metaphase arrest**. Less likely to suppress bone marrow than Vinblastine, but do see**peripheral neuropathy** which is dose-limiting. Indications: Part of the MOPP group of drugs, to fight **Hodgkin's Disease**. Also acute leukemias, Non-Hodgkin's Lymphomas.
Glutatione S-Transferases (GST's)	Chemotherapy; Adjunct	Experimental. In rats and monkeys, when injected directly into lymphocytes (inject *in vitro* and then reimplant in the animal), it **prevents lymphocyte death**, helping to alleviate bone-marrow suppression before it occurs. Hasn't been tried in humans yet.
Granulocyte Colony Stimulating Factor **(G-CSF)**	Chemotherapy; Adjunct	It is thought to mobilize*peripheral*hematopoeitic stem cells. It can be given to combat the bone-marrow suppression side-effects of chemotherapy drugs.
Ondansetron	Chemotherapy; Adjunct	Serotonin antagonist can be given to alleviate nausea associated with chemotherapy.**Phenothiazines** and other drugs can also be used.
Verapamil	Chemotherapy; Adjunct	Ca^{+2}-channel blocker can competitively inhibit**phosphoglycoprotein pumps** in tumor cells, thus hopefully helping to combat this form of resistance. Clinical trials are under way.
Busulfan	Chemotherapy; Alkylating Agent Alkylsulfonate	Alkylsulfonate, pro-drug, oral. Indicated for**Chronic Myelogenous Leukemia**. Adverse Effects: Adrenal Insufficiency, increased skin pigmentation. Pulmonary fibrosis.
Thiotepa	Chemotherapy; Alkylating Agent	Aziridine, *pro-drug*. IV.

	Aziridine	
Triethylene malamine	Chemotherapy; Alkylating Agent Aziridine	Aziridine, *pro-drug*. IV.
Procarbazine	Chemotherapy; Alkylating Agent Hydrazine	Hydrazine. Part of the MOPP group of drugs, to fight **Hodgkin's Disease**. Adverse Effects: Has especially high incidence of**secondary malignancies**, particularly leukemias.
Chlorambucil	Chemotherapy; Alkylating Agent Nitrogen Mustard	Nitrogen Mustard, Oral. Indicated for**lymphomas, CLL.**
Mechlore thamine	Chemotherapy; Alkylating Agent Nitrogen Mustard	Nitrogen Mustard, IV. Directly toxic. It has the shortest half-life (a few minutes) and is the least stable of all alkylating agents. Is often infused directly into artery supplying the tumor, due to its short half-life. Part of the MOPP group of drugs, to fight**Hodgkin's Disease**.
Melphalan	Chemotherapy; Alkylating Agent Nitrogen Mustard	Nitrogen Mustard, Oral. Indicated for **Multiple Myeloma.**
Cyclopho sphamide	Chemotherapy; Alkylating Agent Nitrogen Mustard Immunosuppressant	*Pro-drug*, oral. It is converted to its active form by Cytochrome-P450 enzyme. Broad-spectrum agent Useful at fighting solid tumors, **leukemias, ovarian carcinoma.** Immunosuppresant: Bone marrow transplants (but it does**not** prevent GVHD), autoimmune disorders (PRCA, Wegener's Granulomatosis). Adverse Effect:**Hemorrhagic cystitis**, higher incidence of **alopecia**than other drugs.
Carmustine (BCNU)	Chemotherapy; Alkylating Agent Nitrosurea	Nitrosurea, *pro-drug*. IV. Gets into CNS, thus useful for treating brain cancers.
Lomustine (CCNU)	Chemotherapy; Alkylating Agent Nitrosurea	Nitrosurea, *pro-drug*. IV. Gets into CNS, thus useful for treating brain cancers.
Streptozotocin	Chemotherapy; Alkylating Agent Nitrosurea	Indicated for**malignant pancreatic insulinoma**.

Carboplatin	Chemotherapy; Alkylating Agent Platinum Complex	Platinum complex, similar to *Cis*-Platin.
Cis-Platin	Chemotherapy; Alkylating Agent Platinum Complex	Forms **Platinum complex**, a unique platinum-bond with DNA causes both damage and cross-linkage of DNA strands. Broad-spectrum agent. Useful at fighting solid tumors: **breast, ovarian, testicular, lung, bladder cancers**. Adverse Effect: Relatively non-toxic to bone marrow, but does have **nephrotoxicity**which is dose-limiting.
Bleomycin	Chemotherapy; Antibiotic	Only IV. **Bleomycin hydrolase** inactivates the drug in the liver and kidney, but the enzyme is not found in skin and lungs. It is the only **cell-cycle specific (CCS)**agent among the antibiotics. It intercalates between DNA base pairs, and it also **chelates iron**, generating **oxygen radicals** which further damage the DNA. Indicated for testicular carcinoma. Adverse Effects: Irreversible**pulmonary fibrosis.**
Dactinomycin	Chemotherapy; Antibiotic	Only IV. It tightly intercalates DNA between G-C base pairs, **blocking transcription**. DNA replication is only slightly affected.
Mithramycin	Chemotherapy; Antibiotic	
Mitomycin C	Chemotherapy; Antibiotic	Only IV. It is metabolized to **6-Mercaptopurine**, active metabolite, which then cross-links with DNA. Indications: Solid tumors of cervix, stomach, pancreas, lung, bladder, colon. May be instilled directly into bladder to treat**bladder carcinoma**. Adverse Effects: pronounced and long-lived **bone-marrow suppression**.
Plicamycin	Chemotherapy; Antibiotic	Only IV. It binds to DNA as a ternary complex with Mg^{+2}, blocking transcription. Indications: used primarily to combat**paraneoplastic hypercalcemia**. It has an inhibitory effect on osteoclasts, slowing down bone resorption.

Daunorubicin	Chemotherapy; Antibiotic Anthracycline	Only IV. Undergoes extensive metabolism in the liver. They are**intercalating agents,**blocking both replication and transcription by non-covalent interactions. Adverse Effect = Cumulative**cardiotoxicity**, which can be potentially fatal. Indications: Narrower in spectrum, used only against **Acute Leukemias**.
Doxorubicin	Chemotherapy; Antibiotic Anthracycline	Only IV. Undergoes extensive metabolism in the liver. They are**intercalating agents,**blocking both replication and transcription by non-covalent interactions. Cumulative**cardiotoxicity**, which can be potentially fatal. Indications: **Broad-spectrum** agent, used in combo chemotherapy to treat many tumors.
Mitoxantrone	Chemotherapy; Antibiotic Anthracycline; Synthetic	The only synthetic anti-cancer antibiotic, with properties similar to the other Anthracyclines. They are**intercalating agents,**blocking both replication and transcription by non-covalent interactions. Cumulative**cardiotoxicity**, which can be potentially fatal. Indications: Used for**Acute Myelogenous Leukemia (AML)**, non-Hodgkin's Lymphomas, breast cancer.
5-Fluorouracil (5-FU)	Chemotherapy; Antimetabolite	Pyrimidine antagonist. Must be given IV. Active metabolite is **5-FdUMP**, which inhibits**thymydilate synthetase** ------> cell death due to lack of thymine. Resistance: decreased bioactivation of 5-FU, mutations in thymydilate synthetase, increased levels of thymidilate synthetase. Indications: GI tumors, head and neck carcinomas.
6-Mercaptopurine (6-MP)	Chemotherapy; Antimetabolite	Purine antagonist. Effective orally. It is converted to its active nucleotide form by HGPRT. Resistance primarily due to lower amounts of HGPRT; increased levels of alkaline phosphphydrolase can also inactivate the active metabolites. Drug is eliminated by xanthine oxidase, so**Allopurinol** raises its blood levels and potentiates its

		effects.
6-Thioguanine (6-TG)	Chemotherapy; Antimetabolite	Purine antagonist. Effective orally. It is converted to its active nucleotide form by HGPRT. Resistance primarily due to lower amounts of HGPRT; increased levels of alkaline phosphphydrolase can also inactivate the active metabolites.
Azacitidine	Chemotherapy; Antimetabolite	
Cytarabine (Cytosine Arabinoside, AraC)	Chemotherapy; Antimetabolite	Pyrimidine antagonist. Must be given IV. Active metabolite is**AraCTP**, which inhibits**DNA polymerase**during the S-Phase. Resistance: decreased uptake of AraC by tumor cells, decreased conversion of AraC to AraCTP, increased breakdown of AraCTP. Indicated for **acute leukemias (ALL)** and**lymphomas.** Adverse Effects: Ocular toxicity, neurotoxicity.
Floxuridine	Chemotherapy; Antimetabolite	Pyrimidine antagonist.
Fludarabine	Chemotherapy; Antimetabolite	Pyrimidine antagonist.
Gemcitabine	Chemotherapy; Antimetabolite	Pyrimidine antagonist, similar to Cytarabine.
Aminoglu tethamide	Chemotherapy; Hormonal Agent	**Aromatase Inhibitor**decrease the conversion of androstenedione to estrone. Interrupts estrogen synthesis and is thus useful in metastatic **breast cancer.**
Diethyl stilbestrol (DES)	Chemotherapy; Hormonal Agent	Can induce remission of **prostatic carcinoma.**
Estrogens	Chemotherapy; Hormonal Agent	Can induce remission of **prostatic carcinoma.**
Flutamide	Chemotherapy; Hormonal Agent	**Anti-androgen** used in the treatment of**prostate cancer**.
Leoprulide Acetate	Chemotherapy; Hormonal Agent	Synthetic analog of GnRH ------> blocks FSH and LH in pituitary ------ > decreased androgen synthesis and an inhibitory effect on**prostatic carcinoma**.
Progestins	Chemotherapy; Hormonal Agent	Can induce remission of **metastatic endometrial cancer**. Has shown some success with breast cancer.
Tamoxifen	Chemotherapy; Hormonal Agent	**Estrogen receptor antagonist** is effective against susceptible**breast cancers**. The tumor must have an estrogen-receptor to be susceptible.
Drug Name	Category	**Comments**
Cortico steroids (Prednisone , etc.)	Chemo therapy; Hormonal Agent	**Actions: (1) They inhibitPhospo lipase-A2, (2) They inhibit the**

	Anti- Inflam matory; Anti-RA Immunosup pressant	**induction of COX-2** **Chemo therapy: They suppress proliferation of lymphocytic cells, thus they are useful at combating lymphomas. Part of the MOPP group of drugs, to fightHodgkin's Disease.** **RA: It is a potent anti-inflammatory, but it does nothing to prevent destruction of bone and cartilege.** **Immuno suppres sant: Organ transpla ntation, auto-immune diseases, asthma.**
Amsacrine (AMSA)	Chemo therapy; Miscell aneous	

Hydroxyurea	Chemotherapy; Miscellaneous	
L- Aspara ginase	Chemo therapy; Miscell aneous	For Leukemia. Leukemic cells are deficient in**asparagine synthetase** and thus cannot replenish asparagine when it is broken down by this drug. That makes them selectively susceptible to the drug. Adverse Effects: Allergy, hepatitis, mental depression, pancreatitis.
Erythro poeiten	Hemopoeitic; Anemia	Useful for treating the hypopro liferative anemia caused by**end-stage renal disease**. Produced by recom binant DNA techniques.
Ferrous Fumarate	Hemo poeitic; Anemia Iron- Deficiency Anemia	Like Ferrous Sulfate
Ferrous Sulfate	Hemopoeitic; Anemia Iron-Deficiency Anemia	Take them on an empty stomach. Enteric-coated iron preparations are not used, because we want to absorb the iron in the stomach and proximal duodenum.**200-400 mg** of iron daily are required to treat iron deficiency. Adverse Effects: Black stools, constipation, nausea, epigastric discomfort, abdominal cramps, diarrhea.
Ferrous Gluconate	Hemopoeitic; Anemia Iron-Deficiency Anemia	Like Ferrous Sulfate

Iron Dextran	Hemopoeitic; Anemia Iron-Deficiency Anemia	Parenteral iron administration, IM or IV. IM can be painful. Indications: Parenteral iron is given for**severe iron deficiency**, after a bowel resection or after Inflammatory Bowel Disease involving the proximal jejunum. Adverse Effects: Headache, light-headedness. Nausea, vomiting, back pain, fever, arthralgia, urticaria, anaphylaxis (rare), flushing.
Folic Acid	Hemopoeitic; Anemia Megaloblastic Anemia	Folic acid will cure dietary folate deficiency. It will *not*cure folate deficiency due to anti-folate drugs (such as Trimethoprim). For that you use folinic acid. No adverse effects.
Hydroxy cobalamin **(Vitamin B12)**	Hemo poeitic; Anemia Megaloblastic Anemia	IM. Highly bound to plasma proteins and remains in circulation longer than cyanocobalamin. Therapy continues for life.
Cyanoco balamin **(Vitamin B12)**	Hemopoeitic; Anemia Megalo blastic Anemia Toxicity	IM. The drug of choice in patients who are hyper sensitive to the Hydroxy cobalamin- Transco balamin-II Complex. Therapy continues for life. **Cyanide Toxicity:**Co_2 EDTA + Hydroxy cobalamin takes up free cyanide, neutra lizing it and forming cyanoco balamin (Vit B12).
Dextran	Hemopo eitic; Clotting Anti- Coagulant	Used to prevent **post-operative thrombosis**. Long chain sugars physically interfere with platelet function and fibrin polymeri zation.
Heparin	Hemo poeitic; Clotting Anti-Coagulant	IV or SQ anti-coagulant. It potentiates**Antithrombin-III** and is monitored using the**PTT**. It has a fast onset of action and short duration of action.
Warfarin **(Coumadin)**	Hemopoeitic; Clotting Anti-Coagulant	Oral anti-coagulant. It is an analog of**Vitamin-K** and inhibits Vit-K-dependent factors. It is monitored using the **PT**. It has a slow onset of action and longer duration of action. It is eliminated by P450 metabolism and has lots of drug interactions.
Dipyridamole	Hemopoeitic;	Inhibits**phosphodiesterase** ------>

	Clotting Platelet Inhibitor	potentiate**prostacyclin**, which is a cAMP dependent factor. In combination with warfarin, it is effective in preventing arterial embolization in patients with **prosthetic heart valves**.
Ticlopidine	Hemopoeitic; Clotting Platelet Inhibitor	Inhibits ADP-Induced platelet aggregation. Effective in preventing the recurrence of arterial thrombosis in patients with a history of MI, Transient Ischemic Attacks (TIA's), stroke, unstable angina pectoris. Adverse Effects: GI Disturbances in 20% of patients, Hemorrhage in 5% of patients, Leukopenia in 1% of patients.
Timolol	Hemopoeitic; Clotting Platelet Inhibitor beta-Blocker	Has been approved for the prophylaxis and prevention of first MI. It is not known whether the beneficial effects are due to inhibited platelets, beta-blocking activity, or combination of both.
Desmopressin Acetate	Hemopoeitic; Clotting Prothrombogenic	Useful as an adjunct in treatment of **mild Hemophilia A**. It potentiates the activity of Factor VIII.
Factor VIII	Hemopoeitic; Clotting Prothrombogenic	Given to treat primary**Hemophilia A** (Factor VIII Deficiency). Administration of the blood-derived factor carries a risk of getting viral infections such as Hepatitis-C.
Aminocaproic Acid	Hemopoeitic; Clotting Prothrombogenic Toxicity	They inhibit the conversion of plasminogen to plasmin. Used as adjunctive therapy in treating hemophilias. Indicated for **tPA, streptokinasetoxicity.**
Factor IX	Hemopoeitic; Clotting Prothrombogenic Toxicity	Given for treatment of**warfarin overdose**, whenever immediate coagulation needs to take effect. Given to treat primary**Hemophilia B** (Factor IX Deficiency). Administration of the blood-derived factor carries a risk of getting viral infections such as Hepatitis-C.
Phytonadione	Hemopoeitic; Clotting	Given for treatment of**warfarin overdose**, or whenever the effects

(Vitamin-K)	Prothrombogenic Toxicity	of warfarin need to be reversed, such as in preparation for surgery. The effect is delayed by about 24 hours, the time required to synthesize new clotting factors. Given prophylactically before **gallbladder surgery**.
Tranexamic Acid	Hemopoeitic; Clotting Prothrombogenic Toxicity	Analog of aminocaproic acid. They inhibit the conversion of plasminogen to plasmin. Used as adjunctive therapy in treating hemophilias. Indicated for **tPA, streptokinasetoxicity.**
Anistreplase	Hemopoeitic; Clotting Thrombolytic Agent	The acylated form of the Streptokinase-Plasminogen Activated Complex (**APSAC**); no risk of systemic fibrinolysis. Longer lasting than the others. Infused IV for 3-5 minutes.
Streptokinase	Hemopoeitic; Clotting Thrombolytic Agent	From *Streptococcus*. Can cause systemic fibrinolysis and DIC. May see allergies, in patients who have anti-streptococcal antibodies. Given as IV loading dose, then 24-48 hours of infusion.
Tissue Plasminogen Activator (tPA)	Hemopoeitic; Clotting Thrombolytic Agent	Active only at the site of the clot; no risk of systemic fibrinolysis. Given as IV loading dose, then 2 hours of infusion. Particularly efficacious for **post-MI**treatment, and that is the only indication currently approved. Adverse Effect: Higher risk for **hemorrhagic stroke** than with the other drugs.
Urokinase	Hemopoeitic; Clotting Thrombolytic Agent	Isolated from human kidney. Can cause systemic fibrinolysis and DIC. Given as IV loading dose, then 12 hours of infusion.
Adjuvants **Bacille Calmette-Guerin (BCG)**	Immuno modulating Agent	Attenuated *M. Bovis*strain can be employed as **immunostimulant**in cancer therapy. It activates macrophages, making them more apt at killing tumor cells.
Inosiplex	Immuno modulating Agent	Enhanced T-Cell and monocyte activities. Potentially useful in AIDS.

Thymosin	Immuno modulating Agent	10 kDa protein. Thymic hormone that induces and stimulates the maturation of lymphoid stem-cells and pre-T-Cells into T-Cells. Indications: **DiGeorge Syndrome**, other conditions of T-Cell Deficiency.
Levamisole	Immuno modulating Agent Anti-Inflammatory; Anti-RA	It is an**immunostimulatory**drug that has paradoxical effect in treating RA. Treament has not yet been approved by FDA. Latency period of 3 - 4 months. May also be useful for Hodgkin's Disease.
Tacrolimus (FK-506)	Immuno suppressant Anti-Bacterial; Macrolide	Macrolide antibiotic of fungal origin, similar in use to Cyclosporin. Used in situations where Cyclosporin is ineffective, toxic, or cannot otherwise be used.
Anti-Lymphocyte Globulin	Immuno suppressant Antibody	It activates complement-mediated destruction of lymphocytes ------ >**decreased cellular immunity**. There is little effect on humoral immunity. Indications: Organ transplantations,**GVHD**. Adverse Effects: Pain, erythema, possibly lymphoma at site of injection. Anaphylactic shock, serum sickness.
Anti-T-Cell Antibody OKT3	Immuno suppressant Antibody	Mouse monoclonal antibody against the**CD3 T-Cell Receptor**.It inhibits the interaction between antigen-presenting cells and T-Cells. Indications: **Kidney transplantation**.
Anti-Thymocyte Globulin	Immuno suppressant Antibody	Indications: **Idiopathic aplastic anemia**, or to counter the auto-immune effects of gamma-Interferon, secondary to hemopoeitic suppression.
Rh_0(D) Globulin **(Rhogam)**	Immuno suppressant Antibody	For the primary prevention of**Erythroblastosis Fetalis** (hemolytic anemia of newborn). It is given to Rh^-mothers, 72 hours after*first* childbirth of an Rh^+fetus, to prevent formation of anti-Rh antibodies in the mother.
Methotrexate	Immuno suppressant Chemotherapy;	Inhibits dihydrofolate reductase. Well absorbed orally, or intrathecal. Polyglutamic-acid conjugates of methotrexate are retained intracellularly, where they have

	Antimetabolite Anti-RA	activity. Indications: **GVHD**,**Acute Lymphocytic Lymphoma, Choriocarcinoma**,**RA**, psoriasis. Adverse Effects: **Oral, gastric ulcerations**, and **liver cirrhosis**with long-term use. High dose methotrexate may be followed by high-dose **folinic acid**in order to "**rescue**" the anti-folate effects of the drug.
Cyclosporin A	Immuno suppressant Chemotherapy; Miscellaneous	From the fungus,*Tolypocladium Inflatum*. Binds to**cyclophillins** ----->**inhibit IL-2** production in T-Cells ------> inhibit T-Cell differentiation and activation. Extensive Cyt-P450 metabolism. Indications: Suppress organ rejection after transplantation, IDDM. Adverse Effects: Viral infections, lymphoma. Nephrotoxicity, but it can be prevented with mannitol.
Azathioprine	Immuno suppressant Chemotherapy; Miscellaneous Anti-RA	>Pro-drug, it is converted by glutathione S-transferase to **6-Mercaptopurine**, active form of drug. It is toxic to proliferating T-Cells and B-Cells, after antigen exposure. Allopurinol, renal disease raise its blood levels. Indications: **kidney transplants**, autoimmune diseases (glomerulonephritis, hemolytic anemia). Adverse Effects: Nausea, vomiting, diarrhea. Bone marrow suppression. Fever, skin rashes. Liver dysfunction and jaundice, ocassionally. Azothioprine or Methotrexate can be used to treat **severe RA**.
2-PAM **(Pralidoxime)**	Toxicity	**Organophosphate poisoning**: Only effective within the first few minutes of exposure. It is a strong nucleophile that can bind with the organophosphate, releasing it from cholinesterase, before the bond has aged.
4- methyl	Toxicity	A specific inhibitor of**alcohol**

pyrazole		**dehydrogenase** that may be used instead of ethanol, for **methanol**and **ethylene glycol poisoning**.
Atropine	Toxicity	Treatment of choice after the bond has aged and become irreversible, in**organophosphate poisoning.** First-line treatment for**carbamate poisoning**.
Defero xamine (Desferal)	Toxicity	IM or IV to chelate iron in blood, for **iron toxicity**.
Digoxin-specific antibody fragments.	Toxicity	Indicated for **Digitalis toxicity**.
Ethanol	Toxicity	It is given to displace the substrates and prevent their metabolism, in**methanol** and**ethylene glycol poisoning**. Prevent methanol from going to**formic acid**, and prevent ethylene glycol from going to **oxalic acid.**
Factor IX	Toxicity	Used for immediate coagulation, in the event of **warfarin toxicity**.
Fluazenil	Toxicity	Indicated for**Benzodiazepine toxicity.**
Methy lene Blue	Toxicity	Indicated for treatment of**methemoglobinemia,**such as that due to**nitrite poisoning**. Methylene Blue speeds the conversion of methemoglobin back to hemoglobin.
N- Acetyl cysteine	Toxicity	Indicated for**Acetominophen toxicity.** It provides reduced sulfhydryl groups and restores glutathione to its reduced form.
Nalorphine	Toxicity	Indicated for **opioid overdose**, alternative to naloxone.
Naloxone	Toxicity	Opioid antagonist, indicated for acute**opioid toxicity**.
Nitrite	Toxicity	It causes **methemo globinemia** which can then bind up all of the extra cyanide, driving it away from the cytochrome oxidase. For **cyanide poisoning.**
Phyto nadione (Vitamin-K)	Toxicity	>Given to reverse the effects of **warfarin toxicity**, but it takes 24 hours to take effect.

Protamine Sulfate	Toxicity	Given IV for treatment of **heparin overdose**. It is a basic peptide that binds to heparin. Must dose it carefully, as protamine sulfate is itself an anti-coagulant!
Prussian Blue	Toxicity	**Thallium poisoning**: It interrupts the enterohepatic circulation of Thallium, enhancing its excretion.
Pyridoxine (Vit B_6)	Toxicity	Can reverse convulsions and peripheral neuritis associated with**Isoniazid toxicity**.
Thiosulfate	Toxicity	Given to promote the formation of thiocyanate and its subsequent excretion, in **cyanide poisoning.**
Dimercaprol **(British Anti-Lewisite, BAL)**	Toxicity Metal Chelator	Administered in oil by deep IM injection. Fast-acting and short half-life. Enters tissues more readily than does EDTA. Forms stable complexes with**mercury, arsenic, gold**. It can free the sulfahydral compounds bound by the metals, but it is better at primary prevention. Adverse Effects: It can cause transient hypertension. Used in combination with CaNa2 EDTA for**lead poisoning**, particularly when there are signs of Lead Encephalopathy.
Edetate Calcium Disodium **(CaNa2 EDTA)**	Toxicity Metal Chelator	Poor oral absorption. Usually administered IV or IM. Half-life 20 - 60 minutes. Urinary excretion. Water soluble; does not easily enter tissues or get into cells. Indications: Primarily used for **lead poisoning**. Not effective against mercury, arsenic, most other metals.
Succimer	Toxicity Metal Chelator	New drug that can be given **PO**. Both urinary and biliary excretion, with enterohepatic circulation. Chemically similar to Dimercaprol. Indications: **Severe Lead Poisoning**: Used to treat children with lead poisoning above 45 µg / dL. It does not metabolize essential minerals like zinc, copper, iron, making it more attractive. Has been shown in labs to chelate **arsenic,**

		cadmium, mercury.