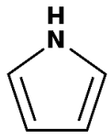
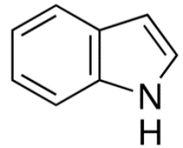
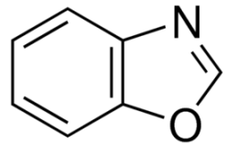
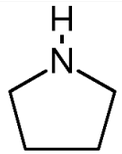
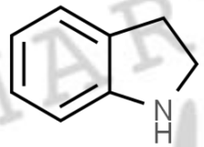
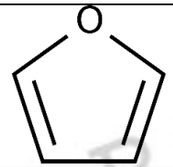
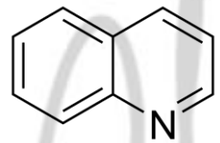
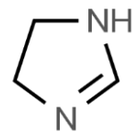
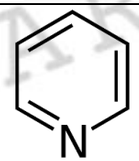
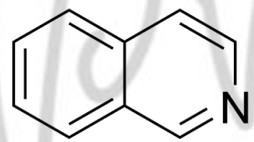
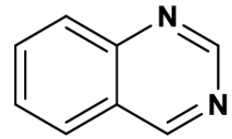
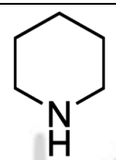
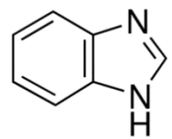
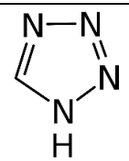
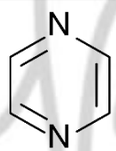
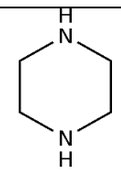
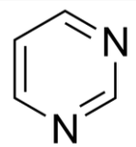
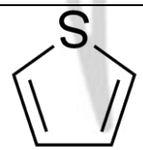
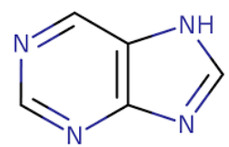
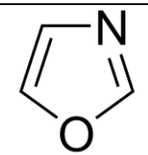
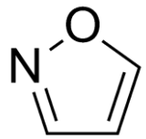
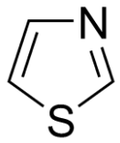
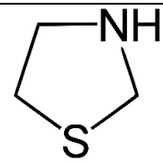
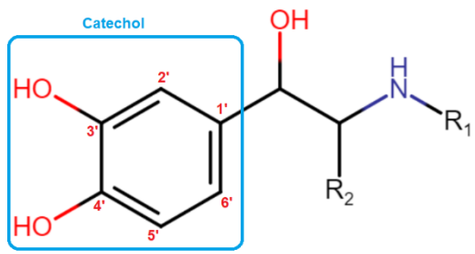
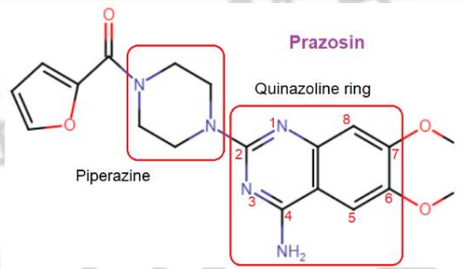
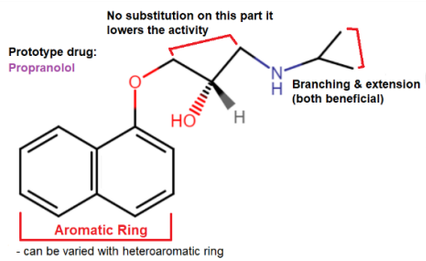
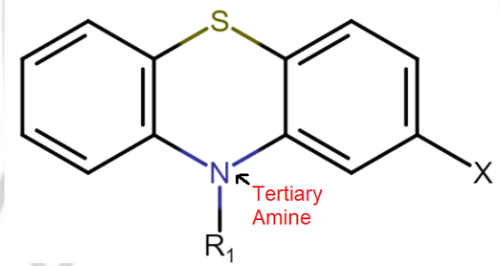
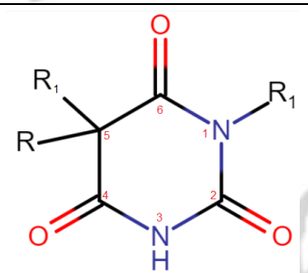
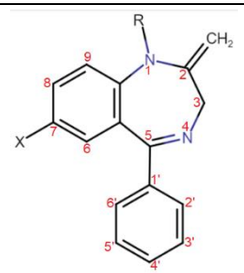
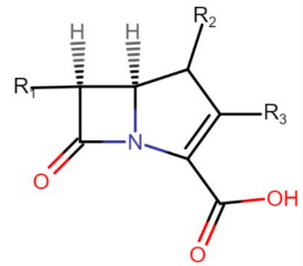
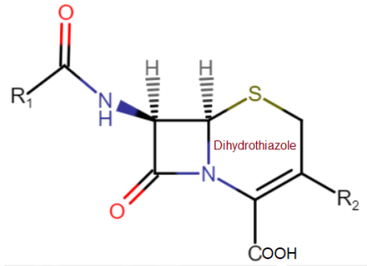
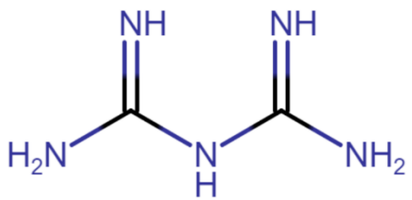
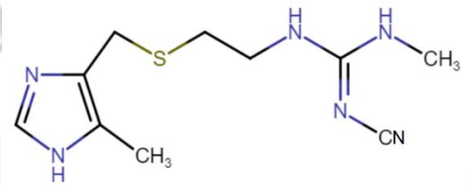
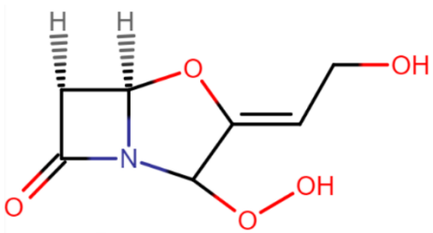
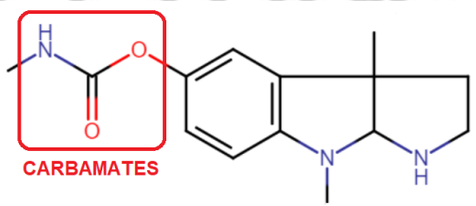
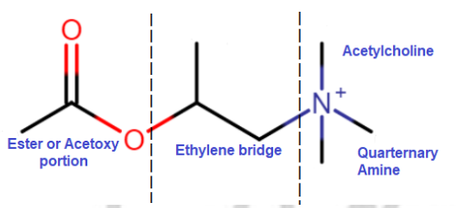
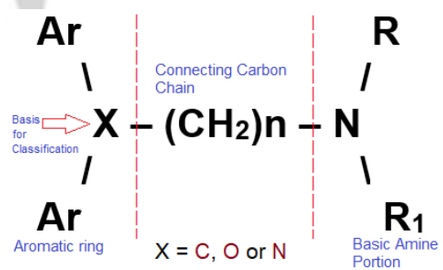
ORGANIC MEDICINAL CHEMISTRY

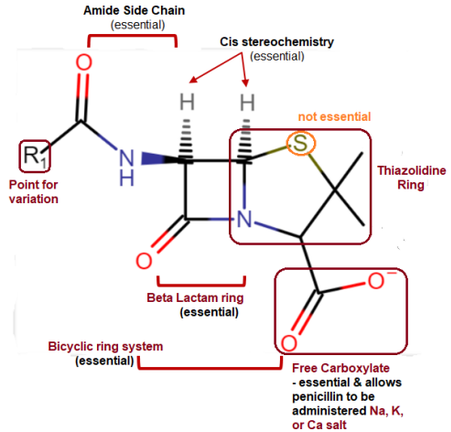
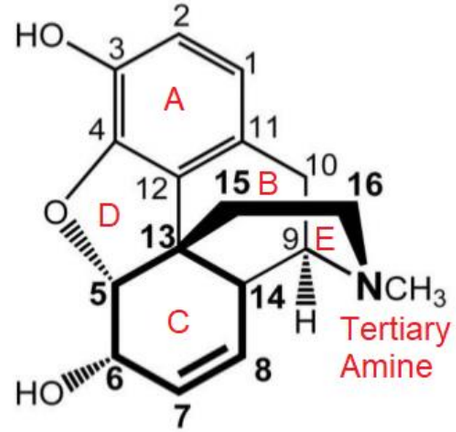
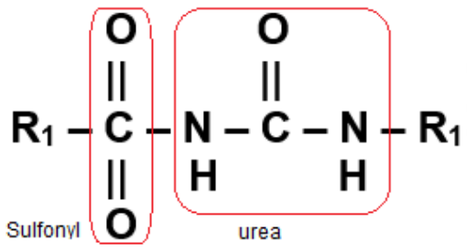
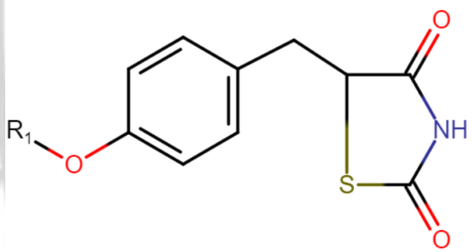
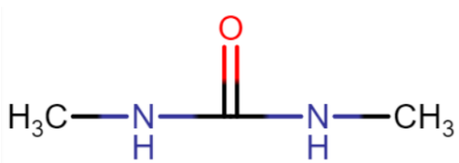
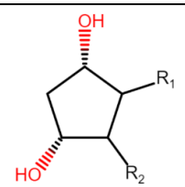
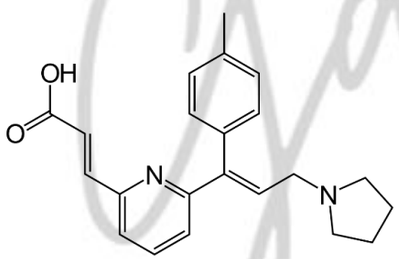
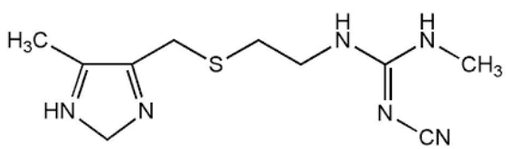
PHASES OF METABOLISM			
PHASE 1	**FUNCTIONALIZATION**		
OXIDATION	- Addition of **Oxygen** - Most common & important - Mixed Function Oxidase System (Cytochrome P450)	**Cytochrome P450** **CYP 3A4** (most dominant) **CYP 2D6** for antidepressants	
REDUCTION	- Addition of **Hydrogen**	- Carbonyl cmpds. **(C = O) → Alcohol** deriv. - Nitro cmpds. **(NO_2) & Azo (N = N) → Amino** deriv.	
HYDROLYSIS	- adds water to esters, amides & their isosteres	**SUSCEPTIBILITY RULE** Esters (most) > Thioesters > Carbonates > Amides > Carbamates > Urites (least)	
PHASE 2	**CONJUGATION** "transferases"		
	Enzyme	**Cofactor**	**Example**
GLUCORONIDATION → Most common "Gray Baby Syndrome"	UDP-Glucuronosyl transferase UDP-Glucuronic acid acyl transferase	UDP-Glucuronic acid	
SULFATION → Phenolic grp. Requirement *primary conjugation of neonates	Sulfotranferase	**PAPS** 3'-Phosphadenosyl 5'-phosphasulfate 3'-Phosphadenosine 5'-phosphasulfonic acid	**MATA-Ph** **M**ethyldopa | **T**ertbutaline **A**lbuterol | **A**cetaminophen **Ph**enacitin
AMINO ACID CONJUGATION	N-acetyltransferase	Glycine (most common), Glutamine	*Hippuric = Glycine + Benzene
GLUTATHIONE CONJUGATION	Glutathione-S-Transferase	Glutathione	Final Metab: Mercapturic acid
ACETYL CONJUGATION → metab for N-containing drugs & compounds	N-acetyltransferase NAT	Acetyl-CoA	**HIPS** **H**ydralazine | **P**rocainamide **I**soniazid | **S**ulfonamide
METHYL CONJUGATION → Minor; important in biosynthesis of Epinephrine & Melatonin and for the catabolism of cathecholamine	Methyltransferase COMT Catechol-O-MT PENMT Phenylethanolamine N-MT	SAM S-adenosyl methionine	

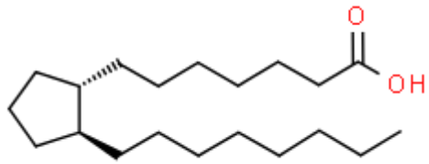
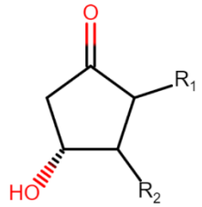
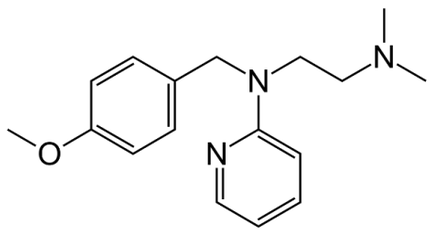
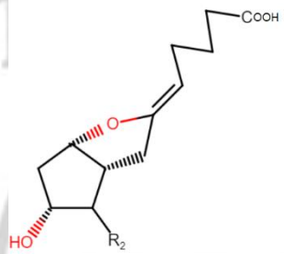
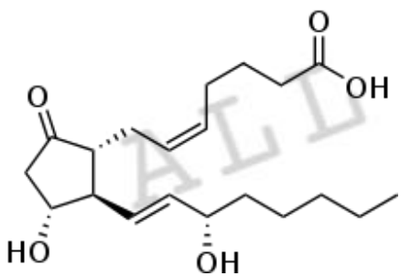
STRUCTURES					
Pyrrole		Indole		Benzoxazole	
Pyrrolidine		Indoline		Imidazole	
Furan		Quinoline		Imidazoline	
Pyridine		Isoquinoline		Quinazoline	
Piperidine		Benzimidazole		Tetrazole	
Pyrazine		Piperazine		Pyrimidine	
Thiophene		Purine		Oxazole	

Isoxazole		Thiazole		Thiazolidine	

	Adrenergic agonist		Adrenergic antagonist Alpha blockers
	Adrenergic antagonist Beta blockers		Antipsychotic
	Barbiturates		Benzodiazepines

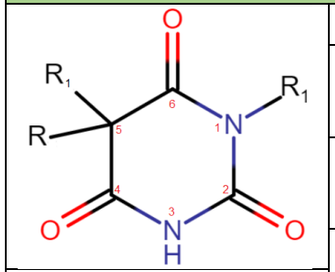
	Carbapenem		Cephalosporins
	Biguanide		H_2 agonist
	Beta-Lactamase inhibitor		Cholinergic agonist Indirect
	Cholinergic agonist		H_1 agonist

	Beta Lactam		Morphine
	Sulfonylurea		Thiazolidinedione
	urea		PGF (hydroxyl)
	Acrivastatine		Cimetidine

	Prostanoic acid		PGE (keto)
	Pyrilamine		PGI
	PGE_2		

CENTRAL NERVOUS SYSTEM

Sedative-Hypnotic — BARBITURATES



-barbital, -al

POS.	SUBSTITION	EFFECT
R_1	Alkyl	→ lipophilic quick onset & short DOA
5	Alkyl or Aromatic ring	→ Sedative-Hypnotic & other activities
O	S	→ ↑ Lipophilicity (Rapid Onset of Action)

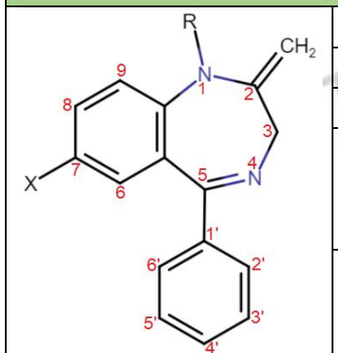
MOA: Increases the duration of the opening of chloride channel

Barbiturates + Duration = Barbidurates

CLASSIFICATION (Based on Duration of Action)

Ultra-short	Thio = Sulfur	Thiopental	Methohexital
		Thiamylal	
Short	5-6-7 barbital	Pentobarbital	Secobarbital
		Hexobarbital	
Intermediate-acting	Amo-buta, intermediate, hypnotic	Amobarbital	Butabarbital
Long-acting	May Forever kay Pheno & Barbi	Phenobarbital	Barbital

Sedative-Hypnotic — BENZODIAZEPINES



-zepam, -zolam, -zepoxide, -zepate

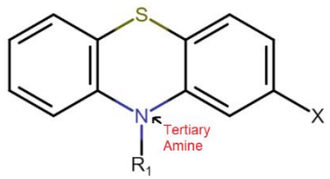
MOA: Increase the frequency of opening of the chloride channel

POS.	SUBSTITION	EFFECT
N-R @ P1		Essential for the activity
C=O @ P2		
P1 & P2	Fuse Triazole or Imidazole	↑ Activity Triazole Triazolam Imidazole Midazolam
P3	w/ OH	Polar & readily converted to the Glucoronide (↓DOA)
	w/o OH	Non Polar & undergoes oxidation to the active metabolite (↑DOA)
5	Phenyl	(↑POTENCY)
2' or 2',6'	Electron Withdrawing group	*EWG = CNS = ↑ Lipophilicity = (↑POTENCY)
4'		
7'		
	X = halogens	

CLASSIFICATION (Based on Duration of Action)

Short	MT-zolam	Midazolam	Triazolam
Intermediate-acting	LTO-zepam A-zolam	Lorazepam	Oxazepam
		Temazepam	Alprazolam
Long-acting		The rest	
Without Active Metabolites	COLA	Clonazepam	Lorazepam
		Oxazepam	Alprazolam

ANTI-PYSCHOTICS



*If 2C = Antihistamininc drug/ Anticholinergic

POS.	SUBSTITION	EFFECT
Tertiary Amine		Essential for Antipsychotic activity
X	EWG	(↑POTENCY)

→ Must have N-containing side chain substituent on the Ring N for antipsychotic activity
→ The ring & sidechain nitrogens must be separated by at least 3C for antipsychotic activity

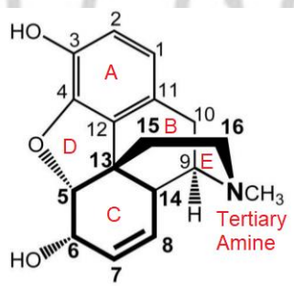
GENERATIONS

FIRST		SECOND
A. Phenotiazine		Indole-containing
Aliphatic	-promazine	-zapine,-xapine, -peridone +++ Aripripazole
Piperazine	-perazine or -phenazine	
Piperidine	-ridazine Thioridazine or Mezoridazine	
B. Thioxanthine	-thixine Chlorprothixine, Thiotixine	
C. Butyrophenones	-peridol Haloperidol, Droperidol	

ANTIDEPRESSANTS

Secondary Amine	*ends with "-triptyline" except Desipramine, Amoxapine
Tertiary Amine	*ends with "-promine" except Amitryptiline, Doxepin

OPIOD ANALGESIC



Prototype	Morphine
Characteristics:	→ contains 5 fused rings
	→ pronounces T shape
	→ basic due to Tertiary Amine
Pharmacopores:	Aromatic Ring
	Phenol A
	Tertiary Amine

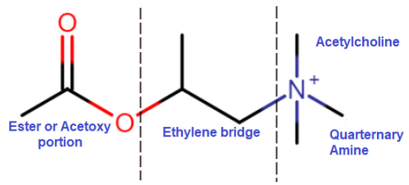
POS.	SUBSTITUTION	EFFECT
3	ADDITION METHYL OR ETHYL	↓ ACTIVITY
7 & 8	REMOVAL OF THE HYDROXY GROUP OR ALKENE	RETAINED
	REMOVAL OF RING E	↓ ACTIVITY
Morphinants	REMOVAL OF RING D	RETAINED
Benzomorphants	REMOVAL OF RING C & D	RETAINED
Phenylpiperidines	REMOVAL OF RING B, C & D	RETAINED

AUTONOMIC NERVOUS SYSTEM

CHOLINERGIC DRUGS

AGONIST

DIRECT ACTING



→ Stability to stomach acid
→ Selectively to Cholinergic receptor

The Quarternary amine portion, Ethylene bridge portion & Ester or Acetoxy portion are all essential

Acetylcholine

The methyl group of the ester or acetoxy portion cannot be extended.

Derivatives:

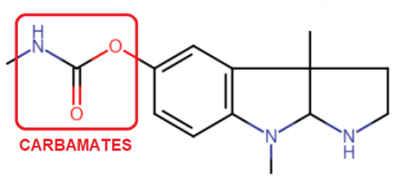
Carbachol | Betanechol

Metacholine

The overall shape of the molecule cannot be altered

INDIRECT ACTING

Acetylcholinesterase inhibitors



Physostigmine

Prototype: Physostigmine
→ isolated from Calabar bean *Physostigma venerosum*

Organophosphates

→ irreversibe | → reversible w/in 30 mins (aging process)

Other:

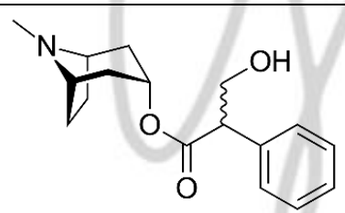
Neostigmine | Pyridostigmine

Organophosphates →

- Nerve Gases (Tabun, Soman, Sarin)
- Ecothiopate
- Malathione & Parathione

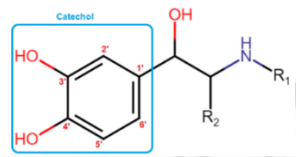
[Malaoxon & Paraoxon (active)]

ANTAGONIST



Prototype: Atropine
Witch berry
deadly nightshade
Atropa belladona

ADRENERGIC DRUGS

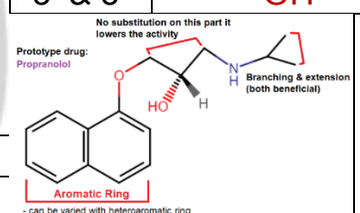


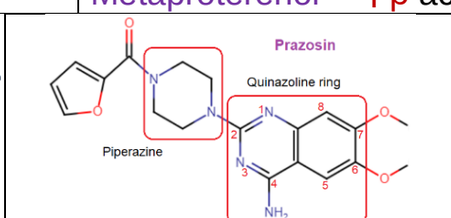
AGONIST

Important parts:

Phenylethylamine | Catechol

POS.	SUBSTI.	EFFECT
R_1	↑ size of substituents	↑ β_2 activity
R_2	Ethyl	↑ β_2 activity
		↑ CNS (not favorable) & Oral activity
		↓ α activity
		↓ degradation by MAO
	Methyl	↑ α activity
3' OH	Aromatic	α activity
4' OH		β activity
3' & 4' diOH		Important to both α & β activity POLAR = ↓CNS (favorable) & Oral act. ↑ degradation by COMT = ↓DOA
3'	CH_2OH	Albuterol = ↑β_2 activity; ↓degradation of COMT = ↑DOA
4'	OH	
3' & 5'	OH	Metaproterenol = ↑β activity





ANTAGONIST

ALPHA BLOCKERS

Benzomorphans - zosine

Quinazoline - zosin

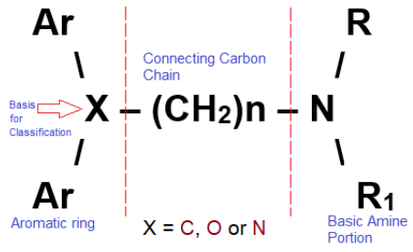
BETA BLOCKERS

Chemical class: Aryloxypropanolamine

POS.	SUBST.	EFFECT
4-amino grp		Essential for α blocking
2nd of Quinazoline	Piperazine or Piperidine	Retains α blocking

AUTACOIDS

H_1 antagonist



POS.	SUBSTI.	EFFECT
Aromatic group	Phenyl, benzyl or pyridyl	↑ POTENCY
	Para w/ small lipophilic groups	↑ Activity & ↓Metabolism (1st Gen)
	Ortho or Meta	↓ Activity (2nd Gen)

↑ Chain length = Higher potency and longer duration of action *ethyl is the optimum

Potency: 1st > 2nd gen = Basic amino group | Potency order of R_1 & R_2 = 3º > 2º > 1º

- Quarternization does not increase antihistamic acivity but does ↑ anticholinergic activity

Larger substituents = ↓Antihistamic activity due to steric hindrance but incorporation into heterocycle retains activity

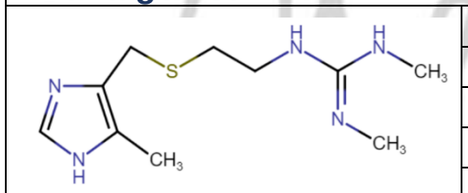
FIRST GENERATION

Ethanolamine [O]	Piperazines	Alkylamine [C]	Phenothiazine
▪ Carbinoxamine	▪ Hydroxyzine	▪ Bromphenamine	▪ Promethazine
▪ Diphenhydramine	▪ Meclizine	▪ Chlorpheniramine	**Miscellaneous**
▪ Dimenhydrinate	▪ Cyclizine		▪ Cyproheptadine

SECOND GENERATION

Piperidine	Miscellaneous		
▪ Fexofenadine		▪ Loratidine ▪ Desloratidine	▪ Cetirizine

H_2 antagonist



Cimetidine	prototype	imidazole
More potent that Cimetidine		
Ranitidine	4-10x	Furan
Famotidine	40-60x	Thiazole
Nizatidine	5-18x	

PROTON PUMP INHIBITORS (-prazole)

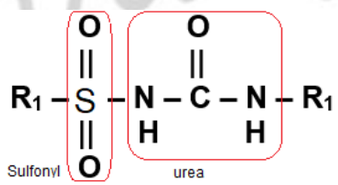
Substituted: **Benzimidazole** | Omeprazole : prototype

All are prodrugs w/c are converted to the sulfenamide in acidic medium H-K ATPase

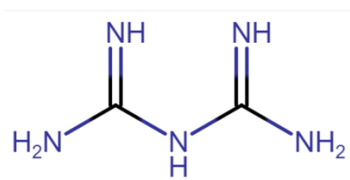
HYPOGLYCEMIC AGENTS

- **INSULIN**
  - **Rapid Acting**: • Lispro • Aspart • Glulisine
  - **Short Acting**: • Regular Insulin
  - **Intermediate Acting**: • Neutral Protamine Hagedorn (NPH) Insulin • Insulin Zinc suspension
  - **Long Acting**: • Glargine • Detemir
- **ORAL HYPOGLYCEMICS**
  - **Insulin Secretagogue**
    - Sulfonylurea (1st gen): Tolbutamide, Chlorpropramide, Tolazamide; 2nd gen "Gli" or "Gly"
    - Meglitinide "glinide": • Repaglinide • Nateglinide
  - **Insulin desentisizer**
    - Biguanide: • Metformin
    - Thiazolidinediones "-glitazone": • Ciglitazone • Troglitazone • Pioglitazone (Actos®) • Rosiglotazone
  - **α-Glucosidase inhibitors**: • Acarbose • Voglibose • Miglitol
  - **Dipeptidyl Peptidase - 4 inhibitors**: • Linagliptin • Sitagliptin (Januvia®) • Saxagliptin (Onglyza®)

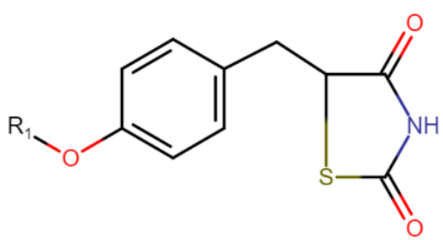
Sulfonylurea



Biguanide

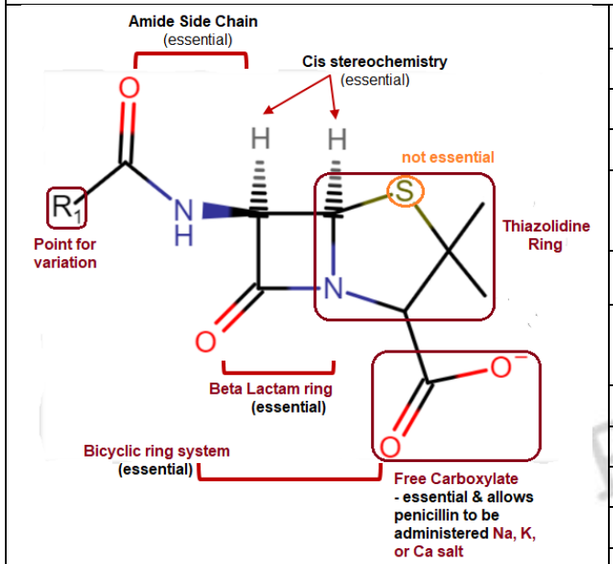


Thiazolidinediones



ANTIBACTERIALS

PENICILLINS



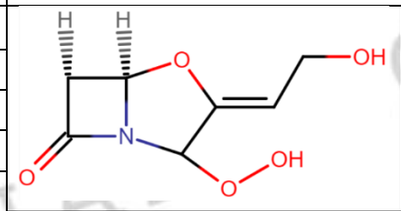
Nucleus: 6-aminophenicillanic acid

Natural Penicillins	
Penicillin G Benzylpenicillin	
Pen G Procaine	Pen G Benzathine
Penicillin V Phenoxymethylpenicillin	
Antistaphyloccocal or Penicillinase Resistant Penicillin	
Methicillin	2,6-dimethoxypenicillin
Nafcillin	6-(2ethoxy 1-napthyl) penicillin
Isoxazolyl Penicillin	
Oxacillin	prototype
Cloxacillin	w/ Chlorine
Dicloxacillin	2 Cloxacillin
Flucloxacillin	w/ Flourine & Chlorine

Broad Spectrum Penicillin

Aminopenicillin "AM"		Carboxypenicillin "CAR"	
Ampicillin	prototype	Carbenicillin	Ticarcillin
Amoxicillin	Better GI absorption than Ampicillin	**Ureidopenicillin**	
		Piperacillin	most potent
Bacampicillin	Prodrugs of ampicillin	Pizlocillin	
Hetacillin		Mezlocillin	
Cyclacillin		Urea ←	

BETALACTAMASE INHIBITOR

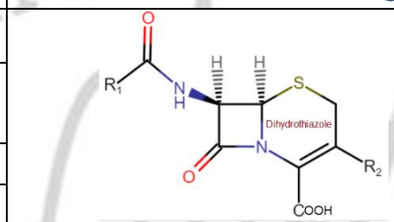


Do not have significant antibacterial activity

Clavulanic acid - suicide inhibitor

Prototype	*Strep. clavuligerus*	
Others:	Sulbactam	Tazobactam

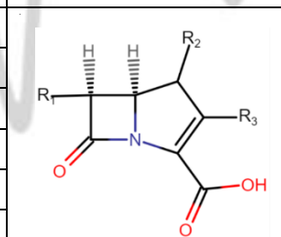
CEPHALOSPORINS



Nucleus: 7-aminocephalosporanic acid

Requirements:	
β –lactam ring	ALL ESSENTIAL FOR ACTIVITY
Bicyclic Ring System	
Free Caboxylate	
Cis-stereochemistry	
Amide side chain	
Point for variation	

CARBAPENEM



The sulfur atom of the the Thiazolidine ring has been externalized and replaced by Carbon atom

Prototype	→ Thienamycin *Streptomyces cattleya*
Imipinem	Combined w/ Cilastatin to prevent hydrolysis by Dihydropeptidase
Meropenem	2nd gen Carbapenem
Ertapenem	Newer carbapenem

MONOBACTAM

Aztreonam (-cidal)	β – lactam ring is not fused to another ring
	Chromobacterium violaceum

BACTERIAL SOURCES			
Cycloserine	*Streptomyces orchidaceus*	Bacitracin	*Bacillus subtilis*
Vancomycin	*Streptomyces orientalis*	Polymyxin B	*Bacillus polymyxa*
Daptomycin	*Streptomyces roseosporus*	Teicoplanin	*Actinoplanes teicomyceticus*
Streptomycin	*Streptomyces griseus*	Mupirocin	*Pseudomonas fluorescens*
Erythromycin	*Streptomyces erythreus*	Aztreonam	*Chromobacterium violaceum*
Chloramphenicol	*Streptomyces venezuelae*	Gentamicin	*Micromonospora purpurea*
Lincosamide	*Streptomyces lincolnensis*	Cephamycin	*Streptomyces lactamdurans*
Rifamycin	*Streptomyces mediterranei*	Vidarabin	*Streptomyces antibioticus*
Amphotericin B	*Streptomyces nodosus*	Actinomycin	
Ivermectin	*Streptomyces avermitilis*	Thienamycin	*Streptomyces cattleya*
Capreomycin	*Streptomyces capreolus*	Colistin	*Bacillus polymyxa v.colistines*
Tetracycline	*Streptomyces aureofaciens*		

INORGANIC CHEMISTRY

HYDROGEN [H]		
Hydrogen	H	“Inflammable air”
Hydrogen Peroxide	H_2O_2	“Agua Oxenada”, “Agua Oxigenada”, “Oxygenated acid”, “Oxygenated water”

SODIUM [Na]		
Sodium Bicarbonate	$NaHCO_3$	“Baking Soda”
Sodium Carbonate	Na_2CO_3	**Anhydrous:** “Soda Ash” **Decahydrate:** “Sal Soda”, “Washing Soda”, “Soda Crystal”
Dibasic Sodium Phosphate	Na_2HPO_4	“Disodium Hydrogen Phosphate”, “Phosphate of Soda”, “Sodium Phosphate”
Sodium Potassium Tartrate	$KNaC_4H_4O_6 \cdot 4H_2O$	“Rochelle Salt”, “Sal Seignette”, “Seignette salt”
Sodium Sulfate	$NaSO_4$	“Glauber’s salt”
Sodium Chloride	NaCl	“Table salt”, “Rock Salt”, “Sea salt”, “Solar salt”, “Dendric salt”, “Brine”
	NaCl, KCl, CaCl	“Ringer’s solution”
	NaCl, KCl, $CaCl_2$, & Na Lactate	“Hartmann’s solution”, “Lactated Ringer’s Solution”
Monobasic Sodium Phosphate	NaH_2PO_4	“Sodium Dihydrogen Phosphate, “Sodium Acid Phosphate” , “Sodium Acid Phosphate”
Sodium Hydroxide	NaOH	“Caustic Soda”, “Sosa”, “Liquid Sosa”, “Lye”, “Soda Lye”
Sodium Hypochlorite	NaClO	“Dakin’s Solution”, “Bleach”, “Zonrox”, “Chlorox”
Sodium Borate	$Na_2B_4O_7 \cdot 10 H_2O$	“Borax”, “Sodium Tetraborate”, Sodium Pyroborate”, “Sodium Biborate”
Sodium Thiosulfate	NaSCN	“Photographer’s Hypo”, “Hypo”, “Hypochlor”, “Sodium Hyposulfite”
Soda Lime	NaO	“Calyx Sodica”
Sodium Lauryl Sulfate	-	“SLS”, “Sodium dodecyl sulfate”
Sodium Metabisulfite	$Na_2S_2O_5$ $Na_2O \cdot 2SO_2$	“Disodium pyrosulfite”
Sodium Nitroprusside	NaNO	“Nitropress”
Sodium Nitrate	$NaNO_3$	“Chile Salt Peter”
Monosodium Glutamate	$C_5H_8NO_4Na$	“MSG”, “Vetsin”

POTASSIUM [K]		
NaCl, KCl, Na Lactate		“Darrow’s Solution”
Potassium Carbonate	KCO_3	“Potash”, “Pearl Ash”, “Salt of Tartar”, “Salt of Wormwood”
Potassium Hydroxide	KOH	“Caustic potash”, “Potash Lye”
Monobasic Potassium Phosphate	KH_2PO_4	“Sorensen’s Potassium Phosphate”
Sulfurated Potash	$HK_4O_3S_3$	“Liver of Sulfur”, “Potassium sulfurata”, “Hepar sulphur”
Potassium Nitrate	KNO_3	“Saltpeter”
Potassium Bitartrate	$KC_4H_5O_6$	“Cream of Tartar”, “Argol”, “Acid Potassium Tartrate”, “Creamor”
Potassium Permanganate	$KMnO_4$	“Mineral Chameleon”

AMMONIA [NH_4]		
Ammonium Chloride	NH_4Cl	“Murrate of Ammonia”, “Sal Ammoniac”, “Salmiac”
Strong Ammonia Solution	NH_4OH	”Strong Ammonia Water”, “String Ammonia Hydroxide Solution”, “Spirit Of Hartshorn”
Ammonia Carbonate	$(NH_4)_2CO_3$	“Sal Volatile”, “Ammonia Crystal”, “Ammonia Sesque Carbonate”, “Preston Salt”, “Hartshorn”
Ammonium acetate	NH_4CH_3COO	“Spirit of Mindererus”

COPPER [Cu]		
Copper Acetoarsenate	$Cu_3As_2O_3$	“Paris Green”
Copper Sulfate	$CuSO4 \cdot 5H_2O$	“Blue Vitriol”, “Blue stone”, “Saltzburg vitriol”, “Roman vitriol”

SILVER [Ag]		
Silver Nitrate	$AgNO_3$	“Lunar Caustic”, “Lapiz internularis”, “Argenti nitras”
Toughened Silver Nitrate	Ag_2ClNO_3	“Silver Nitrate Pencil”, “Moulded Silver Nitrate”, “Fused Silver Nitrate”, “Lunar Caustic

MAGNESIUM [Mg]		
Magnesium Carbonate	$MgCO_3$	“Magnesia”
Magnesium Hydroxide	$Mg(OH)_2$	“Milk of Magnesia” (MOM)
Magnesium Oxide	MgO	“Light Magnesia”, “Calcined Magnesia”, “Magnesia usta”
Magnesium Phosphate	Mg_3PO_4	“Tribasic Magnesium Phosphate”
Magnesium Citrate	$C_6H_6MgO_7$	“Citrate of Magnesia”, “Lemonada Purgante”, “Purgative Lemon”
Magnesium Sulfate	$MgSO_4 \cdot 7H_2O$	“Epsom Salt”, “Bitter Salt”
Talc	$3MgO \cdot 4SiO_2 \cdot H_2O$	“Talcum”, “Purified Talc”, “French Chalk”, “Soapstone”, “Stetite”

CALCIUM [Ca]		
Calcium Carbonate	$CaCO_3$	“Creta Preperata”, “Drop Chalk”, “Prepared Chalk”
Tribasic Calcium Phosphate	$Ca_5(OH)(PO_4)_3$	“Precipitated Calcium Phosphate”
Calcium Chloride	$CaCl_2 \cdot 2H_2O$	“Muriate of Lime”
Calcium Hydroxide	$Ca(OH)_2$	“Slaked lime”, “Hydrated Lime”, “Milk of Lime”, “Calcium hydrate”
Calcium Sulfate	$CaSO_4 \cdot 2H_2O$	“Gsypsum”, “Terra Alba”
Calcium Sulfate Hemihydrate	$(CaSO_4)_2 \cdot H_2O$	“Plaster of Paris”, “Calcii Sulfas Exsiccatus”, “Exsiccated Calcium Sulfate”, “Dried Calcium Sulfate”
Chlorinated Lime	$CaOCl_2$	“Calyx chlorinate”, “Chloride of Lime”, “Bleaching powder”
Calcium Oxide	CaO	“Lime”, “Calyx”, “Calx usta”, “Burnt Lime”, “Quick Lime”, “Apog”

BARIUM [Ba]		
Barium Sulfate	$BaSO_4$	“Blanc fixe”, “Permanent white”
Barium Hydroxide	$Ba(OH)_2 \cdot 8H_2O$	“Baryta water”

ZINC [Zn]		
Zinc Oxide	ZnO	“Flower of Zinc”, “Phompholyx”, “Nihil Album”, “Lana Philosophica”, “Zinc white”, “Philosopher’s Wool”
Zinc Sulfate	$ZnSO_4$	“White Vitriol”
Calamine	Fe_2O_4Zn	“Artificial Calamine”, “Prepared Calamine”, “Lapis Calaminaria”
Zinc Chloride	ZnCl	“Butter of Zinc”, “Burnett’s Disinfecting Fluid”
Zinc Sulfide	ZnS	“White Lotion”, “Lotio Alba”, “Lotio Sulficata”

MERCURY [Hg]		
Mercury	Hg	“Quick Silver”
Ammoniated Mercury	ClH_2HgN	“White precipitate”
Mercurous chloride	Hg_2Cl_2	“Calomel”
Mercuric chloride	$HgCl_2$	“Corrosive sublimate”
Yellow Mercuric Oxide	HgO	“Yellow Precipitate”

BORON [B]		
Sodium Borate	$Na_2[B_4O_5(OH)_4] \cdot 8H_2O$	“Borax”, “Sodium Tetraborate”, “Sodium Pyroborate”

CARBON [C]		
Carbon Dioxide	CO_2	“Carbonic Acid Gas”, “Aer Fixus”, “Afterdamp”

ALUMINUM [Al]		
Aluminum Sulfate	$Al_2(SO_4)_3$	“Cake Alum”, “Patent Alum”, “Pearl Alum”, “Papermakers alum”, “Picke Alum”
Alums (Ammonia & Potassium)		“Alumen”, “Alumen Purification”, “Purified Alum”
Aluminum Subacetate		“Burow’s Solution”,”Liqour Burowii”
Kaolin	$Al_2O_3 \cdot 2SiO_2 \cdot H_2O$	“China clay”, “White Bole”
Pumice		Pumex

SILICON [Si]		
Purified Siliceous Earth	SiO_2	“Diatomaceous earth”, “Purified kieselguhr”, “Purified infusorial earth”
Colloidal Silicon Dioxide	SiO_2	“Colloidal anhydrous silica”, “Colloidal silica”, “Fumed silica”, “Light anhydrous silicic acid”, Silicic anhydride”
Simethicone		Activated Dimethicone
Dimethicone		“Dimethyl Silicone Fluid”, “Dimethylpolysiloxane”,“Dimethylsiloxane”
Purified Siliceous Earth	SiO_2	“Diatomaceous earth”, “Purified kieselguhr”, “Purified infusorial earth”

LEAD [Pb]		
Lead Acetate	$Pb(CH3COO)_2 \cdot 3H_2O$	“Sugar of Lead”
Lead Monoxide	PbO	“Litharge”
Lead Subacetate Solution		“Goulard’s Extract
Diluted Lead Subacetate Solution		“Lead water”

PHOSPHORUS [P]		
Phosphorus	P	“Light carrier”, “St.Elmo’s Fire”
White Phosphorus	P_4	“Yellow Phosphorus”, “Tetraphosphorus”
Violet Phosphorus		“Hittorf’s Metallic Phosphorus”, Monoclinic phosphorus”

NITROGEN [Ni]		
Nitrogen	N_2	“Azote”,“Mephitic Air”
Nitrous Oxide	N_2O	“Laughing Gas”

ARSENIC [As]		
Arsenic	As	“Lewisite metal”
Arsenic trioxide	As_2O_3	“Arsenious Oxide”, “White Arsenic”, “Arsenic (III) Oxide, “Arsenicum album”

ANTIMONY [Sb]		
Antimony Potassium Tartrate	$SbKOC_4H_4O_6$ $C_8H_{10}K_2O_{15}Sb_2 \cdot 3H_20$	“Tartar Emetic”, “Brown Mixture”

BISMUTH [Bi]		
Bismuth	Bi	“Beautiful Meadow”
Bismuth subnitrate	$Bi(OH)_2NO_3$	“Basic Bismuth Nitrate”, “Bismuth Oxynitrate”, “Spanish White”, “Bismuth Paint”, “Bismuthyl Nitrate”
Milk of Bismuth		“Bismuth Cream”, “Bismuth Magma”
Bismuth Subsalicylate		“Basic Bismuth Salicylate”

OXYGEN [O]		
Oxygen	O_2	**Scheele:** "Emperial air"
		Prestley: "Dephlogisticated air"
Ozone	O_3	"Garlic Odor"

SULFUR [S]		
Sulfur	A	"Shulbari", 'Brimstone", "Asupre"
Sublimed Sulfur	S or S_8	"Flower of Sulfur"
Precipitated Sulfur	S	"Milk of Sulfur", "Lac Sulfur"
Sulfurated Potash		"Liver of Sulfure", 'Hepar sulfuris", "Potassa sulfurata"
Selenium Sulfide		"Selsun Blue"

CHLORINE [Cl]		
Chlorine	Cl	**Scheele:** "Dephlogisticated Muriatic Acid"
		Bertholet: "Oxygenized Muriatic Acid"

IRON [Fe]		
Ferrous Sulfate	$FeSO_4$	"Green Vitriol"
Ferrous Carbonate		"Chalybeate Pills", "Blaud's Pills", "Ferruginous Pills"
Ferric & Ammonium Acetate		"Basham's Mixture"
Iron Sucrose		"Saccharated Ferric Oxide"
Ferric Subsulfate	$Fe_4(OH)_2(SO_4)_5$	"Monsel's solution"
Ferrous Ferricyanide	$Fe_3[Fe(CN)_6]_2$	"Turnbull's Blue"

COBALT [Co]		
Cobaltous choride	Cobaltous choride	Cobaltous choride

NICKEL [Ni]		
Nickel	Ni	Old Nick's Copper

PLATINUM [Pt]		
Cisplatin		"Cis-diamminedichloroplatinum", "Peyrone's Salt"

CONTAINERS			
Magnesium	Blue	Oxygen	Green
Carbon Dioxide	Gray	Nitrogen	Black
Carbon Dioxide & Oxygen	Gray-Green	Nitrous Oxide	Blue

Manufacturing Process (10)	
Hydrogen (Manuf)	Messerchmidt Process
	Lane Process
Hydrogen (Production)	Linde Method
Ammonia	Haber process
Sodium Bicarbonate	Solvey Process (Ammonia-Soda Process)
Magnesium	Dow Process
Calcium Carbonate	Creta Preparata Drop Chalk
Aluminum	Hall-heroult (expensive)
	Alcoa chlorine (economical)
Nitrate	Ostwald Process
Oxygen	Lidle-Frankl Process
Ozone	Welsbach method
Sulfur	Frash process

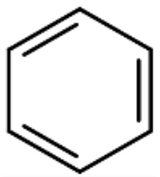
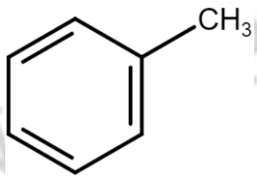
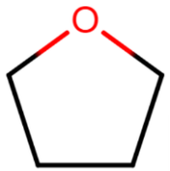
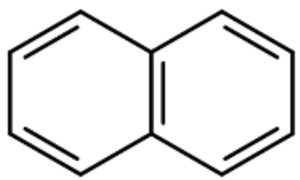
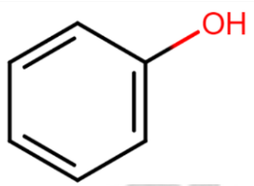
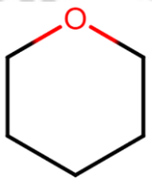
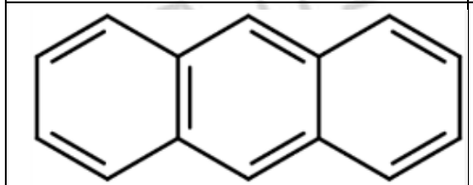
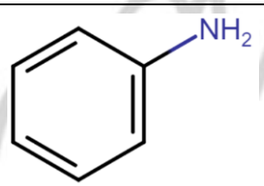
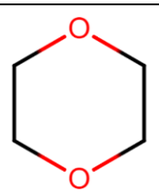
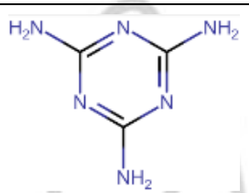
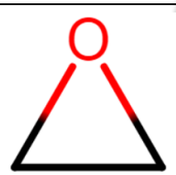
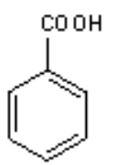
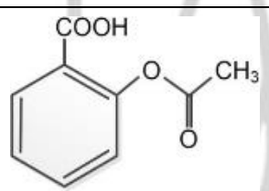
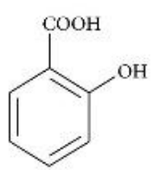
Additional Common Names:		
Common Name	**Chemical Name/Composition**	**Formula**
Benzol	Benzene	C_6H_6
Brine	Sodium Chloride Sol	NaCl
Cane Sugar	Sucrose	$C_6H_{22}O_{11}$
Carbolic Acid/Sugar	Phenol	C_6H_5OH
Carbona Stain Remover	Carbon Tetrachloride	CCl_4
Carborundum	Silicon Carbide	SiC
Chloroform	Trichloromethane	$CHCl_3$
Spiritus vini rectificatus, Wine spirit, Grain Alcohol	Ethanol	CH_3CH_2OH
Iodoform	Triiodomethane	CHI_3
Marsh Gas	Methane	CH_4
Nitroglycerin	Glyceryl trinitrate	$C_3H_5(NO_3)_3$
Phosgene	Carbonyl Chloride	COCl
Prussic Acid	Hydrocyanic Acid	HCN
Vinegar	Diluted Acetic Acid	CH_3COOH
Water Glass/Soluble Glass	Sodium Silicate	Na_2SiO_3
Wood Alcohol	Methanol	CH_3OH
New Merthiolate	Benzalkonium Chloride	
Phenyl alcohol	Benzyl alcohol	

PERIODIC TABLE		
IA	Alkali Metals	"Ha Li Na Ka Rubi, Ces Father"
IB	Coinage Metals	" Cu, Ag, Au (Medals)
IIA	Alkaline Earth Metals	"Be Mag Ca Senior Ba Ra"
IIB	Volatile Metals	"Zi Cad Mer"
IIIA	Boron Family	"B Al Ga In Tala"
IVA	Carbon Family	"C SiGe San Pablo"
VA	Nitrogen Family	"NaP As Sab Bi"
VIA	Oxygen / Chalcogen	"O S Se Te Po"
VIIA	Halogen	" Fo Clo Br I At"
VIIIA	Noble gas	" He Ne Ar Kre Xe Ran"
VIIIB	Dobereiner's Triad	#1 – Fe, Co, Ni
		#2 - Ru, Rh, Pd
		#3 - Os, Ir, Pt

Gallium	Eka-Aluminum	Scandium	Eka-Boron
Germanium	Eka-Silicon		

IA	IB	IIA	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA
H	**Cu**	**Be**	**Zi**	**B**	**C**	**N**	**O**	**F**	**He**
Li	**Ag**	**Mg**	**Cd**	**Al**	**Si**	**P**	**S**	**Cl**	**Ne**
Na	**Au**	**Ca**	**Hg**	**Ga**	**Ge**	**Sb**	**Se**	**Br**	**Ar**
K		**Sr**		**In**	**Su**	**Bi**	**Te**	**I**	**Kr**
Rb		**Ba**		**Tl**	**Pb**		**Po**	**At**	**Xe**
Cs		**Ra**							**Rn**
Fr	***Group # = valence electron**								

ORGANIC CHEMISTRY

FUNCTIONAL GROUPS					
Alkyl Halides	(R – X)	Aryl Halides	(Ar – X)	Nitrogen	(– NH_2)
Thiols	(R – SH) Eg. Cysteine	Thioethers	(R – S – R) Eg. Methionine	Nitro-containing	(RNO_2)
		Nitrites	(R – C≡N)		
	Benzene		Toluene		Furanose
	Napthalene		Phenol		Pyranose
	Anthracene		Aniline		Dioxane
	Melamine		Ethylene Oxide		Benzoic acid
	AcetylSalicylic acid		Salicylic acid		

TERMS			
Kjehdahl Method	Total N content	Potash	Water-soluble K salts
Markovnikov's Rule	Hydrogen halide	Degree Baume	16º ammonia/household ammonia
Tautomerism	Keto-enol rearrangement	Oligodynamic action	Inhibit growth of bacteria in small concentration
Halonium ion	Positivelt charged halogen		
$E^+ + R^+$	Carbonium ion/ Carbocation	Hydroxyapatite	Main components of bones & teeth
Lewis base	E pair donor	Creta Preparata Drop Chalk	Native form of $CaCO_3$ thru elutriation
Guggenheim Process	Na nitrite		
Protium	Most common &abundant H isotope	Milk-alkali syndrome/ Burnett's	Causes acid rebound, w/ $NaHCO_3$ / milk
Deutrium	Heavy isotope of H		
Tritium	Radioactive isotope of H	Baritosis	Barium toxicity, benign pneumoconicosis
Alkaline H_2O	Na_2SO_4, $MgSO_4$, $NaHCO_3$	Barium meal	$BaSO_4$ w/ wheat porridge
Carbonated H_2O	w/ CO_2, charged	Hafnium	Occur in Zirconium ores
Chalybate H_2O	w/ Fe, ferrugineous taste	Vermifuge	Only expels worms
Saline H_2O	Na_2SO_4, $MgSO_4$, NaCl	Anthelmintic	Kill & expels worm
Temporary Hardness	H_2O w/ Ca/Mg Carbonates	α-sulfur	Stable @ Room Temp (rhombic)
Permanent Hardness	H_2O w/ Ca & Mg Hydroxide, Sulfate, Chloride	B-sulfur	Stable @ 90ºC (monoclinic)
WFI	Large-scale compounding	Flourine	Choking gas
SWFI	Extemporaneous compounding	Bromine	Suffocating odor
Na Citrate	Laxative in vivo	Pyrolusite	Principal ore
Deliquescent	Absorbs H_2O moisture, liquefy	Rhenium	Catalyzed for dehydrogenation
Hygroscopic	Absorbs H_2O moisture, do not liquefy	Radon	Only noble gas not found in atm
Efflorescent	Gives off H_2O to environment	Pulvules	Bullet-shaped capsules
Liquefaction necrosis	Strong bases		
Ion exchange resin	Cellulose $NaPO_4$ & Na Polystyrene sulfonate		
Na metabisulfate	Drying fruit preservation		
Na Citrate	Anticoagulant in vitro		

DISEASE / CONDITIONS			
Sjoren's syndrome	Autoimmune dse, dry mouth, dry eyes	Keshan's Dse	Se def in children, cardiac myopathy
Churgg-Strays syndrome	1˚ sign of asthma	Hemachromatosis	Genetic dse body stores too much Fe
Kaiser-Fleischer Rings	Cu deposit in the cornea	Menke's Syndrome	Kinky hair syndrome, steely hair (Cu) male infants, can be fetal
Wernicke-Korsakoff Syndrome	Vit. B def among alcohol toxicity conditions		

SUPERLATIVES			
O, Si, Al, Fe	Most abundant element	Argon	Most abundant noble gas
Au, Ag, Cu	Malleability	Krypton	Least abundant noble gas
Ag, Au, Cu	Electrical Conductivity	Xenon	Very rare inert gas, 4x heavier than air
Ag, Au, Cu	Heat conductivity	Radon	Heaviest inert gas
Beryllium	Most toxic metal	Iron	Most important of all metallic element
Talc	Sofest mineral	Osmium	Heaviest & most dense metal
Barium	Most chemically reactive Group IIA	Helium	Most mobile gas
Boromycin	1st natural w/ Boron	Magnesium	Lightest structurally important
Diamond, Corundum	Hardest Mineral	Oxygen	Most internally significant element
Gallium	Lowest melting point (except Hg)	Ascorbic acid	Least stable of all vitamins
Diamond	Purest native form of uncombined carbon	Retinoic acid	Most toxic vitamins
Nitrogen	Major constituent of air	Codeine	Most widely used alkaloid
Iodine	Heaviest non-metallic element	Chloramphenicol	1st broad spectrum antibiotic discovered
Iodine	Most metallic, synthethic & radioactive	Griseofulvin	1st antifungal antibiotic
Technicium	1st element produced artificially	Glyceraldehyde	Simplest monosaccharide
	Most commonly used radionuclide in diagnostic imaging	Mercaptopurine	1st thiopurine as anticancer
H, He	Lightest gas	Protoveratrine	Most toxic veratrine alkaloid
Li, Be	Ligthest metal		

DISEASE			
Wilson's Disease	Cu toxicity	Hairy Tongue Syndrome	Prolonged use of H_2O_2 topical sol'n
Argyria	Ag toxicity	Dermatitis Venenata	Prolonged exposure of H_2O_2
Gold dermatitis	Autotoxicity	Contact Dermatitis	Proloned contact on skin w/ Se
Parakeratosis	Zn def scaly skin	Keshan Dse.	Se deficiency
Metal Fume fever	Zinc	Cardiomyopathy	Se def in children
Itai-itai toxicity	Cd toxicity (chronic)	Iodism	Iodine toxicity
Minamata dse.	Organic Mercury Poisoning	Parkinsonism-like muscle tremors	Mn toxicity
Mad Hatter's dse.	Chronic Hg toxicity		
Pink dse	Acrodymia in children	Hemachromatosis	Fe overload
Shaver's dse	Al toxicity	Vit. B_{12} def	Pernicous anemia
Green tongue/ Alopecia	Tl toxicity	Nickel's itch	Contact dermatitis
Silicosis	Si toxicity	Herxheimer's rxn	Fever response to antibiotics therapy from released endotoxin of G-bacteria
Abestosis	Si toxicity		
Plumbism/ Saturnism	Pb poisoning	Tetracycline	Lyme's Dse
Lead Encephalopathy	Pb un poisoning in children	Penicillin	Syphilis
Chronic P toxicity	Phossy Jaw	Chloramphenicol	Typhoid fever
REAGENTS			
Karl-Fischer reagent	Water determination QC: Method I Std.: Na Tartrate primary	Howe's solution	Ammoniacal $AgNO_3$
		Sanger & Edman Rgt.	Sequencing
Lactated Ringer's Solution	Hartmann's solution	Dover's Powder	Ipecac + Opium → Diaphoretic
Bordeaux Mixture	$CuSO_4$ + CaO	Aluminon Rgt.	Al salt of aurinticarboxylic acid
Lucas Reagent	ZnCl + Test for alcohol (+HCl)	Nessler's Rgt.	Used to identify NH_4
Modified Dakin's Solution	Diluted NaClO	Deniges Rgt.	Differentiate Citric and Tartaric
Lugol's solution	Strong I sol	Alkine Bi Rgt.	Reducing sugar
Lindlar Catalyst	H_2 in hydrogenation; Up to alkenes only		

ANTIDOTES			
Na nitrite	CN^-	Bromine (skin exposure)	Sol'n $NaHCO_3$ & then glycerine
Na Thiosulfate	CN^-, Iodine	Cornstarch	Prehospital mgt of I_2 toxicity
Na Formaldehyde Sulfoxylate	Best antidote, Hg poisoning (bichloride/ Mercuric salt)	Methylene Blue (1%)	Aniline & Nitrites
Penicillamine	Cu toxicity	3% Na nitrite, Na thiosulfate 25%	CN
$CuSO_4$	Phosphorus poisoning	5-10% Glucose + Thiamine	Ethanol
NSS	Ag toxicity		
BAL (Dimercaprol)	Autotoxicity	1% Na thiosulfate	Iodine
Universal Antidote	MgO + Tannic acid + Activated Charcoal	Ammonium CO_3/ Diluted Ammonia	Formaldehyde
Ca Disodium Edetate	Pb poisoning		
$MgSO_4$/ Na_2SO_4	Baritosis	Ethanol 50%/ 100 Proof	
$NaHCO_3$	Parakeratosis	Barbiturates	Physiological antidote for DDT, Strychnine
Na Formaldehyde Sulfoxylate	1st line Hg poison	Physostigmine	Hydrocarbon insecticide poisoning
		Ca gluconate (weak acid)	$MgSO_4$ & Mg salts
Dimercaprol	2nd line Hg poison	BAL/ Dimercaprol	InOrg Hg, As, Sb, Cd, Co, Bi, Cr, Au, Ni
DMSA/ Succimer/ Penicillamine	3rd line Hg poison	EDTA	Pb, Cd, Co, Cu, Zn
		DMSA	Pb
Prussian Blue	Thallium & Cesium toxicity	Penicillamine	Cu
Aluminum Oxide	Silicosis (traditional)	DTPA	Plutonium & Actinide elements
Pb poisoning	Na/$MgSO_4$, Calcium Edetate, Dimercaprol, Penicillamine	Deferoxamine	Fe
		Dithiocarbamate	Acute Nicarbonyl poision
White Phosphorus	$CuSO_4$, NAC for hepatic injury	Atropine	Best physiological antidote for strychnine, for carbamate poisoning
Early detected As poisoning	Freshly prepared Fe & $Mg(OH)_2$ [PO]		
Already absorbed As	Poisonin: BAL (IM)	PAM	Used for parathion poisoning
$NaHCO_3$	Chlorine gas	Pyridoxine	Monomethylhydrazine (Gyromitrin mushroom), INH
$CuSO_4$	Phosphorus poisoning		
Atropine	Parathion/ Malathion		
Folic acid	Elimininated Formic acid in Methanol/ ES poisoning		
Bi toxicity	Dimercaprol		

PREPARATIONS			
C + Fe	Steel	MOM	80mg(OH_2) 1000mL of soln
Basham's Mixture	0.16-0.20% Fe & 3.5% NH_4ClOO w/v	Sorel's cement	MgO + $MgCl_2$
Monsel's solution (Ferric subsulfate)	$FeSO_4$ + HNO_3	Lithopone	$BaSO_4$ + ZnS
		0.25% $ZnSO_4$	Only FDA approved ophthalmic astringent
KCl + Thiopental + Skeletal muscle relaxant	Lethal inj.	Lassar's Paste	ZnO + Salicylic acid paste
		Pumice	Al + K + Na silicates
Goulard's cerate	Wool fat, White fat, White pet, Camphor	Pewter	80% Sn + 20% Pb
		Type Metal	50% Pb + 25% Sn + 25%
Oral Rehydration salt	NaCl, $NaHCO_3$, KCl, dextrose	Gun Metal	90% Cu + 10% Sn
Ladd's Paste	1/3 Al powder + liquid petrolatum, ZnO	Rose Metal	50% Bi + 25%Sn + 25%Pb
Lithopone	30% ZnS + 70% BaS	Paris Green	Cupric sulfate + Arsenic trioxide = Cupric acetoarsenite
Vick's Vaporub	Menthol, Camphor, Thymol, Cineole	Milk of Bismuth	Bismuth Hydroxide, Bismuth subcarbonate, Strong ammonia sol'n, purified water
Whitfield Ointment	Salicylic acid + Benzoic acid		
White Lotion	Sulfurated potash + $ZnSo_4$ = ZnCl	Sublimed Sulfur	Sublimation
Bronze	Cu + Sn	Washed sulphur	Sublimed sulphur + NH_3
Brass	Cu + Zn	Sulfur Ointment	Mineral oil, Precipitated sulphur + White Ointment
Bordeaux Mixture	$CuSO_4$ + CaO	Iodine Tincture	2% I_2; solubilizer: NaI
Sterling Silver	92.5% Ag + 7.5% Cu	Iodine Topical solution	2% I_2; solubilizer: NaI
Mild Silver Protein (Argyrol)	For eyes, 19-23% low FS		
Strong Silver Protein (Protargol)	For ears, throat, bladder; 7.5-8.5% high FS (Free silver)	Strong Iodine Tincture	7.5% I_2, Solubilizer: KI
Colloidal Ag Protein (Collargol)	18.22% ionized CHON, gen. germicide	Artificial Atmosphere	N, H, O_2, CO_2, N_2O
Agua Regia	3:1 (HCl: HNO_3)		
Purple of Cassius	Colloidal gold in stannic OH		
Aurothioglucose, Aurothiomalate, Gold Na thiomalate	IM 50% Au		
Auranofin	Oral, 28-29% Au		
Magaldrate	Mg + Al hydroxide & sulfate		
Magnesia Magma	7-8.5% $Mg(OH)_2$		

Agents in Solutions/ Diagnostic			
Na Acetate	Alkalinizing	Gallium Citrate (Neoscan®)	Diagnosis of the lesions of lungs, breast, maxillary sinuses & liver
Na Sulfate	Drying agent for organic solvents		
AgCl	Toughens $AgNO_3$	Iopanoic acid	Radiopaque (gallbladder)
Mg Trisilicate	Adsorbent due to gelling properties	Sodium Pertechnetate (Tc99m)	Thyroid gland
SrCl (Metastron®)	Diagnostic agent for osteogenesis imperfect (Sr89)	Red Ferric Oxide	Ferric oxide, hydroxide
		Yellow Ferric Oxide	Ferrous hydroxide, carbonate
$BaSO_4$	Roentgen-ray exam of colon & stomach	Osmium tetroxide/ Osmic acid	Electron Microscopy
Burrow Solution	Aluminum sulfate, Subacetate/ Acetate solution		

TESTS			
Thenard's Blue Test	Aluminum	Doll's Test	Ocular movement
Moore's Test	Confirmatory test for glucose	Rinne's & Weber's Test	Auditory movement
Guignard Test	Test for Cyanogenic glycoside	Shellen's test	Visual activity
Millon's Test	Test for the presence of tyrosine	Wilson-Wisemen	Test of active transport the guinea pig ileum sac
Seliwanoff's Test	Test for Fructose (+) red	FPN test	Indicates precense of Chlorpromazine
Iodine test	Identification of glycogen; applicable for identification of carbs through presence of amylose	Fujiwara test	Indication of the presence of trivhlorocompounds such as $CHCl_3$ (+) intense red/ purple color
Rosenheim Test	Detect presence of choline	Phosphoammonium Molybdate	Phosphorus (+) yellow crystalline ppt
Ninhydrin Test	Presence of α-amino acid		
Acrolein Test	Glycerol, forms silver mirror	Xanthogenate test	Distinguishing test between Carbon Disulfide & Hydrogen Disulfide
Osmic Test	Prosthetic groups in lipids		
Liebermann-Burchard	Cholesterol	Marsh	Arsenic (+) Brown black mirror
Furter-Meyer Test	Tocopherol	Gutzeit Test/ Modified Marsh	As (+) Black stain
Mucic Test	Galactose		
Osazone Test	Aka Kowarsky Test	Fleitmann's test	As (+) Black stain
Salkowski Test	Cholesterol	Van Den Bergfh test	Tests for conjugated bilirubin
Barfoed	Differentiate lactose from fructose	Bayer's Test	Test for Degree of unsaturation (+) Brown ppt
Biuret	Presence of 2 or more peptide bonds	Denige test	Differenciation test for tartaric & citric acid
Hopkin's Cole	Indole ring	Duquenois test	MJ, violet in chloroform layer
Ranberg's Test	Cerebellar function		

TREATMENT			
H_2O_2	Vincent's Stomatitis (gingivitis)	Aluminum Chloride (Driclor®)	Hyperhidrosis
Monobasic Na PO_4	Hypercalcemia		
Cellulose $NaPO_4$		Aluminum Carbonate	Hyperphosphatemia in px in w/ kidney failure
Na nitroprusside	Hypertensive crisis/emergency	Gallium Nitrate	Correction of hypercalcemia in certain cancers
Monobasic KPO_4	Hypercalcemia	Colloidal Activated Attapulgite	Diarrhea of short duration
Dibasic KPO_4			
White Lotion	Parasitic dse on skin	Ge	Formation of RBC in anemia
Rubidium Chloride RB_{82} inj	Px w/ suspected MI	Fowler's solution	Antileukemia (obsolete)
Diluted Ammonia water	Neutralize insect stings & jellyfish stings of Portuges man-of-war	Antimony K tartrate	Schistomiasis
		Tantalum	Bone replacement (long bone)
$AgNO_3$	Warts	Precipitated Sulfur	Scabies
1% $AgNO_3$	Opthalmia neonatorum; Now: Erythromycin	Sulfurated potash	Psoriasis
Toughened $AgNO_3$	Warts, cancer sores	Chromium Picolinate	Nutriotional supp. In Type 2 diabetes, for weight loss
Mild silver protein Argyrol	1-2% vaginitis		
Strong Silver Protein Protargol	For wars, throat, bladder	Ruthenium Complexes	Anticancer
		Cisplatin	Ovarian, testicular cancer
Colloidal Ag protein Collargol	Germicide	Phosphatic Calculi	Aluminum carbonate
		Pentamidine	African sleeping sickness
Calcium Gluceptate	Neonatal tetany (IM inj)	Progestin (Depo-provera)	Breast & endometrical where surgery would not be possible
Strontium Lactate	Osteoporosis		
		Ascorbic acid/ Cevitamic acid	Chronic Iron defi
		Corn	Cystitis (traditional)
		Cyclosporine	Prophylaxis & treatment of graft rejection
		Anxiolytic, Psychotherapy, Antidepressant	Neuroses