

1. Fat soluble drugs	Non polar molecules (few OH,COOH or charged functional groups)	18. Bacterial vs mammalian cell membranes?	Bacterial are more complex then mammalian ones, which is good
2. Which vitamins are not fat soluble?	Vitamin C and B (used in digestion)	19. Xenobiotic	drugs foreign to the body (most)
3. Higher BMI results in what for drugs?	longer storage in body	20. Most important organ in body for drug metabolism?	liver, minor gastrointestinal, and blood plasma
4. Cholestoral	not soluble in water	21. what is found in liver?	CYP - Cytochrome P-450
5. biological membranes	Membranes are semi permeable	22. what is Cytochrome P-450?	enzyme found in liver for breaking down drugs
6. Graph list for mammalian membrane bilayer	Water, Hydrophilic (polar) head (looks like balls), Hydrophobic (non-polar) tails which look like horse shoes. (water is polar) - Like dissolves Like, thus water near polar	23. what does Cytochrome do for drug metabolism?	often, adds water first, then oxygen
7. Lipid bilayer	composed of phospho-lipid (fat with charge at end)	24. first action on Aspirin in liver?	Hydrolysis (water) of the ester
8. what is cholesterol for?	To give our membrane structure, and for hormones	25. what is the symbol for half life?	t (lower) ^{1/2}
9. Drug receptor sites are where?	In or on the cell membrane	26. Half life of Methadone (for heroin addicts) and THC?	24hr
10. Diffusion	the spreading out of molecules from an area of high to low concentration	27. effective dose	dose of a drug that causes desired effect 50% of all test subjects (ED50)
11. most drugs are	either weak acids or bases	28. Toxic Dose	dose of a drug that causes 50% of all test subjects to experience toxic effects
12. PH levels in body	get lower as it moves through body (PH goes higher), stomach fluids 1-3, small intestine 5-7, colon -8	29. TI is?	Therapeutic Index
13. amines	are types of basic molecules, have higher PH and are metabolized in stomach	30. What is the Therapeutic Index formula?	TD50 divided by ED50 (Toxic/effective). Higher value = higher drug safety
14. alcohol absorption	through the stomach wall	31. Do you want a higher or lower TI number for drug safety?	toxic divided by effect = "higher"
15. What drugs do you NOT take with Milk?	Tetracycline antibiotics	32. morphine TI value?	70
16. Placental barrier blocks what?	All drugs mother takes goes to Placenta, except bacteria, including caffeine, marijuana, cocaine, (within 40 min),	33. Valium TI value?	100
17. antibiotics work by	destroying bacterial cell walls	34. Ethanol TI value?	10
		35. Cocaine TI value?	15
		36. What is Digoxin	a heart stimulant used in babies that caused deaths in over medication
		37. Digoxin TI value?	2
		38. Dessicate	lose water (in body)

39. Drug metabolism and aging	we lose water and get higher fat levels, lose muscle, thus fat soluble drugs stay in body longer, can't drink as much, less kidney function/lower protein level
40. what drugs are known for developing drug tolerances?	alcohol, nicotine, opioid, amphetamines, tranquilizers
41. How do people become drug tolerant?	liver makes more enzymes to cope (metabolic), receptor sites lose sensitivity (cellular-adaptive), behavior tolerance
42. What is synergism	when 2 drugs act on each other to enhance each other's effect (alcohol and barbiturates)
43. alcohol affects other drugs how?	increases potency of tranquilizers, antihistamines and sedatives, and Alcohol+valium/librium=CNS depression
44. what side effects does aspirin give?	anticoagulant - blood thinner
45. Antagonistic	drug to drug interactions (off-setting)
46. Agonist	drug that binds to a receptor site and causes an effect
47. Antagonist	binds to a receptor site and does NOT cause an effect
48. criteria to use to avoid grapefruit/limes, poleos	drug taken orally, has low bio availability, and involves metabolism with enzyme cytochrome P450 3A4
49. common drugs affected by grapefruit	cholesterol lowering ones (lipitor), some antibiotics, HIV drugs, and Calcium channel blockers for high blood pressure (85 drugs)
50. what causes grapefruit to be dangerous?	can block the active site of the P450 enzyme, or makes drugs toxic by blocking metabolism of drug.
51. what drugs aren't affected?	aspirin, acetaminophen, ibuprofen (high bio availability - high build up in bloodstream) (does not involve cytochrome p450)
52. side effect of drinking caffeine while pregnant?	higher chance of miscarriage (doubled)
53. analgesia	alleviation of pain
54. 4 most common pain killer	acetaminophen, aspirin (most common), ibuprofen, and naproxen
55. antipyretic	fever lowering effects
56. what does aspirin do	pain, anti-inflammatory, antipyretic, and blood thinner (less platelets)

57. NSAID?	non-steroidal anti-inflammatory drugs
58. aspirin first used chemically?	1827 - isolated salicin (glucose + salicyl alcohol)
59. salicylic acid	active part of aspirin
60. acetaminophen is related to what drug?	aspirin (willow tree)
61. name of aspirin	"acetyl" and "spirin" from spirea plant, one source of salicylic acid
62. Why is salicylic acid acetylated?	because pure salicylic acid bothered some people's stomachs.
63. Hydrolysis of ASA	ASA are less soluble in water than they are in alcohol.
64. what is Reye syndrome?	A possible side effect from Aspirin to children and teens, when they have a fever.
65. Salicylic acid vs ASA	Salicylic acid is less soluble than ASA
66. Excipient	a pharmacologically inactive substance formulated WITH the active component (corn starch, microcrystalline cellulose) - types of binders and fillers
67. another word for excipient	Binder/filler
68. Hypomellose	hydroxyPropylMethylcellulose: insoluble cellulose derivative - binds inactive components.
69. Triacetin?	used to stabilize formation against humidity and keep pills from sticking to bottle
70. Triacetin chemical form	3 acetyl groups bonded to 1, 2, 3,- propanetriol (middle is w of 3 carbon)
71. how does aspirin work?	by inhibiting enzyme COX2 (that cause prostaglandin)
72. Prostaglandin?	induces pain, blood clotting, labour, sleep regulation, can come from prostate of sheep
73. acetaminophen	not found in nature, not an anti inflammatory, less nausea, safe children, no Reye's syndrome, long term use bad for liver and kidneys, LT use can induce hepatitis
74. ibuprofen	not found in nature, not anticoagulant, minor platelet inhibitor, fen in the middle, stronger than aspirin, menstration,, not for children if viral infection
75. Coal Tar used for what?	creates compounds used for synthesis, creates aniline that can be used to make acetaminophen

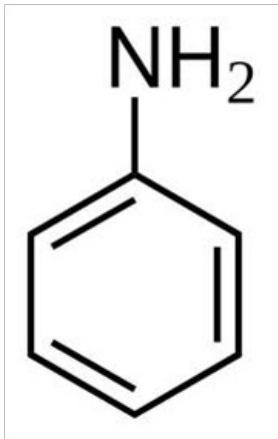
76. Stephens Johnson syndrome	in children with viral infection when taking ibuprofen, blistering and loss of skin (allergic reaction)	96. Why is Genaltine added to pills?	to help with swallowing
77. Aleve	strongest drug, contains naproxen, 3 carbons, longer half life than ibuprofen, side effects, dizziness, upset stomach, heartburn	97. what does Enterically mean?	it's the coating on pills so it doesn't react to stomach acid (used on aspirin)
78. Y2K important?	"wonder drug" for osteoarthritis and rheumatoid arthritis - celebrex and Vioxx	98. Bayer Advanced Aspirin	Smaller particle sizes by a factor of ~10 make it faster acting for pain relief since it dissolves 6x faster than previous formulation (uses nanotechnology Increased surface area (smaller particle size)
79. celebrex and Vioxx	antipyretic, analgesic, anti-inflammatory	99. Nanotechnology	- smaller particle size, which makes it faster acting
80. downside of vioxx?	cardiovascular issues, (heart issues), some died, found when treating colon polyps	100. do higher (smaller particles) or smaller (larger particles) surface area release work faster?	higher (smaller particles)
81. cyclosporine?	originally used for rheumatoid arthritis, found to be good for transplant rejections	101. 4 parts of Pharmacokinetics process	Process by which drugs: (i) enter the body (ii) move through it (iii) interact with their target and finally (iv) undergo elimination is called.
82. Interferon alfa?	originally for hepatitis B and C, now used for cancer	102. Pharmacokinetics 1 word answers for 4 parts	(i) absorption (ii) distribution (iii) metabolism and (iv) excretion
83. Celebrex design?	designed 'hand in glove' by computer	103. how many capillary's in the body?	over 50,000 miles
84. most potent substance known to man	botulism	104. how do drugs enter or leave the bloodstream?	via the capillary bed
85. botox	used for chronic migraines, from botulinum (botulism), and cosmetics (last 6 months)	105. synovial fluid	inside bony joints
86. botox side effects	breathing issues, swallowing and speaking, paralysis away from site	106. intraocular fluid	vitreous humour; the clear gel that fills the space between the lens and the retina
87. most toxic man made chemical?	Dioxin	107. What percent of body fat should a person have?	20%,
88. How do Nasal decongestants work?	by shrinking the nasal mucous membrane	108. BMI levels that are health?	20-26
89. Parenteral	by Injection	109. Equation to find BMI?	KG/height ²
90. "PowderJect"	A jet of He gas accelerates fine particles of tiny amounts (1-2 mg) of vaccine into outer skin layer (epidermis)	110. albumins	A group of plasma proteins used for the transport of a wide variety of chemicals in the blood
91. Buccal cavity	between teeth and cheek	111. heme proteins	myoglobin and hemoglobin
92. Where are drugs most soluble?	in water and in oil	112. Drugs that easily penetrate B-B barrier	Tranquilizers, barbiturates, LSD, narcotics (opioids), marijuana, Alcohol
93. Teva?	drug like Viagra (since it's not patented) but had to call it something else		
94. sildenafil	active ingredient in Viagra and Teva		
95. What is the most common binder in tablets?	Cellulose (insoluble fiber, not digestible)		

113. **Alcohol and blood Brain Barrier**
Oxidation products of alcohol cause a "dysfunction" of the BB barrier-can increase effects of other drugs:DANGER

114. **Glucose chemical name**
C₆H₁₂O₆

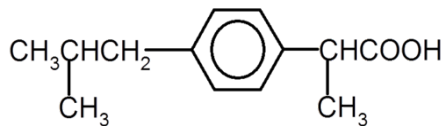
115. **most abundant organic compound on earth?**
glucose

116. **aniline**



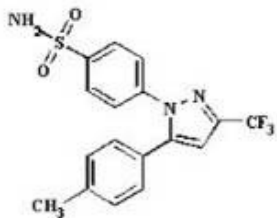
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117. **ibuprofen**



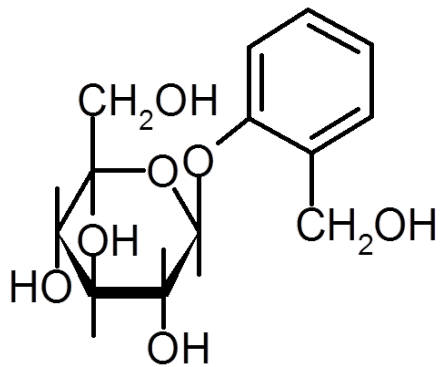
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118. **Celebrex**



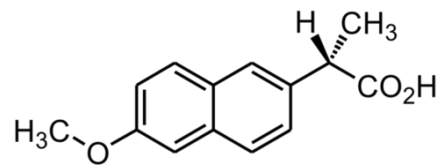
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119. **salicin (willow)**



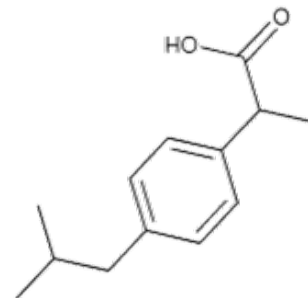
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120. **naproxin**



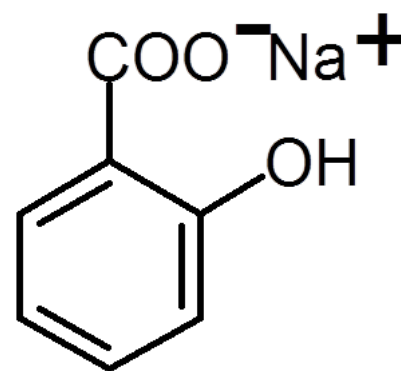
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121. **Ibuprofen**



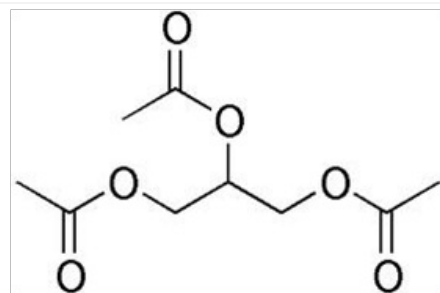
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122. **sodium salicylate**



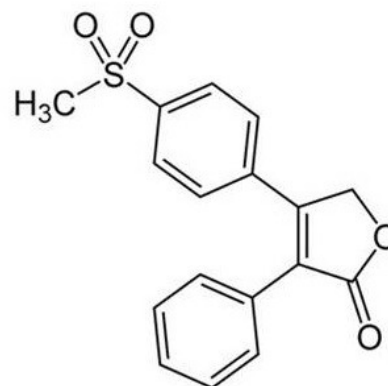
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123. **triacetin**



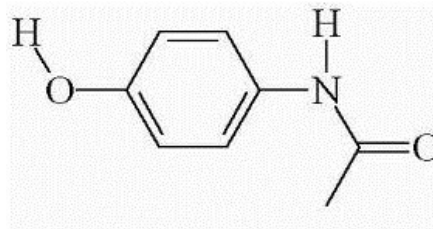
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124. **vioxx**



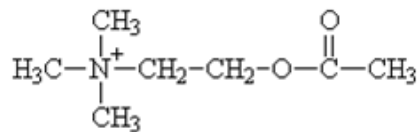
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125. **Acetaminophen**



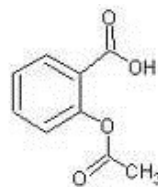
What is this

126. **acetylcholine**



what is this?

127. **Aspirin**



What is this?