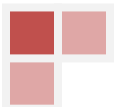


Practice Quiz Answers : Dr. Balliett : "You haven't been eating your flaxseed oil have you?"

## BIOSYNTHESIS OF CHOLESTEROL

1. Bile acids, steroid hormones, Vitamin D
2. Cell membranes
3. Cardiovascular disease, gall stones
4. Animal sources
5. Liver :: Intestines, adrenal cortex, gonads
6. 18 acetyl CoA, 36 ATP, 16 NADPH
7. **All Horney Men Find Sexy Ladies Cool**
8. At night
9. Cytosol
10. Active Isoprenoid units, famesyl pyrophosphate
11. Magnesium
12. Ubiquinone, CoEnzyme Q10
13. Squalene
14. Endoplasmic reticulum
15. 2 famesyl pyrophosphate units
16. Lanosterol
17. Glucagon & Cortisol, increased concentration of cholesterol
18. Insulin & Thyroid Hormone T<sub>3</sub>
19. Squalene and sterol-binding protein
20. 3 decarboxylations and 3 reductases
21. Make & Eat More (de novo Biosynthesis, ↑ intake of cholesterol, hydrolysis of cholesterol esters)
22. Burn & Convert It (Inhibit biosynth, block LDL receptors, esterfication into Acetyl CoA, ↑ bile salts)
23. High (70-80%) :: Reduced (50%)
24. 2%
25. High BP, smoking, Male gender, apple shape, lack of exercise, soft/sodium water, ↑ serum FFAs
26. Emotional stress (adrenaline), cigarettes (Nicotine), coffee (caffeine), few large meals
27. Statins; Inhibit HMG-Reductase
28. Liptor, Zocor, Provochol
29. Ubiquinone
30. Liver bile acids
31. Cholic & Chendeoxycholic
32. Microsomal 7 α-hydroylase
33. NADPH, O<sub>2</sub>, Vitamin C, Cytochrome P450
34. Hepatocrinin, Cholecystokinin
35. Emulsifier, Duodenum

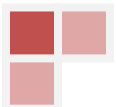


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36. 98%, Enterohepatic Portal Circulation (NOT SYSTEMIC)
37. Digested/brokendown into CO<sub>2</sub> or H<sub>2</sub>O, secreted in feces
38. ↑ 7 α-hydroxylase → Cholesterol is converted into bile acids and thus may be secreted/excreted
39. Decreases LDL formation because bran binds to cholesterol & bile acids forcing excretion
40. 1 gram, 50% bile acids, 50% cholesterol (bacteria convert it into coprostanol)

## NUCLEOTIDES

41. ATP, GTP, UTP :: Nucleotide triphosphates
42. Salvage pathway, liver
43. Nitrogenous base, 5 carbon sugar, and a phosphate
44. Nitrogenous base, 5 carbon sugar
45. Adenosine, Guanosine, Inosine (Hypoxanthine), Uridine (Uracil), Cytidine, Thymidine
46. Pyrimidine & Purine
47. Purine → Adenine & Guanine
48. Aspartate + Glycine + 2 Glutamine
49. Respiratory CO<sub>2</sub> , 2 Glycine, 2 Folic Acid
50. Ribose 5P, PRPP, ATP & MG
51. 4
52. 5-PhosphoRibosyl 1 PyroPhosphate, ATP
53. 1. IMP + Aspartate + GTP + Mg → 2. Adenylsuccinate → Fumerate leaves → 3. AMP
54. 1. IMP + H<sub>2</sub>O + NAD<sup>+</sup> + DH → 2. XMP → Add Glutamin & ATP → 3. GMP
55. Adenine, Guanine
56. Cytosine, Uracil, & Thymine
57. Adenine phosphoriosyl transferase :: Hypoxanthine-guanine phosphoriosyl transferase
58. Supplement
59. Brain (low), Leucocytes (Low), Erythrocytes & PMN Leucocytes (None)
60. Gout & Lesch-Nyhan Syndrome
61. Von Gierke's Disease :: Glucose-6-Phosphatase
62. PRPP synthase, HGPRT, Glucose 6-phosphatase
63. Deposition of sodium urate crystals in joints
64. Podagra
65. Allopurinol, inhibits Xanthine Oxidase
66. (↑ Cherry Juice), (↓ Organ meats, aged cheese, alcohol)
67. HGPRT :: Gouty arthritis, mental retardation, self mutilation
68. Purine biosynthesis, uric acid
69. Pentose Phosphate Shunt, PRPP, Purine production, uric acid

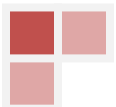


Practice Quiz Answers : Dr. Balliett : "You haven't been eating your flaxseed oil have you?"

70. Uracil monophosphate (UMP)
71. UTP, CTP, and TMP
72. N = Aspartate & Glutamate :: C = CO<sub>2</sub> & 3 Aspartates
73. Adenosine → Inosine + (*Purine Nucleoside Phosphorylase*) → Hypoxanthine → Xanthine
74. Guanosine + (*Purine Nucleoside Phosphorylase*) → Guanine → Xanthine
75. Xanthine Oxidase (Mo)
76. Concentration of PRPP, Phosphates, & Purine Ribonucleotides
77. Carbomoyl Phosphate, Carbomoyl Aspartic Acid, Dihydroorotate, Orotic Acid, UMP
78. Dihydroorotate
79. Supplement
80. Folic acid, methyl transfer reactions, requires B<sub>12</sub> to be recycled
81. Inhibit the dUMP to dTMP step by inhibiting folates (N<sup>5</sup>N<sup>10</sup>MethyleneH<sub>4</sub>folate)
82. fdUMP, enzyme thymidylate synthase
83. Uracil + PRPP → UMP + PPi
84. Thymidine + ATP → TMP + ADP
85. Reverse of synthesis, highly soluble
86. Adenine, Guanine, Cytosine, Uracil
87. Ribonucleotide reductase
88. 1:1 (parallel)
89. PRPP

## PROTEIN SYNTHESIS

90. DNA → mRNA codon :: Initiation, Elongation, Termination
91. Codon, Anticodon
92. AUG = methionine
93. Nucleus
94. RNA Polymerase, In the promoter region
95. 3' to 5'
96. Unzips double stranded DNA
97. Complimentary bases, 5' to 3'
98. When the stop CODE is reached
99. Do not lie next
100. Non-protein coding segments between the proteins
101. Exons
102. Add phosphate cap & Poly-A tail, remove introns, combine exons, and allow mRNA to leave
103. 200 adenine nucleotides



Practice Quiz Answers : Dr. Balliett : "You haven't been eating your flaxseed oil have you?"

104. Message processing
105. Cytoplasm, ribosomes
106. tRNA sits w/ an amino acid before incorporation
107. tRNA terminal portion w/ a newly synthesized protein
108. Amino Acid Synthetase
109. Initiation factor
110. AUG → S. ribosomal attaches → UAC anticodon tRNA attaches → large ribosomal attaches
111. GTP
112. Elongation factor
113. Breaks away, slide one codon down
114. Polypeptide
115. A-site reaches stop CODON
116. Release factor must bind (requires GTP)

## PROTEIN TRAFFICKING

117. Cytosolic proteins, peripheral membrane proteins, nucleic/mitochondrial/perixosome proteins
118. Ribosomes, translating
119. Proteins for membranes, secretory proteins
120. Proteins for cytoplasm
121. Signal sequence; 20-30 of the first amino acids on the amino terminal end
122. 6 protein subunits and 7S RNA
123. Binds to ribosomes & signal peptides resulting in translation arrest
124. ER integral membrane-docking protein, ATP
125. Allows translation to continue
126. Translated protein, protein channel, Co-translational insertion
127. ER, Cell membrane, Golgi, Secretory protein, lysosomes
128. Folding, Disulfide formation
129. Gama-carboxy-glutamate

