APPROVED
at the Chair meeting of 12.12.25, minute no.5,
Head of the Biochemistry and Clinical Biochemistry Chair,
MD, PhD., prof., Olga TAGADIUC

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BIOCHEMISTRY TEST STATEMENTS

Faculty of Pharmacy, Fall 2025 Session

Drug Metabolism

1 Absorption of xenobiotics occurs through:
2 Advantages of absorption through the oral cavity:
3 Pathways of xenobiotic metabolism:
4 The most common oxidation-reduction reactions carried out by the NADH-dependent chain are:
5 The most common oxidation-reduction reactions carried out by the NADPH-dependent chain are:
6 The most common oxidation-reduction reactions carried out by the monooxygenase chain are:
7 Glutamic conjugation:
8 Xenobiotic conjugation:
9 Xenobiotic detoxification presents:
10 Elimination of substances in conjugated form with bile:
11 Phases of xenobiotic metabolism:
12 Forms of elimination of xenobiotics from the body:
13 The monooxygenase chain of microsomal oxidation:
14 The chain reductase of microsomal oxidation:
15 Drugs that have an advantage in gastric absorption (from the stomach):
16 Drugs that have an advantage in intestinal absorption (from the intestine):
17 Drugs that have an advantage in oral absorption:
18 Drugs that have an advantage in skin absorption:
19 Microsomal oxidation:

LIPID METABOLISM

20 Bile acids: functions, structure
21 Action of lipolytic enzymes in the gastrointestinal tract:
22 Activation of fatty acids (FA) (beta-oxidation of fatty acids):
23 Beta-oxidation of fatty acids (FA):
24 Beta-oxidation involves 4 reactions. Their correct order is:
25 The second reaction of beta-oxidation of fatty acids:
26 The third reaction of beta-oxidation of fatty acids is:
27 The activator (1) and inhibitor (2) of acetyl-CoA carboxylase (the enzyme that regulates fatty acid synthesis):
28 Correct statements about ketone bodies:
29 Beta-hydroxy-beta-methylglutaryl-CoA can be used for:
30 Cholesterol biosynthesis:
31 Malonyl-CoA biosynthesis (fatty acid synthesis):
32 13 Atherosclerosis:
33 14 Triacylglycerol biosynthesis:
34 15 Chylomicron catabolism:
35 16 VLDL catabolism:
36 17 How many turns does it take (1), how many molecules of acetyl-CoA (2), and how many molecules of ATP (3) are formed upon complete oxidation of palmitic acid (C16):
37 18 Ketoneemia:
38 19 Chylomicrons:
39 20 Ketone bodies are the following compounds:
40 21 Differences between oxidation and biosynthesis of fatty acids:
41 22 Digestion of dietary lipids in adults:
42 23 Donor of reducing equivalents in the synthesis of fatty acids serves NADPH generated in:
43 24 Enzymes involved in the transport of acetyl-CoA from mitochondria to cytosol (biosynthesis of fatty acids
44 25 Glycerol-3-phosphate is formed:
45 26 In the process of biosynthesis of triacylglycerols phosphatidic acid:
46 27 As a result of a beta-oxidation cycle, fatty acids undergo the following changes:
47 28 Indicate the initial compound in the synthesis of fatty acids (1) and its form of transport from mitochondria to cytosol (2):
48 The common intermediate in the synthesis of triglycerides and phosphatides:
49 LDL:
50 Lipids are indispensable components of the diet, because:
51 Mechanisms of lipid absorption in the gastrointestinal tract:
52 Obesity:

53 The following fatty acids are essential for the human body:

54 35 The first step in the synthesis of saturated fatty acids with an even number of carbon atoms:

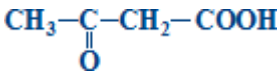
55 36 The products of acyl-CoA dehydrogenation (the first reaction of beta-oxidation of fatty acids)

56 are

57 37 The reduction reaction of beta-ketoacyl-ACP (the actual biosynthesis of fatty acids):

58 38 The synthesis reaction of beta-ketoacyl-ACP (the actual biosynthesis of fatty acids

59 39 Regarding the chemical compound presented, the following statements are correct:



60 8 Complete cleavage of triacylglycerides in the gastrointestinal tract requires:

61 9 Select the 4th reaction of beta-oxidation and the enzyme that catalyzes this reaction:

62 10 Select the hydrolysis products of dietary TAG:

63 11 Fatty acid synthesis:

64 12 Synthesis of phosphatidylethanolamine from phosphatidylserine:

65 13 Synthesis of phosphoglycerides:

66 14 Synthesis of a palmitic acid molecule requires:

67 15 Fate of the products of lipid digestion absorbed in the intestine:

68 16 The source of methyl groups for the synthesis of phosphatidylcholine is:

69 17 Transformation of acyl-CoA (first reaction of beta-oxidation of fatty acids):

70 18 Transport of acetyl-CoA from mitochondria to cytosol (biosynthesis of fatty acids):

71 19 Transport of fatty acids (FA) from cytoplasm to mitochondria in the process of beta-oxidation:

72 20 Use of acetyl-CoA:

73 Use of ketone bodies in tissues

74 Oxidation of odd-numbered fatty acids of carbon atoms:

PROTEIN METABOLISM

75 Folic acid:
76 17 Tetrahydrofolic acid (THF) is a donor and acceptor of groups:
77 18 Alanine aminotransferase (ALT):
78 19 Alkaptonuria:
79 20 Ammonia is obtained in the following processes:
80 21 Aspartate aminotransferase (AST):
81 22 Indirect bilirubin:
82 Serum bilirubin:
83 Asparagine (Asn) biosynthesis:

84 Deoxyribonucleotide biosynthesis:

85 Glutamine (Gln) biosynthesis:

86 12 Heme biosynthesis (second reaction):

87 13 Heme biosynthesis (first reaction):

88 14 Heme biosynthesis (select the required substances):

89 15 Heme biosynthesis (conversion of protoporphyrin IX to heme):

90 16 Cytidylic nucleotide biosynthesis:

91 17 Hereditary diseases caused by defects in enzymes involved in phenylalanine and tyrosine metabolism:

92 18 General pathways of amino acid degradation:

93 19 Protein deficiency:

94 20 Thymidylic nucleotide biosynthesis:

95 21 Hemoglobin (Hb) catabolism (conversion of biliverdin to bilirubin):

96 22 Hemoglobin (Hb) catabolism (conversion of Hb to biliverdin):

97 23 How many macroergic bonds are used in the synthesis of 200 urea molecules?

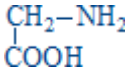
98 24 How many ATP molecules are needed to synthesize one molecule of urea?

99 25 Causes of jaundice:

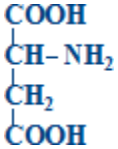
100 26 The gamma-glutamyl cycle:

101 27 The ureagenetic cycle (first reaction):

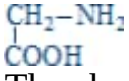
102 The chemical compound shown participates in the synthesis of:



103 The chemical compound presented participates in the synthesis of:



104 The chemical compound presented participates in the synthesis of:



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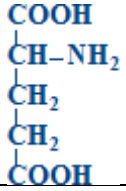

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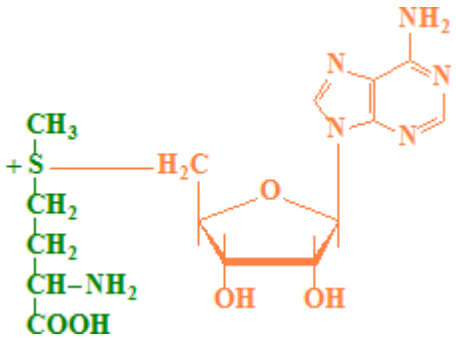
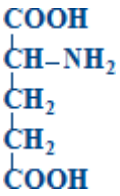
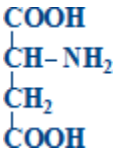


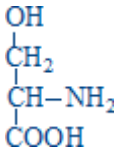
106 The chemical compound presented participates in the synthesis of:



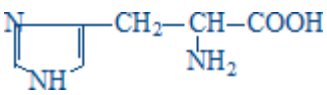
107 The chemical compound presented participates in the synthesis of:



108 The chemical compound presented participates in the synthesis of:



109 The chemical compound presented participates in the synthesis of:



110 27 The connection between the urea cycle and the Krebs cycle:

111 28 The connection between carbohydrate and lipid metabolism:

112 29 The connection between protein and carbohydrate metabolism:

113 30 Bilirubin conjugation:

114 31 Amino acid decarboxylation:

115 Amino acid deamination (DA):

116 Direct amino acid deamination:Dezaminarea indirectă a aminoacizilor

(transdeamination):
117 Oxidative deamination of amino acids (AA):
118 Nucleoprotein digestion:
119 Renal elimination of ammonia:
120 Enzymes of the urea cycle:
121 Renal excretion of bile pigments:
122 Phenylalanine (Phe) and tyrosine (Tyr):
123 Phenylketonuria:

124 Glutamate dehydrogenase:

125 Glutamate dehydrogenase is part of:

126 17 Gout:

127 18 Hemoproteins:

128 19 Hepatic jaundice (changes in bile pigments):

129 20 Hepatic jaundice is determined by:

130 21 Neonatal jaundice:

131 22 Prehepatic (hemolytic) jaundice:

132 23 Inosine monophosphate (IMP):

133 24 Enzymes involved in the catabolism of amino acids:

134 25 Chromoproteins include:

135 26 Mechanism of the transamination (TA) reaction of amino acids:

136 27 Neutralization of amino acid decay products:

137 28 NH3 is used in the synthesis of:

138 29 Porphyrias:

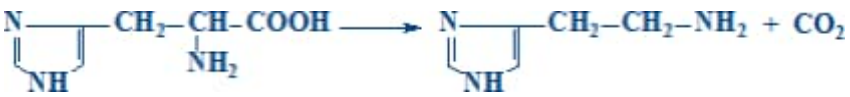
139 30 Catecholamine precursor:

140 31 Histamine precursor:

141 32 Final products of NH3 detoxification:

142 Amino acid pitrefaction in the intestine:

143 Chemical reaction:



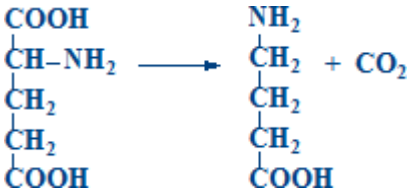
144 Chemical reaction:

145 Chemical reaction:

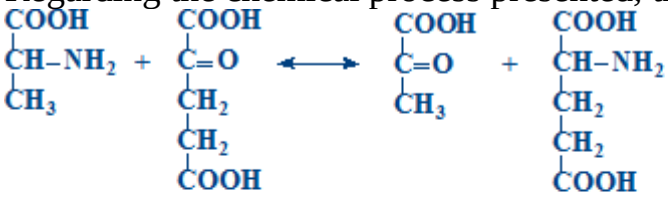
146 Chemical reaction:

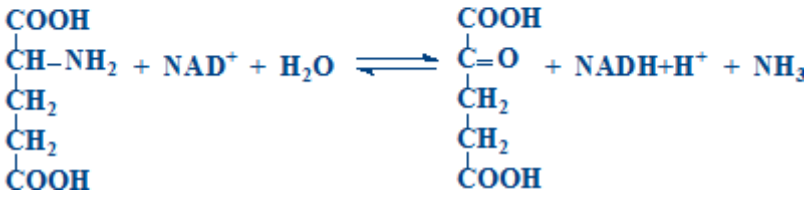
R-CH2-NH2 + H2O + O2 → R-CHO + NH3 + H2O2

147 Chemical reaction:

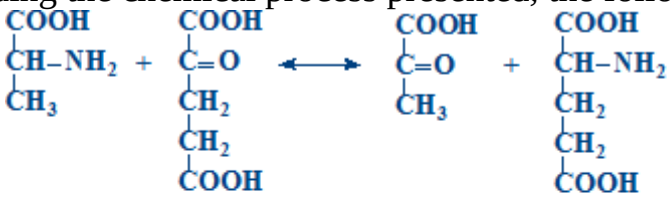


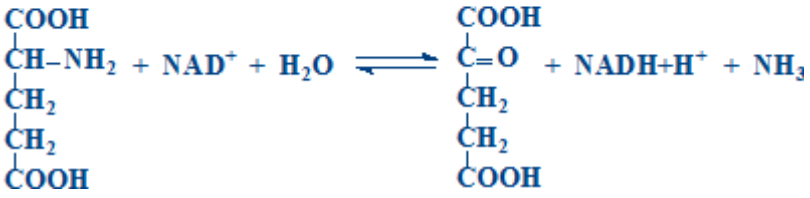
148 Regarding the chemical process presented, the following statements are correct:





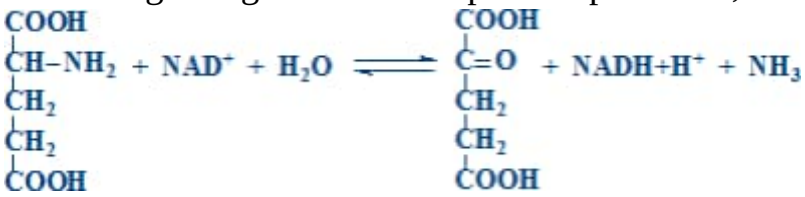
149 Regarding the chemical process presented, the following statements are





correct:

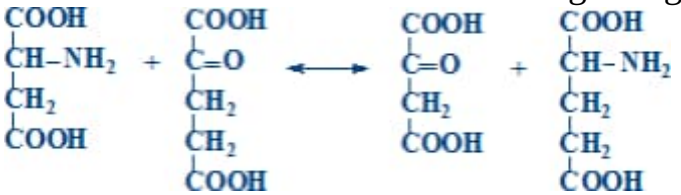
150 Regarding the chemical process presented, the following statements are correct:



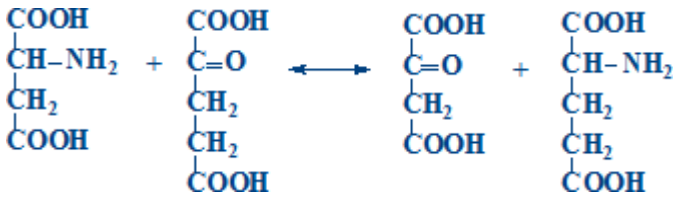
151 Regulation of purine nucleotide synthesis:

152 Reuse of purine bases:

153 Select the correct statements regarding the chemical reaction shown:



154 Select the correct statements regarding the chemical reaction presented:



155 Select the clinical manifestations of gout:

156 6 Select the products of thymine catabolism:

157 7 Select the products of uracil and cytosine catabolism:

158 8 Select the reactions of the ornithine cycle:

159 9 Serotonin is synthesized from:

160 10 Synthesis of carbamoylphosphate (first reaction in urea synthesis):

161 11 Synthesis of GMP from inosine monophosphate (IMP):

162 12 Synthesis of pyrimidine nucleotides (formation of carbamoylphosphate):

163 13 Sources of pyrimidine ring atoms:

164 14 Types of amino acid deamination:

165 15 Amino acid transamination (TA):

166 16 Aspartate transdeamination. Select the reactions of the process (1) and the enzymes (2) that catalyze these reactions:

167 17 Ureogenesis:

168 18 Absorption of amino acids (AA):

169 19 Aminopeptidases:

170 20 Balanced nitrogen balance:

171 21 Negative nitrogen balance:

172 22 Positive nitrogen balance:

173 23 Carboxypeptidases:

174 24 Chymotrypsin:

175 25 Biological functions of proteins:

176 26 Pepsin:

177 27 Final products of simple protein cleavage:

178 28 Properties of pepsin:

179 The role of HCl in protein digestion:

180 Select the semi-essential amino acids:

181 Trypsin:

182 Utilization of amino acids (AA) in tissues:

183 The biological value of proteins is determined by the essential amino acids:

HORMONES

184 Adrenocorticotropin (ACTH, corticotropin):
185 Correct statements regarding the adenohypophyseal hormones:
186 adenohypophyseal hormones:
187 Adenylate cyclase:
188 sex hormones: role, structure, synthesis

189 Calcitonin:

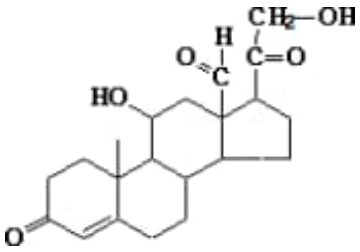
190 Calcitriol:

191 Catecholamines are:

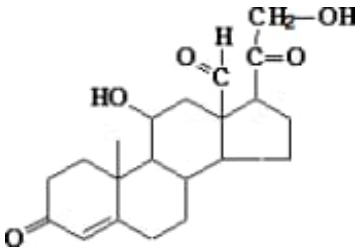
192 Structural classification of hormones:

193 40 Caffeine inhibits:

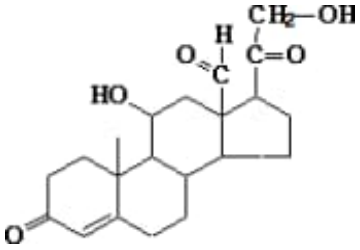
194 41 The chemical compound presented in the kidneys promotes:



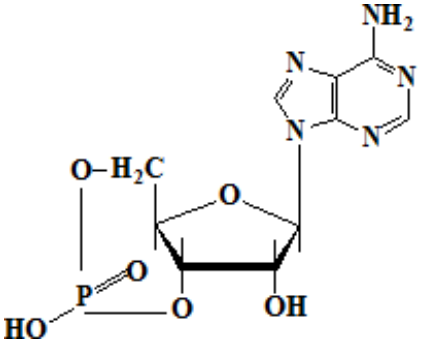
195 The chemical compound presented regulates:



196 The chemical compound presented is



197 The chemical compound presented is



198 11 Corticosteroids are used:

199 12 Diabetes mellitus is characterized by:
200 13 Effects of insulin on lipid metabolism:
201 14 Effects of insulin on protein metabolism:
202 15 Metabolic effects of T3 and T4:
203 16 Phosphodiesterase is, role:

204 Phospholipase "C" function:

205 Glucagon:

206 9 Hyperfunction of the thyroid gland is manifested by:

207 10 Hyperparathyroidism is manifested by:

208 11 Hypofunction of the thyroid gland in adults (myxedema) is manifested by:

209 12 Hypoparathyroidism is characterized by:

210 13 Extracellular calcium homeostasis is ensured by:

211 14 Hypothalamic hormones:

212 15 Sex hormones:

213 16 Somatomammotropic hormones are:

214 17 Proopiomelanocortin (POMC) derivative hormone is:

215 18 Follicle-stimulating hormone (FSH):

216 19 Luteinizing hormone (LH):

217 20 Insulin stimulates:

218 21 Iodothyronines:

219 22 The cytosolic-nuclear mechanism of hormone action is characteristic for:

220 23 The membrane-intracellular mechanism of hormone action is characteristic for

221 24 The membrane-intracellular mechanism of hormone action mediated by cAMP:

222 25 Oxytocin:

223 26 Parathyroid hormone:

224 27 Prolactin:

225 28 Active Gs protein:

226 Gs proteins:

227 Protein kinase A:

228 Hormone receptors are:

229 Regarding the cytosolic-nuclear mechanism of hormone action, the following statements are correct:

230 Regarding 1,25 dihydroxy-cholecalciferol (calcitriol), the following statements are correct:

231 Regarding the biosynthesis of catecholamines, the following statements are correct:

232 Regarding the biosynthesis of iodothyronines, the following statements are correct:

233 Regarding the effects of gonadotropins, the following statements are correct:

234 37 Regarding the neurohypophyseal hormones, the following statements are correct:

235 38 Regarding the female sex hormones, the following statements are correct:

236 39 Regarding the mechanism of action of glucocorticoids, the following statements are correct:

237 Regarding the mechanism of action of insulin, the following statements are correct:

238 Regarding the mechanism of membrane-intracellular mechanism of hormone action mediated by diacylglycerol (DAG) and inositol triphosphate (IP3) are the following statements correct:

239 Regarding the membrane-intracellular mechanism, the following statements are correct:

240 Regarding the chemical nature of hormones, the following statements are correct:

241 Regarding the regulation of aldosterone synthesis and secretion, the following statements are correct:

242 Regarding the regulation of iodothyronine synthesis and secretion, the following statements are correct:

243 Regarding the synthesis of steroid hormones, the following statements are correct:

244 Regarding vasopressin, the following statements are correct:

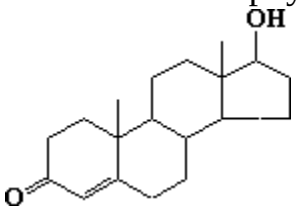
245 42 Regulation of glucocorticoid (cortisol) synthesis and secretion:

246 43 Glucagon secretion is regulated:

247 44 Insulin secretion is activated by:

248 45 Select the correct statements regarding male sex hormones:

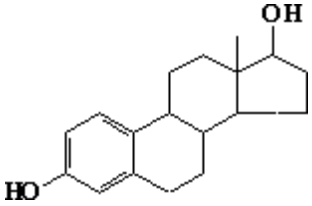
249 Select the physiological effects of the chemical compound presented:



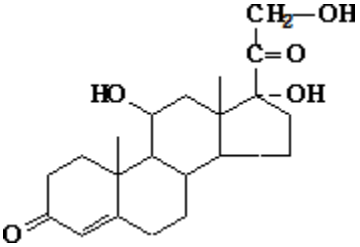
250 Select the metabolic effects of calcitonin:

251 Select the metabolic effects of catecholamines:

252 Select the metabolic effects of the chemical compound shown:



253 Select the metabolic effects of the compound shown:



254 Select the metabolic effects of the compound shown:

255 Select the metabolic effects of somatotropin:

256 Select the hormones that are synthesized in the adrenal cortex:

257 Select the liberins:

258 Select the second messengers of the hormones:
259 Cushing's syndrome is characterized by:
260 Pancreatic hormone synthesis:
261 Somatostatin:
262 Somatotropin (growth hormone):
263 Statins are:
264 Thyroglobulin:
265 Thyrotropin (TSH):
266 The transport of iodothyronines is carried out by