

Midterm material

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- *The products of glycolysis under aerobic conditions in the muscle are*
- *A. pyruvate, NADPH and ATP*
- *B. lactate, NADH and ATP*
- *C. lactate and ATP*
- *D. pyruvate, NADH and ATP*
- *E. lactate, NADPH and ATP*
- *Answer : D*

- *The TCA cycle is unique because*
- *A. It produces ATP molecules through substrate-level phosphorylation*
- *B. It has a very high efficiency*
- *C. It produces electron carrying molecules*
- *D. It is a cyclic pathway*
- *E. It is an exergonic pathway*
- *Answer : B*

- *Which one of the following reactions is unique to gluconeogenesis*
- *A. Pyruvate -> oxaloacetate*
- *B. Phosphoenolpyruvate -> pyruvate*
- *C. Lactate -> pyruvate*
- *D. Glucose 6-phosphate ->fructose 6-phosphate*
- *E. 1,3-Bis-phosphoglycerate -> 3-phosphoglycerate*
- *Answer : A*

- *the enzyme that has low k_m and low V_{max} for glucose is*
- *A. Hexokinase*
- *B. Glucokinase*
- *C. Phosphofructokinase-1*
- *D. Aldolase*
- *Answer : A*

- *The following are direct or indirect derivatives of the TCA cycle intermediate α -ketoglutarate EXCEPT*
- *A. Isocitrate*
- *B. Glutamine*
- *C. Succinyl-CoA*
- *D. GABA*
- *E. Glutamate*
- *Answer : A*

- *The rate limiting step of glycolysis is catalyzed by*
- *A. Phosphofructokinase-1*
- *B. Phosphofructokinase-2*
- *C. Pyruvate kinase*
- *D. Hexokinase*
- *E. Aldolase*
- *Answer : A*

- *The main role of the glucose produced by gluconogenesis in the liver is*
- *A. To maintain blood glucose levels*
- *B. To supply muscles with glucose to be metabolized for energy production*
- *C. To be used for lactose production*
- *D. To be used for the synthesis of sugar moiety of glycoproteins, glycolipids and protcoglycans*
- *E. To be used for glycogen synthesis and storage*
- *Answer : A*

- *All of the following can result in lactic acidosis EXCEPT*
- *A. Respiratory failure associated with COVID19*
- *B. Reduced tricarboxylic acid cycle activity*
- *C. Uncontrolled hemorrhage*
- *D. Direct inhibition of oxidative phosphorylation*
- *E. Activated gluconeogenesis*
- *Answer : E*

- *The cofactor required by the enzyme that produces oxaloacetate from pyruvate is*
- *A. Coenzyme A*
- *B. Pantothenic Acid*
- *C. Biotin*
- *D. NADH*
- *E. Lipoic Acid*
- *Answer : C*

- *The following is an activator of glycolysis*
- *A. Pyruvate*
- *B. GTP*
- *C. ATP*
- *D. Fructose-6-phosphate*
- *E. Fructose-2,6-bisphosphate*
- *Answer : E*

- *Glycolysis is inhibited by*
- *A. Hydrogenions*
- *B. phosphorylation of glyceraldehyde 3- phosphate dehydrogenase*
- *C. high ADP/ATP ratio*
- *D. fructose2,6bisphosphate*
- *E. dephosphorylation of pyruvate kinase*
- *Answer : A*

- *One of the following deactivate bacterial enolase*
- *A. lipoic acid*
- *B. COA*
- *C. fluorine*
- *D. Thiamine*
- *E. Glucagon*
- *Answer : C*

- *under anaerobic conditions , skeletal muscle tissue may continue to generate ATP from glucose metabolism (via glycolysis), resulting in the conversion of glucose to*
- *A. Acetyl-CoA*
- *B. Succinate*
- *C. Lactate*
- *D. Citrate*
- *E. Malonate*
- *Answer : C*

- *which enzyme convert oxaloacetate to phosphoenolpyruvate*
- *A. Pyruvate carboxylase*
- *B. Phosphoglycoisomerase*
- *C. Phosphoenolpyruvate carboxykinase*
- *D. F-1,6-BP*
- *E. Glucose 6-phosphatase*
- *Answer : C*

- *The reactions in which succinate is converted to oxaloacetate are, in order*
- *A. three successive oxidation reactions*
- *B. an oxidation, a hydration, and an oxidation*
- *C. an oxidation, a dehydration, and an oxidation*
- *D. an oxidative decarboxylation, a dehydration, and a condensation*
- *E. a condensation, a dehydration, and an oxidative decarboxylation*
- *Answer : B*

- *Which of the following is TRUE considering TCA cycle*
- *A. If citrate is very high in concentration, TCA cycle will run less effectively*
- *B. When oxidation occurs, an accompanying decarboxylation takes place*
- *C. The overall AG is considered zero at physiological conditions*
- *D. ADP is an allosteric activator for 2 of the three dehydrogenases included*
- *E. All enzymes are allocated within the mitochondrial matrix*
- *Answer : A*

- *Release of CoA from specific compounds in the mitochondrial matrix aids directly in*
- *A. Substrate level phosphorylation*
- *B. Oxaloacetate production*
- *C. Formation of NADH*
- *D. Formation of FADH₂*
- *E. Release of CO₂*
- *Answer : A (GTP = ATP)*

- *One of these reaction needs H₂O*
- *A. fumarate to malate*
- *B. malate to OAA*
- *C. citrate to isocitrate*
- *Answer : A*

- *intermediate at TCA contain 4 carbon*
- *A. isocitrate*
- *B. citrate*
- *C. fumarate*
- *D. alpha ketoglutarate*
- *Answer : C*

- *which of the following does not included in TCA cycle*
- *A. alpha ketoglutarate to succiny-CoA*
- *B. pyruvate to acety -coA*
- *C. succinate to fumarate*
- *D. malate to oxaloacetate*
- *Answer : B*

- *which one of the following conditions decrease the oxidation of acetyl coA by the citric acid cycle*
- *A. a high availability of calcium*
- *B. a high acetyl coA/ coA ratio*
- *C. a low ATP/ADP ratio*
- *D. a low NAD⁺/NADH ratio*
- *Answer : D*

- *Which of the following structures is activated by ADP*
- *A. phosphofructokinase*
- *B. isocitrate dehydrogenase*
- *C. pyruvate dehydrogenase*
- *Answer : B*

- *Which of these structures is oxidized by FAD*
- *A. succinate*
- *B. succinyl coA*
- *C. malate*
- *D. alpha-ketoglutarate*
- *Answer : A*

- *Which of the following is considered an inhibitor for both isocitrate dehydrogenase and α -ketoglutarate dehydrogenase*
- *A. ATP*
- *B. NADH*
- *C. ADP*
- *D. A+B*
- *Answer : D*

- *GTP in citric acid cycle is produced by*
- *A. Oxidative phosphorylation*
- *B. Substrate level phosphorylation*
- *C. Active phosphorylation*
- *D. Transfer of phosphate from ATP*
- *Answer : B*

- *Which enzyme would be impaired in case of Biotin deficiency*
- *A. Fructose 1,6-phosphatase*
- *B. Pyruvate kinase*
- *C. PEP carboxykinase*
- *D. Pyruvate carboxylase*
- *E. Malate dehydrogenase*
- *Answer : D*

- *The reaction that produces ATP in glycolysis is accompanied by production of*
- *A. glyceraldehyde 3-phosphate*
- *B. phosphoenolpyruvate*
- *C. 3-phosphoglycerate*
- *D. dihydroxyacetone phosphate*
- *E. 1,3 bisphosphoglycerate*
- *Answer : C*

- *What are the effects of increased concentration of citrate*
- *A. Increases the inhibitory effect of ATP*
- *B. Decreases the inhibitory effect of ATP*
- *C. Increases the activity of ATP*
- *D. Increases the activity of AMP*
- *Answer : A*

- *The products of anaerobic glycolysis*
- *A. 2 ATP, 2 acetyl coA, 2 CO₂*
- *B. 2 ATP, 2 pyruvate, 2 NADH*
- *C. 2 ATP, 2 ethanol, 2 CO₂*
- *D. 2 ATP, 2 lactate*
- *Answer: D*

- *Cleavage of fructose 1-phosphate will form*
- *A. Glyceraldehyde and DHAP*
- *B. G3P and DHAP*
- *C. Dihydroxyacetone and G3P*
- *D. Dihydroxyacetone and Glyceraldehyde*
- *Answer : A*

The END