MCM Practice Questions: Lecture Day 3

karan gidwani

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Lecture 11: ATP generation & Glycolysis

1) Fluoride is an inhibitor to what glycolytic enzyme in order to reduce the metabolism of glucose when taking a blood glucose quantification reading?

(A) Hexokinase

(B) Isomerase

(C) Aldolase

(D) Enolase

2) Arsenate is an inhibitor of a glycolytic enzyme by mimicking an inorganic phosphate group that binds to the active site of the enzyme. What enzyme is affected here?

(A) Phosphofructokinase-1

(B) Phosphoenolpyruvate Carboxykinase

(C) Glyceraldehyde 3-Phosphate Dehydrogenase

(D) Fructose-Bisphosphate Aldolase

3) Karan just finished a 100m sprint and he feels a burning sensation in his legs. Being a particularly cognizant medical student, he realizes he has exercise induced lactic acidosis. The excess lactate that has built up will do what 2 things?

(A) increase NAD+ ; decrease [H+]

(B) decrease NAD+ ; increase [H+]

(C) increase NAD+ ; increase [H+]

(D) decrease NAD+ ; decrease [H+]

4) A worried parent brings their 4-month-old infant into the pediatric ER after a series of seizures. Medical management of the seizures fails. The infant goes for frequent follow-ups with a pediatric neurologist and is noted to be missing developmental milestones. Genetic reveals a hereditary deficiency of a transporter. What transporter is most likely to cause this series of symptoms?

(A) GLUT-1

(B) GLUT-2

(C) GLUT-3

(D) GLUT-4

5) Phosphofructokinase-1 is activated by high levels of what 2 molecules?

(A) ATP and F-1,6-BP

(B) AMP and ATP

(C) AMP and F-1,6-BP

(D) AMP and F-2,6-BP

6) What cell type relies *only* on glycolysis for energy?

(A) erythrocytes

(B) hepatic cells

(C) neurons

(D) neutrophils

7) A 31 year old male presents to the ER with confusion, speech difficulty, tachycardia, and tremors. Upon history taking, it is revealed the patient had pancakes with high fructose corn syrup at the complementary hotel breakfast. Labs show this patient has both lactic acidosis and hypoglycemia. What enzyme deficiency is the most likely cause for these symptoms?

(A) Enolase

(B) Aldolase A

(C) Aldolase B

(D) Aldolase C