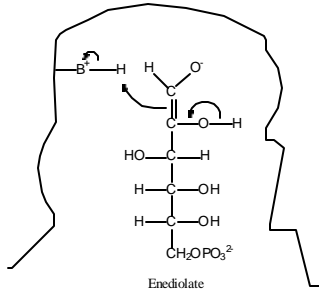


KEY

1. The following is an intermediate in the reaction catalyzed by which enzyme in the glycolytic pathway?

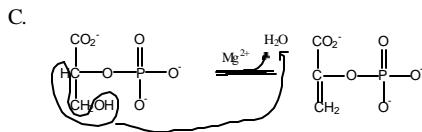
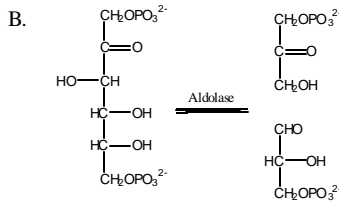
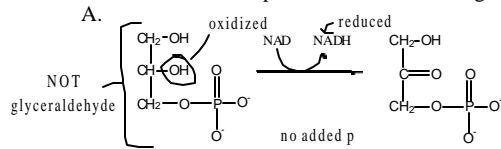


Glucose-6-Phosphate Isomerase

2. Indicate whether the activity of phosphofructokinase-I would: (A) INCREASE or (B) DECREASE if the following were to occur.

- B there is an increase in the concentration of ATP (need less ATP)
- A there is a decrease in the concentration of citrate (citrate is a feed-back inhibitor)
- A the activity of phosphofructokinase-II increases (so more F-2-6-BisP, an activator)

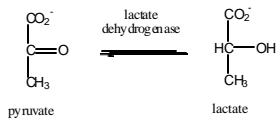
3. Draw the structures of the products of the following reactions:



4. Which enzyme produces high-energy electrons (i.e. reducing equivalents in the form of NADH during glycolysis)?

Glyceraldehyde-3-phosphate Dehydrogenase

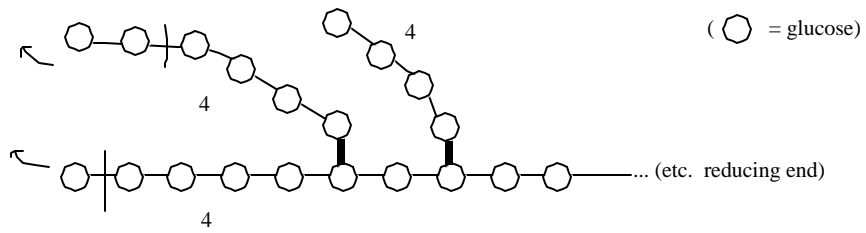
Assuming that this reaction has occurred in a muscle cell that is lacking oxygen, draw the reactant and product of the reaction in which these reducing equivalents are "used up" (and in which NAD is regenerated).



5. You suspect that an enzyme you are working with contains a cysteine in the active site. Name one of the two methods you can use to support your hypothesis.

- Heavy metals bind to -SH
- ICH₂COO-(iodoacetate) will react.

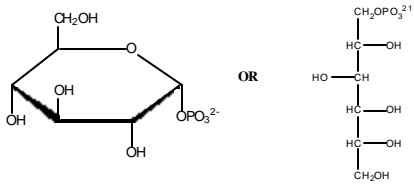
6. The following picture represents a glycogen particle, in which the thin lines represent the α 1-4 connections between adjacent glucose molecules and the heavy line represents α 1-6 connections. Assuming that glycogen phosphorylase is active, but that there is NO activity of the de-branching enzyme, how many glucose residues will be clipped off?



stops 4 from branch

Answer: 3

Draw the structure of the product of this reaction.
glucose-1-phosphate



7. What molecule "feeds-forward" to activate pyruvate kinase?

Fructose-1,6-bisphosphate

END