

7-Enzymes 7Q

<Q>Allosteric effectors:

<S>N

<C>induce a conformational change in the protein to alter its activity

<C>convert the enzyme either to the R or the T state

<C>can be very different in structure than the substrates of the enzyme

<C+> All of the above are correct

<Q>The reactive center of coenzyme A is

<S>Y

<C>ADP.

<C>pantothenate.

<C>β-alanine.

<C+>2-mercaptoethylamine.

<Q>Allosteric enzymes have all the following properties EXCEPT

<S>Y

<C>can be affected by feedback inhibition

<C>can be activated and inhibited by effectors

<C+>can be described by Michaelis-Menten kinetics

<C>their kinetics follow a sigmoidal curve

<Q>Which of the following is true about the mechanism of chymotrypsin action?

<S>N

<C>The two amino acid residues Ser195, and His57,are involved.

<C> The oxygen atom of Ser195 acts as a nucleophile.

<C> Water acts as a nucleophile.

<C+> All of these are correct

<Q> Which of the following statements is false about effects of binding inhibitors with the concerted model for allosteric behavior?

<S>Y

<C> There is an increase in the number of T-conformers.

<C+> An inhibitor inhibits association of S and A with R.

<C+>An inhibitor decreases cooperativity of substrate saturation curve.

<C> An inhibitor raises the apparent value of L.

<Q>Which of the following statements is NOT CORRECT for glycogen phosphorylase?

<S>Y

<C+>the phosphorylated form of the T state is more active than the phosphorylated form of the R state

<C>its activity can be affected by allosteric regulation

<C>glucose-6-phosphate is an inhibitor of the enzyme

<C>its phosphorylation requires the enzyme phosphoprylas kinase

<Q>Which of the following statements is CORRECT for the enzyme carboxypeptidase A?

<S>Y

<C+>its action involves metal-ion catalysis

<C>its action requires Mg(II) ion

<C>its activated by phosphorylation

<C>it catalyzes the hydrolysis of amylose

8-Lipids 9Q

<Q>What is the prosthetic group of the vision protein rhodopsin?

<S>Y
<C>retinol
<C+>retinal
<C>retinoic acid
<C>β-carotene

<Q>Another name for α-tocopherol is vitamin _____.
<S>Y
<C>A
<C+>E
<C>C
<C>D

<Q>Testosterone is a male hormone derived from:
<S>Y
 <C>phospholipids
<C>prostaglandins
 <C> leukotrienes
<C+> cholesterol

<Q>Phosphatidylserine is an amphipathic molecule due to the presence of:
<S>Y
<C+>serine, phosphate, and two fatty acids
<C>glycerol and two fatty acids
<C>glycerol
<C>two fatty acids

<Q>Triacylglycerols are not found in cell membranes because they are:
<S>Y
<C>amphipathic.
<C+>not amphipathic.
<C>not abundant in cells.
<C>charged at biological pH.

<Q>Which type of membrane proteins might be dissociated from the membrane by changing the pH or the ionic strength?
<S>Y
<C>integral membrane protein
<C+>peripheral membrane protein
<C>lipid-anchored membrane protein
<C>membrane enzymes.

<Q>Which DOES NOT apply to the diffusion of oxygen, carbon dioxide, and small hydrophobic molecules across a membrane?
<S>Y
<C>Diffusion is driven by the concentration gradient across the membrane.
<C>The diffusion is spontaneous and there is a decrease in free energy as diffusion occurs.
<C+>The transport is saturable (able to be saturated)
<C>Membrane proteins are not needed for the diffusion process.

<Q>Very large molecules (e.g., LDL) can be transported through cell membrane by:
<S>Y
<C>pores or channels with very large openings through the center
<C>active transport proteins

<C>diffusion down a concentration gradient
<C+>cell receptors and endocytosis

<Q>Which of the following substances is structurally different from the other three?

<S>Y

<C>estradiol

<C>progesterone

<C>testosterone

<C+>sphingomyelin

15-Energy 6Q

<Q>ATP is classified as an energy-rich compound because

<S>Y

<C>it complexes with Mg^{2+} .

<C>it has a relatively low free energy of hydrolysis.

<C>its complete oxidation to carbon dioxide releases a large amount of energy.

<C+>of the free energy released from cleavage of the phosphoric anhydride bond.

<Q>NADH and NADPH dependent dehydrogenases catalyze substrates by transferring _____ to carbon 4 of NAD⁺ and NADP⁺, respectively .

<S>Y

<C>one electron

<C>two electrons

<C>one electron and one proton

<C+>two electrons and one proton

<Q>Thioesters are similar to oxygen esters of carboxylic acids except that:

<S>Y

<C>the energy associated with their hydrolysis is much less than that of the phosphoric anhydride in ATP.

<C>the energy associated with their hydrolysis equals that of the phosphoric anhydride in ATP

<C+>they are less stable because S is present instead of O in the linkage.

<C>they are used in glycolysis

<Q>ATP can be used to activate a substrate by

<S>Y

<C>phosphorylation.

<C>adding a nucleotidyl group.

<C>producing inorganic phosphate.

<C+>phosphorylation and adding a nucleotidyl group.

<Q>The CORRECT statement from the following is

<S>Y

<C>facilitated diffusion displays sigmoidal behavior

<C>Delta G is negative at equilibrium

<C+>Delta G is negative for spontaneous reactions

<C>the sodium-potassium pump protein is a tetramer

<Q>Hydrolysis of which of the following compounds can drive the phosphorylation of ADP (delta Go' = +7.3 kcal/mol)?

<S>Y

<C>glucose-1-phosphate (delta Go' = -5.0 kcal/mol)

<C>glucose-6-phosphate (delta Go' = -3.0 kcal/mol)

<C>glycerol-3-phosphate (delta Go' = -2.3 kcal/mol)

<C+>creatine phosphate (delta Go' = -12.3 kcal/mol)

16-Carbohydrates 8Q

<Q>The chemical name for table sugar is _____ and it is a _____.

<S>Y

<C>lactose; monosaccharide

<C>lactose; disaccharide

<C>sucrose; monosaccharide

<C+>sucrose; disaccharide

<Q>Which is not a similarity between glycogen and amylopectin?

<S>Y

<C>They each contain about 6000 glucose residues.

<C>Each has one reducing end and many nonreducing ends.

<C>Each is branched.

<C+>Each has branches of similar chain length.

<Q>Amylose differs from amylopectin in that amylose

<S>Y

<C>has different monomers than amylopectin.

<C>has different glycosidic bond configuration

<C>is highly branched and amylopectin is not.

<C+>forms a helix and no branch points.

<Q>Which statement is incorrect about chitin?

<S>Y

<C>found in insect and crustacean shells.

<C>found in fungi cell walls.

<C+>composed of N-acetylgalactosamine subunits.

<C>composed of linear fibrils like cellulose.

<Q> The compounds α -D-fructofuranose and β -D-fructofuranose are _____.

<S>Y

<C>enantiomers

<C>mutamers

<C+>anomers

<C>conformational isomers

<Q>A reducing sugar is one that

<S>Y

<C>contains a β -(1 \rightarrow 1) link.

<C+>has a free hemiacetal group.

<C>can reduce Cu^{2+} but not Ag^+ .

<C>makes you lose weight.

<Q>Which is CORRECT about naturally occurring monosaccharides?

<S>Y

<C>The L-isomers predominate.

<C+>The D-isomers predominate.

<C>The L and D-isomers occur in equal ratios.

<C>The ratio of L and D-isomers varies widely depending on the source.

<Q>Cellulose is not digested by humans because we lack the enzyme that hydrolyzes

<S>Y

<C> α (1 \rightarrow 4) glycosidic bonds.

<C> α (1 \rightarrow 6) glycosidic bonds.

<C+> β (1 \rightarrow 4) glycosidic bonds.

<C>long-chain polysaccharides.