

<Q>Which of the following increase the cell membrane fluidity?

<S>Y

<C>proteins

<C>saturated fatty acids

<C>free cholesterol

<C+>unsaturated fatty acids

<Q>All of the following compounds contain a phosphate group EXCEPT

<S>Y

<C+>cerebroside

<C>sphingomyelin

<C>lecithin

<C>cardiolipin

<Q>Sodium-potassium ion pump is an example of

<S>Y #

<C>simple diffusion

<C>facilitated diffusion

<C+>active transport

<C>passive transport

<Q>The non-polar interaction between unsaturated fatty acid molecules

<S>Y #

<C+>decreases with the increase in the cis-double bonds

<C>decreases with the increase in the trans-double bonds

<C>has no affect on the melting point of the fatty acid

<C>largely increases the polarity of the fatty acid

<Q>Which of the following statements is CORRECT about cholesterol?

<S>Y

<C>it is not found in animal cells

<C>it is found in plant oils

<C>it can be converted into vitamins D and E when the skin is exposed to the direct sunlight

<C+>it can be converted into progesterone

<Q>Which one of the following substances is the precursor of the other three?

<S>Y

<C>prostaglandin PGE1

<C>thromboxane A2

<C+>arachidonic acid

<C>leukotriene C

<Q>All of the followings are true of the sodium/potassium ATPase (pump) EXCEPT:

<S>Y

<C>it transports sodium from inside the cell to the outside

<C+>it does not hydrolyze ATP

<C>it transports potassium from outside the cell to the inside

<C>it maintains the ionic concentration gradient

<Q>The asymmetry associated with biological membranes refers to the:

<S>Y

<C>degree of lateral mobility of integral membrane proteins.
<C>ratio of phospholipid to cholesterol.
<C+>differences in lipid composition of the outer and inner membrane bilayer.
<C>ratio of peripheral to integral membrane protein.

<Q>Which of the following substances contain a phosphorus atom?

<S>Y

<C>estradiol

<C>progesterone

<C>ganglioside GM1

<C+>sphingomyelin

<Q>Which of the following statements is TRUE?

<S>Y

<C+>the cell membrane is crowded with proteins

<C>in the fluid-mosaic model, cell membrane proteins can not float in the lipids of the membrane

<C>the cell membrane is composed of one layer of phospholipids

<C>receptor proteins are found in the interior of the cell membrane

<Q>Which of the following statements is TRUE?

<S>Y

<C+>a lipid bilayer becomes more ordered at low temperature

<C>a lipid bilayer becomes disordered at low temperature

<C>presence of cholesterol in the membrane decreases its rigidity

<C>presence of unsaturated fatty acids in the membrane increases its rigidity

<Q>All of the followings are found in both sides of the lipid bilayer membranes except:

<S>Y #

<C>Sphingomyelin.

<C>Cerebroside.

<C+>Ganglioside.

<C>Cholesterol.

<Q>which of the following is a precursor of vitamin A

<S>Y #

<C+>beta carotene

<C>cholesterol

<C>coenzyme A

<C>arachidonic acid

<Q>The protein involved in secondary active transport process is

<S>Y

<C+>galactoside permease

<C>ATPase

<C>ribonuclease

<C>sphingomyelin

<Q>Rigidity of the bilayer membrane

<S>Y #

<C>increases with the increase in the unsaturation of the fatty acid chains of its phospholipids
<C>decreases with the increase in the saturation of the fatty acid chains of its phospholipids
<C>is higher in animal cells than plant cells
<C+>increases with increased cholesterol content

<Q>All the following compounds are polar lipids EXCEPT
<S>Y
<C>lecithin
<C>sphingomyelin
<C>phosphatidic acid
<C+>cholesteryl ester

<Q>For the sodium and potassium transport process across the cell membrane
<S>Y
<C>it is a facilitated transport process
<C>it is a simple diffusion process
<C+>the pump protein is an integral part of the cell membrane and undergoes phosphorylation
<C>it keeps the concentration of sodium ions outside the cell lower than inside the cell

<Q>The non-polar interaction between unsaturated fatty acid molecules
<S>Y
<C>increases with the increase in the cis-double bonds
<C+>increases with the increase in the trans-double bonds
<C>has no affect on the melting point of the fatty acid
<C>largely decreases the polarity of the fatty acid

<Q>What are the membrane structures that function in active transport?
<S>Y
<C>peripheral proteins.
<C>carbohydrates.
<C+>integral proteins.
<C>hydrophobic molecules.

<Q>Which of the following is considered as a hormone?
<S>Y #
<C>vitamin K1
<C>alpha tocopherol
<C+>cholecalciferol
<C>leukotriene C

<Q>Which of the following statements is FALSE?
<S>Y #
<C>LDL-receptors can be recycled to the cell membrane
<C>oversupply of cholesterol in the cell inhibits the synthesis of LDL-receptors
<C+>cholesterol enters the cells directly
<C>LDL-receptor is a protein

<Q>The CORRECT statement from the following is

<S>Y #
<C+>unsaturated fatty acids in the cell membrane decreases its packing
<C>the lipid bilayer of the cell membrane is symmetric
<C>saturated fatty acids in the cell membrane decreases its packing
<C>the heads of phospholipid molecules in the cell membrane are stabilized by hydrophobic interaction

<Q>Phosphatidic acid is
<S>Y
<C+>found in lecithin
<C>esterified to one fatty acid and two phosphoric acid
<C>esterified to three fatty acids and one phosphoric acid
<C>is common in sphingolipids

<Q>The vitamin with antioxidant properties is
<S>Y ##
<C>vitamin A
<C>vitamin D
<C+>vitamin E
<C>vitamin K

<Q>The complex rodopsin that is formed in the eye retina results from the reaction between
<S>Y
<C>retinol and opsin
<C+>11-cis-retinal and opsin
<C>11-trans-retinal and opsin
<C>retinal and vitamin A

<Q>which of the following is a precursor of vitamin D
<S>Y #
<C>beta carotene
<C+>cholesterol
<C>coenzyme A
<C>arachidonic acid

<Q>Which of the following is an example of secondary active transport?
<S>Y
<C>sodium-potassium exchange
<C+>lactose uptake by bacteria
<C>glucose uptake by red blood cells
<C>movement of oxygen in the direction of concentration gradient

<Q>_____ are the simplest lipids but they may be a part of or a source of many complex lipids.
<S>Y #
<C>Triglycerols
<C>Carbohydrates
<C>Terpenes
<C+>Fatty acids

<Q>Fatty acids required in the diet of mammals are called:
<S>Y #
<C>important.

<C>dietary.
<C>saturated.
<C+>essential.

<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 can reach saturation.
<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>The incorrect statement from the following is:

<S>Y
<C> facilitated diffusion displays saturation behavior
<C> ΔG is zero at equilibrium
<C+> ΔG is negative for nonspontaneous reactions
<C> the operation of the sodium-potassium ion pump can be reversed

<Q>Which of the following statements is TRUE?

<S>Y
<C> the cell membrane is not crowded with proteins
<C+>in the fluid-mosaic model, cell membrane proteins can float in the lipids of the membrane
<C> the cell membrane is composed of one layer of phospholipids
<C> receptor proteins are found in the interior of the cell membrane

<Q>Which of the following statements is TRUE?

<S>Y
<C> a lipid bilayer becomes more ordered at high temperature

<C> a lipid bilayer becomes disordered at low temperature
<C+>presence of cholesterol in a membrane reduces its fluidity
<C> presence of unsaturated fatty acids in the membrane increases its rigidity

<Q>The inCORRECT statement from the following is

<S>Y #

<C> unsaturated fatty acids in the cell membrane decreases its packing
<C> the lipid bilayer of the cell membrane is asymmetric
<C> saturated fatty acids in the cell membrane increases its packing
<C+>the heads of phospholipid molecules in the cell membrane are stabilized by hydrophobic interaction

<Q>Sphingosine is a structural component of

<S>N

<C>ceramide
<C>phosphatidylcholine
<C>gangliosides
<C+>both ceramide and gangliosides

<Q>Which of the following best characterizes membrane structure?

<S>Y

<C>rigidity and water repellence
<C>rigidity and asymmetry
<C+>asymmetry and fluidity
<C>fluidity and water repellence

<Q>The kind of molecules that pass through a cell membrane most easily are

<S>Y

<C+>small and hydrophobic
<C>large polar molecules
<C>large and hydrophobic
<C>ionic

<Q>Testosterone is a male hormone derived from:

<S>Y #

<C>phospholipids
<C>prostaglandins
<C>leukotrienes
<C+>cholesterol

<Q>All the following features describe lipids, except:

<S>Y

<C>Preponderance of non-polar groups.
<C>Absence of ionic groups.
<C>Presence of long hydrocarbon chains.
<C+>They have limited solubility in chloroform.

<Q>Cerebroside is composed of all of the following, except:

<S>Y

<C>Sphingosine
<C>Fatty acid
<C+>Phosphate

<C>Sugar.

<Q>Glycolipids are particularly important in these structures:

<S>Y

<C>Membranes.

<C>Lipoproteins.

<C>The brain and nervous system.

<C+>Membranes, the brain and the nervous system.

<Q>Membrane lipids in a lipid bilayer are held together by

<S>Y

<C+>hydrophobic interactions

<C>hydrogen bonds

<C>electrostatic forces

<C>covalent bonds

<Q>In the fluid mosaic model of membrane structure

<S>Y #

<C>the proteins are specifically bonded to the lipids

<C+>the proteins "float" in the lipid bilayer

<C>the proteins are sandwiched between the lipid molecules

<C>the lipids are sandwiched between the protein molecules

<Q>Vitamin E has all of the following properties, except:

<S>Y #

<C>It is an antioxidant.

<C+>It can be made in the sunshine.

<C>It is a good reducing agent.

<C>It is often a component of membranes.

<Q>Aspirin produces most of its analgesic effects by

<S>Y

<C>binding to the plasma membrane of nerve cells

<C>inhibiting the synthesis of vitamin A

<C>inhibiting the synthesis of phospholipids

<C+>inhibiting the synthesis of prostaglandins

<Q>The non-polar interaction between unsaturated fatty acid molecules

<S>Y

<C+>decreases with the increase in the cis-double bonds

<C>decreases with the increase in the trans-double bonds

<C>has no affect on the melting point of the fatty acid

<C>largely increases the polarity of the fatty acid

<Q>Which of the following statements is CORRECT about cholesterol?

<S>Y

<C>it is not found in animal cells

<C>it is found in plant oils

<C>it can be converted into vitamins D and E when the skin is exposed to the direct sunlight

<C+>it can be converted into progesterone

<Q>Which of the following is considered as a hormone?

<S>Y #

<C>vitamin K1
<C>alpha tocopherol
<C+>vitamin D3
<C>leukotriene C

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

<S>Y

<C>LDL-receptors can be recycled to the cell membrane
<C>oversupply of cholesterol in the cell inhibits the synthesis of LDL-receptors
<C+>cholesterol is highly hydrophilic
<C>LDL-receptor is a protein

<Q>The INCORRECT statement from the following is

<S>Y

<C>facilitated diffusion displays saturation behavior
<C> ΔG is zero at equilibrium
<C+> ΔG is negative for nonspontaneous reactions
<C>the operation of the sodium-potassium ion pump can be reversed

<Q> Lipids may be either hydrophobic or _____.

<S>Y

<C> hydrophilic
<C> amphoteric
<C> inorganic
<C+> amphipathic

<Q> _____ are the simplest lipids but they may be a part of or a source of many complex lipids.

<S>Y

<C> Triglycerols
<C> Carbohydrates
<C> Terpenes
<C+> Fatty acids

<Q> Plasma levels of cholesterol and triglycerides are elevated by

<S>Y #

<C> margarines.
<C> cis-fatty acids.
<C+> trans-fatty acids.
<C> plant oils.

<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> Polar heads of glycerophospholipids may be

<S>N # æô ÊÍÓæä Ýíâ; ÇäÇ ÌÇæÈÈ ÇÁÇÌÇÈÈ 3æÇäí ÚÑÝÇä Ôæ ÇáÝÑÞ Èíä 3 æ 4
!!!!

<C> + charged.
<C> - charged.

<C> a mixture of + and - charges, but not neutral.
<C+> All of the above

<Q> What is the role of cholesterol in animal cell membranes?
<S>Y

<C> Blocks the association of the fatty acyl chains of phospholipids at high temperature.
<C> Aids in the transport of small hydrophobic molecules across the membrane.
<C> Is a receptor site for hormones on the surface of membranes.
<C+> maintain optimum membrane fluidity.

<Q> Determination of the tertiary structure of a membrane protein finds that the outer surface is composed primarily of hydrophobic residues. Which conclusion is most likely from this observation?
<S>Y

<C> It is a lipid-anchored membrane protein.
<C+> It is an integral protein.
<C> The protein must be involved in passive transport.
<C> The protein can undergo transverse diffusion.

<Q> Which type of membrane protein 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> cholesterol

<Q> You have purified a cell membrane and wish to isolate a transport protein from it. Which treatment might you select?
<S>Y

<C+> Add a detergent.
<C> Change the ionic strength.
<C> React with a protease.
<C> Add phenylisothiocyanate (PIT<C>).

<Q> Facilitated diffusion (passive transport) through a biological membrane is
<S>Y

<C> generally irreversible.
<C> driven by the ATP to ADP conversion.
<C+> driven by a concentration gradient.
<C> endergonic.

<Q> Why should it not be surprising that for many cells water requires a protein for its transport across a membrane?
<S>Y

<C+> Water is very polar which inhibits its free diffusion across the membrane.
<C> All molecules require transport proteins to cross a membrane.
<C> The transport protein is needed to prevent the hydrolysis of the phospholipid chains as water crosses the membrane.

<C> There is never a concentration gradient for water across the membrane to drive its

<Q> Another name for facilitated diffusion is _____.

<S>Y

<C> active transport

<C> transverse diffusion

<C> lateral diffusion

<C+> passive transport

<Q> Which is not a similarity between active transport proteins and enzymes?

<S>Y

<C> Both undergo conformational changes upon binding a substrate.

<C> Both are susceptible to inhibition.

<C+> Both cause chemical modification to the substrate.

<C> Both can reach a saturation limit.

<Q> Valinomycin is an antibiotic that kills bacteria by surrounding K^+ ions and shuttling them down their concentration gradient and across membranes. Which might be a cause of cell death?

<S>Y

<C+> Disruption of secondary transport processes that depend on the K^+ concentration gradient.

<C> Change in the pH of the bacterial cytosol.

<C> Blocking of bacterial pores with K^+ ions.

<C> Massive denaturation of bacterial proteins upon change of the K^+ concentration.