

1. How will the lipid components change in the membrane of the bacteria when the temperature is cold?

- a) phospholipids with unsaturated side chains enriched in cis double bonds will increase in the membrane
- b) cholesterol will increase in the membrane
- c) phospholipids with saturated side chains will increase
- d) phospholipids with saturated side chains will decrease

2. Characteristic for cholesterol as a membrane component:

- a) 3-OH group is localized in the lipid bilayer
- b) decreases the fluidity of the membrane
- c) between phospholipids, cholesterol molecules prevent the formation of van der Waals bonds between the side chains; thus transition temperature will be decreased
- d) appears in the prokaryotic membrane

3. The lateral movement of the membrane proteins can be blocked by:

- a) binding to the cytoskeleton
- b) binding to the extracellular matrix
- c) binding to proteins on the surface of another cell
- d) aggregation of the membrane proteins in coated pits

4. Which metabolic pathways are characteristic for red blood cells?

- a) glycolysis
- b) synthesis of the heme group
- c) Rappaport-Liebering shunt
- d) HMP shunt
- e) beta oxidation of unsaturated fatty acids

5. True for the structure of collagen:

- a) the general sequence is : (X-Y-Gly)_n
- b) the 4-OH proline is synthesized by posttranslational modification in the Golgi system
- c) vitamin C is necessary for the synthesis of the 4-OH proline
- d) after secretion the extension peptides are removed in all collagen types

6. Which are the following statements are correct?

- a) fibrillin molecules are linked by pyridinium rings formed from several Lys side chains
- b) mutation of fibrillin is characteristic for Marfan syndrome, aorta aneurysm and dislocation of the lens are frequent in these patients
- c) the fibrillin encompasses the hydrophobic elastin molecules and they form the elastic fibers together
- d) the elastin enriched in 4-OH proline as collagen

7. Which of the following molecules are involved in the basement membrane formation:

- a.) type IV collagen b.) laminin c.) perlecan d.) aggrecan

8. The following glycoproteins have integrin binding RGD sequence:

- a) fibronectin b) collagen c) proteins of proteoglycans d) laminin

9. Which of the following statements are correct?

- a) In case of the lack of ATP, actin and myosin forms a „rigor complex”
- b) binding of ATP generates the power stroke
- c) after ATP hydrolysis, Pi and ADP remain tightly bound on the myosin head
- d) ADP dissociates from the myosin head during the power stroke when the conformational change occurs

10. The following processes/enzymes are specific for the liver:

- a) glucuronide conjugation
- b) urea synthesis
- c) ketogenesis
- d) utilisation of ketone bodies
- e) galaktokinase

Correct answers: 1.a,d 2.b,c 3.a,b,c,d 4.a,c,d 5. a,c 6.b,c 7.a,b,c 8.a,d 9.a,d 10.a,b,c,e