Unit 5 - Week 3

Assignment 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-10-07, 23:59 IST.

1) Pepsin digestion of Immunoglobulin G yields *1 point*

a. $F(ab)_2$ fragment and low molecular weight fragments
b. 2 Fab fragments and Fc fragment
c. One heavy chain and one light chain
d. Only light chains

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

2) Which of the following is responsible for the diversity of the hypervariable region of immunoglobulin *1 point*

a. Hinge region
b. CDR
c. Epitope
d. Agretope

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

3) The class of immunoglobulin is determined by *1 point*

a. V_H region of heavy chain
b. C_H region of heavy chain
c. Light chain
d. The carbohydrate attached to the light chain

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

4) The correct sequence of enzymes involved in RAGdependentV(D)J rearrangement is *1 point*

a. RAG-1 & RAG-2----->DNA-PK: Artemis ----->Ku70:Ku80 ----->TdT ----->DNA ligase IV: XRCC4
b. Ku70:Ku80----->DNA-PK: Artemis -----> RAG-1 & RAG-2 ----->TdT ----->DNA ligase IV: XRCC4
c. RAG-1 & RAG-2 ----->Ku70:Ku80 ----->DNA-PK:Artemis ----->TdT ----->DNA ligase IV:XRCC4
d. DNA-PK:Artemis ----->TdT-----> RAG-1 & RAG-2 ----->Ku70:Ku80 ----->DNA ligase IV:XRCC4

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

5) Antibody effector functions include all of the following except *1 point*

a. Activate complement on bacterial surfaces to promote phagocytosis by neutrophils
b. Binding extracellular viruses to block their entry into host cells
c. Binding intracellular viruses to initiate cytotoxicity
d. Blocking uptake of bacterial toxins by host cells

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

6) Immunoglobulin IgE differs from IgA in *1 point*

a. the number and location of interchain disulfide bonds
b. the number of C domains
c. the length of the hinge region
d. all of the above

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

7) The exon encoding the V region of an immunoglobulin protein is generated by a process of somatic recombination. This recombination event brings V gene and J gene segments together: *1 point*

a. In all cells of the body to encode a V region sequence
b. To generate maximum diversity in the CDR3 sequence of the V region
c. By alternative RNA splicing to encode a V region sequence
d. By a precise mechanism that never adds or loses nucleotides at the junction
e. To generate a single exon encoding the entire immunoglobulin protein

a.
b.
c.
d.
e.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

8) Recombination signal sequences are conserved heptamer and nonamer sequences that flank the V, J, and D gene segments which undergo recombination to generate the final V region coding exon. Some of these have 12-nucleotide spacers between the heptamer and nonamer, and others have 23-nucleotide spacers. The reason recombination signal sequences come in these two forms is: *1 point*

a. To ensure the correct assembly of gene segments so that a V_H recombines to a D_H and not to another V_H, for instance
b. To ensure that the heptamer and nonamer are found on the same face of the DNA double helix
c. To ensure that κ, λ, and heavy chains recombine within a locus and not between loci
d. To ensure that κ, λ, and heavy chain gene segments do not undergo recombination with non-immunoglobulin genes

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

9) Amino acid sequence analysis of all of the peptides found in a single IgG antibody would reveal unique peptide sequences totaling ~600–700 amino acids. Using this estimate, the predicted molecular weight of an antibody protein would be ~70–75 kDa. Yet, an intact antibody protein has a molecular weight of ~150 kDa. The explanation for this discrepancy is: *1 point*

a. IgG antibodies have many more heavy amino acids in them than most other proteins.
b. Each IgG antibody is a complex of two identical light chains and two identical heavy chains.
c. IgG antibodies tend to aggregate together during purification, thereby distorting molecular weight estimates.
d. Each IgG antibody is a complex of four identical polypeptides.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

10) All are non-covalent forces that hold together the antigen-antibody complex except *1 point*

a. Electrostatic force
b. hydrogen bonds
c. Van der waals forces
d. hydrophobic forces
e. Disulfide bonds

a.
b.
c.
d.
e.

No, the answer is incorrect.
Score: 0
Accepted Answers:
e.