

Proteins Quiz Questions and Answers PDF

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What type of bond links amino acids together in a protein?

- Hydrogen bond
- Ionic bond
- Peptide bond ✓**
- Covalent bond

■ The bond that links amino acids together in a protein is called a peptide bond.

Which protein is responsible for oxygen transport in the blood?

- Myoglobin
- Hemoglobin ✓**
- Albumin
- Ferritin

■ Hemoglobin is the protein responsible for oxygen transport in the blood.

What is the primary structure of a protein?

- The sequence of amino acids ✓**
- The overall 3D shape
- The arrangement of multiple polypeptides
- The formation of alpha helices and beta sheets

■ The primary structure of a protein is the sequence of amino acids.

Which of the following is a fibrous protein?

- Hemoglobin
- Insulin
- Collagen ✓**

Myoglobin

| Collagen is an example of a fibrous protein.

Which type of protein is primarily involved in catalyzing biochemical reactions?

Structural proteins

Enzymes ✓

Transport proteins

Hormones

| Enzymes are the type of proteins that catalyze biochemical reactions.

Explain how enzymes, as proteins, lower the activation energy of biochemical reactions.

| Enzymes lower the activation energy of biochemical reactions by stabilizing the transition state and providing an alternative pathway for the reaction, allowing it to proceed more easily and quickly.

Which of the following are sources of dietary protein?

Meat ✓

Lentils ✓

Dairy products ✓

Fruits

| Sources of dietary protein include meat, lentils, and dairy products.

Which proteins are involved in the immune response?

Antibodies ✓

Enzymes

- Hormones
- Cytokines ✓

Proteins involved in the immune response include antibodies and cytokines.

How do post-translational modifications affect protein function? Provide examples.

Post-translational modifications affect protein function by altering their structure and activity. For example, phosphorylation can activate or inhibit enzymes, while glycosylation can impact protein stability and cell signaling.

Describe the role of proteins in maintaining cellular structure and function.

Proteins maintain cellular structure by forming structural components like the cytoskeleton, which provides shape and support, while also regulating cellular functions through signaling pathways and enzymatic activity.

What is the effect of denaturation on a protein?

- It enhances its function
- It changes its amino acid sequence
- It loses its structure and function ✓
- It increases its stability

Denaturation causes a protein to lose its structure and function.

Which of the following is an essential amino acid?

- Glycine
- Alanine
- Lysine ✓**
- Glutamine

■ Lysine is an essential amino acid that must be obtained from the diet.

What is the role of ribosomes in protein synthesis?

- To store genetic information
- To synthesize proteins ✓**
- To transport proteins
- To degrade proteins

■ Ribosomes are responsible for synthesizing proteins.

Which of the following are levels of protein structure?

- Primary ✓**
- Secondary ✓**
- Tertiary ✓**
- Quaternary ✓**

■ The levels of protein structure include primary, secondary, tertiary, and quaternary.

Which functions are performed by proteins in the body?

- Catalyzing reactions ✓**
- Providing energy storage
- Transport molecules ✓**
- Signaling between cells ✓**

■ Proteins perform various functions including catalyzing reactions, transporting molecules, and signaling between cells.

Which of the following are methods used to determine protein structure?

- X-ray crystallography ✓
- Mass spectrometry
- NMR spectroscopy ✓
- DNA sequencing

Methods to determine protein structure include X-ray crystallography and NMR spectroscopy.

What factors can lead to protein denaturation?

- High temperature ✓
- Extreme pH levels ✓
- High salt concentration ✓
- Presence of enzymes

Factors leading to protein denaturation include high temperature, extreme pH levels, and high salt concentration.

Explain the process of protein synthesis from DNA transcription to mRNA translation.

The process of protein synthesis begins with transcription, where the DNA sequence of a gene is transcribed into messenger RNA (mRNA) in the nucleus. The mRNA then exits the nucleus and enters the cytoplasm, where it is translated by ribosomes into a specific sequence of amino acids, forming a protein.

Discuss the impact of protein deficiency on human health and name two related disorders.

Protein deficiency negatively impacts human health by causing muscle loss, immune dysfunction, and growth retardation, with Kwashiorkor and Marasmus being two significant disorders associated with this deficiency.

What is the significance of protein folding, and what are the consequences of misfolding?

The significance of protein folding lies in its role in ensuring proteins achieve their correct functional conformation; misfolding can result in diseases such as Alzheimer's, Parkinson's, and cystic fibrosis.