Levels and Functions of Protein Structure

Biology · Answer Key · 20 Questions

1. What bond connects amino acids in a primary structure?

A) Hydrogen bond
B) Peptide bond
C) Ionic bond
D) Disulfide bond

2. Which secondary structure is stabilized by hydrogen bonds every fourth residue?

A) Beta-sheet
B) Alpha-helix
C) Random coil
D) Disulfide bridge

3. What is the primary driver of tertiary protein folding?

A) Interactions among side chains
B) Peptide bonds
C) Nucleotide sequences
D) Sugar residues

4. What characterizes the quaternary structure of a protein?

A) Single polypeptide chain
B) Assembly of multiple subunits
C) Linear sequence of amino acids
D) Hydrogen bonding only

5. Which force helps non-polar side chains cluster away from water?

A) Ionic bonds
B) Hydrophobic interactions
C) Disulfide bonds
D) Van der Waals forces

6. What type of bond is a disulfide bridge?

A) Ionic
B) Covalent
C) Hydrogen
D) Metallic

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7. Which proteins are generally insoluble in water and serve structural roles?

A) Globular proteins
B) Fibrous proteins
C) Conjugated proteins
D) Simple proteins

8. What is a primary function of globular proteins?

A) Tensile strength
B) Biological catalysis
C) External protection
D) Elasticity

9. Which of these is an example of a fibrous protein?

A) Hemoglobin
B) Collagen
C) Myoglobin
D) Lysozyme

10. What causes diseases like Alzheimer's and Parkinson's according to the text?

A) Protein misfolding
B) Excessive hydration
C) Rapid synthesis
D) Disulfide degradation

11. What is the main function of alpha-keratin?

A) Oxygen transport
B) Structural support in skin/hair
C) Enzyme activity
D) Immune defense

12. What determines the protein's fundamental identity?

A) Secondary structure
B) Primary structure
C) Temperature
D) Solubility

13. Which interaction involves the attraction between oppositely charged side chains?

A) Ionic bonds
B) Disulfide bonds
C) Hydrophobic interactions
D) Van der Waals

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14. What is the role of structural information in vaccine development?

A) Changing the virus
B) Designing vaccine constructs
C) Reducing efficacy
D) Increasing cost

15. How does the quaternary structure of fibrous proteins differ from globular?

A) Fibrous uses covalent bridges
B) Globular uses covalent bridges
C) Both are identical
D) Fibrous uses no bonds

16. What are enzymes classified as based on function?

A) Structural proteins
B) Biological catalysts
C) Toxins
D) Storage proteins

17. Which protein is mentioned as a storage protein for ions?

A) Ferritin
B) Keratin
C) Myosin
D) Elastin

18. What does 'dehydration synthesis' form?

A) Peptide bonds
B) Hydrogen bonds
C) Ionic bonds
D) Disulfide bridges

19. What is the significance of conformational changes in proteins?

A) They are markers for disease
B) They destroy the cell
C) They occur only in plants
D) They have no biological impact

20. Which structure refers to the localized folding of a polypeptide chain?

A) Primary
B) Secondary
C) Tertiary
D) Quaternary

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