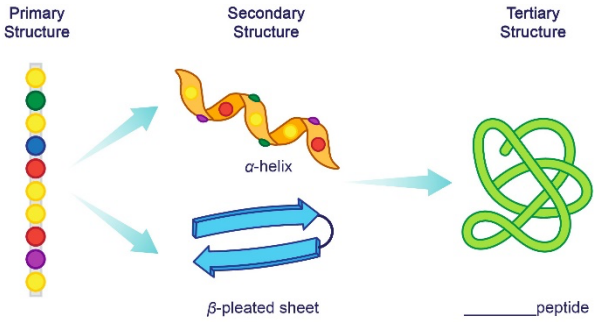
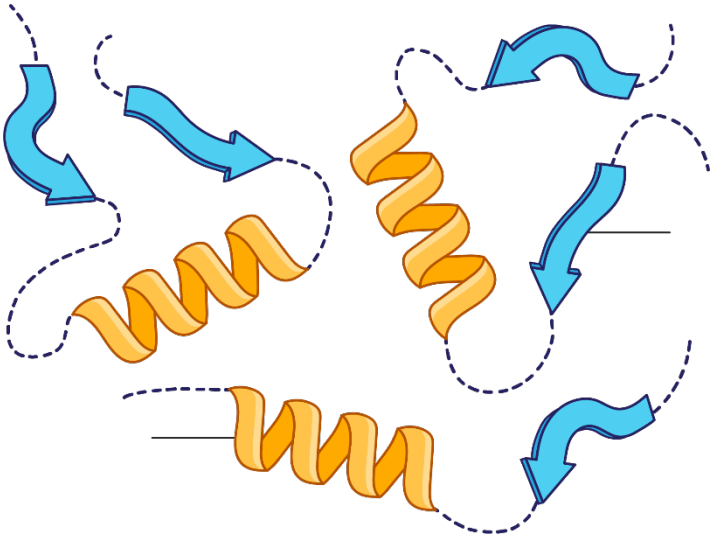
CONCEPT: TERTIARY PROTEIN STRUCTURE



- The tertiary structure of a protein is its overall 3D _____.
  - □ Results from the _____ and _____ of a peptide chain.
  - □ Stabilized by interactions between ____ groups.
    - Involves both _____ and _____ R groups.



- Folding of a peptide into tertiary structure _____ _____ change its primary and secondary structures.

EXAMPLE: Which of the following statements about primary, secondary, and tertiary protein structures is incorrect?

a) The tertiary structure of a protein is stabilized by interactions between R groups of different amino acids.

b) The folding of a peptide into the tertiary structure destroys its secondary structure.

c) Due to the folding of the peptide chain, distant R groups come close and interact with each other.

d) A folded peptide/protein can have α-helices and β-pleated sheets at the same time.

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Interactions within the Tertiary Structure

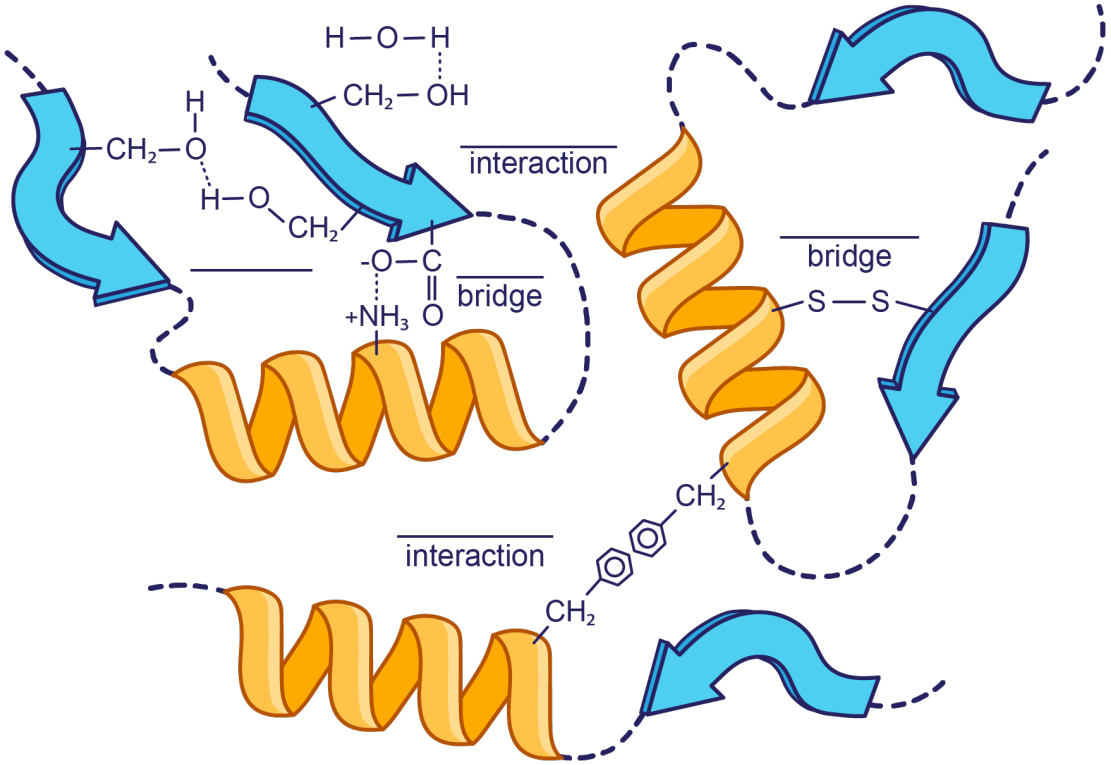
- The tertiary structure mostly consists of non-covalent interactions.

  1) _____ interaction 2) _____ interaction

  3) _____ bonding 4) Salt bridge (_____ bond)

- A covalent bond can help to hold the _____ peptide in place.

  5) Disulfide bridge: forms when _____ groups from two cysteine residues react to form a _____ bond.



EXAMPLE: Which one of the following interactions is the most likely to be found at the surface of a folded peptide?

a) Salt bridge

b) Hydrogen bonding

c) Hydrophobic interaction

d) Hydrophilic interaction

CONCEPT: TERTIARY PROTEIN STRUCTURE

PRACTICE: Which of the following amino acid pairs are the most likely to form hydrogen bonds?

a) Cysteine – cysteine

b) Lysine – glutamate

c) Serine – threonine

d) Leucine – valine

PRACTICE: What type of R group interaction is the most likely between the alanine and isoleucine residues?

a) Hydrogen bonding

b) Hydrophobic interaction

c) Disulfide bridge

d) Salt bridge

PRACTICE: Which of the following amino acid pairs can form a salt bridge?

a) Cysteine – methionine

b) Serine – glutamine

c) Valine – isoleucine

d) Lysine – glutamate