

- B. arg-asp-ser-gly-phe-leu-ile-ile-gly-glu-lys
 - C. phe-asp-gly-arg-leu-glu-ile-lys-ile-ser-gly
 - D. phe-gly-leu-ile-asp-arg-glu-lys-ile-ser-gly
54. Isolated beta-strands in proteins are rare primarily because
- A. adjacent beta-strands are required to satisfy the hydrogen bond requirement of the main-chain amide bonds.
 - B. beta-strands always prefer to be buried in the interior of proteins.
 - C. most amino acids prefer the alpha-helix conformation.
 - D. Polypeptide chains do not prefer to adopt an extended conformation.
55. Antiparallel beta-sheets are often found at the surface of a protein, while parallel beta-sheet structures are found in the interior of proteins. From this information, one can infer that
- A. antiparallel beta sheets are composed of alternating hydrophobic and hydrophilic amino acids.
 - B. anti-parallel beta sheets are composed of hydrophilic amino acids only.
 - C. every third or fourth amino acid in an antiparallel beta sheet is charged.
 - D. Parallel beta sheets contain alternating hydrophilic and hydrophobic amino acids.
56. Which of the following statements about multisubunit globular proteins is incorrect?
- A. Subunits are typically held together by covalent interactions.
 - B. Errors during protein synthesis are minimized by the synthesis of shorter proteins.
 - C. Multisubunit enzymes often assemble the active site with residues from adjacent subunits.
 - D. Multisubunit proteins are typically regulated by ligand-induced changes in monomer subunit structure.
57. The formation of an alpha helix results in a dipole along the helix, with a positive N-terminus and a negative C-terminus. What is the most likely explanation for this phenomenon?
- A. The helix dipole is the sum of each peptide bond dipole moment.
 - B. the N-terminus of a protein contains a positively charged amine group, while the C-terminus contains a negatively charged carboxyl group.
 - C. the peptide carbonyl oxygens that hydrogen bond with amide hydrogens "point" toward the C-terminus.
 - D. Side chain residues in alpha helices extend outward, perpendicular to the axis of the helix.
58. The role of molecular chaperones in protein folding is to:
- A. increase the rate of folding into the correct conformation by binding to newly synthesized, unfolded proteins.
 - B. recognize, bind, and unfold incorrectly folded proteins, thus allowing them to refold properly.
 - C. modify side chain residues in newly synthesized proteins in order to prevent interactions that could lead to misfolding
 - D. reduce incorrectly formed disulfide bridges that can lead to misfolding.

59. You discover a fibroblast cell line that produces defective collagen. The collagen that this cell line synthesizes does not form a triple helix and no collagen is secreted. Which of the following might explain this mutation?

- A. The collagen has an Gly- \rightarrow Arg mutation.
- B. A defect is present in prolyl or lysyl hydroxylase.
- C. A defect in lysyl oxidase.
- D. A defect in vitamin C uptake.

