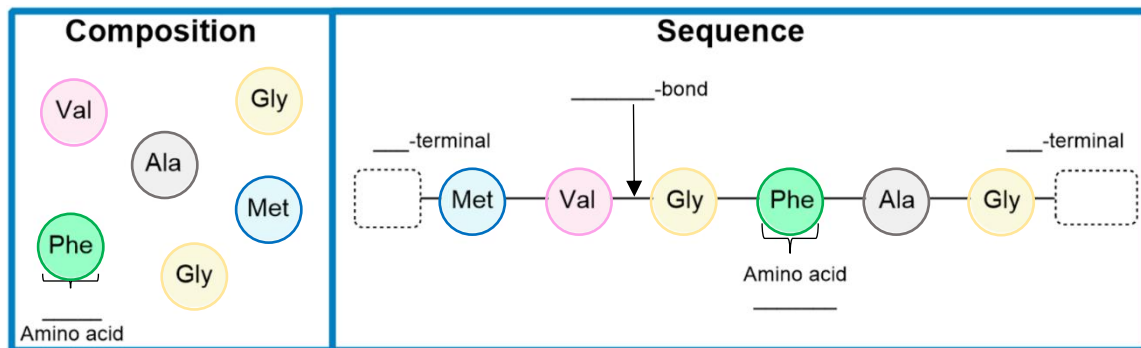


CONCEPT: PRIMARY STRUCTURE OF PROTEIN

- Recall: free amino acids can be covalently linked in a chain by _____ bonds to create a polypeptide.
 - Amino acid _____: amino acids that are linked in a polypeptide chain.
- Primary protein structure: both the *composition* & _____ of amino acid residues in a chain.
 - Composition: the _____ & _____ of amino acids present.
 - Sequence: the particular _____ of amino acid residues from the ____-terminal to the ____-terminal end.

EXAMPLE: Primary protein structure = Composition + Sequence.



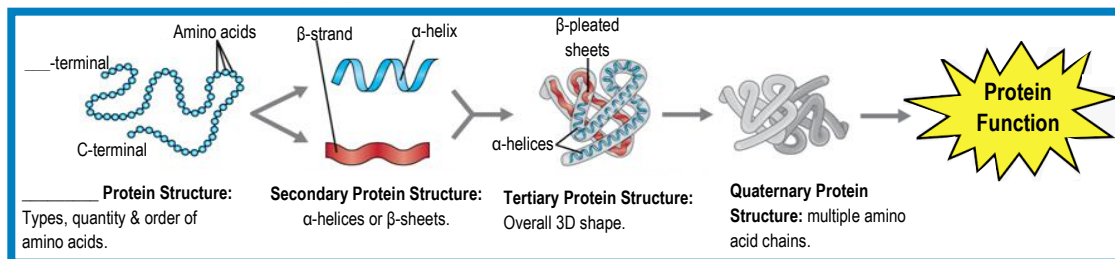
PRACTICE: Which statement regarding primary protein structure is false?

- Amide linkages covalently keep amino acid residues in their particular order.
- Protein composition entails both the quantity and types of amino acids, but not the order.
- Amino acid sequences are always considered from N-terminal to C-terminal residues.
- Each amino acid residue contains both a free/ionizable amino & carboxyl group.

Importance of Primary Protein Structure

- Primary protein structure: defines a protein, its _____ & _____.
 - _____ all other levels of structure (secondary, tertiary & quaternary).

EXAMPLE: Impact of Primary Protein Structure.

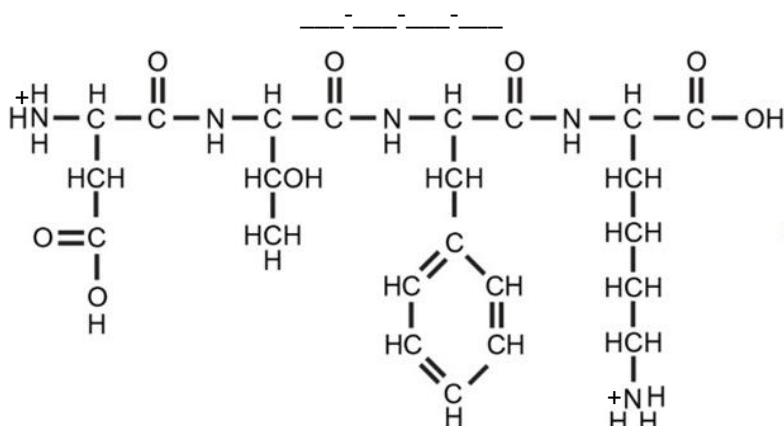


PRACTICE: A new drug cleaves some amide linkages in a polypeptide chain. Which level of structure is directly affected?

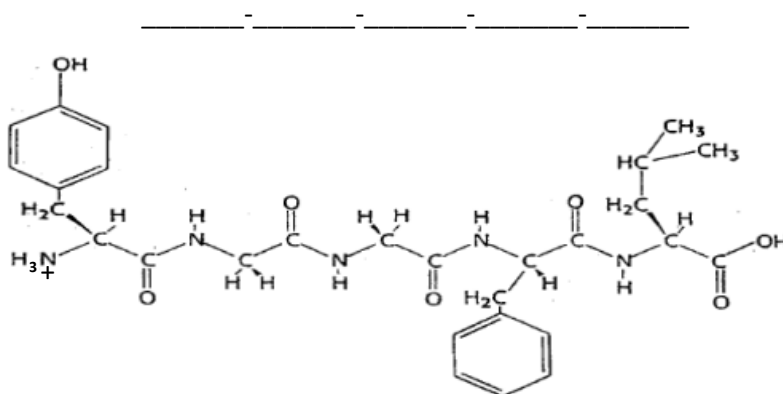
- Primary protein structure.
- Secondary protein structure.
- Tertiary protein structure.
- Quaternary protein structure.

CONCEPT: PRIMARY STRUCTURE OF PROTEIN

PRACTICE: Fill in the blanks with the primary sequence of the peptide. Use the 1-letter codes. Circle all the α -carbons.



PRACTICE: A) Fill in the blanks with the primary protein structure of the following peptide. Circle all the α -carbons.



B) The above peptide is an effective buffer at pH 10. Which amino acid residue is responsible for that?

PRACTICE: Identify the primary level of structure for the following peptide, which is an inhibitor of the Angiotensin I Converting Enzyme (ACE I) and a regulator of blood pressure and hypertension. Circle all the α -carbons.

