

Amino acids and proteins

Amino acids are amphoteric. They have acidic and basic properties. Amino acids are joined by a bond, by condensation reaction.

Formation of proteins

Primary stage: sequence of amino acids –joined by strong covalent bonding

Secondary stage: amino acids are linked by hydrogen bonding to form alpha coiled and beta pleated sheets.

Tertiary stage: interactions between the alpha coiled and beta Pleated sheets occurs due to the chemical bonding between the side chains. (Polypeptide)

Quaternary stage: many polypeptide chains come together due to ionic, van de Waals, hydrogen bonding and disulphide bonding.

Different proteins may vary in size and shape determining the structure and function. Each protein is made up of a unique sequence of amino acids. Primary sequence determines the folding of the polypeptide into the functional protein structure. Changes in sequence could cause mutation, altering the structure and hence, altering the function. Changes in sequence may occur due to insertions, deletions, and substitutions.