Tertiary structure

- specific overall shape of a protein.
- gives steric relation between aminoacids far apart from each other, but close in 3D aspect.
- maintained by non-covalent bonds like
- Hydrogen bond
- Electrostatic bond (ionic bonds)
- Hydrophobic bonds
- Vander waals forces.

Super Secondary motifs.

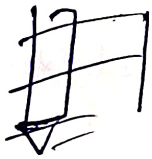
- Tertiary structures describes the spatial relationships between certain secondary structures, which are known as SUPER SECONDARY MOTIFS OR

- Motifs include connections between different combinations of secondary structures.

eg: β-α-β motif

β hairpin motif

'Greek key motif'.



Specific structure : motifs in some proteins.

Protein	STR: MOTIFS
• myoglobin	→ α-helix & β pleated sheet.
• collagen	→ • Triple helix
• Elastin	→ No specific motif.
• superoxide dismutase	→ antiparallel β pleated sheet.

Domains

- Secondary and tertiary structure of large polypeptides are organised into structurally connected, but functionally independent unit.

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Domains.

- Domain may represent a functional unit of a protein.

eg: phenyl alanine hydroxylase has 3 domains.

Quarternary structure of

- proteins with two or more chains, aggregate to form one functional unit.
- loss its function when these sub units are dissociated
- structure is maintained forces like
  - → hydrogen bond
  - → Electrostatic.
  - hydrophobic
  - van der waals

- Each polypeptide chain is called as subunit or monomer.

- dimer - 2 polypeptide chains.
- Trimer - 3 polypeptide chains.
- Tetramer - 4 polypeptide chains.

HOMODIMER

- contains two copies of same polypeptide chain

HETERODIMER

- Contains two different types of polypeptides.

eg: Hemoglobin has 4 polypeptide chains, 2 α & 2 β chains.

- Igs have 2 light chains and 2 heavy chains.
- Creatine kinase (CK) is a dimer.
- Lactate dehydrogenase (LDH) is a tetramer.