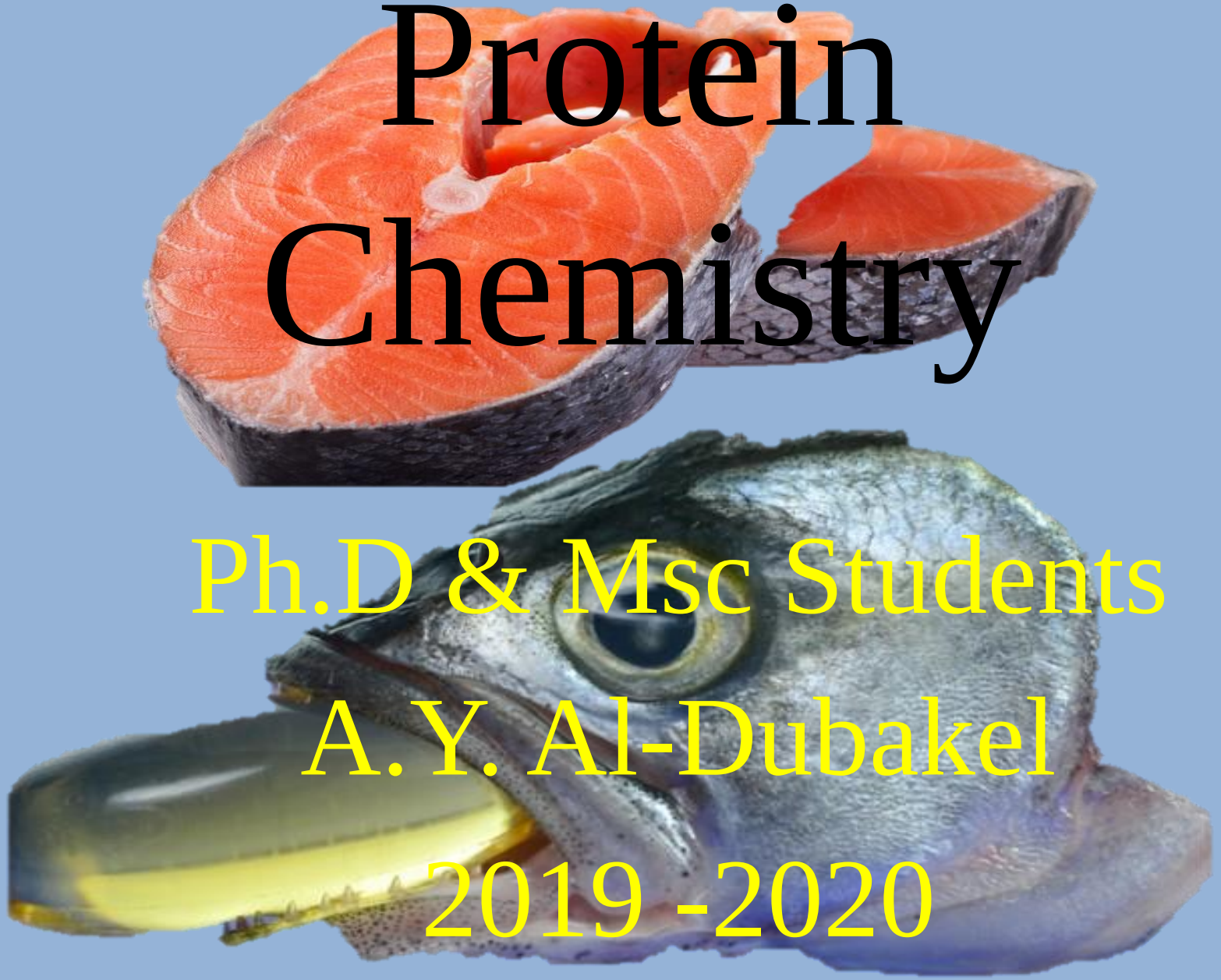
Protein Chemistry



Ph.D & Msc Students

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2019 -2020

Lecture 4

Levels of protein structure

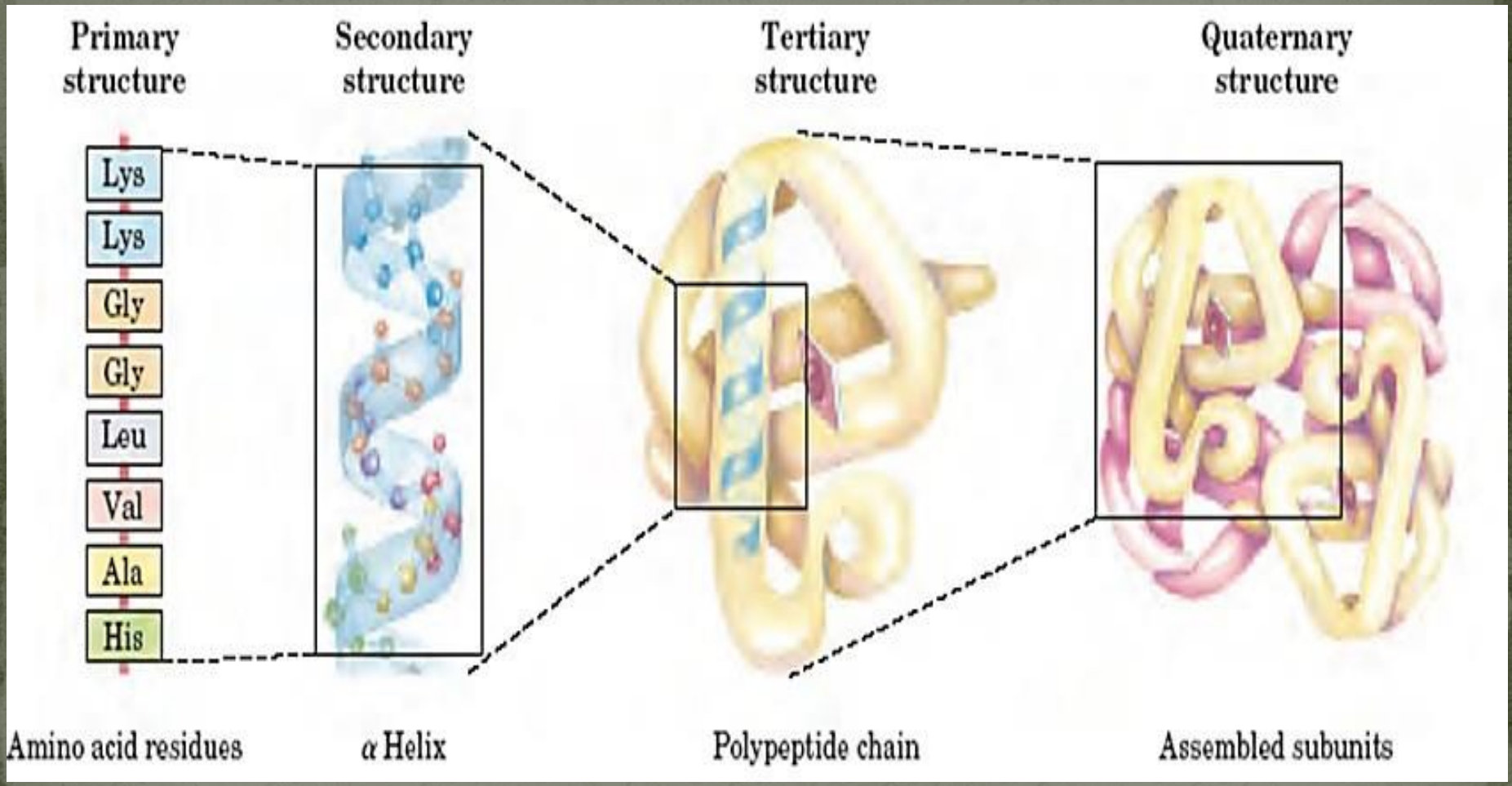
- Primary (1°)
- Secondary (2°)
- Tertiary (3°)
- Quaternary (4°)

organizes folding within a single polypeptide

interactions between two or more polypeptides that make a protein

Poly-Peptide

Levels of Protein Structure:



Levels of protein structure

- Primary (1^o)
- Secondary (2^o)
- Tertiary (3^o)

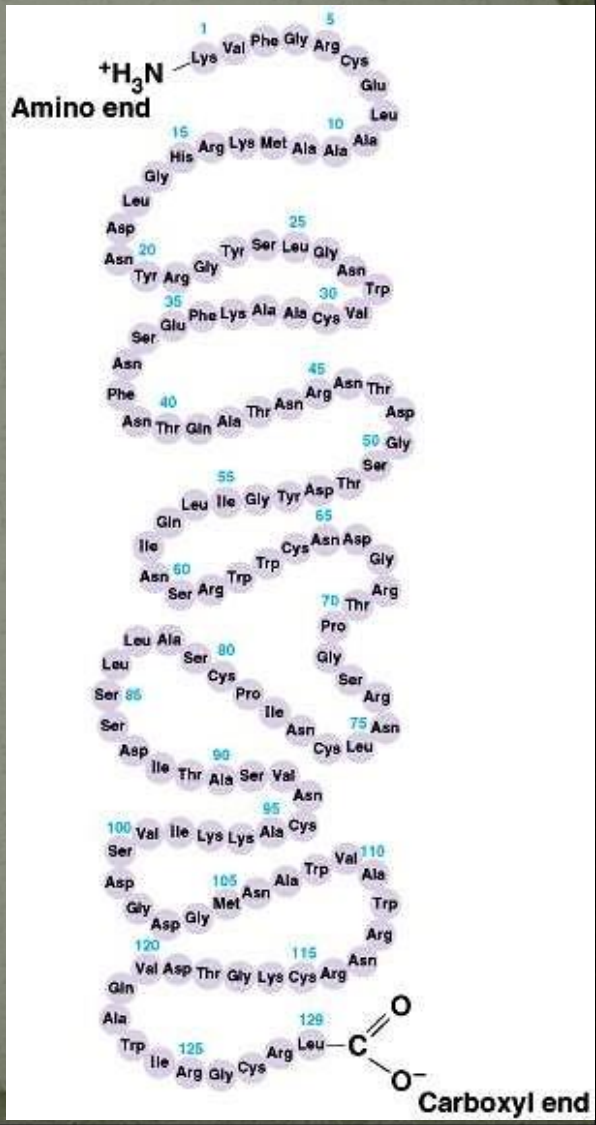
organizes folding within a single polypeptide

- Quaternary (4^o)

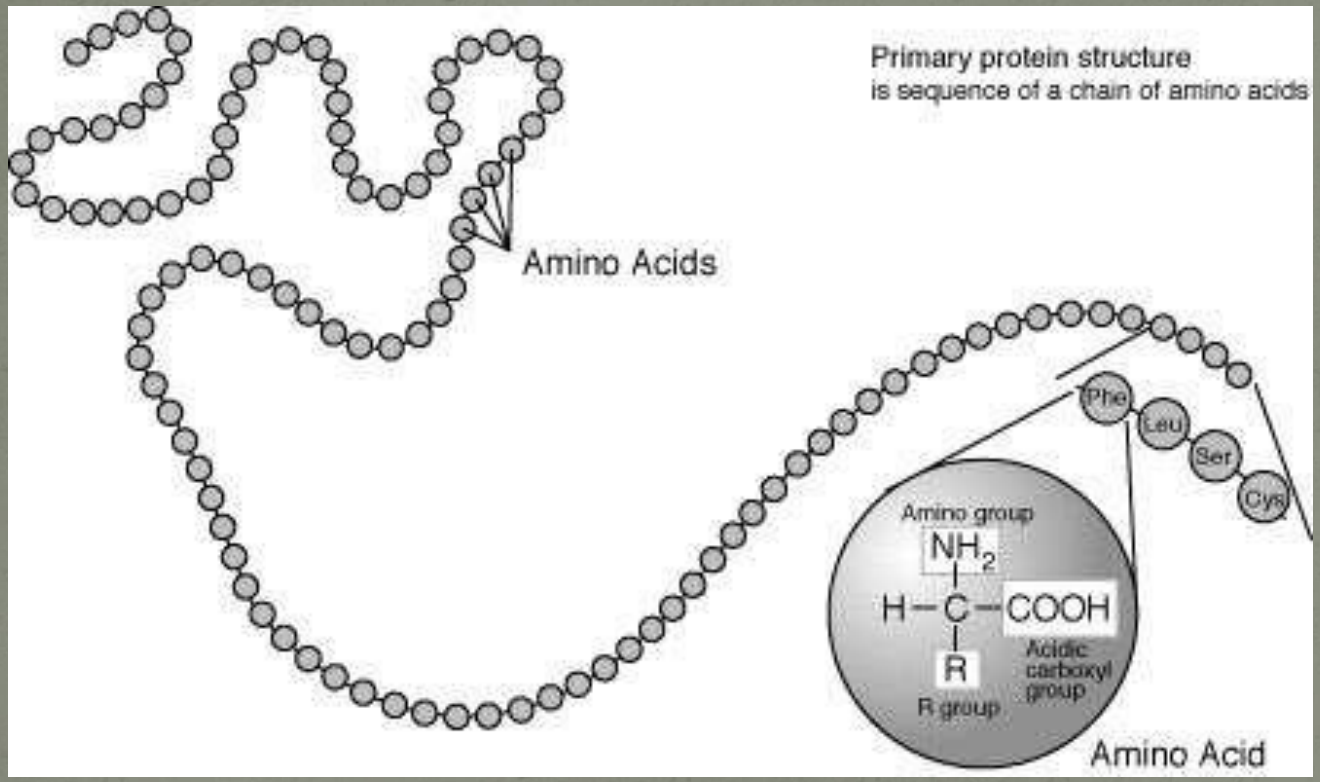
interactions between two or more polypeptides that make a protein

Primary (1°) Structure

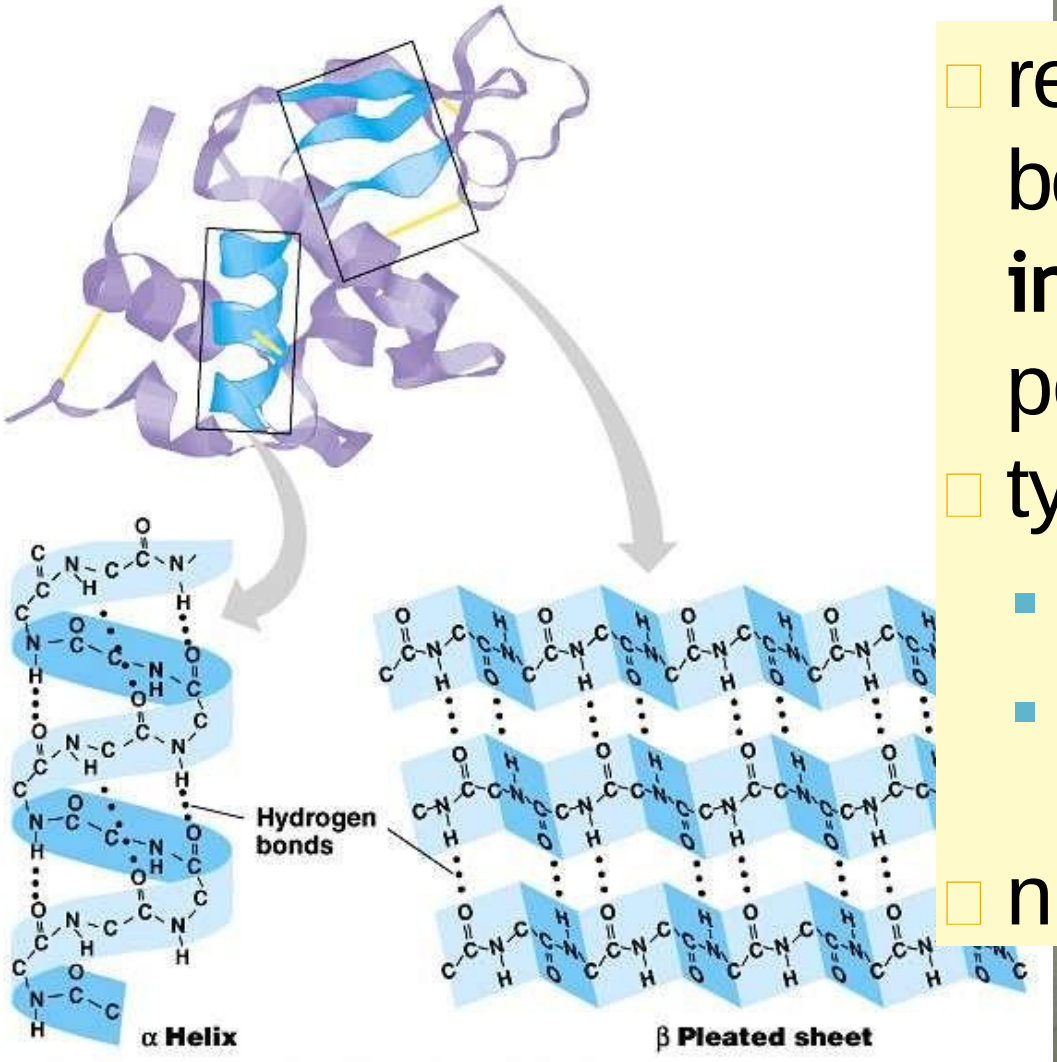
- unique sequence of amino acid
- sequence determined by DNA
- a slight change in primary structure can affect a protein's conformation and ability to function



Primary (1°) Structure



Secondary (2°) Structure



- results from **hydrogen** bonds at **regular intervals** along the polypeptide **backbone**
- typical shapes:
  - alpha helix (coils(
  - beta pleated sheets (folds(
- not found in all proteins

Fig. 5.20

Tertiary (3°) Structure

Interactions between:

- R groups and R groups
- R groups and backbone

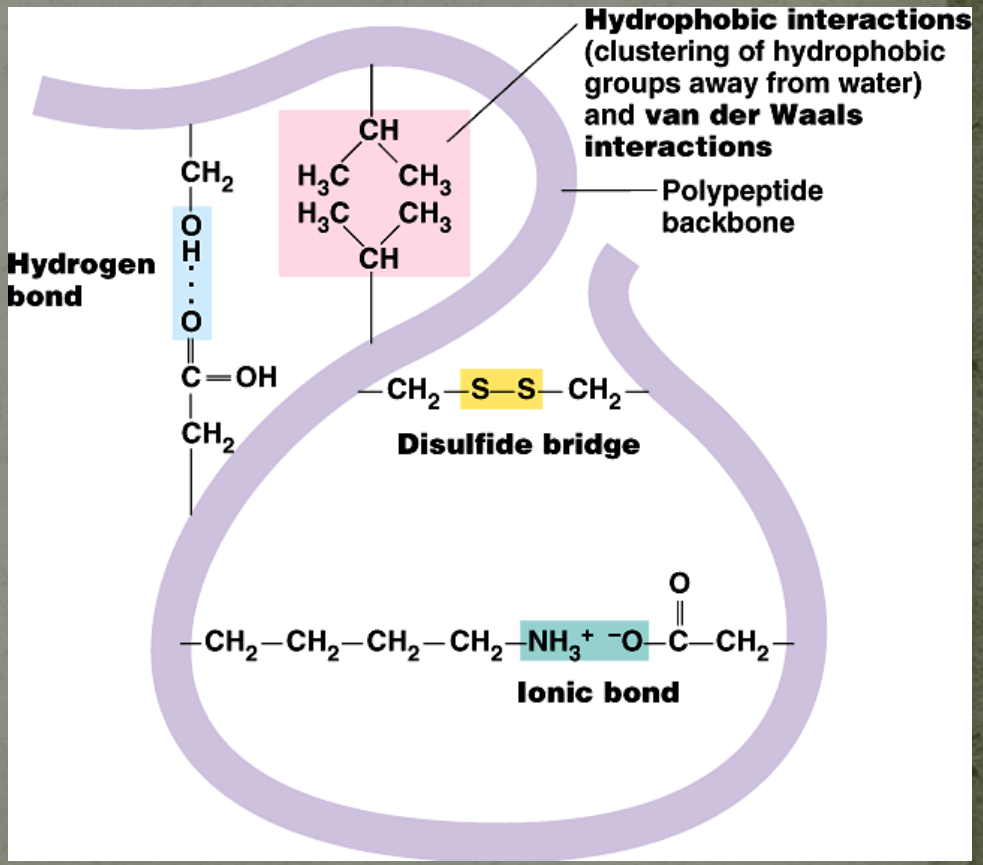


Fig. 5.22

Triple-Stranded Helix of Collagen