

Three-Dimensional Structure of Proteins:

Secondary Structure

Biochem 4511

Figures: Essentials of Biochemistry, 3rd Ed. OSU Custom Edition
Principles of Biochemistry 5th Ed., Moran *et al.*
Lehninger Principles of Biochemistry 5th Ed., Nelson & Cox
Fundamentals of Biochemistry 2nd Ed., Voet, Voet & Pratt

Levels of Protein Structure

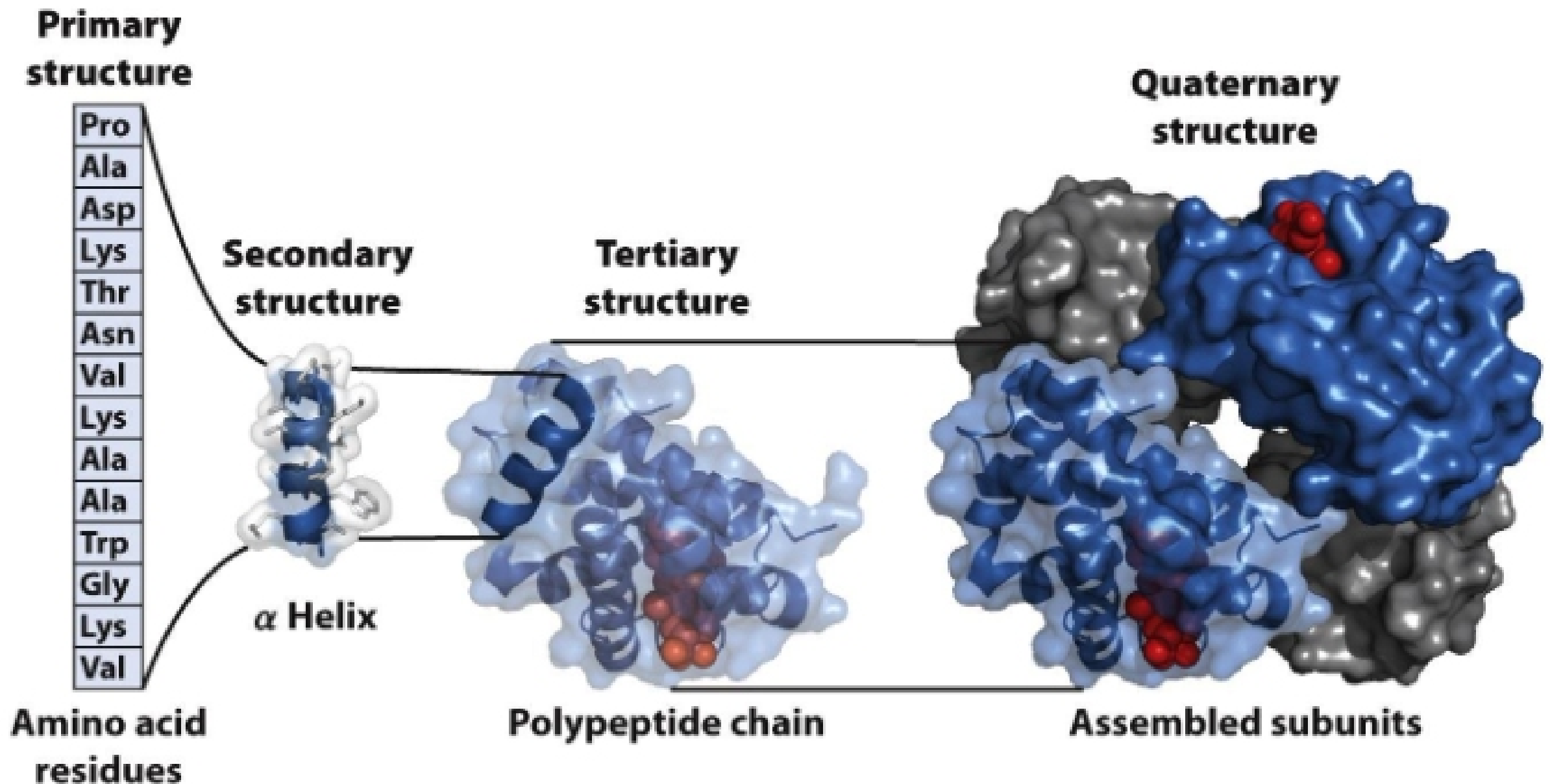


Figure 3-23

Lehninger Principles of Biochemistry, Fifth Edition

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denatured - unfolded, no interactions, functionless
folding - secondary structures

“Rules” for Secondary Structure

- In 1950s, Linus Pauling and Robert Corey proposed **α -helices** and **β -sheets** as stable secondary structural elements
- They described structures that were:
 - 1) Sterically allowed and favorable
 - 2) Maximized the hydrogen bonding capacity of backbone amide nitrogens and carbonyl groups