

Chapter 6

Proteins as Product



Introduction

- Known as polypeptides
- Organic compound made of amino acids arrange in a linear chain and folded into a globular form
- Chain of amino acids are joined together by the peptide bonds between the carboxyl and amino groups
- 4 types of protein structure
 - Primary structure

4 type of protein structure

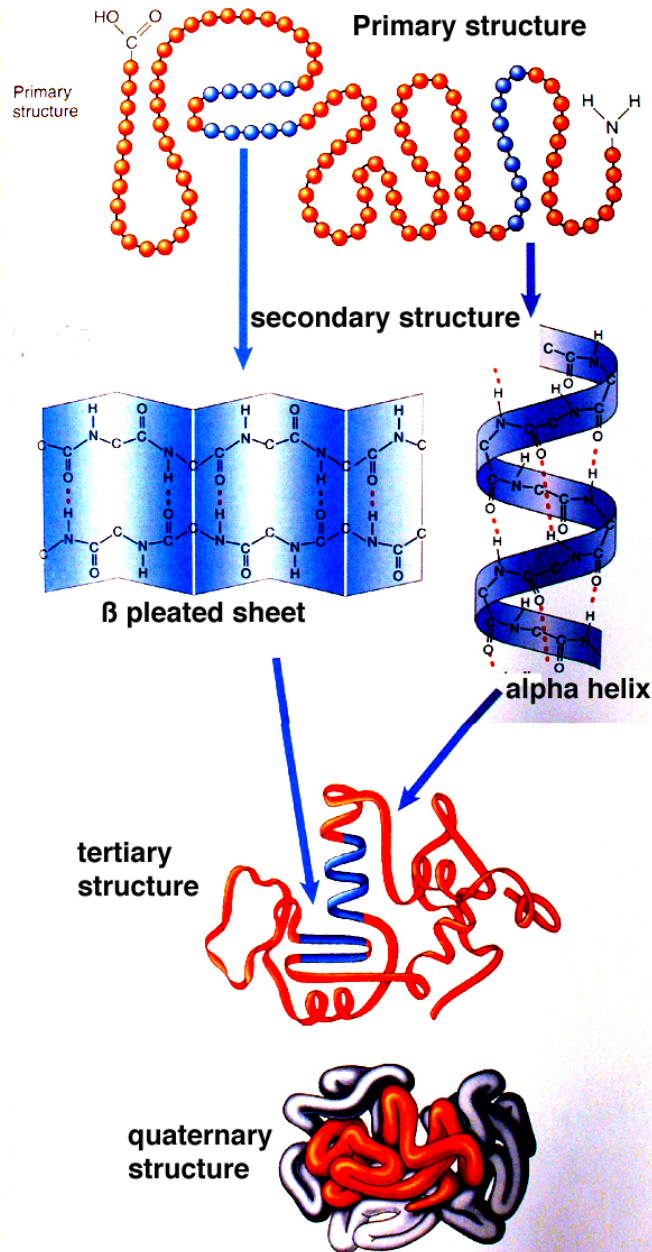
- Primary structure
- Secondary
 - Regularly repeating local structures stabilized by hydrogen bonds
 - Alpha helix, beta sheet and turns

Tertiary

- Overall shape of a single protein molecule; the spatial relationship of the secondary structures to one another
- Controls the basic function of the protein

Quaternary

- Structure formed by several protein molecules (polypeptide chains), usually called protein subunit, which function as a single protein complex



Protein as biotechnology product

- Medical application : Missing protein replacement such as in Gaucher disease (build up fat in organ) or insulin in diabetes patient
- Detergent: do better job of cleaning and biodegradable
- Enzymes can remove invisible residues
- Used in dish wash cleaning (enzyme can remove stains and film easily)

- Paper manufacturing and Recycling : reduce the negative environmental impact
- Enzyme make the process easier and recycle paper less expensive
- Bioadhesive : Made from organic sources such as vegetable matter, starch (dextrin), natural resins or from casein
- Biocompatible and used in biomedical application