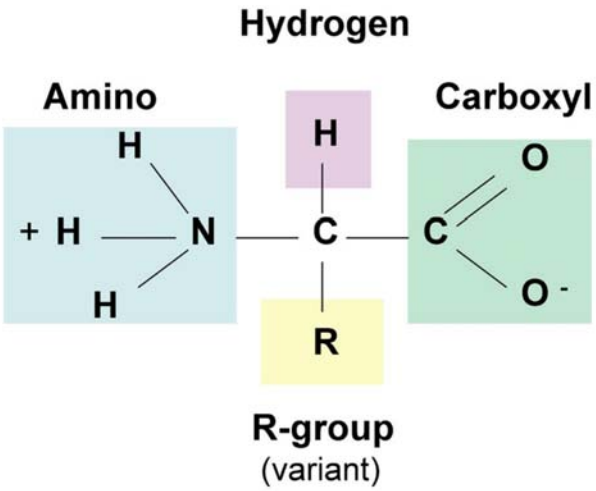
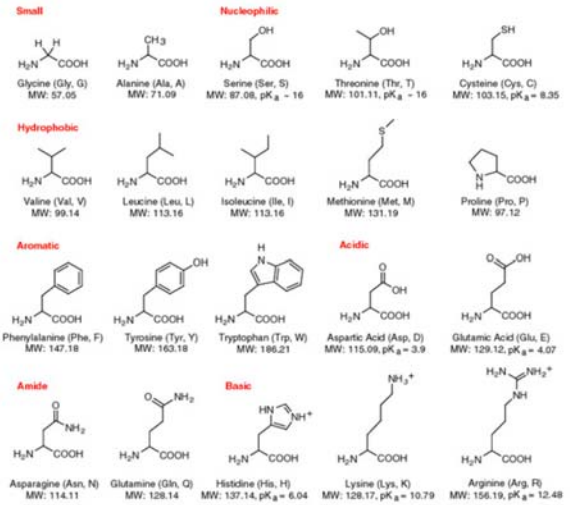
Proteins

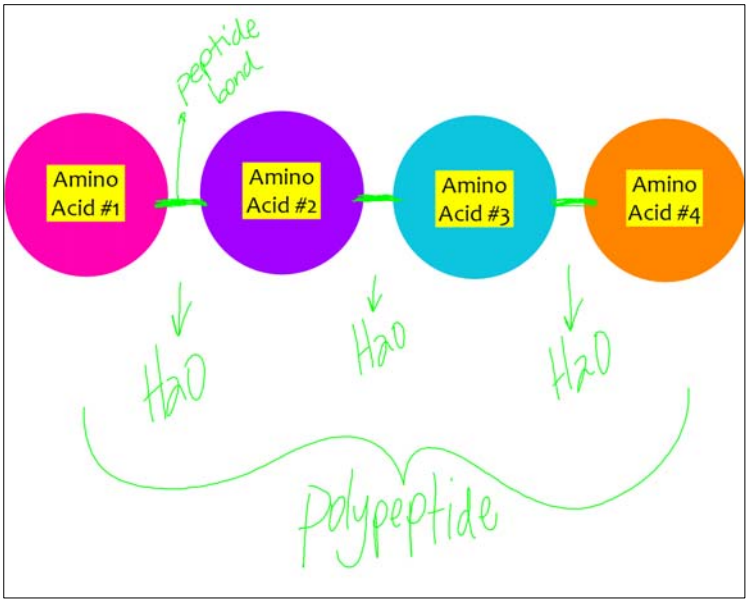
-Made up of C, H, O, N (and sometimes P and S)

-**Monomers** = amino acids
*there are 20 amino acids

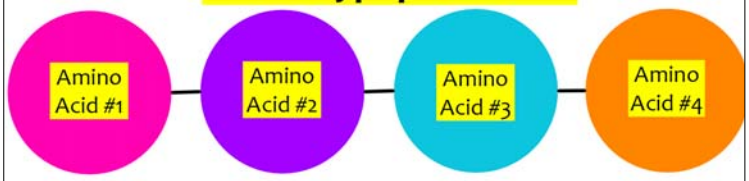
Amino Acid Structure





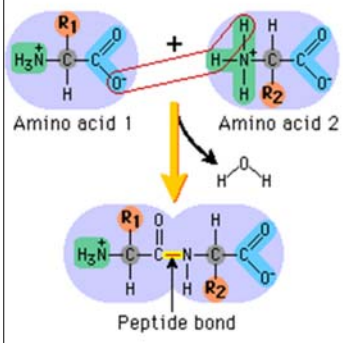


Protein Polymers: **Polypeptides**

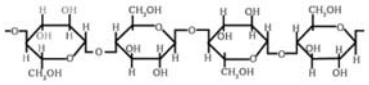


Proteins can contain **more than 1 polypeptide chain**

- Peptide Bond
- Polypeptide



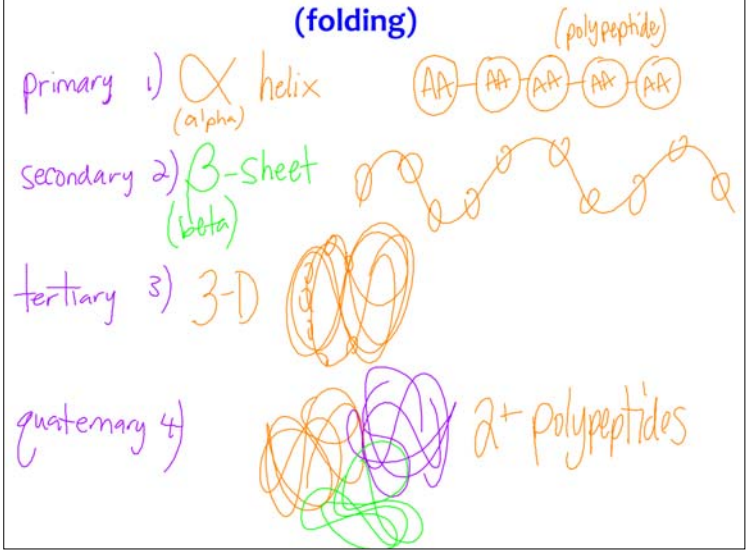
Primary protein structure- a polypeptide chain



Proteins:

- Functions:
  - Muscle Growth & Repair
  - Immune System
  - Digest food (enzymes)

BIOMED: **PROTEIN STRUCTURE (folding)**



(FOLDING)

PROTEIN STRUCTURE

primary 1) α (alpha) helix

Secondary 2) β (beta) sheet

tertiary 3) 3-D structure (1 polypeptide)

quaternary 4) 2+ polypeptides connected

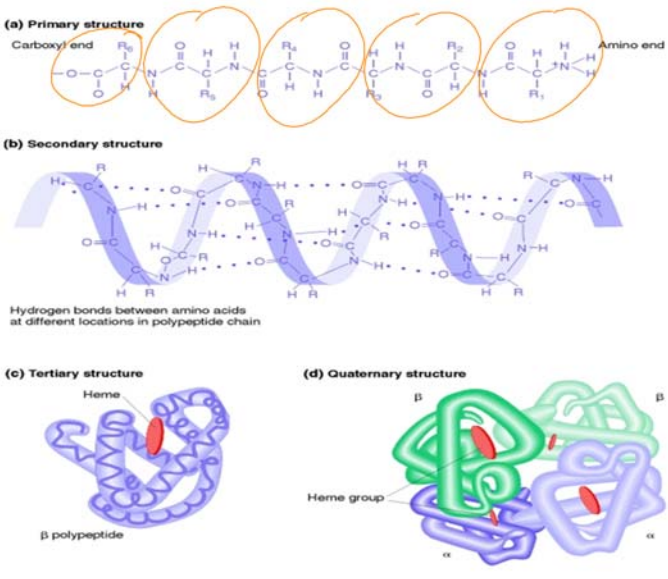
Structure of Proteins

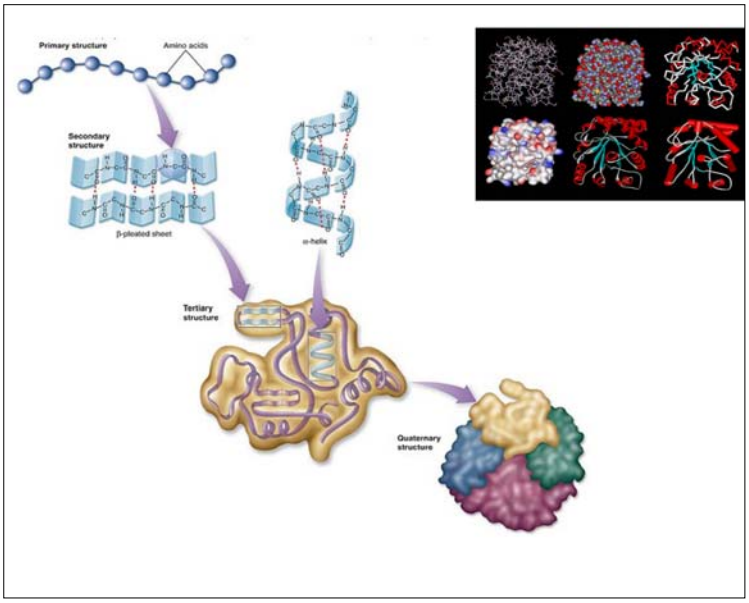
1st/Primary: Alpha Helix α
Amino acid sequence determines final shape & function

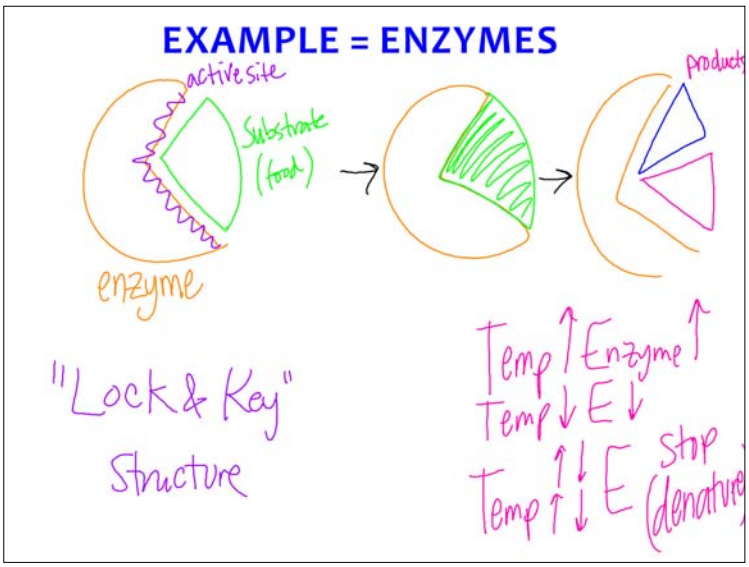
2nd/Secondary: Beta pleated sheet β

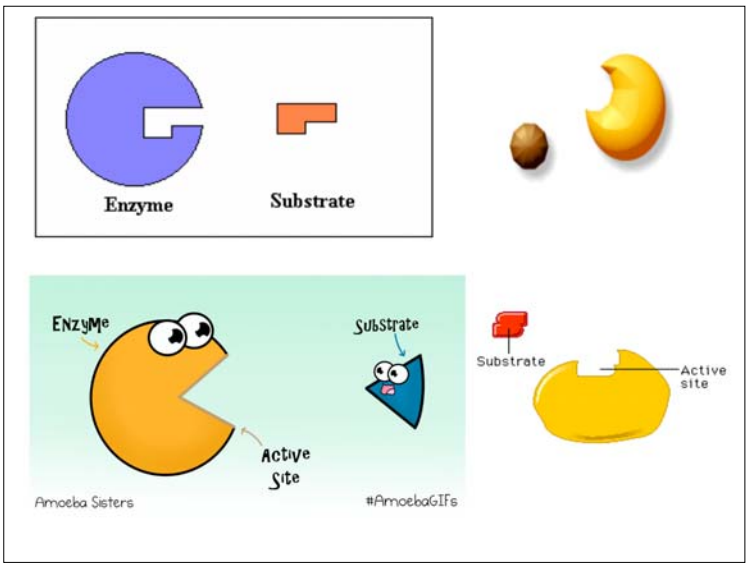
3rd/Tertiary: 3-D Structure of Polypeptide

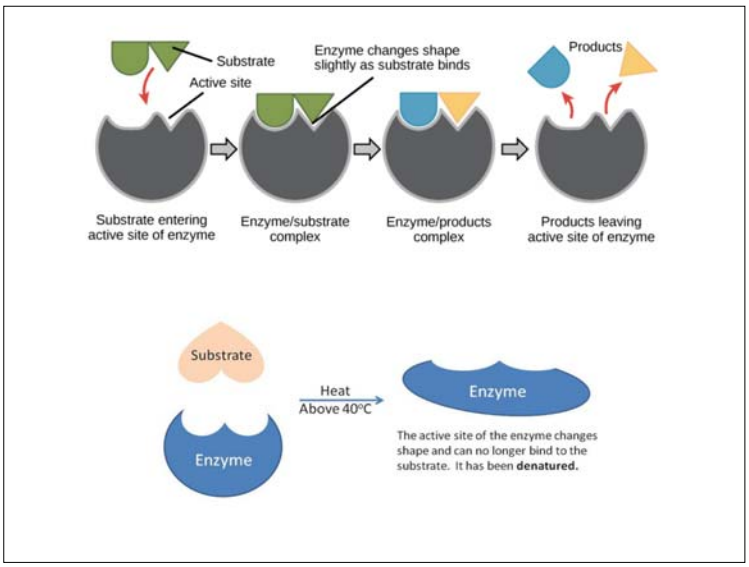
4th/Quaternary: 2 or more polypeptide chains held together






EXAMPLE = ENZYMES
active site
Substrate
(food)
Products
enzyme
"Lock & Key"
Structure
Temp ↑ Enzyme ↑
Temp ↓ E ↓
Temp ↑↓ E
Stop
(denature


Enzyme
Substrate
ENZYME
Substrate
Active Site
Amoeba Sisters
#AmoebaGIFs
Substrate
Active site


Substrate
Active site
Enzyme changes shape slightly as substrate binds
Products
Substrate entering active site of enzyme
Enzyme/substrate complex
Enzyme/products complex
Products leaving active site of enzyme
Substrate
Enzyme
Heat
Above 40°C
Enzyme
The active site of the enzyme changes shape and can no longer bind to the substrate. It has been denatured.