

Proteins

All proteins are formed from amino acids (the remainder group is the only difference between amino acids)

Functional proteins

- 1) Structural
 - keratin (hair and nails)
 - collagen (cartilage, ligaments and tendons)
 - cell membrane (carriers or channels)
- 2) Movement
 - actin and myosin (muscle contraction)
- 3) metabolic functions
 - hormones (insulin)
 - transport (hemoglobin)
 - enzymes (speed up chemical reactions)

Types

- 1) Dipeptide
 - 2 amino acids joined together by dehydration synthesis
 - connected by peptide bonds
- 2) Polypeptide
 - more than 2 amino acids but less than 20
- 3) Proteins
 - large number of amino acids joined together
 - 4 levels of organization
 - 1) Primary level: linear sequence of amino acids joined by peptide bonds. Sequences can be completely different from one another
 - 2) secondary structure: held together by peptide bonds which form H bonds that hold the structure. Beta pleated sheets = folding
 - 3) tertiary structure: 3D shape. It's created by different types of bondings between R-groups (covalent, ionic, and hydrogen). Very precise due to the original sequence of amino acids (1st structure = DNA)
 - 4) quaternary structure: occur when 2 or more polypeptide chains join together to form a single protein.