

20 different R groups

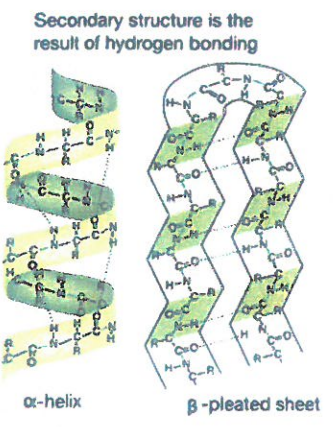
Amino Acid (monomer) → condensation reaction → Dipeptide

2x amino acids joined by a peptide bond

Polypeptide (polymer)

1° structure. The type, number and sequence of amino acids linked by peptide bonds only

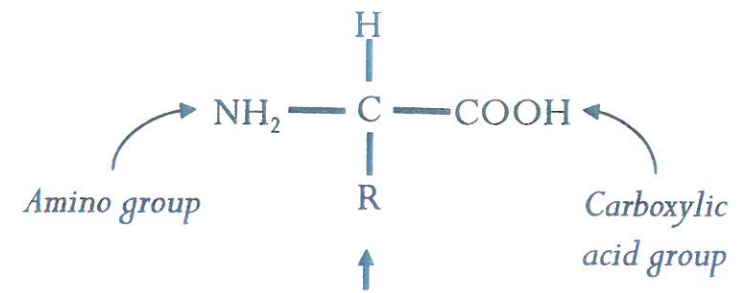
2° structure: Alpha Helix (most common), Beta Pleated sheet



Linked with H bonds → Further folding → 3° structure held by disulphide bridges, ionic bonds, H bonds and hydrophobic interactions between R groups making globular proteins with specific and precise 3d shapes

2 or more polypeptide chains → 4° structure

This is the structure of an amino acid



C, H, O, N (S)

Proteins

1.1 BIOLOGICAL MOLECULES

Biuret Test: Positive + solution turns purple, Negative - solution remains blue

Haemoglobin

4 folded polypeptide chains (all having 3° structure) with a prosthetic group containing iron. Held together by disulphide bridges.

Transports oxygen in blood

See 2.3

Transport proteins

See 1.3 for transport proteins found in cell membrane

Most abundant protein in animal kingdom

Strong ← Held with H bonds

Antibodies

defence

Enzymes

See 1.4

Hormones

Insulin

Found in the pancreas

Regulates blood sugar

Small protein

2 polypeptide chains linked by disulphide bridges

Twisted to make triple helix

3 polypeptide chains in secondary structure (alpha helix)

Thousands of proteins

Carry out a range of activities

Metabolic

Globular (globe shaped) soluble

Have 3° structure and often 4° structure

Structural

Fibrous (fibres) insoluble

No 3° structure

Polypeptides form long parallel chains with cross linkages to form fibres

Collagen

connective

main component of tendons

Keratin

Hair, nails, claws

Alpha helices coiled and cross linked to each other

