

PROTEINS, AN ASSOCIATION OF AN AMINOACID

Protein: Complex molecules found in our body, that determine a specific trait, made up of simple units => A.A (Amino Acids)

Gene (codes for) → **Protein**

Amino Acid: Building block of protein.

Protein maybe classified according to:

1) Structure: **Structural Protein:**

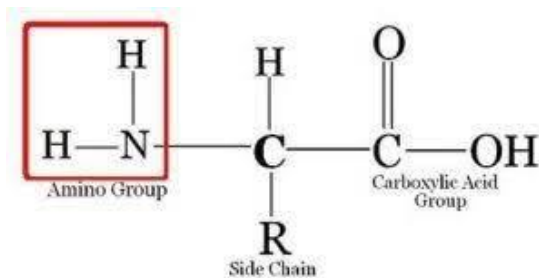
- Enter in the composition of our body
- Example: Myoglobin → Protein that enters in the building up of muscles

2) Function: **Functional Proteins:**

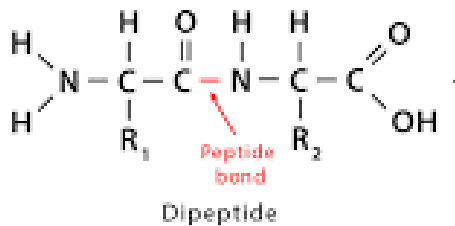
- Proteins that have a role in the body
- Example: Antibodies and Hormone

Complex Protein (Undergo Digestion) → Simple Nutrients A.A(Used by to produce) → New Proteins

Title: Structure of A.A



Title: Structure of dipeptide



- ✚ There are 20 types of A.A that are different in our body
- ✚ These 20 types (used to) => Produce different proteins

Characteristics of Proteins:

- ❖ Specific number of A.A
 - ❖ Specific sequence of A.A
 - ❖ Specific number and kinds of A.A
 - ❖ Specific 3D dimensional structure
- Change in these characteristics, the protein will be modified

NOTE:

Less than 10 A.A → Peptide

Between 10 and 100 A.A → Polypeptide

More than 100 A.A → Protein

Disulfide Bond: Joins 2 peptides together

Peptide Bond: Join 2 A.A together

Chromatography:

Aim: Used to separate different constituents of a protein molecule (A.A) => They are separated according to their degree of solubility in a solvent

Chromatography allows us to know: Different kinds of A.A (But not their sequence)

NOTE:

Sequence of nucleotides in the gene coding for a protein, allow us to know the sequence of A.A in a protein

Protease Enzyme breaks down protein into A.A

Glycemia: Level of sugar in the blood

Hyperglycemia: Increase of glucose in blood

Hypoglycemia: Decrease of glucose in blood

Diabetes: Permanent hyperglycemia

Insulin:

- Hormone that decrease the level of glucose in blood (hypoglycemic hormone)
- Made up of A.A, and in nature is protein
- Produce Beta-cells of islets of langerhan found in pancreas

NOTES:

- **Alpha cells:** secrete glucagon which increase glucose in the blood.
- After a protein is synthesized, it undergoes modifications in order to acquire its final active form.

Hypothesis:

- The change in the total number of A.A, Kind of A.A, and number of each kind of A.A leads to the change in the protein.
- The 3D structure of protein affects its function, where the protein in its folded form is active.
- The change in number and sequence of A.A changes the protein from in-active form to active.

Urea: Denaturing Agent

Breaks down the disulfide bond

Betta-Mercaptoethanol: Reducing Agent

Adds hydrogen next to each sulfur