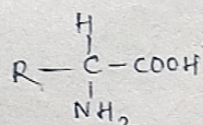


AMINO ACID (Structure)

Amino acid are essential components of all living cells as building blocks of proteins. They are also metabolically active and supply substrates for many other biochemical reactions.

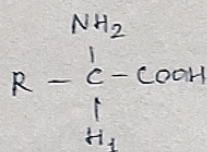
In a bacterial cell, about 0.4% of the dry weight is amino acids. The amount in other living system varies according to the species, age and part of the body.

Chemically, amino acids are carboxylic acid containing at least one amino group. In protein amino acids, it is always the α -carbon atom, which is aminated and hence they are called α -amino acid. The general structural formula of the amino acid is,

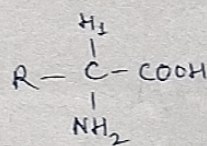


Where R may be $-\text{H}$ as in glycine or $-\text{CH}_3$ as in alanine or some other group in some other amino acid.

Since α -carbon atom contains four different groups or atoms (except in the case of glycine), the amino acids exist in two enantiomorphs; L-form or D-form.



L-form

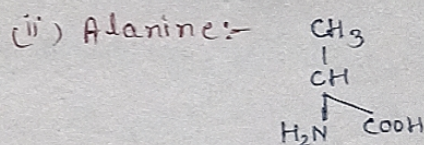
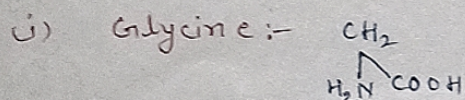


D-form

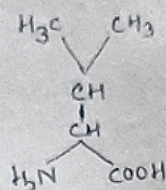
All the amino acid which occurs in proteins belong to L-form. D-amino acid, however, have been discovered in bacteria and in antibiotics.

STRUCTURE OF PROTEIN AMINO ACIDS:

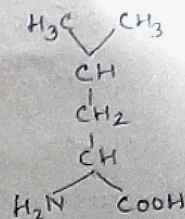
[A]. Amino acid containing aliphatic hydrocarbon chains:



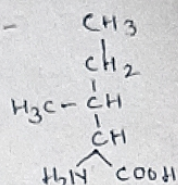
(iii) Valine :-



(iv) Leucine :-

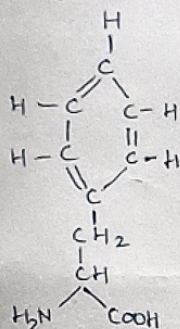


(v) Isoleucine :-

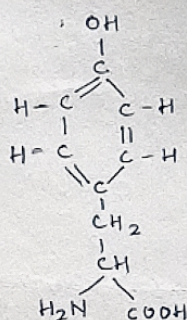


[B]. Amino acids containing aromatic side chains :

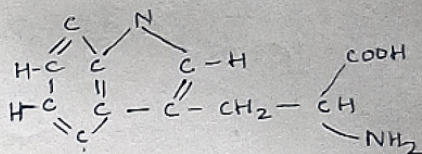
(vi) Phenylalanine :-



(vii) Tyrosine :-

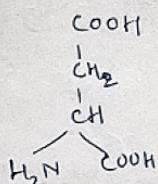


(viii) Tryptophan :-

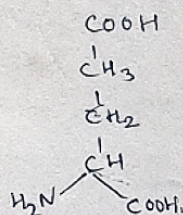


[C]. Amino acids containing acidic side chains :

(ix) Aspartic acid :-

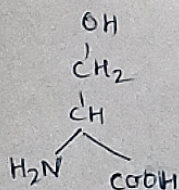


(x) Glutamic acid :-

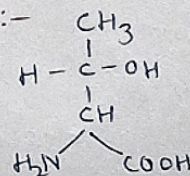


[D]. Amino acids ~~containing~~ containing hydroxyl groups in side chains :

(xi) Serine :-

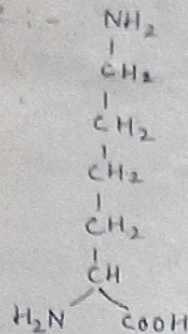


(xii) Threonine :-

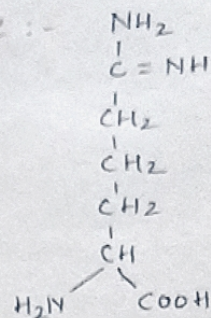


[E]. Amino acid containing basic side chains :

(xiii) Lysine :-

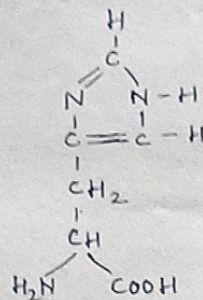


(xiv) Arginine :-



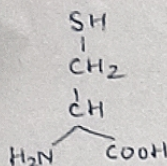
[F]. Amino acids containing imidazole group in side chains:

(xv) Histidine :-

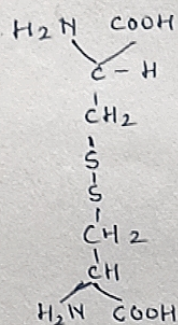


[G]. Sulphur containing amino acids :

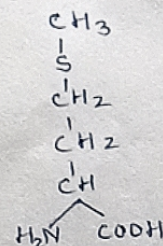
(xvi) Cysteine :-



(xvii) Cystine :-

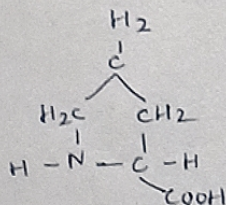


(xviii) Methionine :-

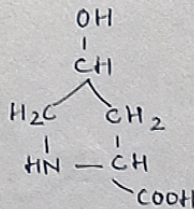


[H]. Amino acid containing pyrrolidine ring :

(xix) Proline :-



(xx) Hydroxyproline :-



_____ O _____

