

Biomolecules

Macro Molecules

- Large sized, high mol wt
- Above 1000 daltons
- Found in the acid insoluble pool

Carbohydrates
Lipids
Proteins
Nucleic acids

Micro Molecules

- Small sized, low mol wt
- Between 18 and 800 daltons
- Found in the acid soluble pool

Minerals
Gases
Water
Sugars
Aminoacids
Nucleotides

Carbohydrates

"Polyhydroxy aldehydes or polyhydroxy ketones or substances which give these on hydrolysis are termed as carbohydrates".

Sugars

Monosaccharides (One sugar molecule)

Glucose
Fructose
Galactose

Disaccharides (Two sugar molecules)

Surcose
Lactose
Maltose

Oligosaccharides (Two to ten sugar molecules)

Raffinose
Stachyose

Non-sugars (Polysaccharides)

Homo polysaccharides

Storage polysaccharides

Plant (Starch)
Animal (Glycogen)

Strucural polysaccharides

Plant (Cellulose)
Animal (Chitin)

Hetero polysaccharides

Heparin
Hyaluronic acid
Chondroitin-sulphate
Keratin sulphate

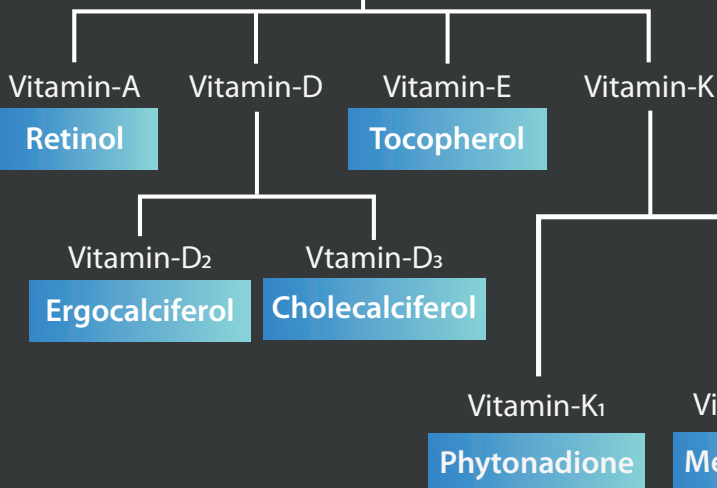
No. of Carbons	Type of sugar	Aldoses	Ketoses
3	Trioses	Glyceraldehyde	Erythrulose
4	Tetroses	Erythrose	Dihydroxyacetone
5	Pentoses	Ribose, Xylose	Ribulose, Xylulose
6	Hexoses	Glucose, Galactose	Fructose
7	Heptoses	Glucuheptose	Sedoheptulose

Vitamins

"Group of organic compounds essential for normal growth and functioning of human body".

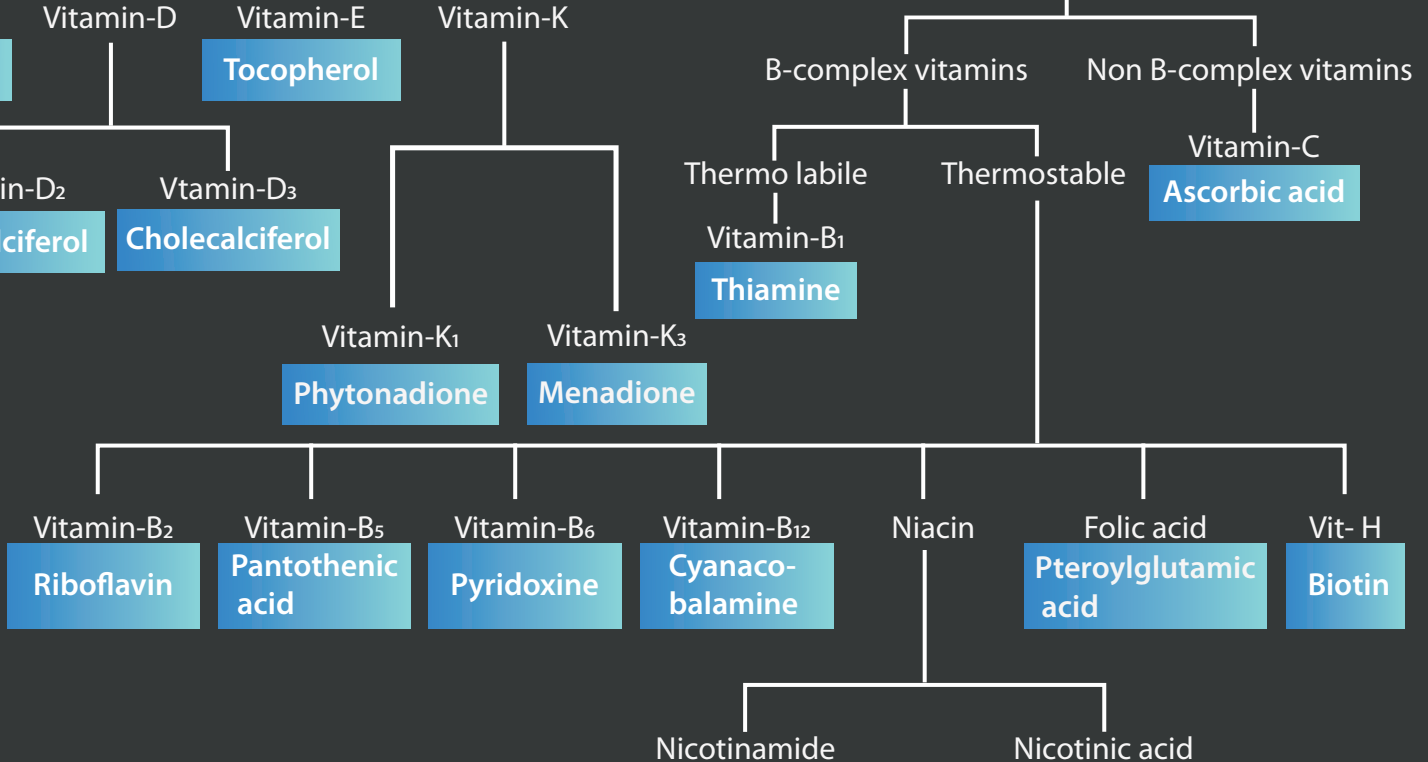
Based on solubility in oil

Fat soluble vitamins



Based on solubility in water

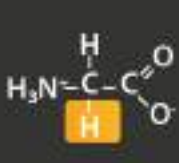
Water soluble vitamins



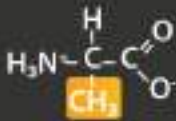
Biomolecules - Part II

Classification of Aminoacids

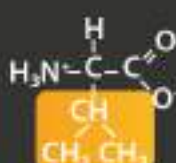
Non-Polar



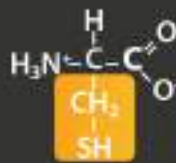
Glycine
(Gly / G)



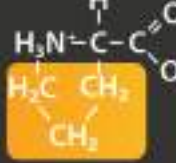
Alanine
(Ala / A)



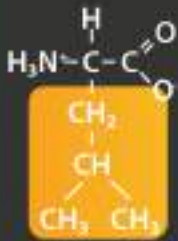
Valine
(Val / V)



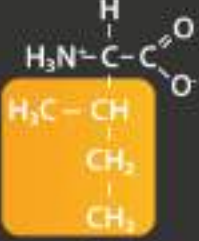
Cysteine
(Cys / C)



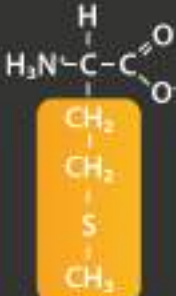
Proline
(Pro / P)



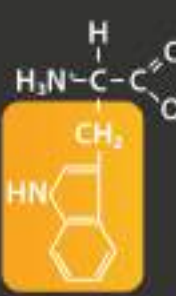
Leucine
(Leu / L)



Isoleucine
(Ile / I)



Methionine
(Met / M)

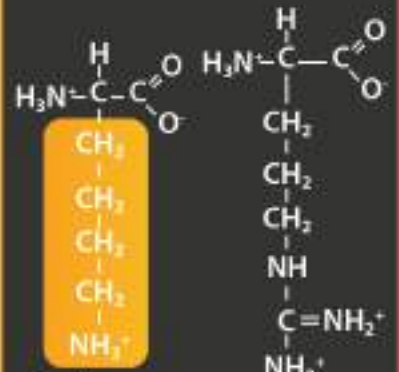


Tryptophan
(Trp / W)

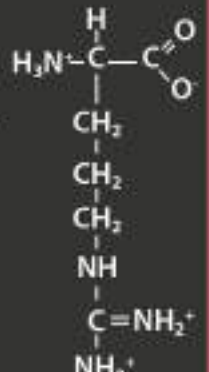


Phenylalanine
(Phe / F)

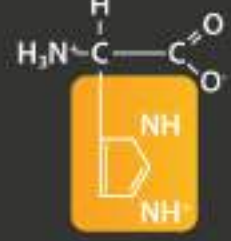
+ Charge



Lysine
(Lys / K)

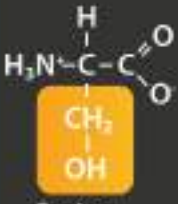


Arginine
(Arg / R)

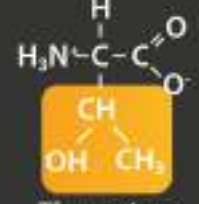


Histidine
(His / H)

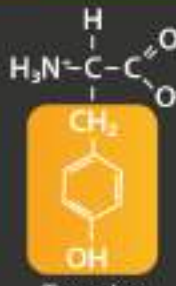
Polar



Serine
(Ser / S)



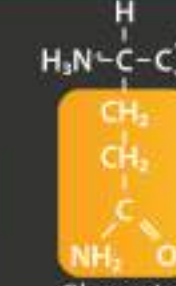
Threonine
(Thr / T)



Tyrosine
(Tyr / Y)

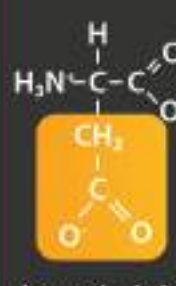


Asparagine
(Asn / N)

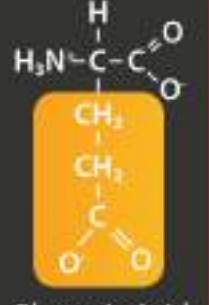


Glutamine
(Gln / Q)

- Charge

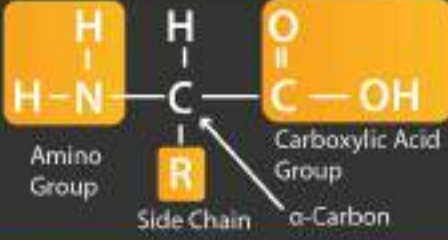


Aspartic Acid
(Asp / D)



Glutamic Acid
(Glu / E)

Amino Acid Structure



Primary Protein Structure

Sequence of a chain of amino acids

Secondary Protein Structure

Local folding of the polypeptide chain into helices or sheets

Tertiary Protein Structure

Three-dimensional folding pattern of a protein due to side chain interactions

Quaternary Protein Structure

Protein consisting of more than one amino acid chain

