Biomolecules

Polysachharides, Enzymes, Nucleic Acids, Proteins

Polysaccharides

Homo-polysaccharides

Made up of one type of monosaccharide units
Ex: Cellulose

Hetero-polysaccharides

Made up of two or more types of monosaccharide units
Ex. Hyaluronic acid

Functions of Polysaccharides

- Structural
  Ex. Chitin
- Storage
  Plants – Starch
  Animals – Glycogen

Proteins

Shape

- Fibrous
  Ex. Collagen
- Globular
  Ex. Albumin

Nature

- Basic
  Ex. Histone
- Acidic
  Ex. Dipeptidase

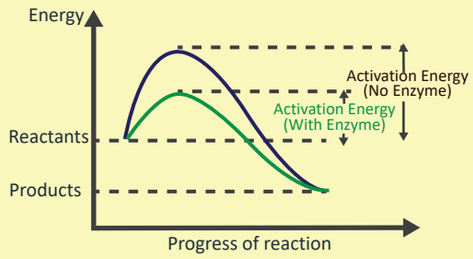
Constitution

- Simple
  Ex. Globulins
- Conjugated
  Ex. Lipoproteins
- Derived
  Ex. Peptides

Functions of protein

Structural functions: Building blocks of the body
Protective: Main constituent of antibodies
Hormones: Majorly proteinaceous in nature
Enzymes are proteins

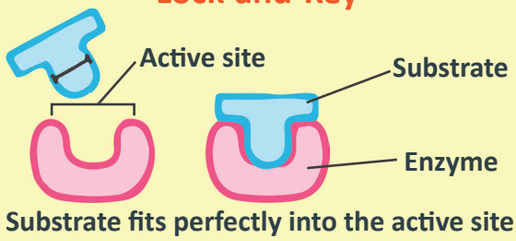
Enzymes



Theories on How Enzymes Work

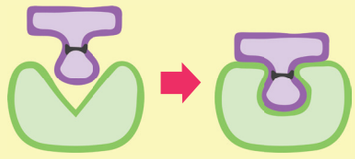
Models of Substrate-Active Site Binding

Lock-and-Key



Substrate fits perfectly into the active site

Induced-fit



Active site conforms to its substrate's shape

Factors that affect enzyme activity

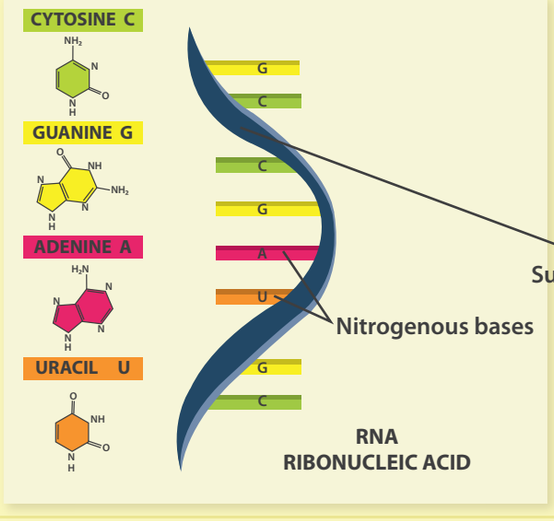
- Temperature
- pH
- Concentration of enzymes and substrates
- Inhibitors

Types of Enzymes

- Oxidoreductases
- Transferases
- Hydrolases
- Lyases
- Isomerases
- Ligases

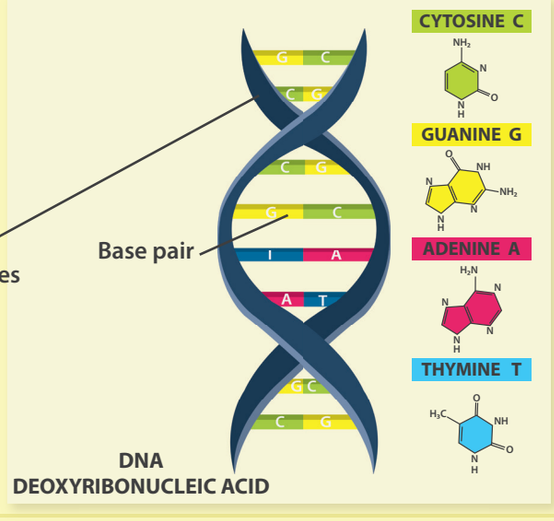
Nucleic Acids

RNA



- Three types:
  1. mRNA
  2. rRNA
  3. tRNA

DNA



Helix of Sugar-phosphates

- Genetic material in eukaryotes
- Helical chains are bonded by hydrogen bonds between the nitrogenous bases
- Double bonds between adenine and thymine
- Triple bonds between guanine and cytosine