

ENZYMOLGY PART(1)



- ↗ Clinical enzymology: is the application of the science of enzymes in the diagnosis and treatment of disease.
- ↗ Catalysis: is defined as the process of acceleration of a chemical reaction by some changes.
- ↗ Enzymes: are proteinic compounds(usually globular) , they are of high molecular weight (13000-500000) Dalton or more, made up principally of chains of amino acids(about 62) linked together by peptide bonds, they catalyze biochemical reactions.
- ↗ In enzymatic reactions, the molecules at the beginning of the process are called SUBSTRATES, and they are converted to different molecules called PRODUCTS.
- ↗ Enzymes are produced or synthesized by cell to do function either in or out that cell.
- ↗ Plasma or serum enzyme levels are often useful in the diagnosis of particular diseases or physiological abnormalities.



Cofactors and coenzymes:

- Many enzymes require the presence of other compounds(non proteinic) known as cofactors before their catalytic activity can be exerted.

types of cofactors :

Inorganic like metal ions	Organic : there are two classes
	A- tightly bound to the enzyme which is called prosthetic group
	B-or released from the enzyme ,this is called Coenzyme(such as NADH) which is small organic molecule can transport chemical groups from one enzyme to another, coenzyme considered as second substrate.



- ↗ Apoenzyme: is the enzyme without cofactor, this is the inactive form of enzyme.
- ↗ Holoenzyme: is the enzyme with cofactor, this is the active form of enzyme.

↗ General principles of enzymes nomenclature:

1-enzyme names derived from substrate name + ase (like urease)

2-enzyme named according to the reaction it catalyzed (like lactic dehydrogenase)

3-enzymes named according to their function (like amino transferase)

Note: there is another system of nomenclature in this system each enzyme has a code number such as (1.1.1.1) this number called IUBMB number ,

I=International

U=Union

B=Biochemistry

M=Molecular

B=Biology



Major six classes of enzymes:

1-oxidoreductases

2-transferases

3-hydrolases

4-lyases

5-isomerases

6-ligases

