Enzyme Introduction → ENZYMOLOGY

Enzyme term → W. Kuhne (1877)
Diastase → Payen, Persoz (1833)

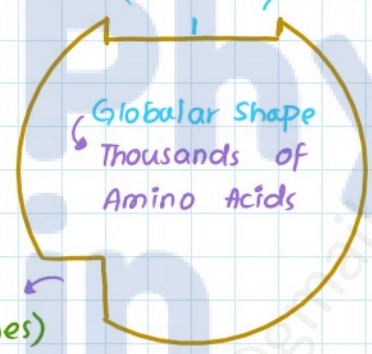
EN - ZYME
Inside ↙ ↳ Yeast

→ Bio-catalyst, Biologically Active molecules
→ Globular Protein / Functional Proteins → Tertiary structure

SUBSTRATE → Molecule on which Enzyme React.

ACTIVE SITE → A few Amino Acids
→ 3-4 A·Acids / 3 → 12 A·Acids

Specific ← CATALYTIC SITE
BINDING SITE → Non-Specific



RATE OF REACTION (10^7)

ALLOSTERIC SITE
(Allosteric Enzymes)

- All Enzymes are Proteins except Ribozymes. (RNA in Nature)
- → Peptidyl transferase (Larger subunit of Ribosome)
- Enzymes always required Aqueous medium.

CATALYTIC SITE

ES → EP → E + P

EI → No Reaction

BINDING SITE

E + S ⇌ ES

E + I → EI

Enzyme of Enzymes → **CO-FACTORS** → Can never be Protein

ORGANIC

- PROSTHETIC
  - Covalently
  - Permanently
  - Strong
  - → Haem group (Hb, Cytochrome)
- CO-ENZYME
  - Non-covalently
  - Temporary
  - Weak
  - → Vitamins (NAD, FAD) (ATP)

IN-ORGANIC

- ACTIVATORS
  - loosely attached
  - Detachable
  - Separatable
  - → Ca^{++}, Fe^{+2}, Zn^{+2}, Mg^{+2}, Cl^-

PROPERTIES OF ENZYMES

→ Bio-catalyst → Smaller quantity
→ No effect on final product
→ Lower Activation Energy
→ Can react in both acidic or alkaline.

- → Lower Activation Energy
- → Can react in both acidic or alkaline.
- → In-Vivo Enzymes (Endo-enzymes)
- → Ex-vivo Enzymes (Exo-enzymes)
- → Specifity (Nature, Action)
  - Group Specificity → Protease
  - Reaction " → Reductases, Oxidases
  - Substrate " → Maltase, Sucrase, Lactase
- → Sensitivity (Temperature, pH, Concentration)

BTB → Peroxidase (40,000 Daltons), Catalase (250 K Daltons)

TURN OVER RATE → Rate at which enzyme converts substrates into products per second.