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ROLE OF ENZYMES IN DIGESTION

- * Biological catalysts produced by living cells.
- * They are soluble and colloidal substances.
- * Khure 1878 coined the term enzyme.
- * The substance on which enzyme acts is called substrate. Final product is called end product.

Lactose $\xrightarrow[\text{enzyme}]{\text{Lactase}}$ Glucose + Galactose
substrate End product.

- * Some enzymes are formed of protein only.

Ex amylase, urease, etc.

- * But other ~~protein~~ non protein (Prosthetic group)

~~protein~~ Prosthetic group = ~~Apoenzyme~~

Protein part = Apoenzyme

Apoenzyme + Prosthetic gr = Holoenzyme

Zymase and Zymogen

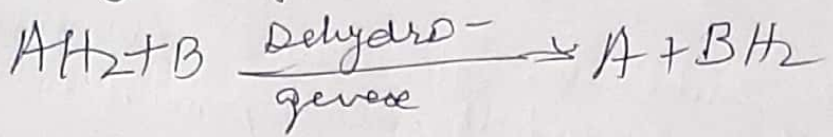
Zymase: If an enzyme which is secreted which act upon as such called zymase.
eg. All endoenzyme

Zymogen: Secreted in inactive form called Zymogen or proenzyme
E: Trypsinogen \rightarrow Trypsin

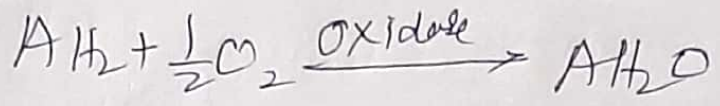
Classification of Enzyme.

① Oxidoreductase - Oxidⁿ + Redⁿ

① Dehydrogenase

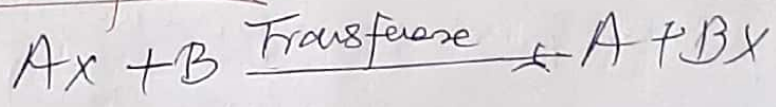


② Oxidase:



(iii) Oxygenase: These are enzymes which catalyze the incorporation of oxygen directly into the substrate.

② Transferase



③ Hydrolase: → Hydrolysis

④ Lyase: Removal a group of atom from their substrate leaving double bond or add gr. to double bond.

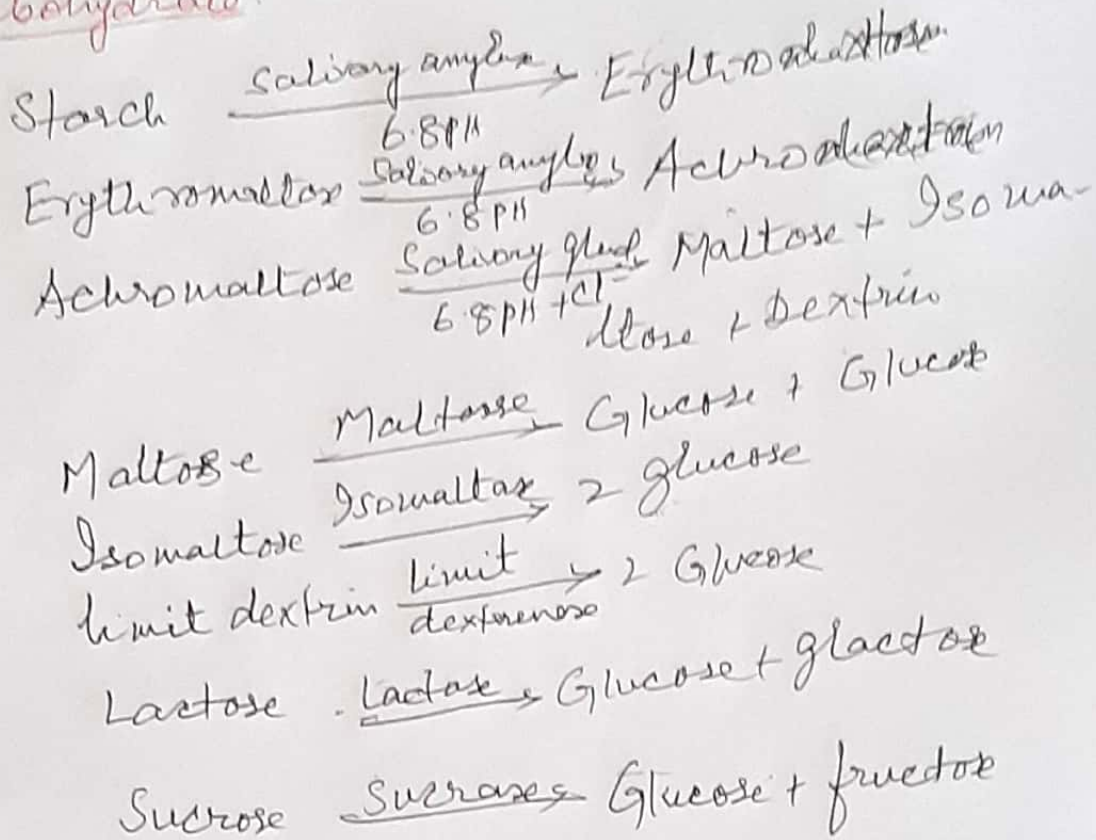
⑤ Isomerase: : Catalyze isomerization.

⑥ Ligase: or Synthetase: Catalyze synthesis reaction by joining two molecules.

Mechanism of Digestion

(3)

Carbohydrate:



Products of carbohydrate digestion are absorbed ~~by~~ from the small intestine into blood. Monosaccharides like fructose are absorbed by passive diffusion which is slow. Glucose and Galactose are absorbed by active transport.

A mobile carrier molecule in mucosal cell membrane binds both Na^+ and glucose from the lumen. It transport them and release them into cytosol.

once the mobile carrier molecule ⁴ releases Na^+ glucose into the cytosol it return back to pick up to new glucose molecule. This need energy ATP which obtained by Na^+ pump.

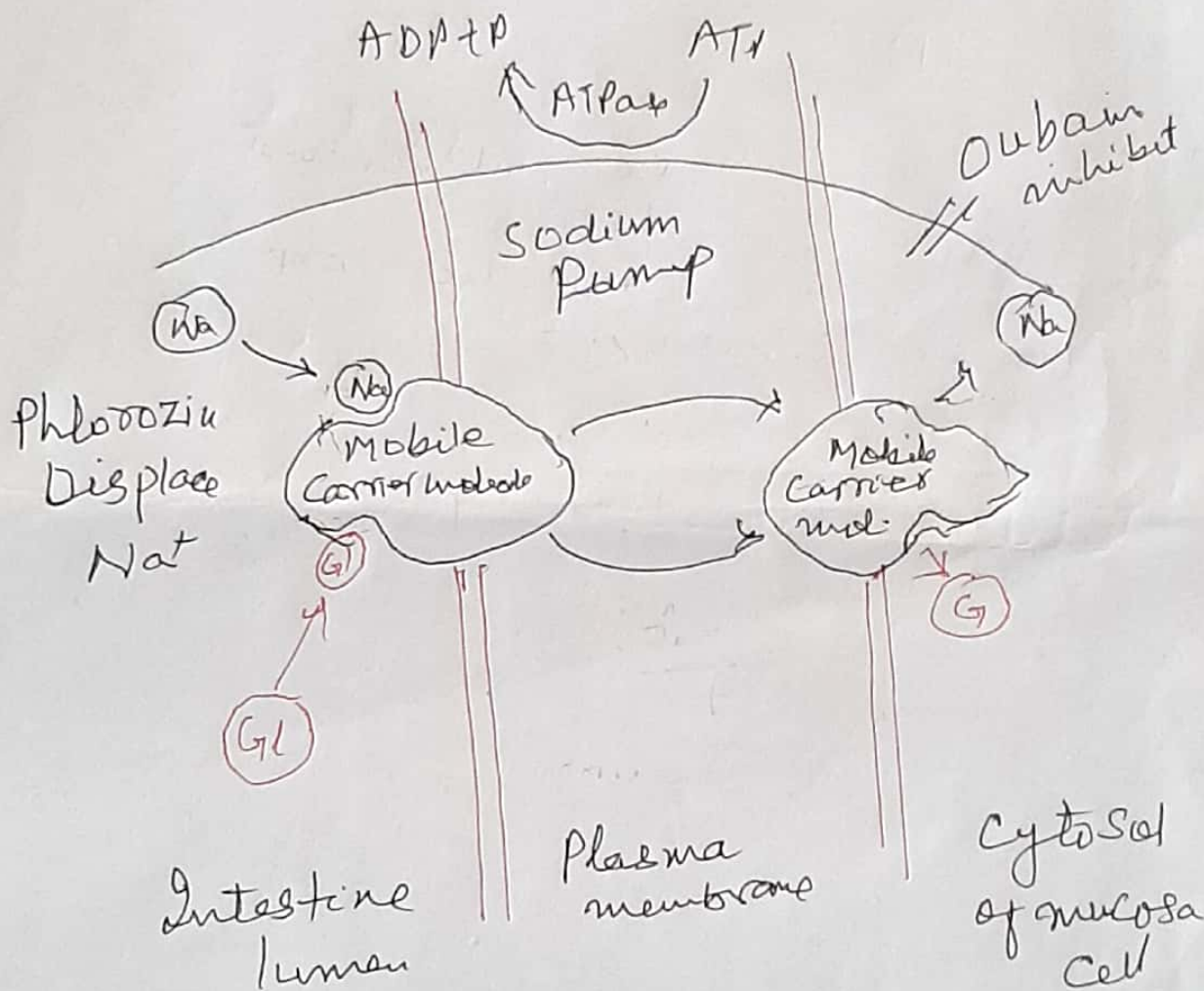


Fig- Model explain absorption of glucose by intestinal mucosal cell.