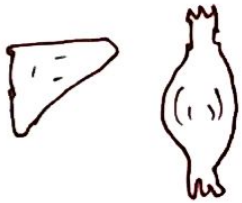
GLYCOGENESIS

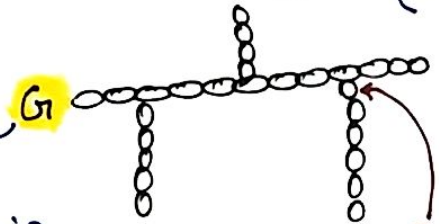
(Process of synthesis of Glycogen from glucose)

* Occurs in Well fed state [High insulin : Glucagon]
* Site :- Liver & Muscle (Cytoplasm)
  - % by weight = Liver > Muscle
  - Overall = Muscle > Liver



* Steps :-
  1.) Synthesis of UDP Glucose :- "Activation of Glucose"
  2.) Initiation of glycogen synthesis
  3.) Elongation
  4.) Branching

STRUCTURE of Glycogen (Branched polymer of α-D-glucose)

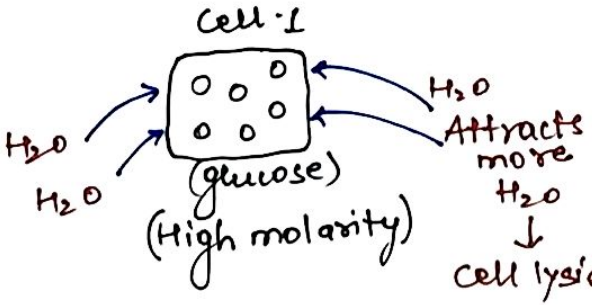


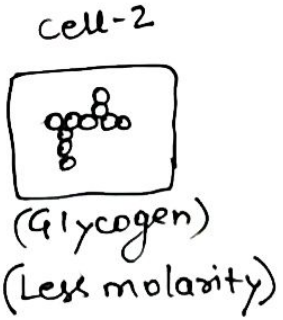
- Stored in CYTOPLASM as cytoplasmic granules.
- Stored in form of α rosette (made up of 20-40 β particles)

WHY glucose is stored as Glycogen?

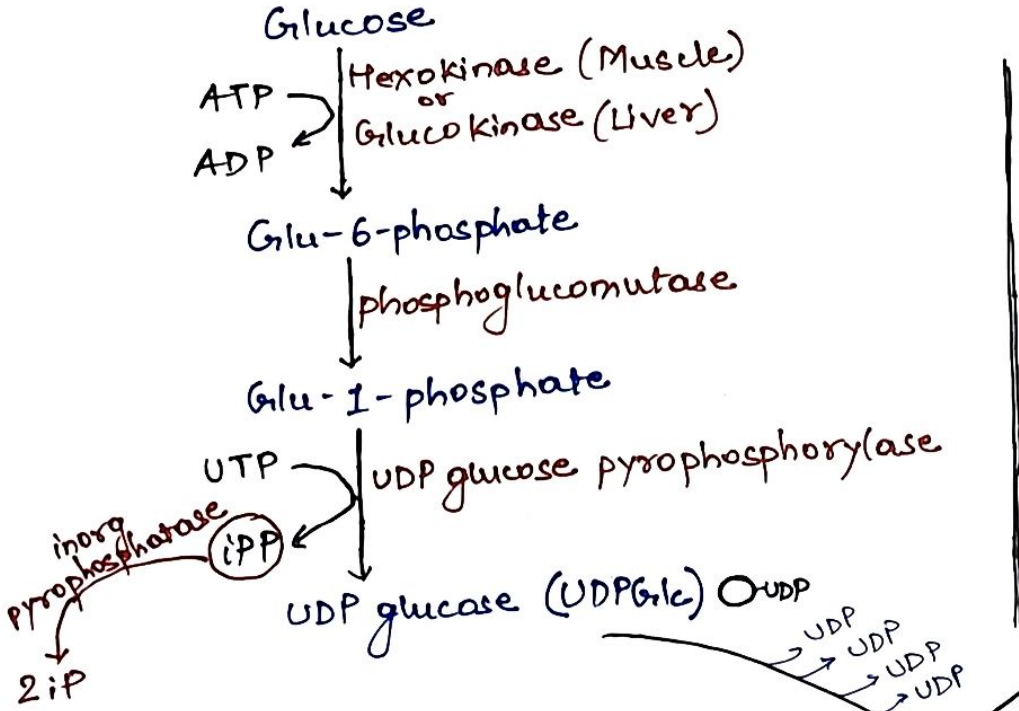
1.) Occupies less space - COMPACT

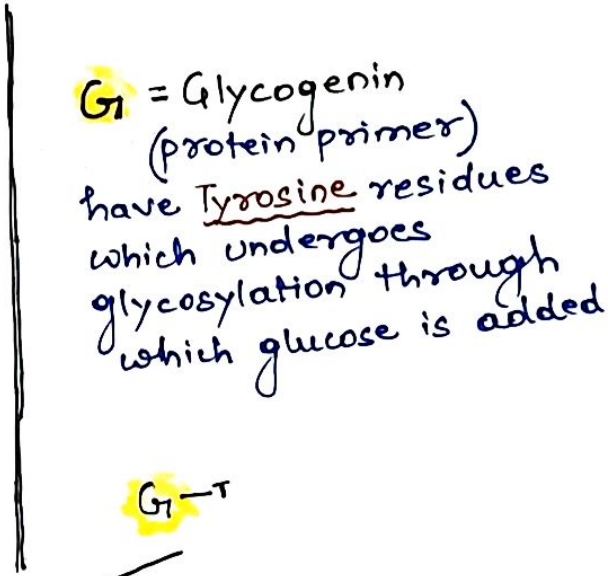
2.) Low molarity of glycogen





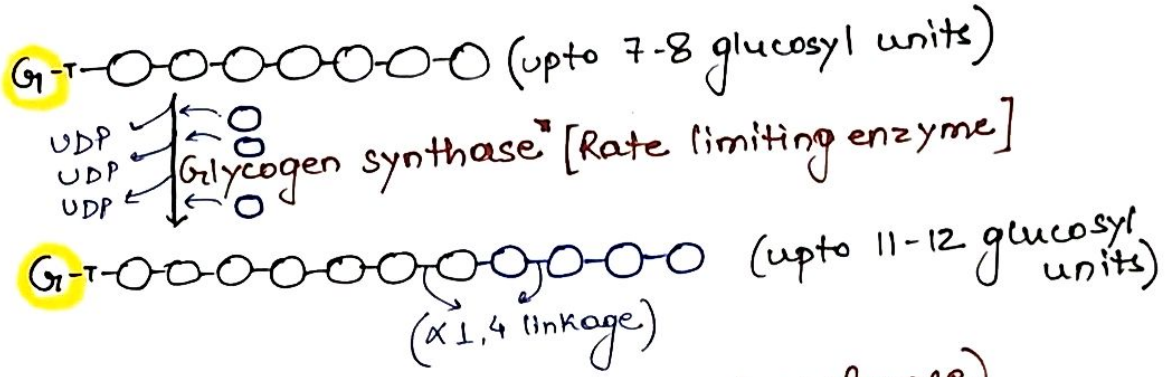
1> Synthesis of UDP-glucose [Activation of Glucose]





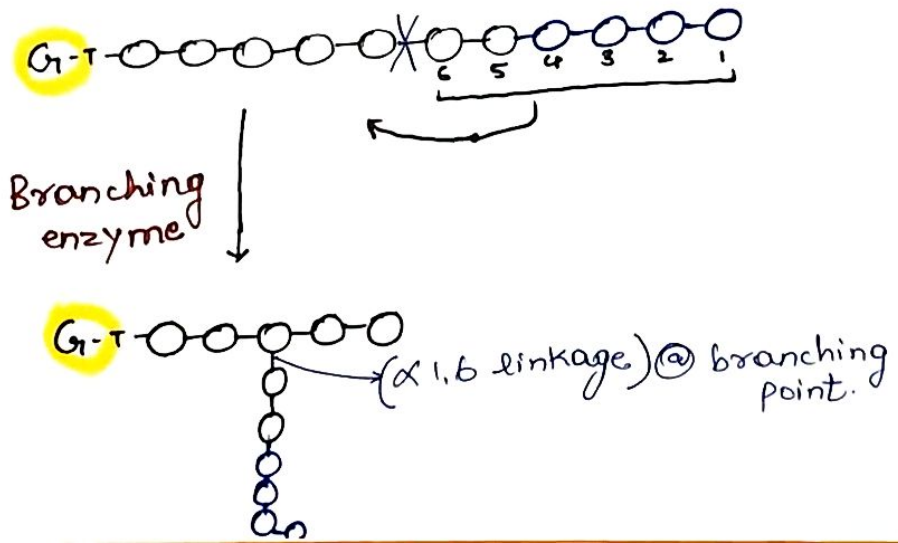
2> Initiation of glycogen synthesis

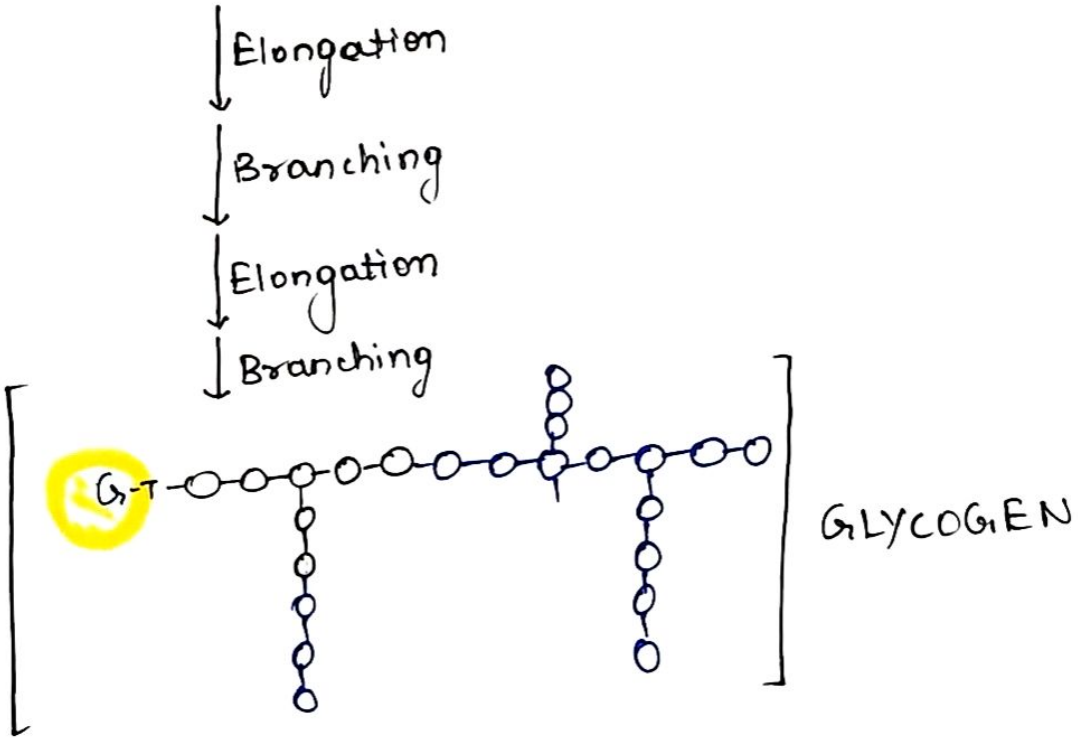
3.) Elongation



4.) Branching (Branching enzyme = α 1,4 1,6 glucan transferase)

↳ Hexasaccharide is cut from one end & translocated to another location.




Elongation
Branching
Elongation
Branching
G-T
GLYCOGEN

Summary of Glycogenesis :-