

# Glycogen Metabolism



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**Med-pathway**

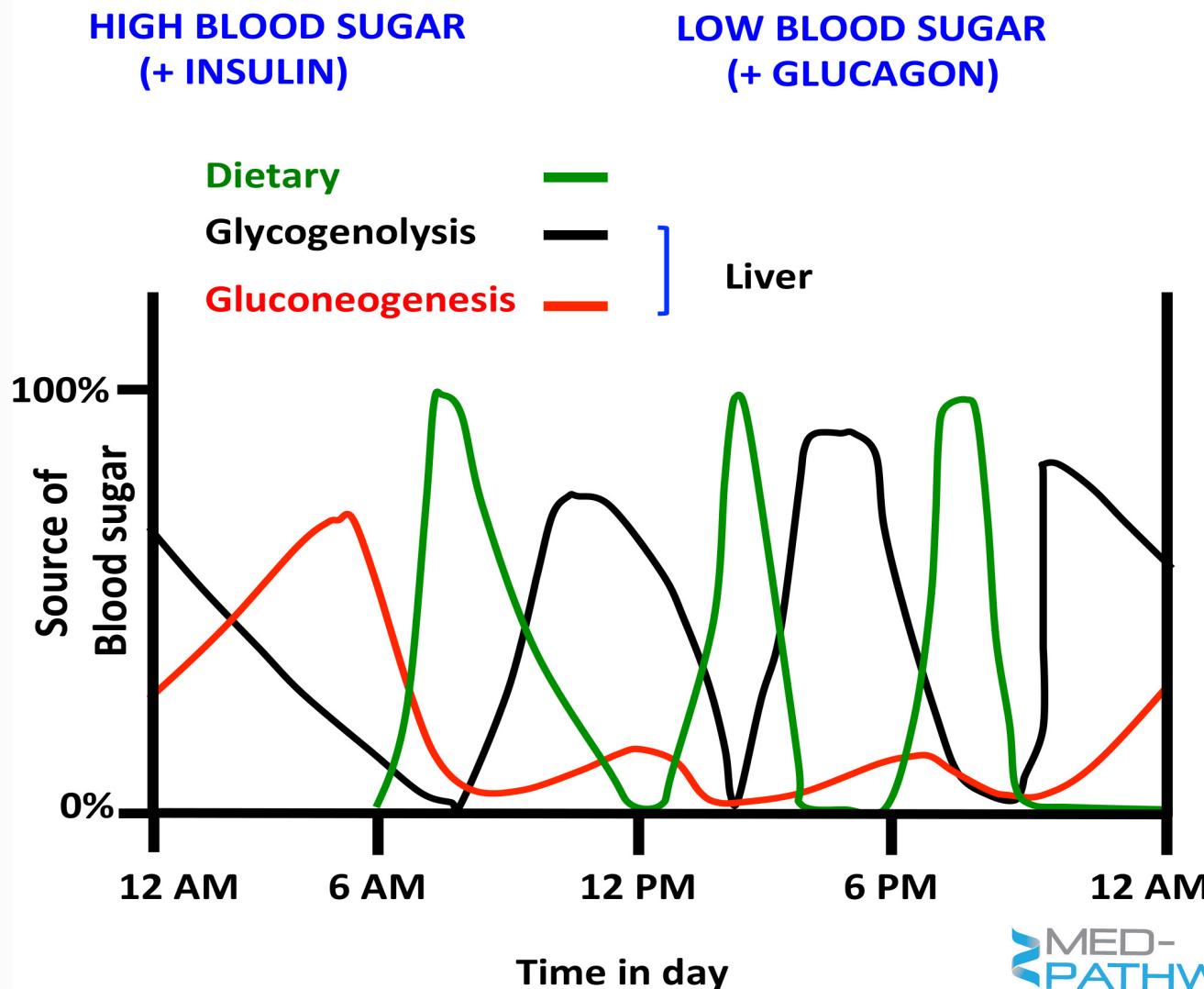


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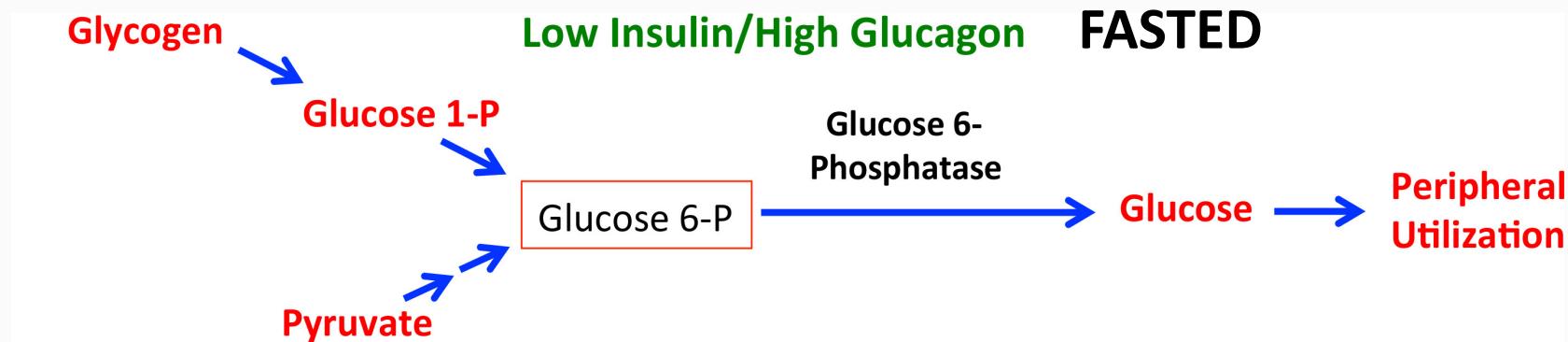
# The Fed & Fasted States: Maintaining Glycemia

## 3 SOURCES OF BLOOD SUGAR

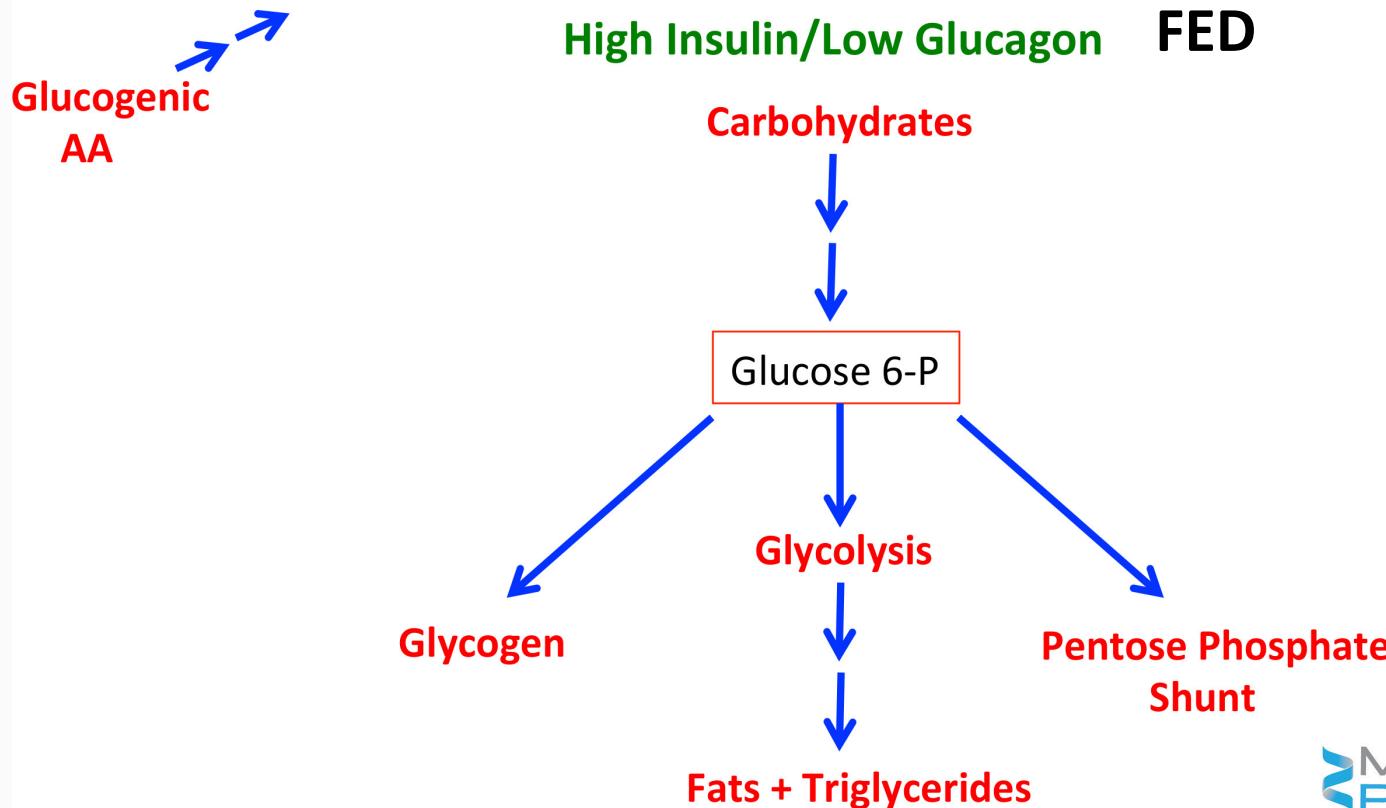


# The Fed & Fasted States

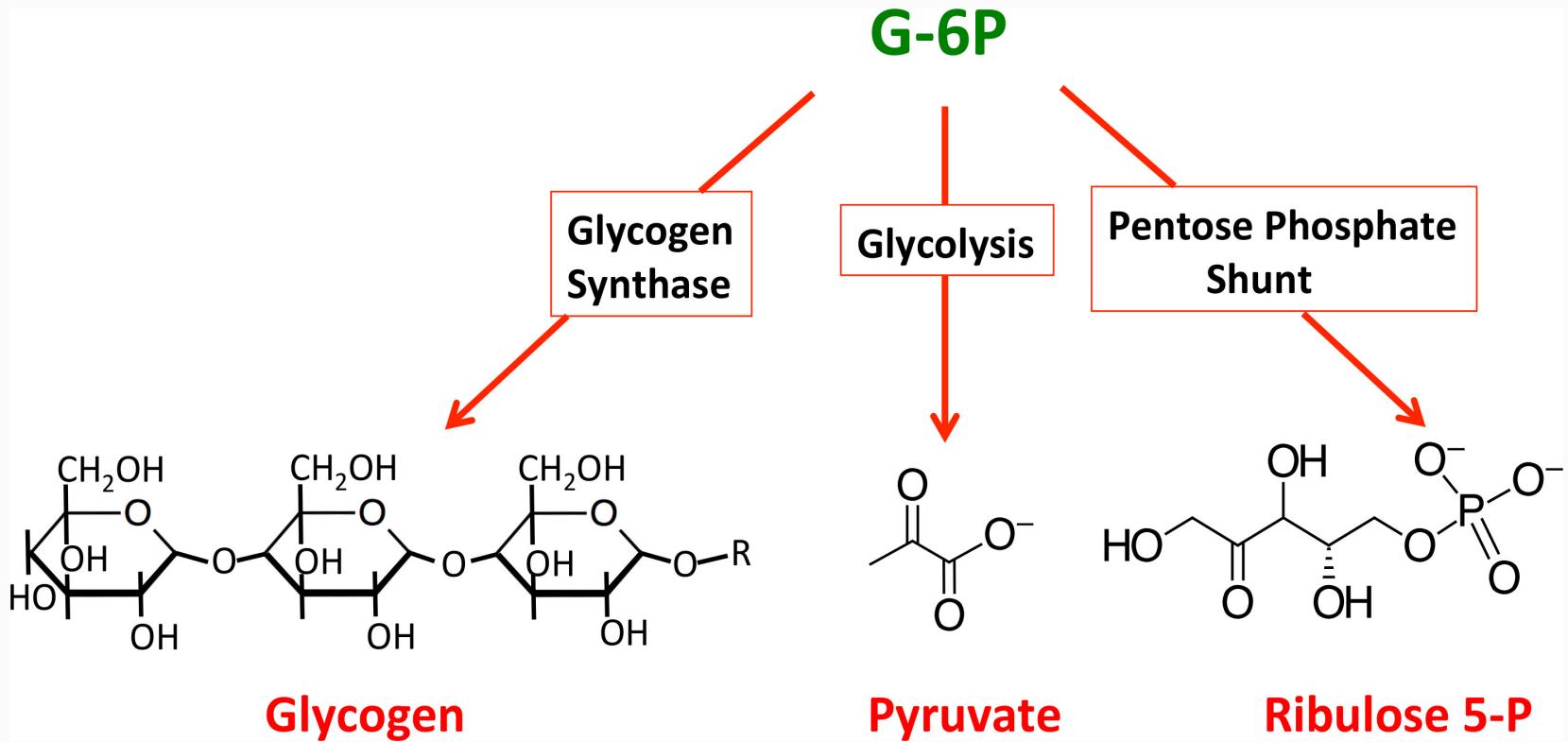
A.



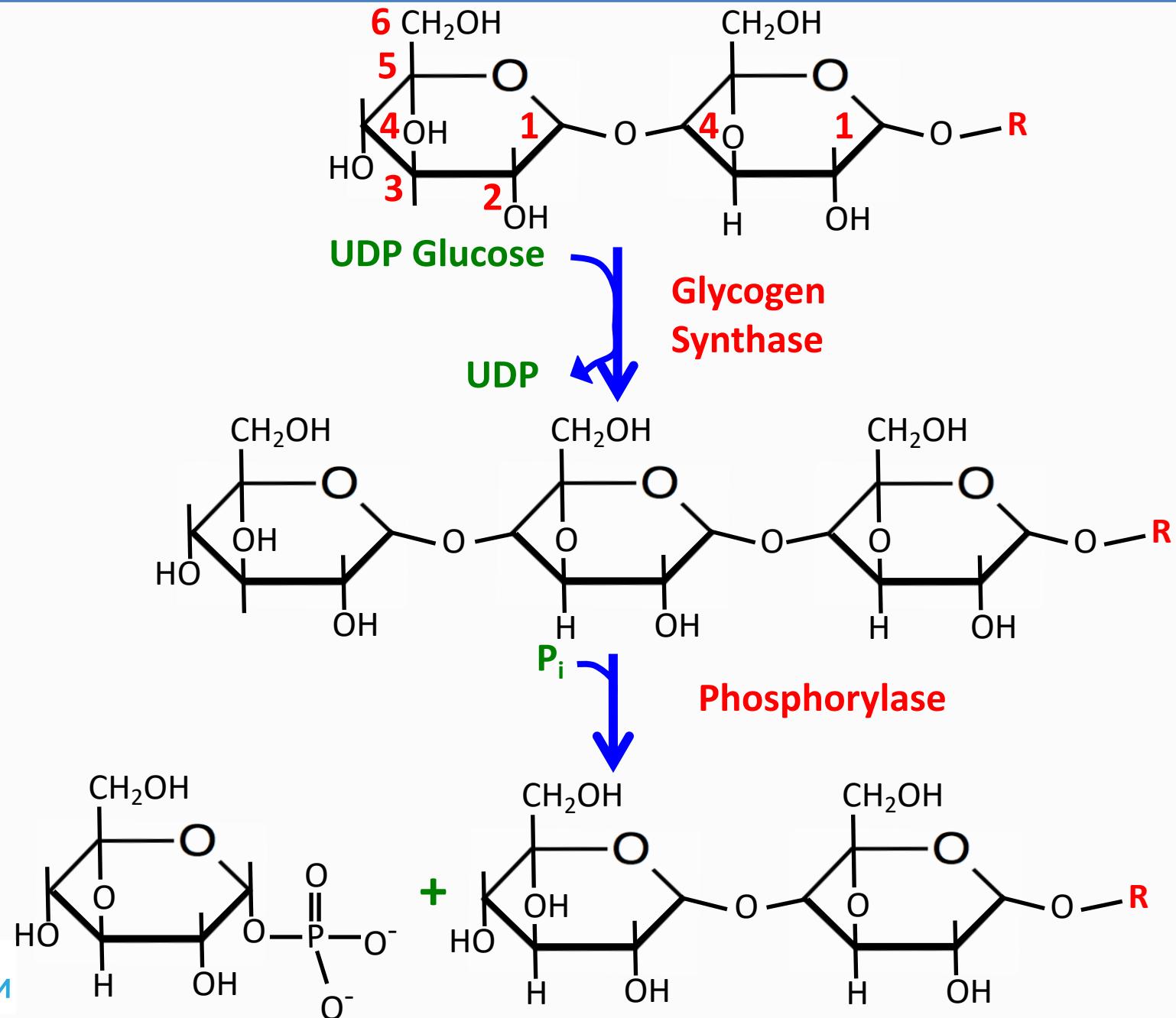
B.



# G-6P & Glycogen synthesis

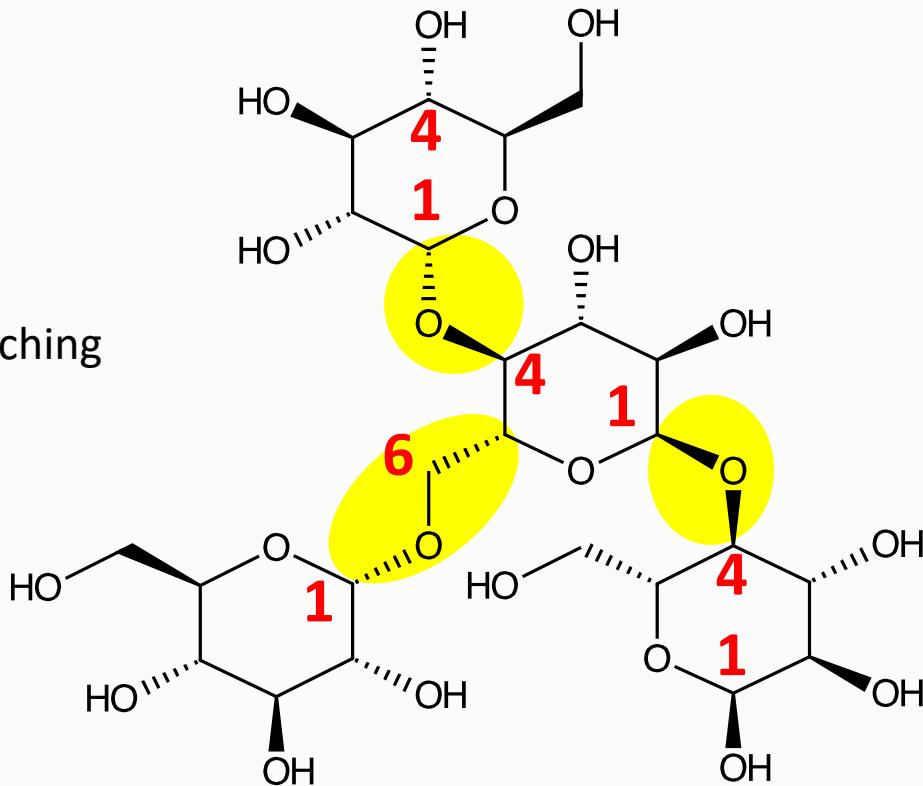


# Glycogen Metabolism

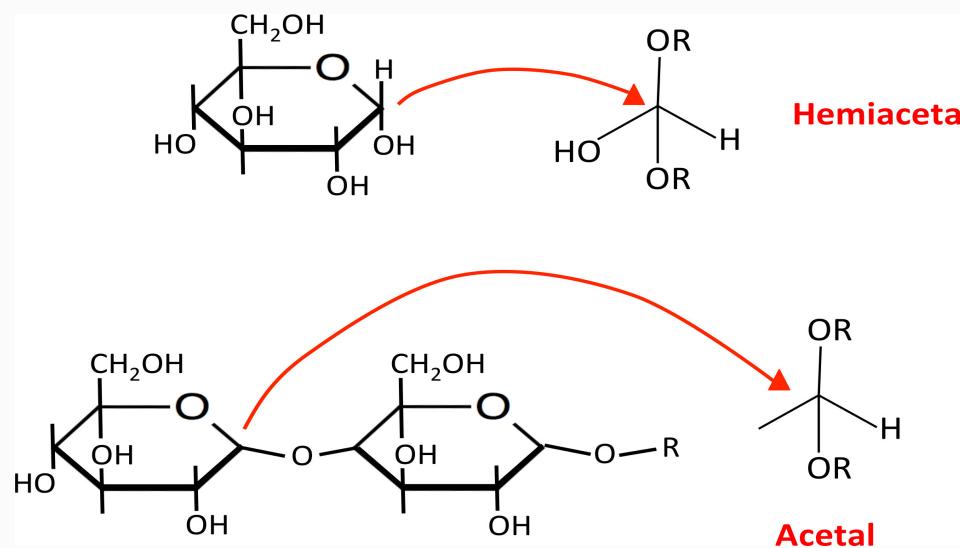
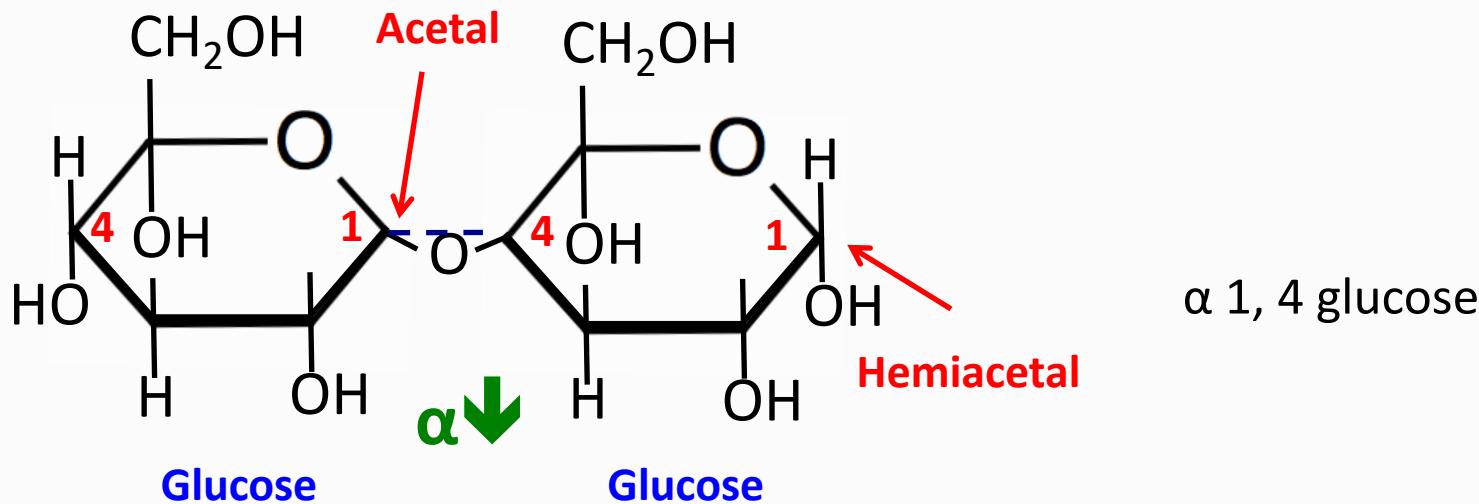


# Glycogen Branching

Branching & Debranching  
Enzymes

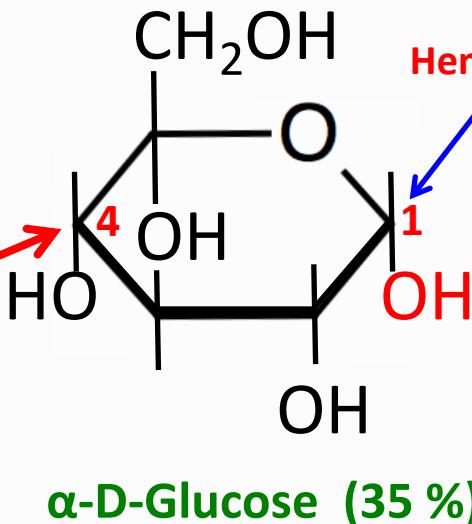
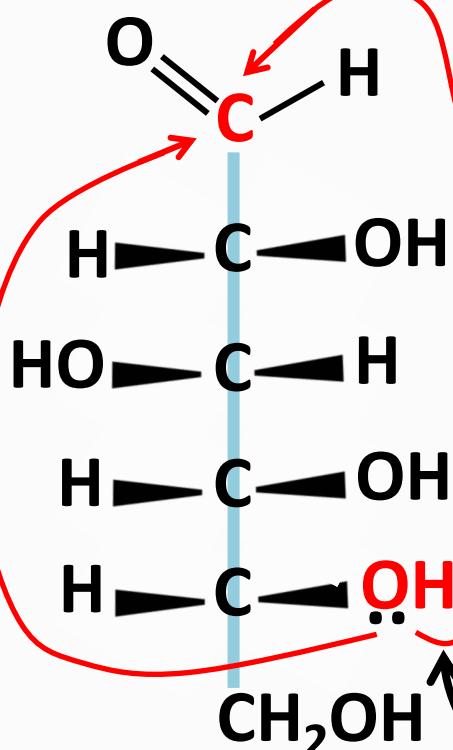


# Glycosidic Linkages

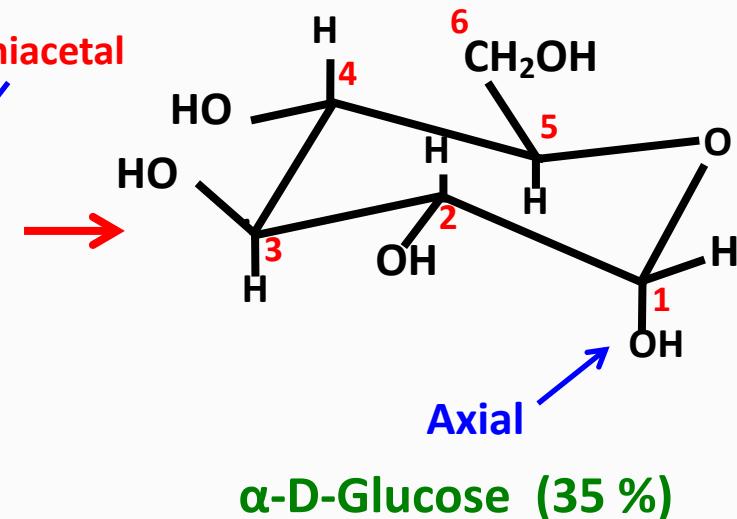


# Mutarotation

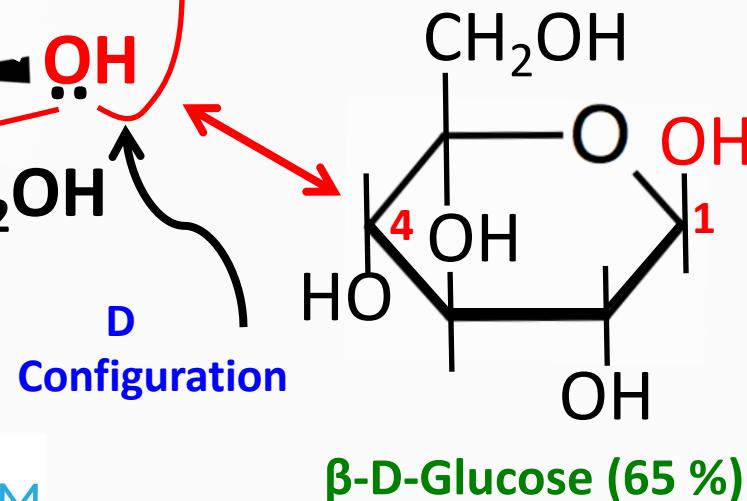
Anomeric carbon



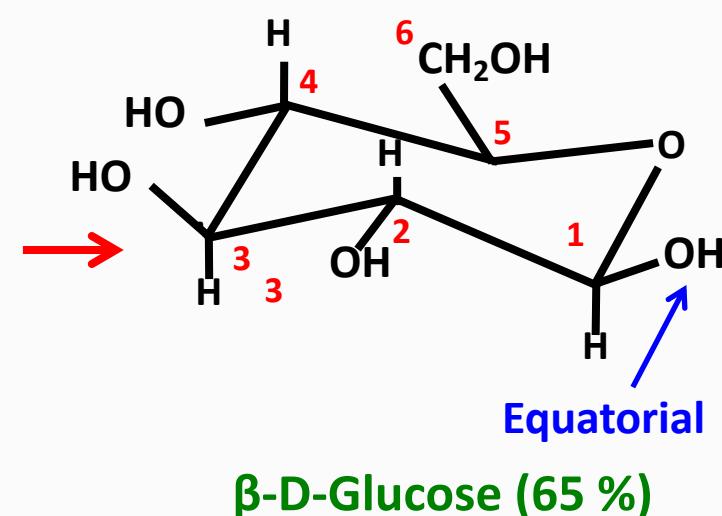
Hemiacetal



Axial

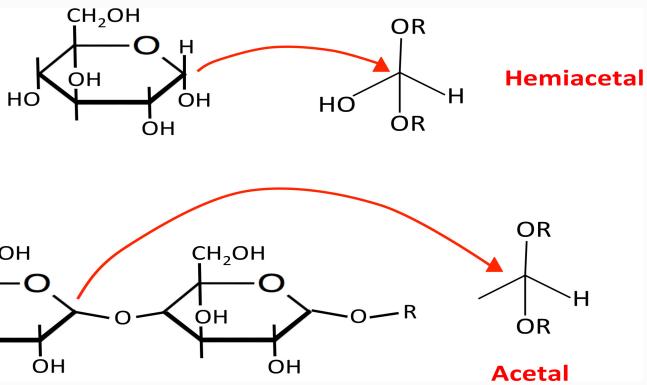


D Configuration



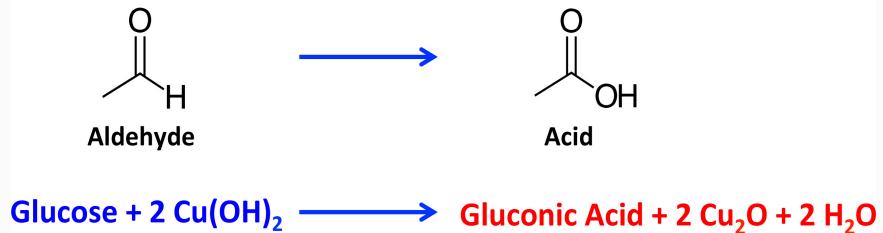
Equatorial

# Reducing Sugars

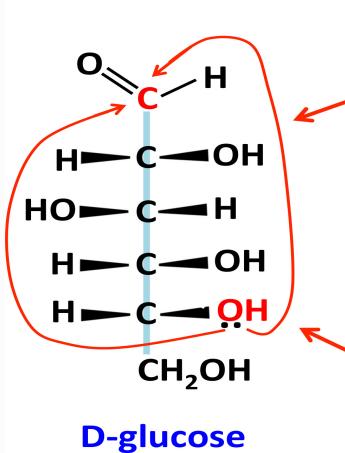


## Benedict's Reaction

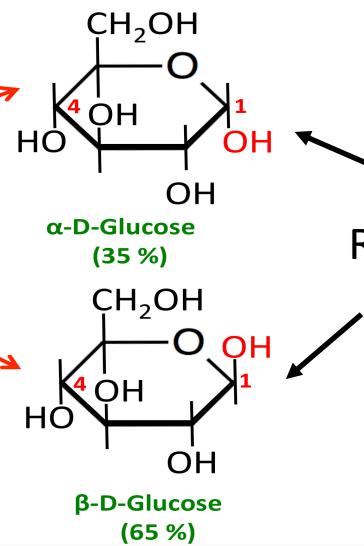
Reducing Sugars



Glucose is an aldose



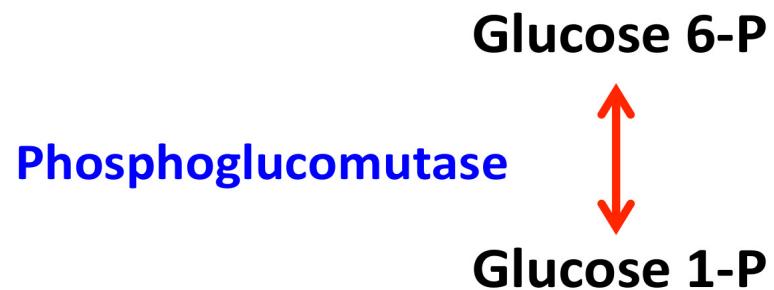
D-glucose



Reducing Ends

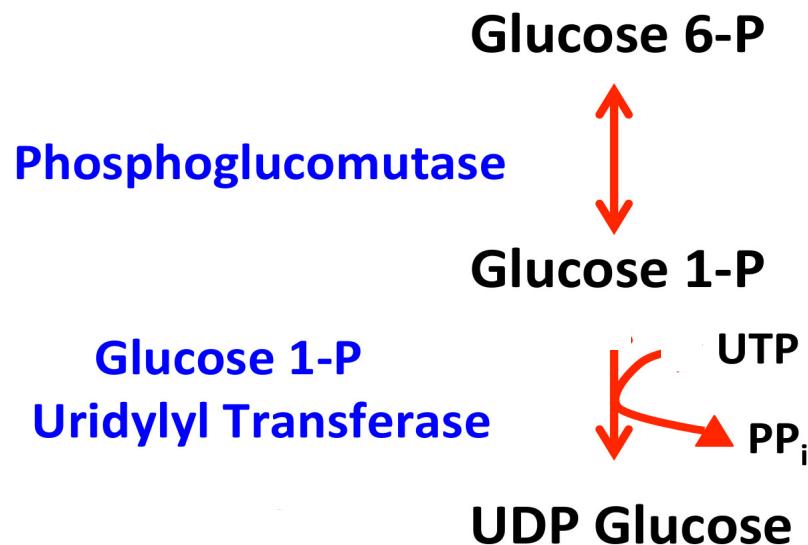
# Glycogen Synthesis

Multiple Tissues



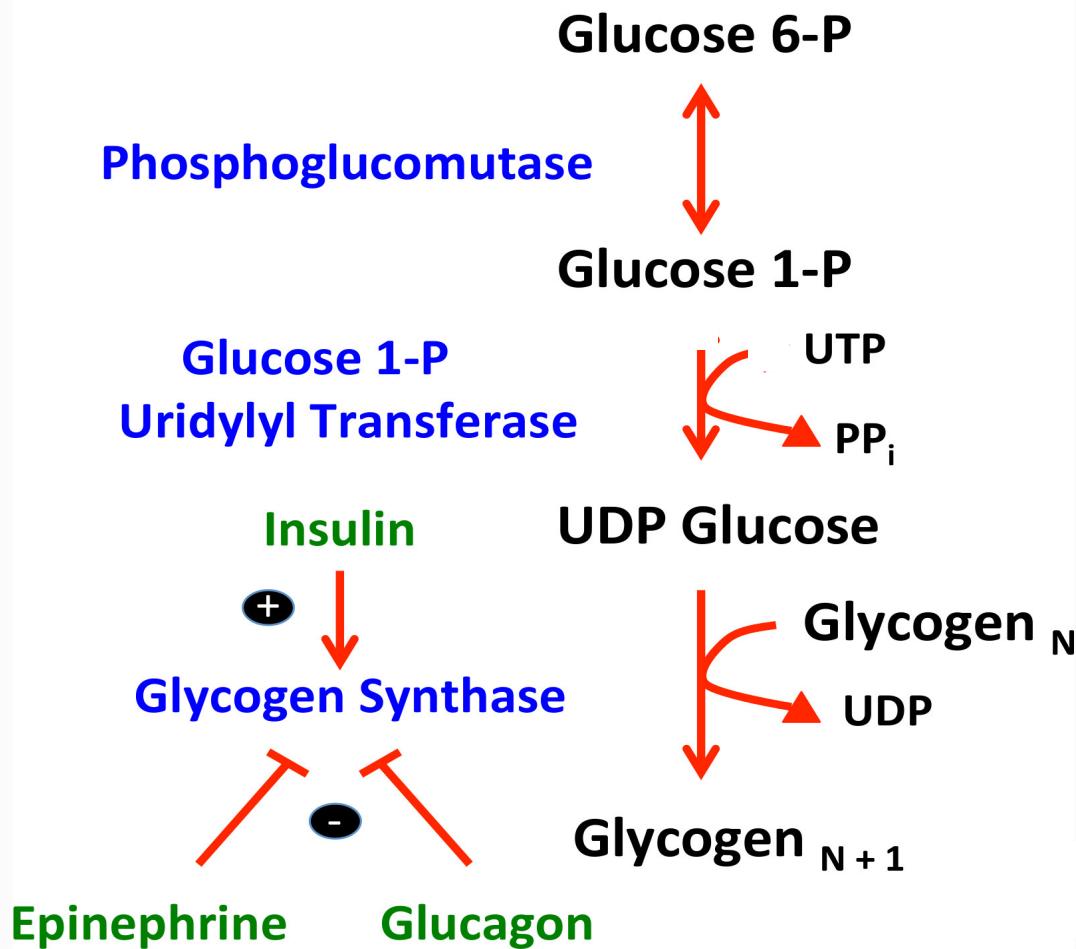
# Glycogen Synthesis

Multiple Tissues



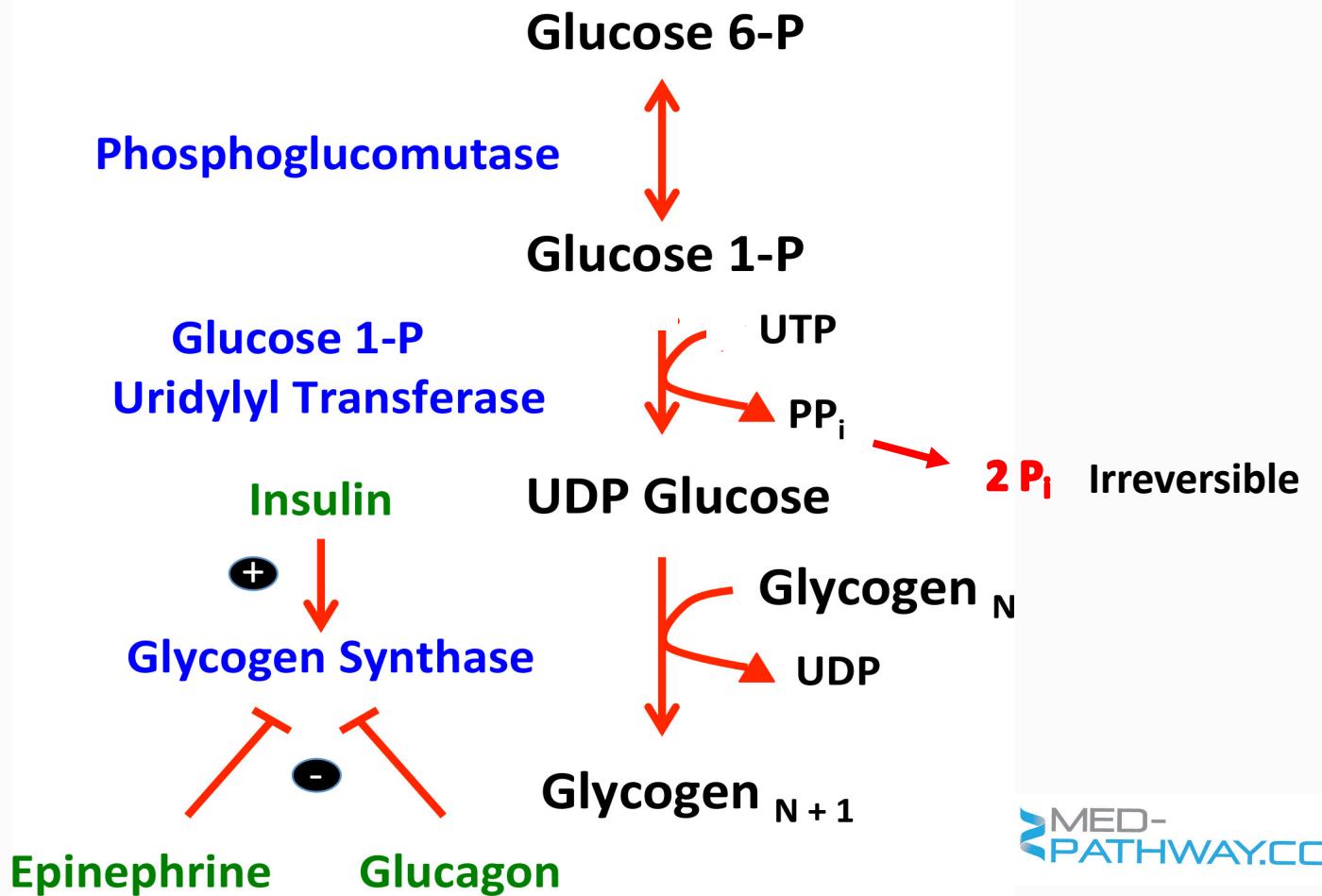
# Glycogen Synthesis

Multiple Tissues



# Glycogen Synthesis

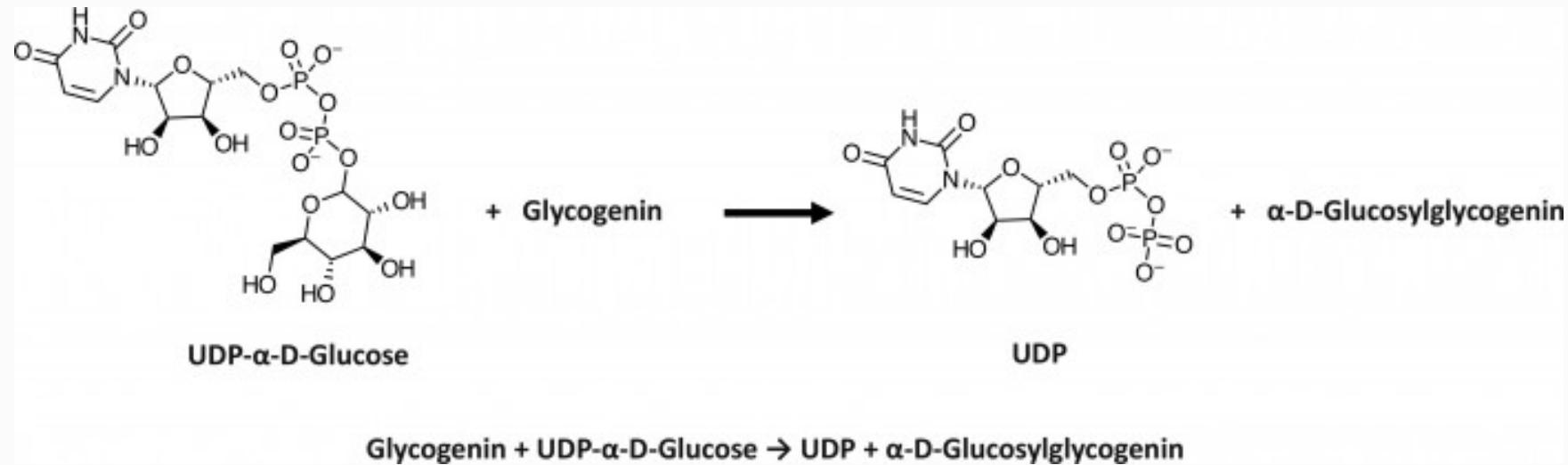
Multiple Tissues



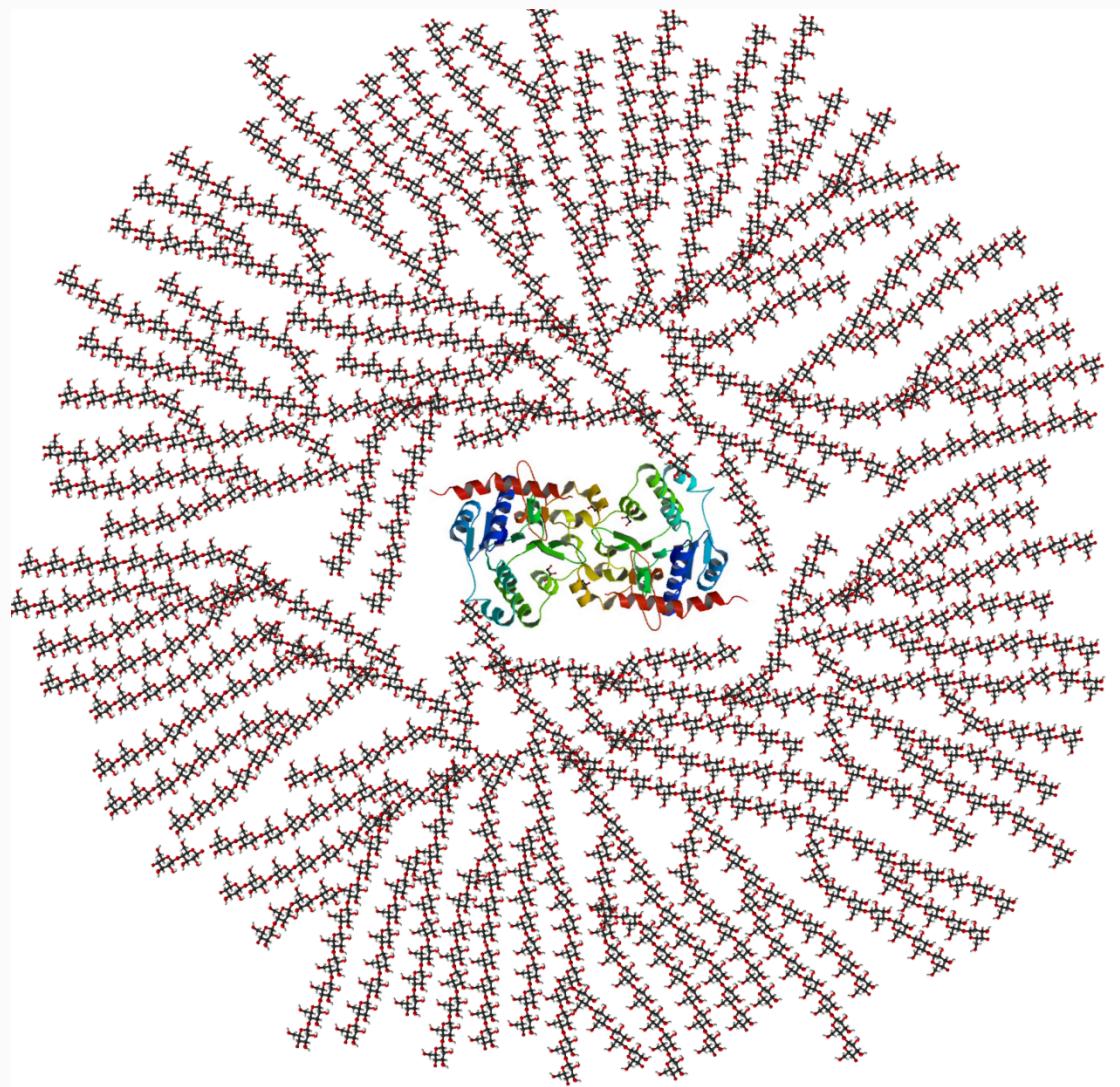
Endergonic



# Glycogen Synthesis

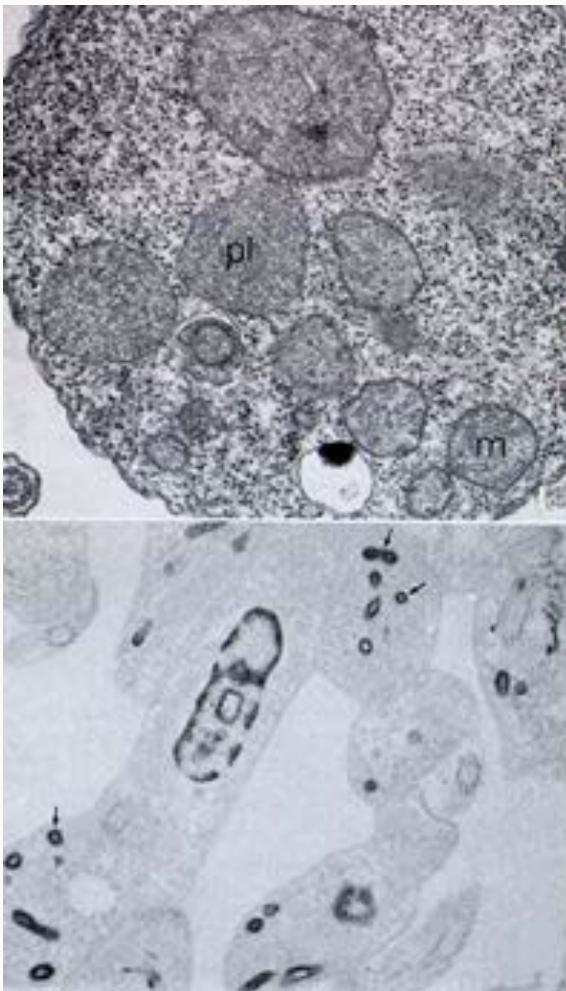


# Glycogenin



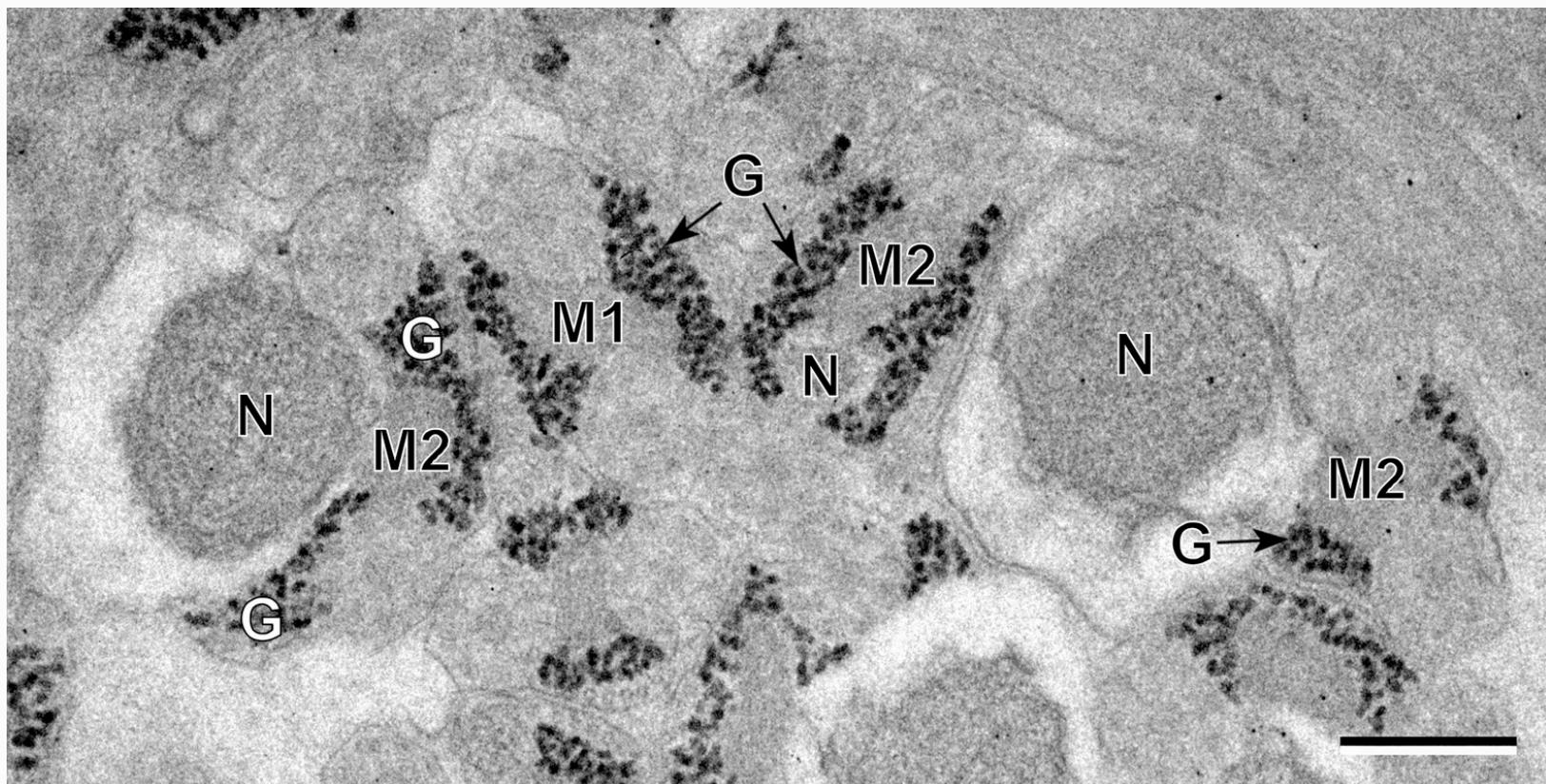
Häggström, Mikael (2014). "[Medical gallery of Mikael Häggström 2014](#)". *WikiJournal of Medicine* 1 (2). [DOI:10.15347/wjm/2014.008](#). ISSN 2002-4436. Public Domain

# Glycogen granules



By Wanderley Souza - Kinetoplastid Biology and Disease "From the cell biology to the development of new chemotherapeutic approaches against trypanosomatids:dreams and reality" Figure 17, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=22764768>

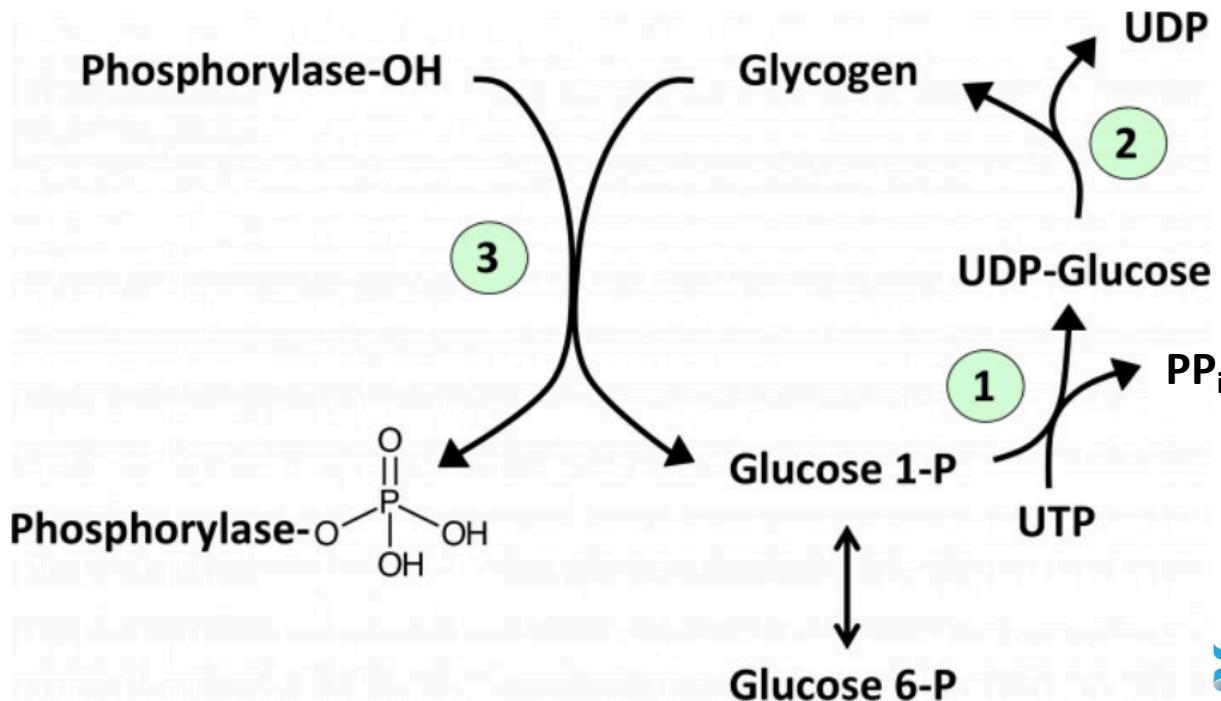
# Glycogen Granules & Glycosome

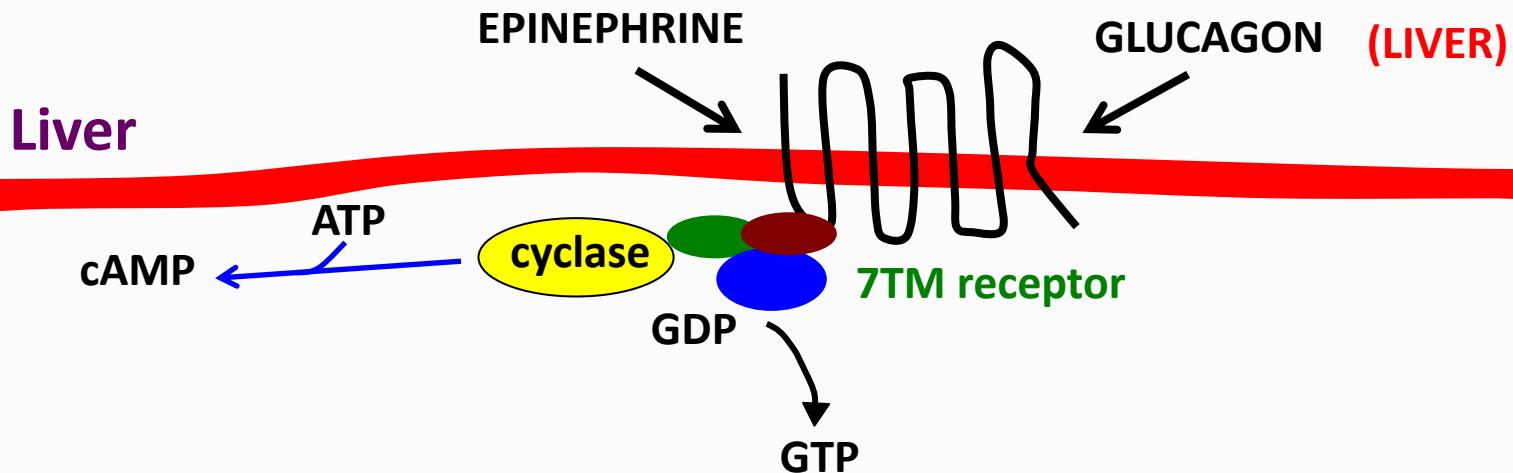


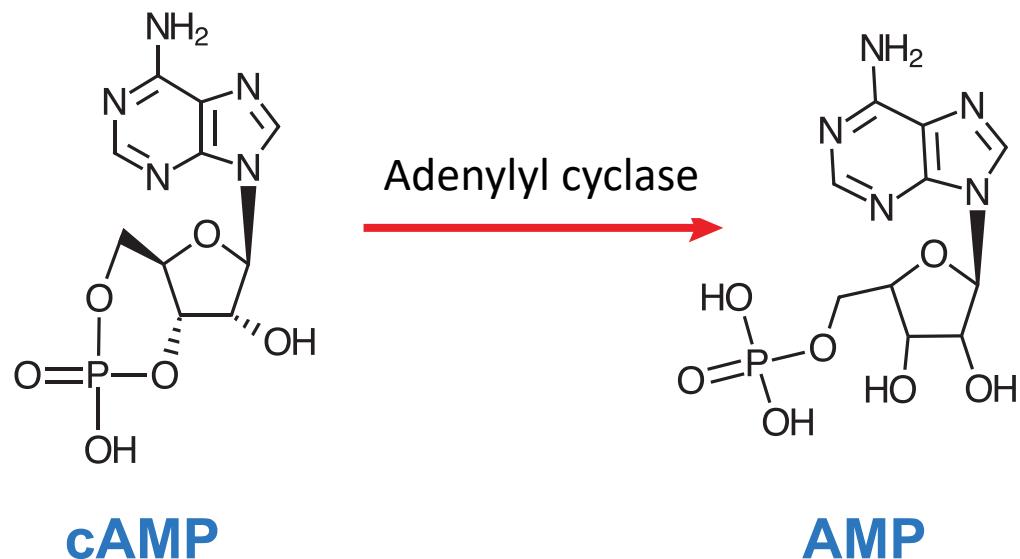
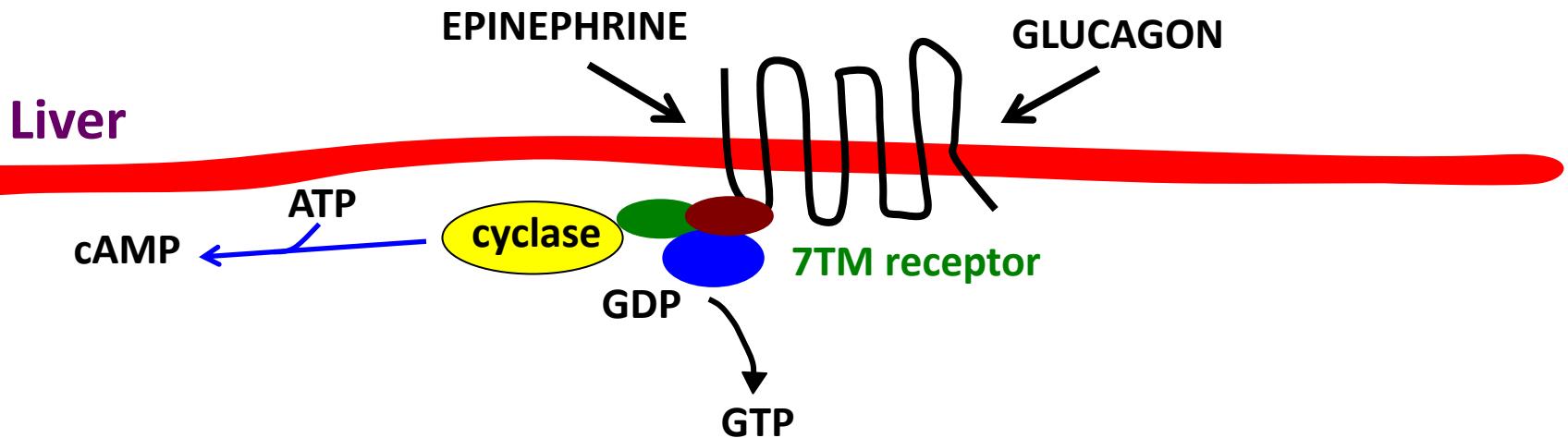
Miquel, J., Vilavella, D., Swiderski, Z., Shimalov, V. V. & Torres, J. 2013:  
Spermatological characteristics of Pleurogenidae (Digenea) inferred from the  
ultrastructural study of *Pleurogenes claviger*, *Pleurogenoides*  
*medians* and *Prosotocus confusus*. **Parasite**, 20, 28. [doi:10.1051/parasite/2013028](https://doi.org/10.1051/parasite/2013028)

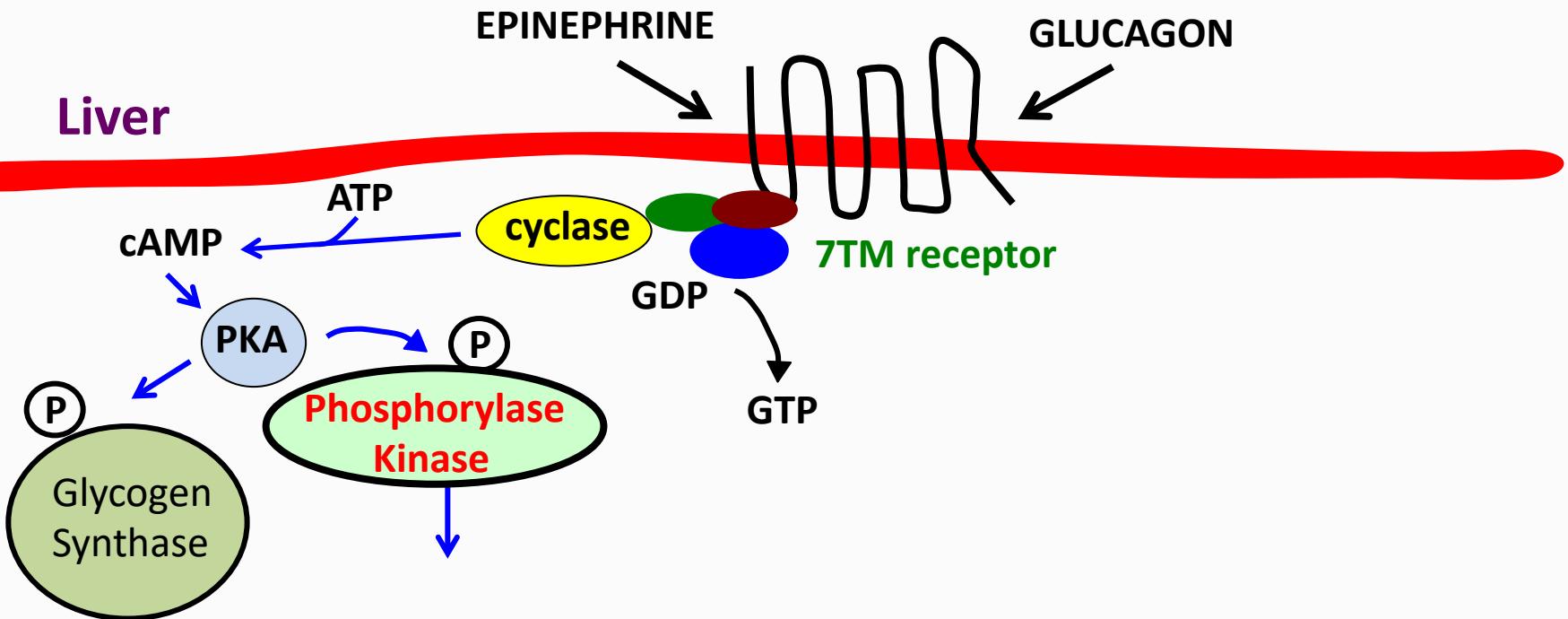
# Glycogen Metabolism

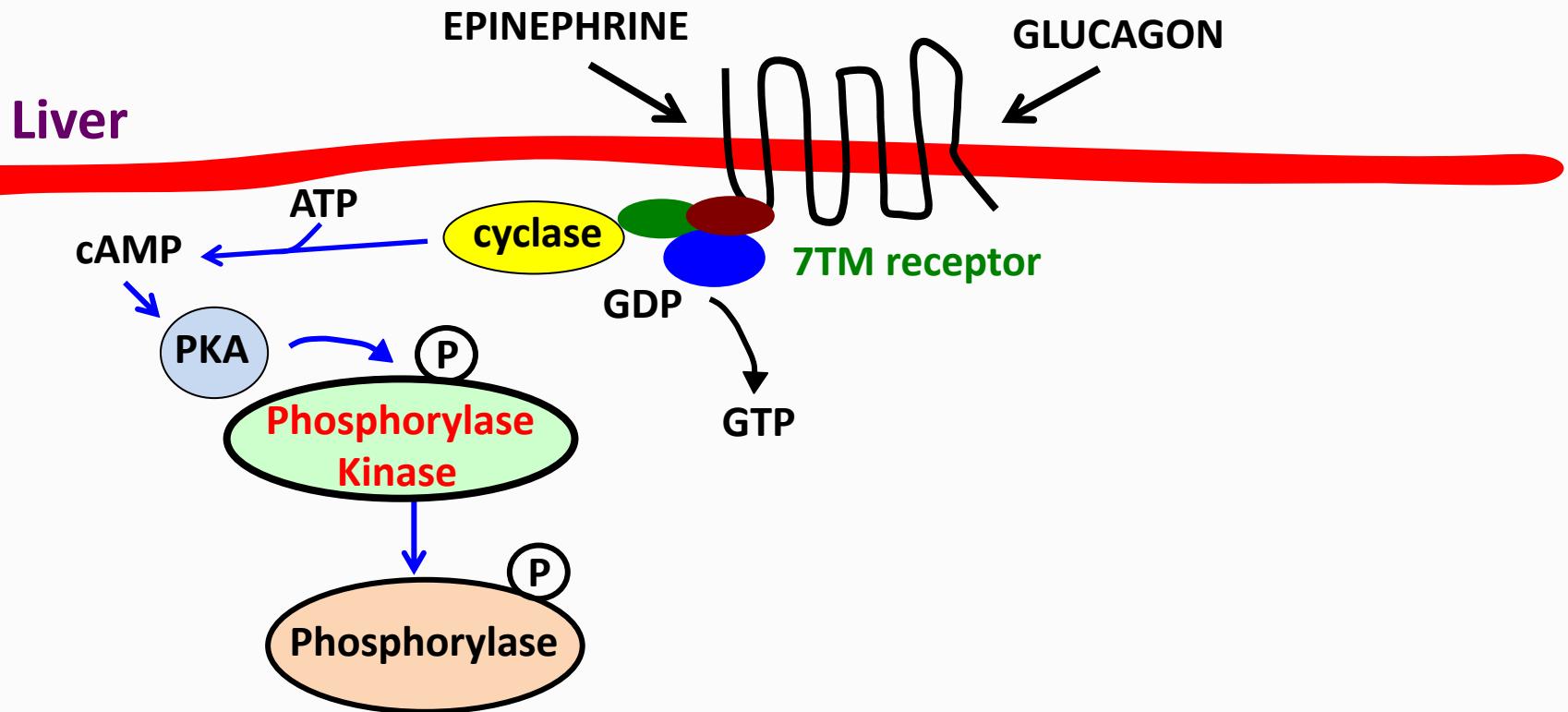
**Glycogenin + UDP- $\alpha$ -D-Glucose  $\rightarrow$  UDP +  $\alpha$ -D-Glucosylglycogenin**

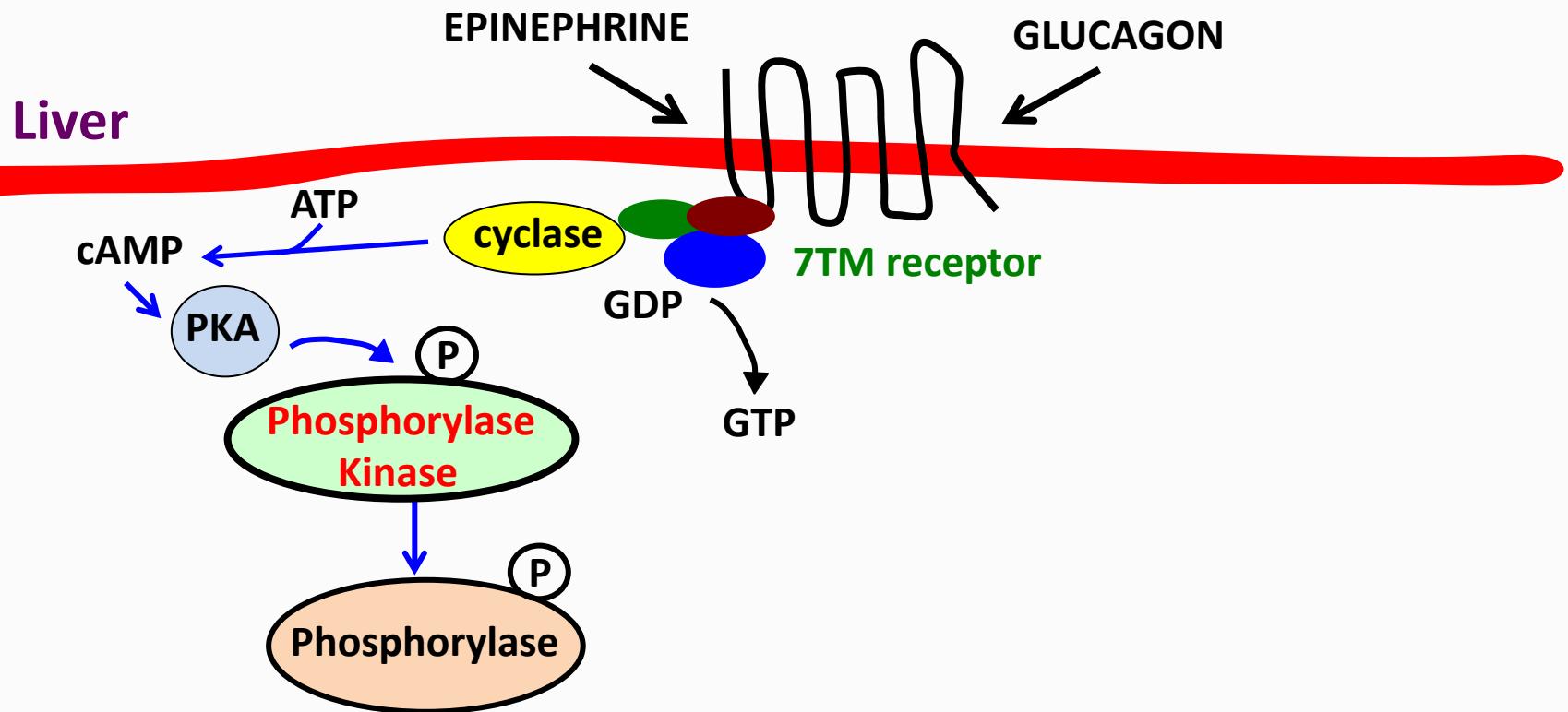


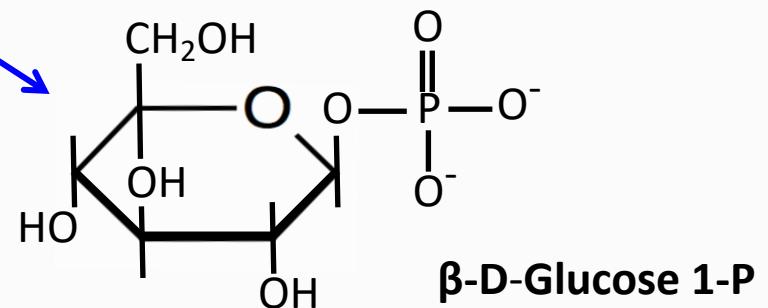
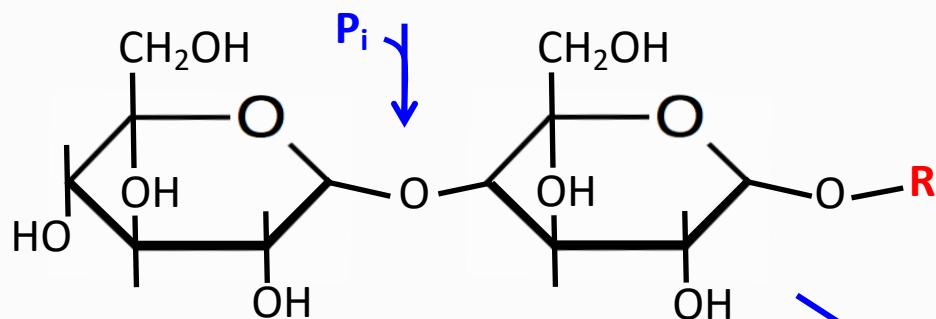
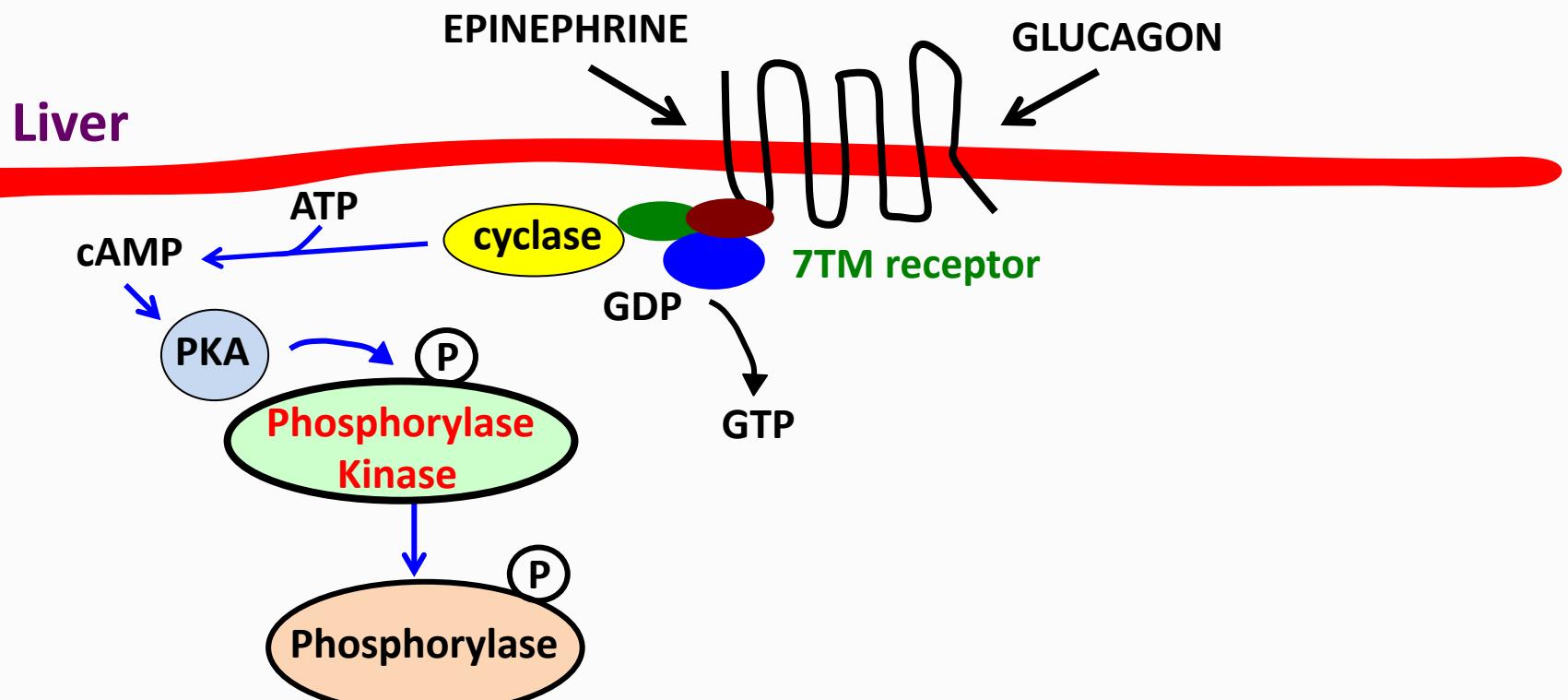


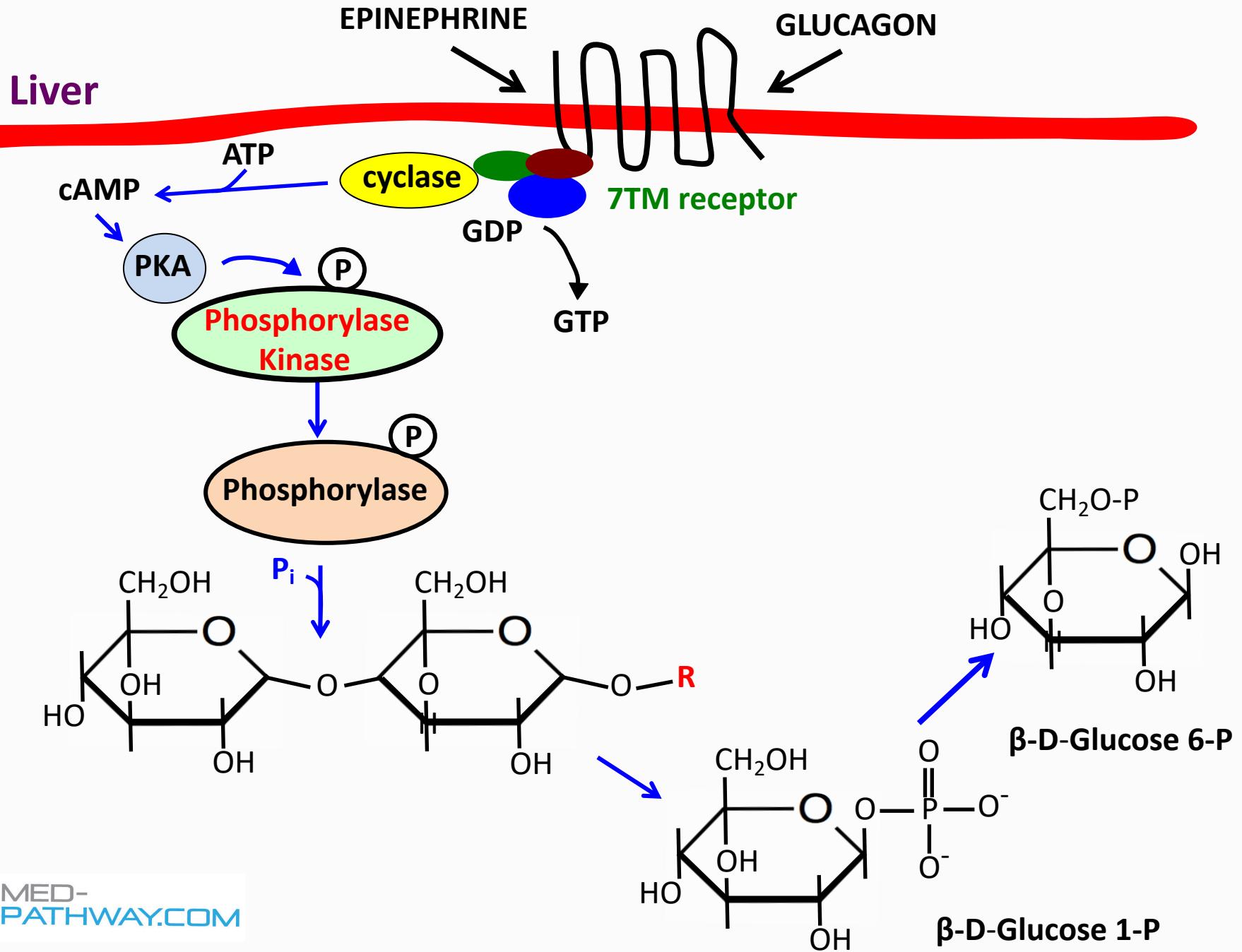


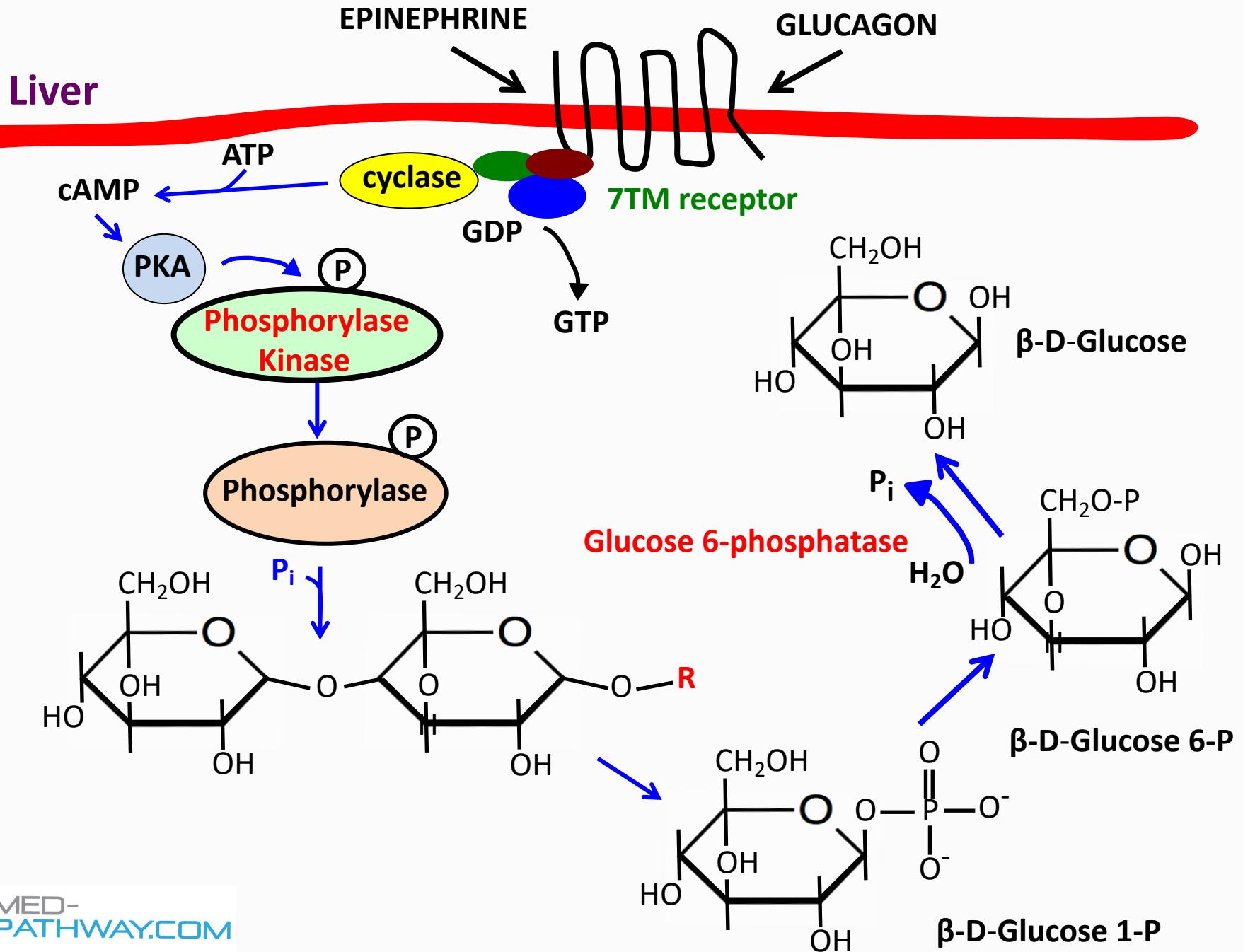


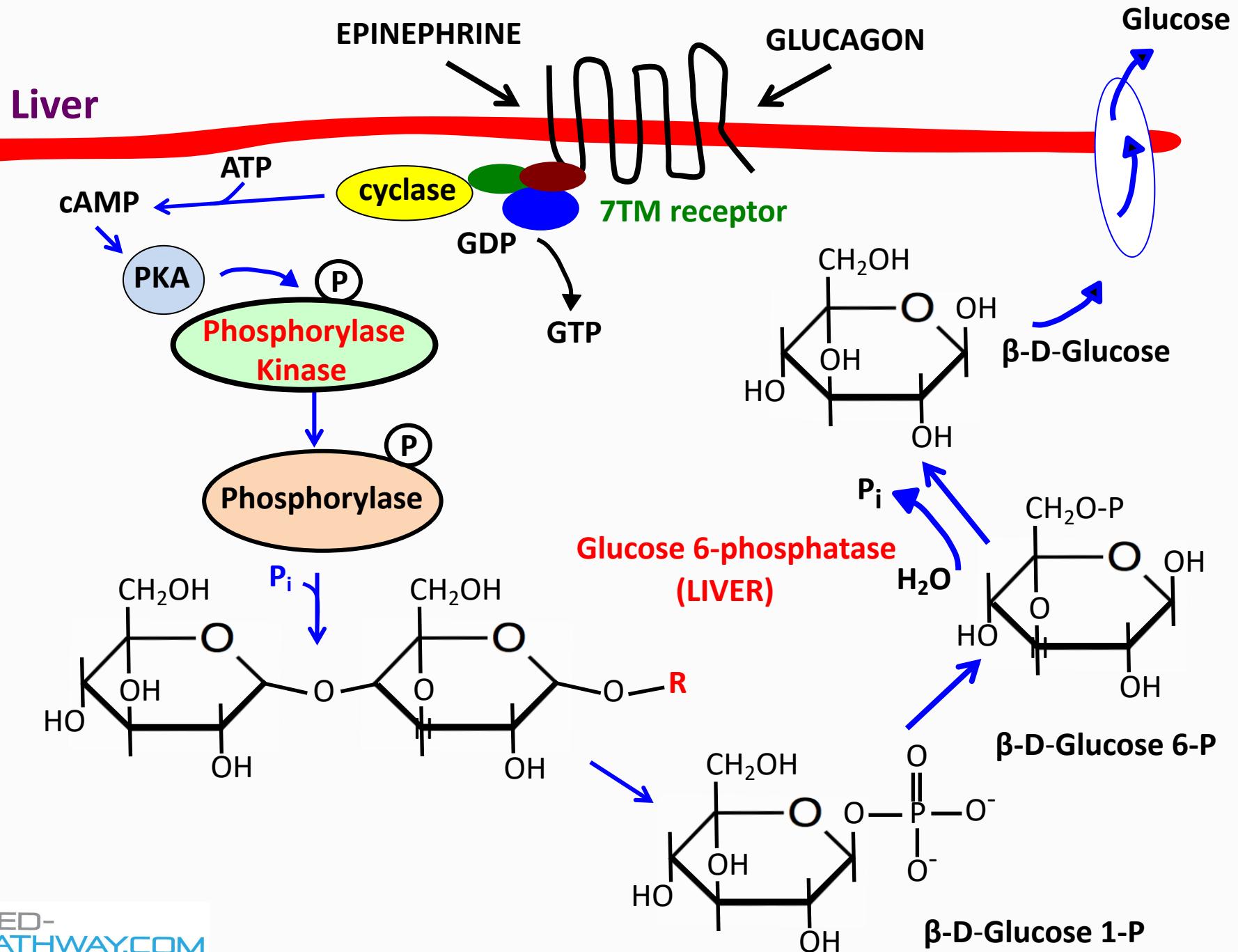














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