

Regulation of Glycogenesis

* 2 main enzyme will be regulated in this process :-

Glycogen synthase
 ⇒ building up Glycogen.
 • Stimulated by :
 • Inhibited by :

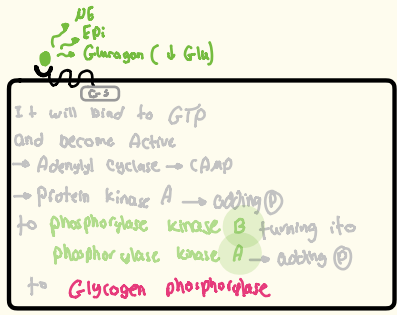
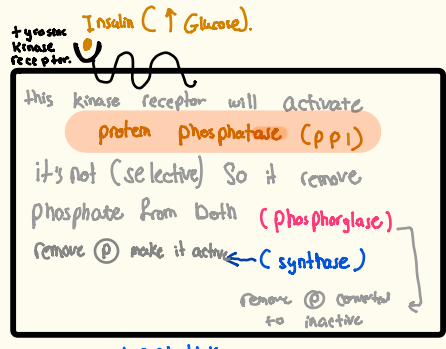
- Glu-6-P Since it indicate high blood Glu level
- Insulin
- Protein kinase A

Glycogen phospholylase
 ⇒ degrade Glycogen.
 • inhibited by
 • Stimulated by

- Insulin
- Glu-6-P ~ I already I have good Glu load in blood , I don't need more.
- ↑ATP ~ I don't need Glycolysis to happen.
- Glucose (liver only) ~ I don't need more.
- ↑AMP (muscle only) ~ I need Glu to make more ATP to muscle contraction.

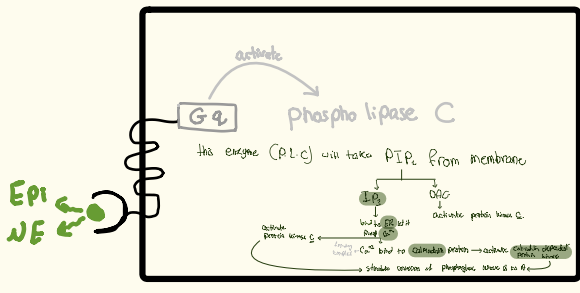
In Addition enzyme will be regulated by **protein phosphatase.**

In Addition ,enzyme will be regulated by another enzyme **Phosphorylase kinase. 2 forms**



Protein kinase A is not selective So it phosphorylate both enzyme (**Phosphorylase**)
 (C synthase) adding P make it inactive

phosphatidyl esterase
 • cAMP → 5' AMP
 Protein kinase A
 • degradation
 Glycogen degradation
 بالانزيم phosphatidyl esterase
 بالانزيم phosphatidyl esterase



* Glucagon / Epinephren → نضج الشحلات

* Acetyl CoA → Fat
 Glucose → Acetyl CoA
 Fat → Acetyl CoA
 (Acetyl CoA) → Fat
 (Acetyl CoA) → Fat

{قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ}