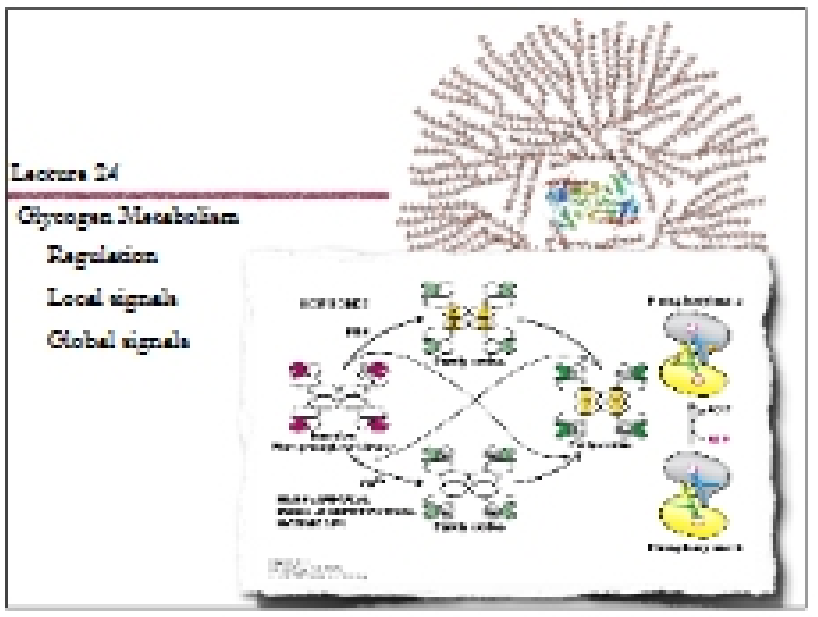
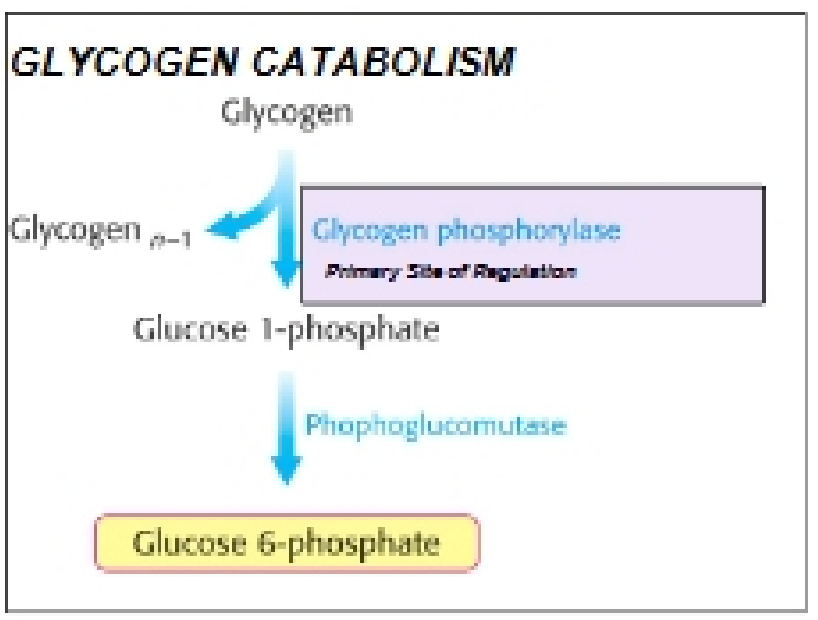
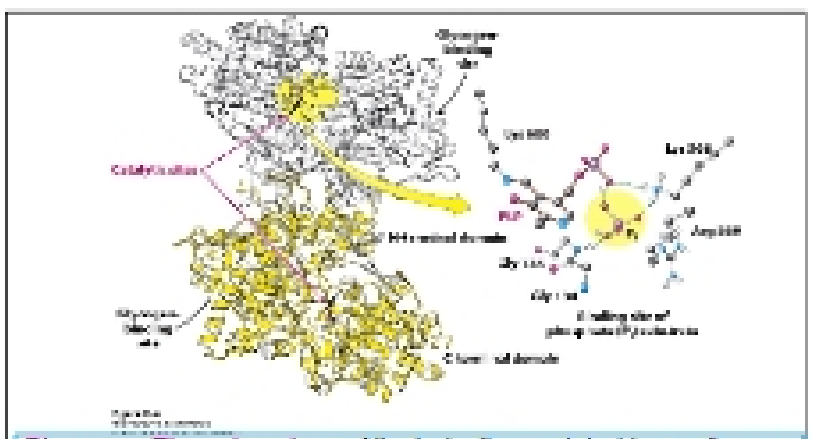


*Glycogen Phosphorylase:* Allosterically regulated homodimer. One subunit is shown in yellow.

This enzyme is found attached to glycogen. It's activity, however is dictated by it's phosphorylation state and presence of non-covalent allosteric regulators.

## *Glycogen Phosphyorylase:* Regulation

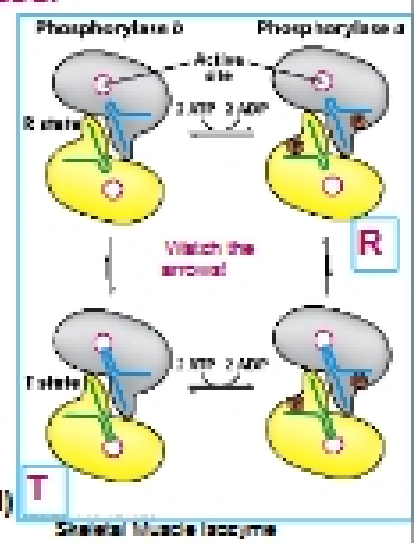
**Equilibrium**

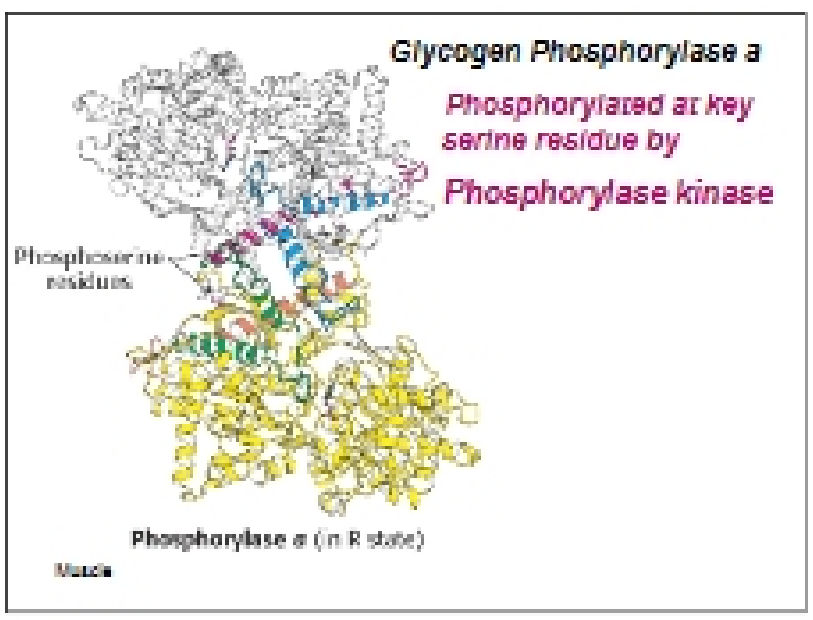
**Tense (T), Relaxed (R) states**

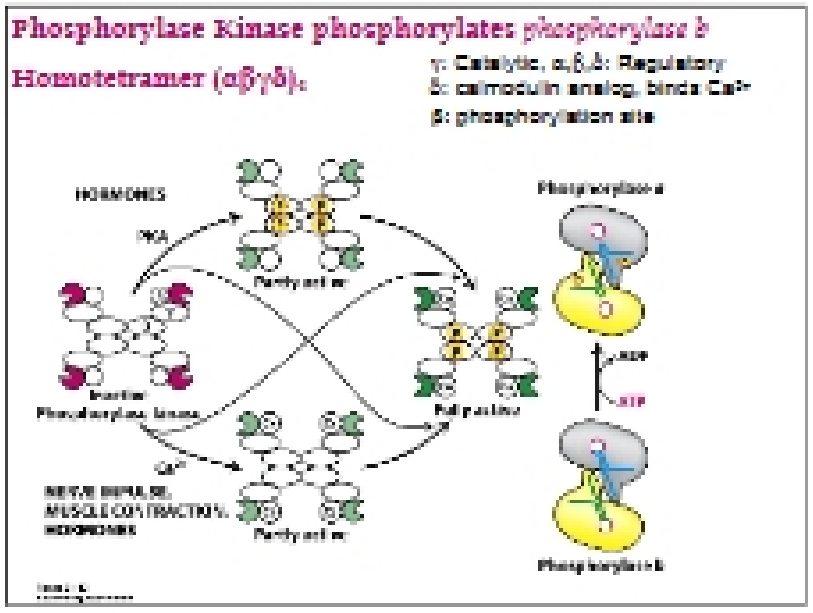
*In the tense state, the active site is partially blocked.*

**Phosphorylation**

**P-Serine: results in formation of *phosphorylase a*, favors the R state and therefore is more active. (Global Control)**



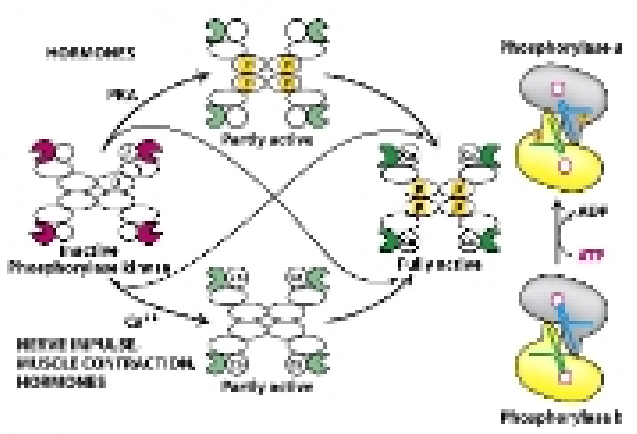



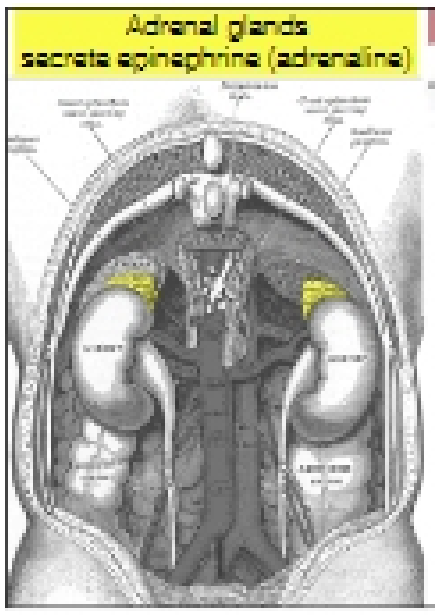



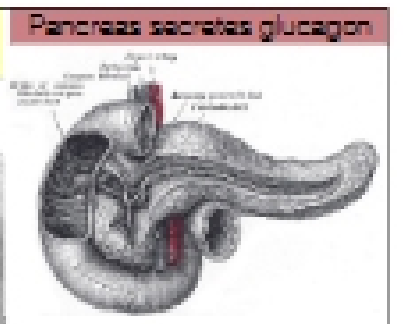
## Phosphorylase kinase

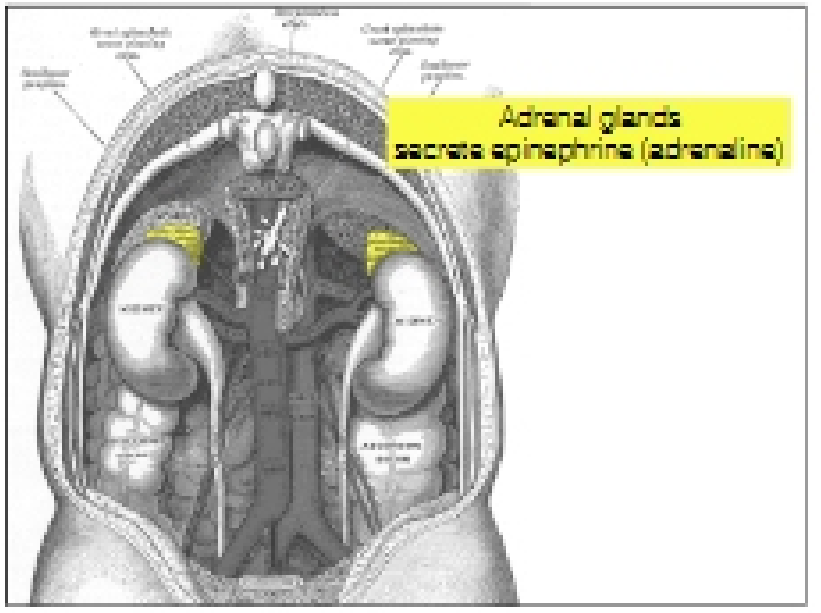
Global: Phosphorylation by PKA

Local: Increase in intracellular $Ca^{++}$




Global signals
Epinephrine
Glucagon