**Features of allosteric enzymes**

- Undergo a conformational change in response to modulator binding
- Are generally larger than non allosteric enzymes with two or more subunits
- Modulator may be inhibitory or stimulatory
- Often the substrate itself is the modulator(homotropic regulation)
- Binding of substrate causes a conformational change that affect subsequent activity on other sites
- When the modulator is a molecule other than substrate its referred to as heterotropic regulation
- Allosteric modulators should not be confused with inhibitors
- In addition to active sites, allosteric enzymes generally have one or more regulatory or allosteric sites for binding the modulator
- In homotropic regulation, the active site and the regulatory site are usually the same
- In many allosteric enzymes the substrate binding site and the modulator binding site(s) are on different subunits; the catalytic (C) and the regulatory (R) subunits
  - Modulator binds to a specific site on regulatory subunit

- Allosteric enzymes bind activators at the allosteric site, a site physically separate from the catalytic site. The binding of an allosteric activator changes the conformation of the catalytic site in a way that increases the affinity of the enzyme for the substrate

- Nerve impulses—and binding of hormones to cell-surface receptors—elicit changes in the rate of enzyme catalyzed reactions within target cells by inducing the release or synthesis of specialized allosteric effectors called **second messengers**.
- Second messengers include 3′,5′-cAMP, synthesized from ATP by the enzyme adenylyl cyclase in response to the hormone epinephrine, and Ca2+, which is stored inside the endoplasmic reticulum of most cells.