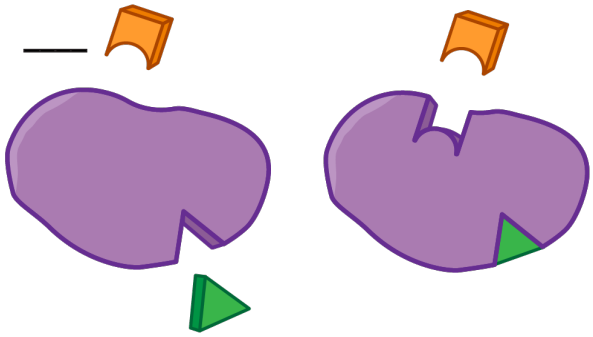
CONCEPT: ENZYME REGULATION: ALLOSTERIC CONTROL

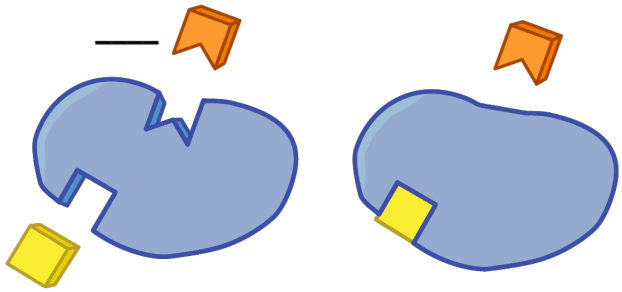
- Enzyme regulation is a mechanism cells use to turn _____ or _____ enzymes as needed.
  - □ Three types: 1) _____ Control, 2) _____ Control, and 3) _____ Modification

Allosteric Control

- Allosteric control is achieved by allosteric enzymes that have _____ types of binding sites.
  - □ Active site is for the substrate. □ Allosteric site is for the _____.
  - □ **Regulator/Effector:** binds to allosteric site and _____ or closes an active site.



_____ Allosteric Regulator



_____ Allosteric Regulator

- **Positive Regulator:** _____ rate of reaction by making an active site available to substrate.
- **Negative Regulator:** _____ rate of reaction by making an active site ____available to substrate.

EXAMPLE: Which of the following statements is incorrect about allosteric enzymes?

a) The activity of an allosteric enzyme can be controlled by a regulator molecule.

b) Allosteric enzymes have two types of binding sites.

c) The binding of allosteric regulator to the enzyme can change the availability of active site.

d) The overall shape of an allosteric enzyme always remains the same.

PRACTICE: Isoleucine can attach to the enzyme threonine deaminase and can decrease its activity. Isoleucine can be classified as:

a) Positive allosteric regulator

b) Negative allosteric regulator