

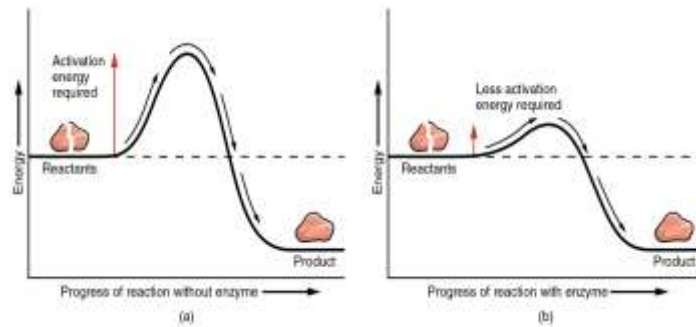
EQ: Explain how the structure of an enzyme is key to its function?

I. Chemical Reactions either:

- A. Require energy as they go (endothermic) or
- B. Release energy as they go (exothermic)

II. Enzymes

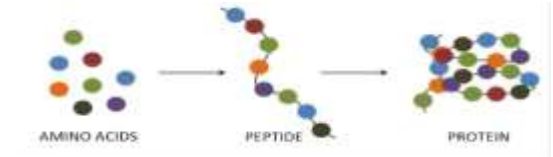
- A. Speed up chemical reactions (**catalyze**) by reducing the amount of energy needed (the **activation energy**) for a reaction to start.



i.

B. Are made of proteins

- i. Proteins are made of amino acids
- ii. Enzymes have a folded, 3D shape
- iii. This shape determines an enzyme's function
 - 1. (image right and up)

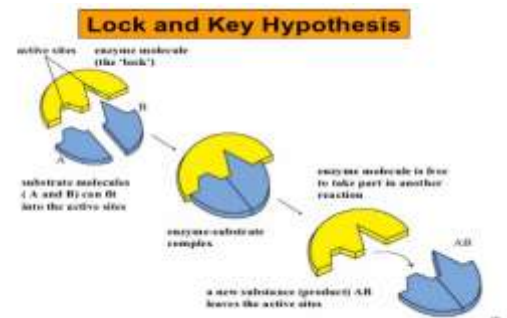


C. Are reusable

- i. They don't get used up or permanently changed in reactions
 - 1. They can wear out though
- ii. They are not a product or a reactant

D. Work for only one type of reaction.

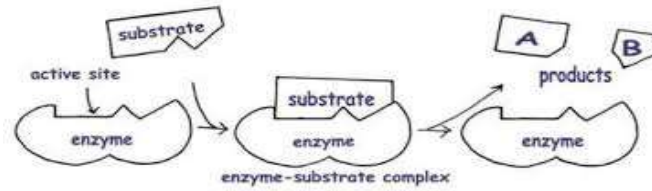
- i. They are specific – there are MANY different enzymes
- ii. Shape is EVERYTHING with an enzyme
 - 1. They must fit with their **substrate** like a puzzle piece



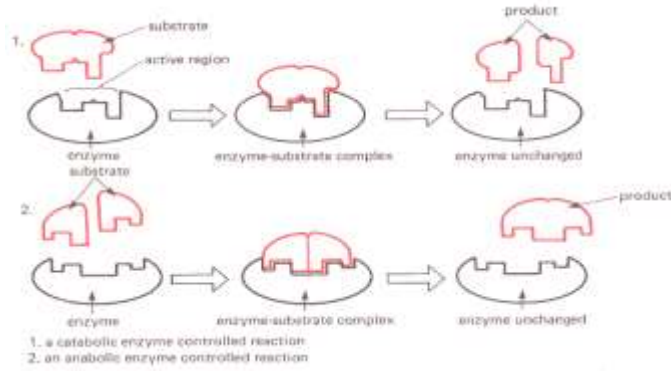
E. Can act as matchmakers

- i. (image right)

F. Can act as gossipers



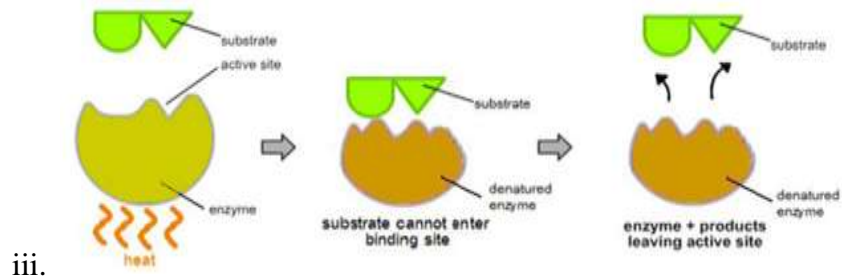
- i.
- ii. Gossiper v. Matchmaker



III. Enzymes don't always work

A. Can be changed by extreme changes in pH or temperature.

- i. This is called **denatured**
- ii. And enzyme that have been completely denatured will not work anymore.



B. Can be **inhibited** by blocking the active site.

- i. This can slow down a reaction that doesn't need to happen quickly.
- ii. It can also prevent an enzyme from ever working at all