

Enzymes

What are enzymes?

Enzymes **Supplement**

What is the active site?

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What happens to the enzyme after the products leave?

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What is an enzyme-substrate complex?

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What does it mean to say that enzymes are specific?

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Why does rate increase as temperature rises to the optimum?

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What happens above the optimum temperature?

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How does a pH far from the optimum affect an enzyme?

The region of the enzyme where the substrate fits. Its shape is complementary to the substrate.

Proteins that are involved in all metabolic reactions, where they function as biological catalysts.

The temporary structure formed when the substrate is bound to the active site.

It is unchanged, so it can be used again.

More kinetic energy, so more frequent effective collisions between substrate and active sites.

Each enzyme acts on one substrate because only that substrate has a shape complementary to the active site.

It changes the shape of the active site, so there is no fit and the enzyme is denatured.

The active site changes shape, the substrate no longer fits, and the enzyme is denatured.

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Describe the effect of increasing temperature on enzyme activity.

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Describe the effect of pH on enzyme activity.

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What is denaturation?

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Which indicator shows whether starch is present?

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Which variables are controlled when investigating temperature?

Activity is highest at the optimum pH. Above or below it, activity decreases; extreme pH denatures the enzyme.

Activity increases up to the optimum temperature, then decreases quickly as the enzyme is denatured.

Iodine solution: blue-black with starch, orange-brown when no starch is left.

A permanent change in the shape of an enzyme's active site, so the substrate no longer fits and the enzyme no longer works.

pH, and the volume and concentration of the enzyme and substrate.