Enzymes 1

Enzymes are biological catalysts.

They increase rate of reaction.

They breakdown large molecules into smaller molecules.

They help with communication of cells.

They are used in digestion, such as breakdown of carbohydrates; used in blood clotting processes; immunity; movement – within contractile proteins; nerve conduction- sodium potassium pump.

Enzymes are characterised by active site and substrate complex formation. There are two types of theories: lock and key theory and the induced fit theory. This is due to the varying degree of specificity.

Energy is needed for enzyme substrates binding – for bringing molecules together; stabilising the positive and negative charges in the transition state; providing a lower activation energy pathway; using cofactors.

Regulatory enzymes

These control gene expression.

An example is allosteric regulatory proteins which control the protein shape i.e. that increasing or decreasing activity.

Allosteric enzymes

These are multi subunit complexes

They contained regulatory and catalytic sites on different subunits.

They are involved in feedback inhibition of metabolic pathways, by increasing or decreasing protein activity.