1.9 Enzyme Inhibition

- Enzyme inhibitors are substances that directly or indirectly interfere with the functioning of the active site of an enzyme and so reduce its activity.

**Competitive Inhibitors**
- Shape is similar to that of the substrate allowing them to occupy the active site of an enzyme.
- Compete with the substrate for the active site.
- If the substrate concentration is increased the effect of the inhibitor is reduced.
- The inhibitor is non permanently bound to the active site and so when it leaves another molecule can take its place.
- E.g. malonate inhibits the respiratory enzyme succinate.

**Non-Competitive Inhibitor**
- Attach themselves to the enzyme at a binding site that isn’t the active site.
- Upon attaching to the enzyme the inhibitor alters the shape of the enzyme and thus its active site so the substrate no longer fits it.
- As the substrate and the inhibitor are not competing for the same site an increase in substrate concentration does not decrease the effect of the inhibitor.

A) Competitive Inhibition

B) Non-competitive Inhibition