

Sometimes even enzymes are sated and have enough!

① Match the fitting words and phrases.

auf einer Achse auftragen 1x

Bindungsstreben 1x

Geschwindigkeit 1x

sich trennen 1x

steigern 1x

Sättigung 1x

umsetzen 1x



Need no more!

saturation

to plot against

affinity

to convert

to enhance

velocity

to dissociate

② Below you find sentences describing a specific moment in enzyme activity which is also termed reaction rate. Put the sentences into the correct order. (1-6)

☐ The active site catalyzes the reaction producing the product. This is the rate limiting step.

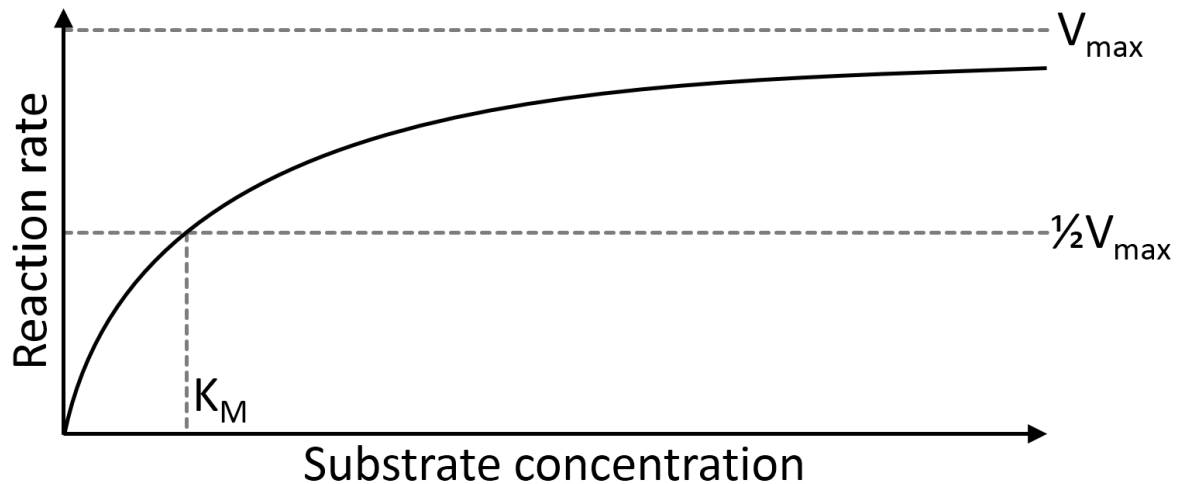
☐ The substrate binds at the binding site of the enzyme. This rate can vary and depends on the amount of substrate. The more substrate the quicker both meet.

☐ The enzyme-product complex dissociate to free product and enzyme.

☐ The two molecules form the enzyme-product complex.

☐ The enzyme is ready for the next catalysis reaction.

☐ The two molecules form the enzyme-substrate complex.



Michaelis Menten curve - the reaction rate of an enzyme depends on the substrate concentration, the number of enzymes stays constant

③ Match the texts with a suitable point in the graph.

- () The reaction rate of the enzymes starts off slowly. This is caused by a small amount of substrate. The affinity between both molecules is low.
- () A lower K_M means a high affinity between enzyme and substrate.
- () A higher K_M means a low affinity between enzyme and substrate.
- () The conversion rate of the enzymes present cannot be further enhanced if the substrate amount is already very high. All enzymes are located in the enzyme-substrate complex, they are saturated.
- () The reaction rate of the enzymes increases due to a higher amount of substrate. The affinity of both molecules becomes higher. The existing enzymes now convert more substrates into products in the same time.
- () If the substrate concentration corresponds to the K_M value, half of the originally present enzymes are present in the form of enzyme-substrate complexes. The other half is free.
- () The Michaelis-Menten constant K_M indicates the substrate concentration at which half the maximum reaction rate of the enzyme is reached.
- () The half-maximum rate of substrate conversion is reached.