

ASSUMPTIONS OF MICHAELIS-MENTEN EQUATION

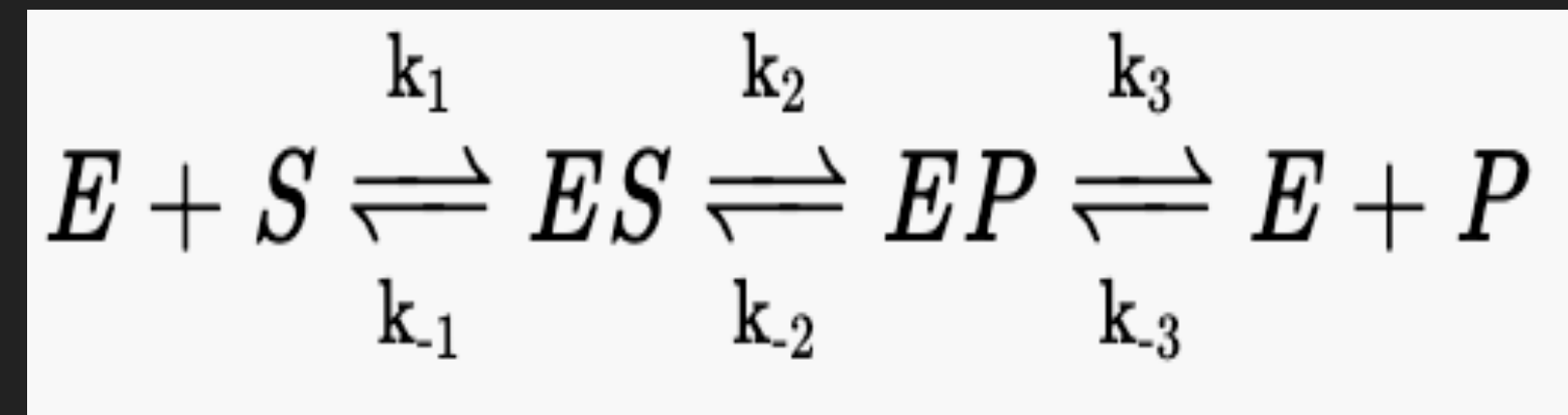
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- ▶ Reaction Favors the forward direction (formation of products)
- ▶ Concentration of Enzyme is Constant
- ▶ Very little of the reverse reaction occurs
- ▶ Solutions behave "ideally"
- ▶ Temperature = constant
- ▶ pH = constant
- ▶ WILL BE ON THE EXAM

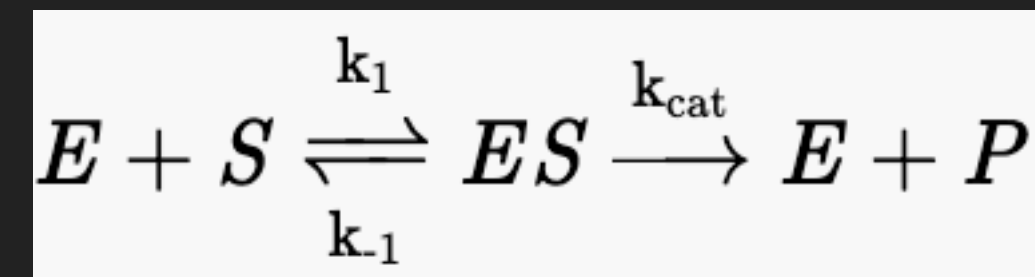
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20

- ▶ If we analyze a reaction at its very beginning (or its initial rate) prior to the formation of a significant amount of product, we can assume that the conversion of ES to EP is the rate limiting step.



- ▶ Assuming ES to EP is rate-limiting, aka k_1, k_{-1} , and $k_3 \gg k_2$,
We can convert the above reaction to:



- ▶ Substituting the rate constants into one constant called k_{cat} or the rate of enzyme catalysis
- ▶ At this point there is little to no product, so the reverse reactions k_{-3} and k_{-2} are negligible