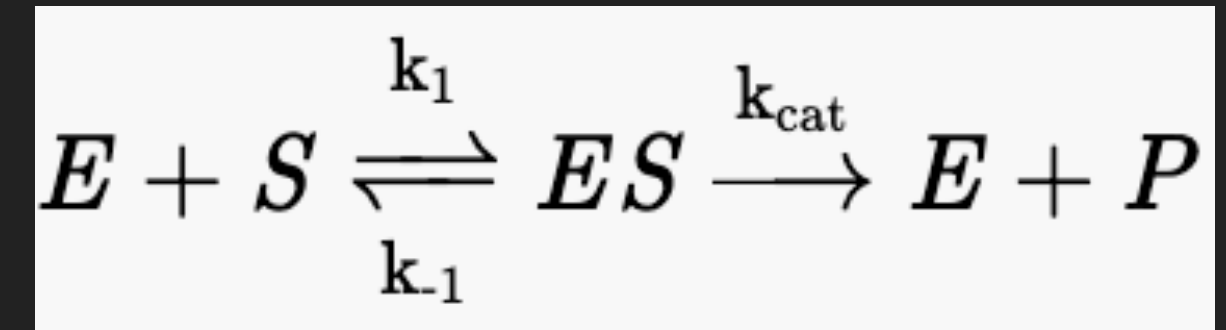


$$K_M = \frac{k_{-1} + k_2}{k_1}$$

- ▶ IF ($k_2 > k_1$) { K_M == Large ; Affinity == Low }
- ▶ IF ($k_2 < k_1$) { K_M == Small ; Affinity == High }



$$k_1 * [E] * [S] = (k_{-1} * [ES]) + (k_{cat} * [ES])$$

Formation of ES Complex = Dissociation of ES Complex + Breakdown to E+P

- ▶ This ratio of rate constants is known as the Michaelis Constant (K_M) ;

$$K_M = \frac{k_{-1} + k_{cat}}{k_1}$$

- ▶ k_{cat} is another name for k_2

- ▶ When k_{cat} is small:

- ▶ We essentially remove it from the equation. $K_M = \frac{k_{-1}}{k_1}$

- ▶ @ maximum turnover

- ▶ $[ES]$ is high as it as it "builds up"

- ▶ Comparing k_1 and k_{-1} = likelihood substrate is bound to the enzyme , aka affinity

- ▶ IF ($k_1 > k_{-1}$) { K_M == Small ; Reaction Prefers to be in Ezyme-Substrate Complex → Then Eventual Formation of Product }

- ▶ IF ($k_1 < k_{-1}$) { K_M == Large ; Reaction Prefers to be Separated into Enzyme + Substrate }