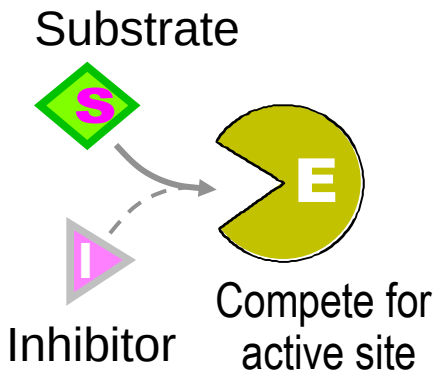
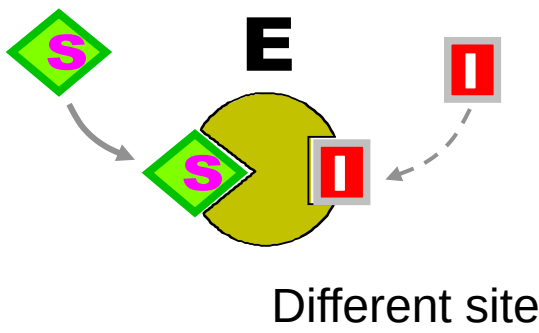
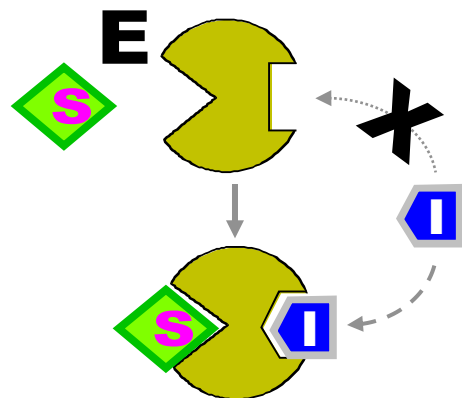
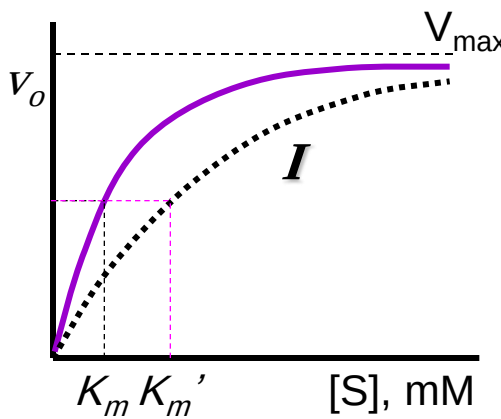
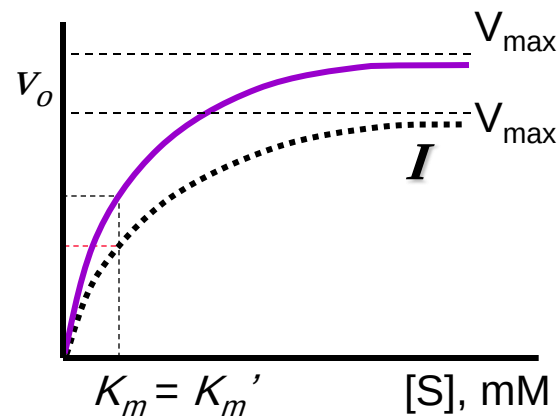
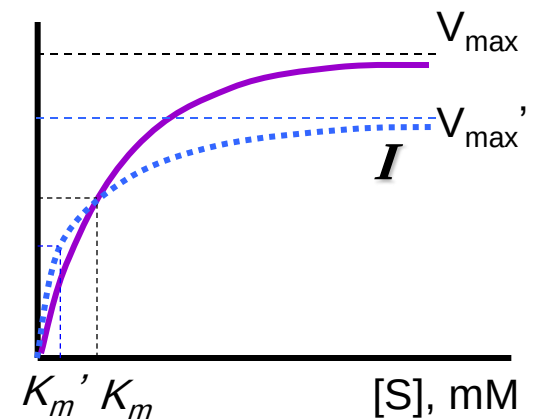
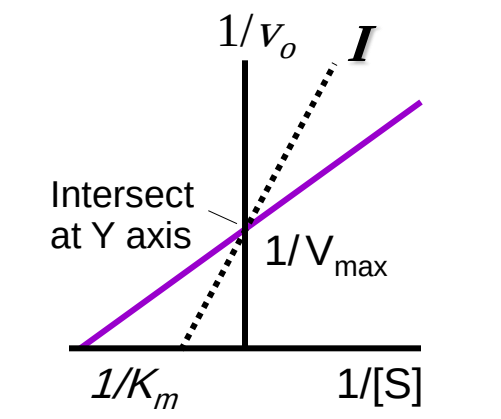
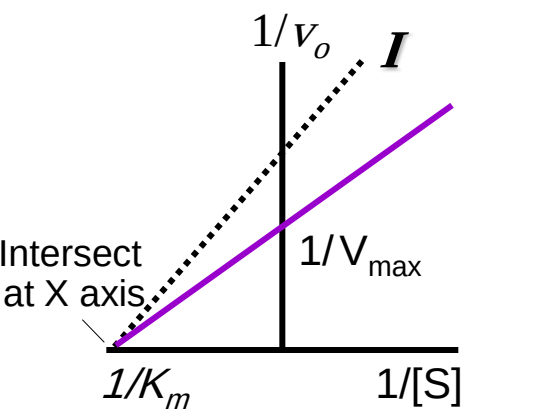
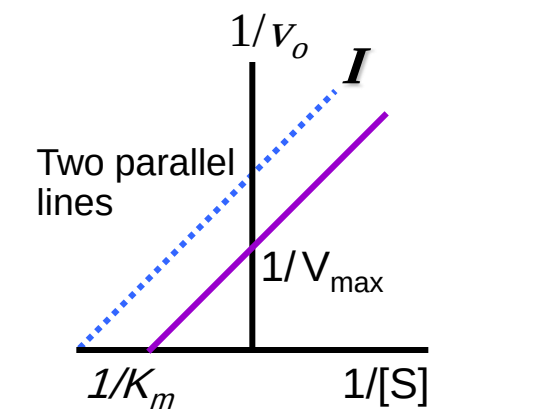


# Enzyme Inhibition (Mechanism)

|                          | ▶ Competitive                                                                                                                                      | ■ Non-competitive                                                                                                       | ◀ Uncompetitive                                                                     |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Cartoon Guide            |  <p>Substrate</p> <p>Inhibitor</p> <p>Compete for active site</p> |  <p>Different site</p>                |  |
| Equation and Description | $E + S \rightleftharpoons ES \rightarrow E + P$ $+ I$ $\updownarrow$ $EI$                                                                          | $E + S \rightleftharpoons ES \rightarrow E + P$ $+ I$ $\updownarrow \quad \downarrow \uparrow$ $EI + S \rightarrow EIS$ | $E + S \rightleftharpoons ES \rightarrow E + P$ $+ I$ $\updownarrow$ $EIS$          |
|                          | <p>[I] binds to free [E] only, and competes with [S]; increasing [S] overcomes Inhibition by [I].</p>                                              | <p>[I] binds to free [E] or [ES] complex; Increasing [S] can not overcome [I] inhibition.</p>                           | <p>[I] binds to [ES] complex only, increasing [S] favors the inhibition by [I].</p> |

# Enzyme Inhibition (Plots)

|                   |  Competitive |  Non-competitive |  Uncompetitive |
|-------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Direct Plots      |              |                 |                |
|                   | $V_{\max}$ unchanged<br>$K_m$ increased                                                       | $V_{\max}$ decreased<br>$K_m$ unchanged                                                           | Both $V_{\max}$ & $K_m$ decreased                                                                 |
| Double Reciprocal |             |                |               |