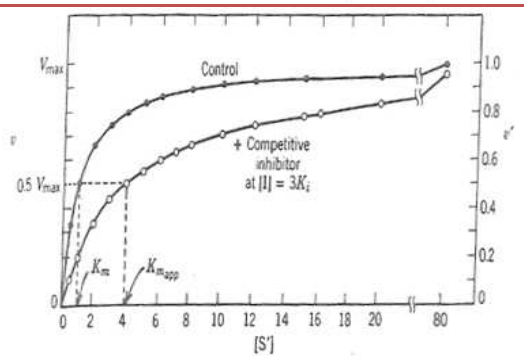
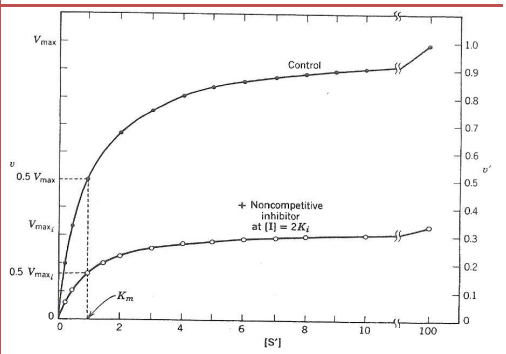
Equations for calculation of Ki for competitive / noncompetitive inhibitors.

	Competitive inhibition	**Non-competitive inhibition**
Equilibria	$E + S \underset{}{\overset{K_S}{\rightleftarrows}} ES \xrightarrow{k_p} E + P$ $+ \quad I \quad K_I \downarrow\uparrow$ EI $K_S=[E][S]/[ES]$ $K_I= [E][I]/[EI]$ K_p=rate constant for the breakdown of ES to E+P	$E + S \underset{}{\overset{K_S}{\rightleftarrows}} ES \xrightarrow{k_p} E + P$ $+ \quad I \quad K_I \downarrow\uparrow$ $EI + S \underset{}{\overset{K_S}{\rightleftarrows}} ESI$ $K_S=[E][S]/[ES]$ $=[EI][S]/[ESI]$ $K_I= [E][I]/[EI]$ $=[ES][I]/[ESI]$
Equations	$\frac{v}{V_{max}} = \frac{[S]}{K_m\left(1+\frac{[I]}{K_i}\right)+[S]}$	$\frac{v}{V_{max}} = \frac{[S]}{\left(1+\frac{[I]}{K_i}\right)\left(K_m+[S]\right)}$
	$\frac{1}{v} = \frac{K_m}{V_{max}}\left(1+\frac{[I]}{K_i}\right)\frac{1}{[S]} + \frac{1}{V_{max}}$	$\frac{1}{v} = \frac{K_m}{V_{max}}\left(1+\frac{[I]}{K_i}\right)\frac{1}{[S]} + \frac{1}{V_{max}}\left(1+\frac{[I]}{K_i}\right)$
	$i = 1 - \frac{v_i}{v_0} = \frac{[I]}{[I]+K_i\left(1+\frac{[S]}{K_m}\right)}$	$i = 1 - \frac{v_i}{v_0} = \frac{[I]}{K_i+[I]}$
v vs. [S]		
1/*v* vs. 1/[S]