

Kinetic Parameters

| | | |
|---------------|----------------|---|
| K_M | M | $(k_{-1} + k_{cat})/k_1$ |
| k_{cat} | s^{-1} | $v_0 = k_{cat}[E]_T$ |
| k_{cat}/K_M | $M^{-1}s^{-1}$ | at $[S] \gg K_M$: $v_0 = k_{cat}/K_M [S][E]_T$ |

Inhibition

Michaelis-Menten

v_0 vs. $[S]$

Hanes-Woolf

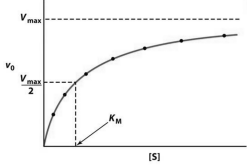
S/v_0 vs. $[S]$

$m = 1/v_{max}$
 $c = K_M/v_{max}$
 $x\text{-int} = K_M$

Plot

Plot

K_M and V_{max}



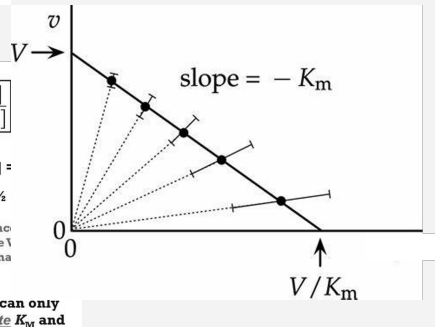
$$v_0 = \frac{V_{max} [S]}{K_M + [S]}$$

When $[S] = K_M$
 $v_0 = \frac{1}{2} V_{max}$

K_M is conc of S where v is half- v_{max}

But... can only estimate K_M and V_{max} in this way

$$V_0 = \frac{V_{max} [S]}{K_M + [S]} = \frac{V_{max} [S]}{[S] + [S]} = \frac{V_{max} [S]}{2[S]} = \frac{V_{max}}{2}$$



Lineweaver-Burk

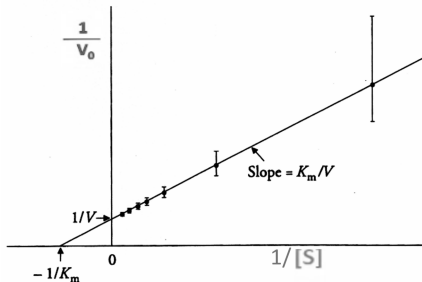
$1/v_0$ vs. $1/[S]$

$m = K_M/v_{max}$

$c = 1/v_{max}$

$x\text{-int} = -1/K_M$

Plot



Eadie-Hofstee

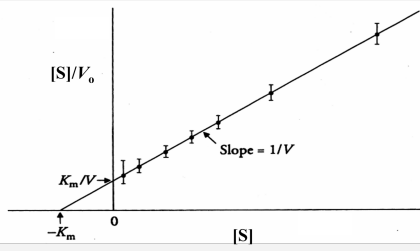
v_0 vs. $v_0/[S]$

$$m = -K_M$$

$$c = v_{\max}$$

$$x\text{-int} = v_{\max}/K_M$$

Plot



C

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