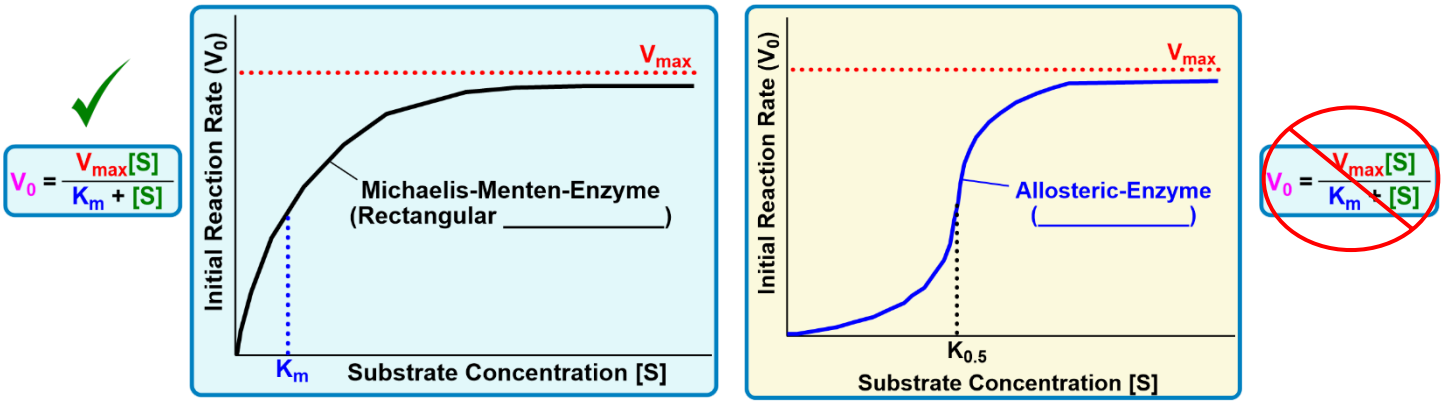
CONCEPT: ALLOSTERIC KINETICS

●*Allosteric enzymes* are easy to identify because they behave very _____ from *Michaelis-Menten enzymes*.

□ Respond differently to changes in **[S]** and the presence of _____.

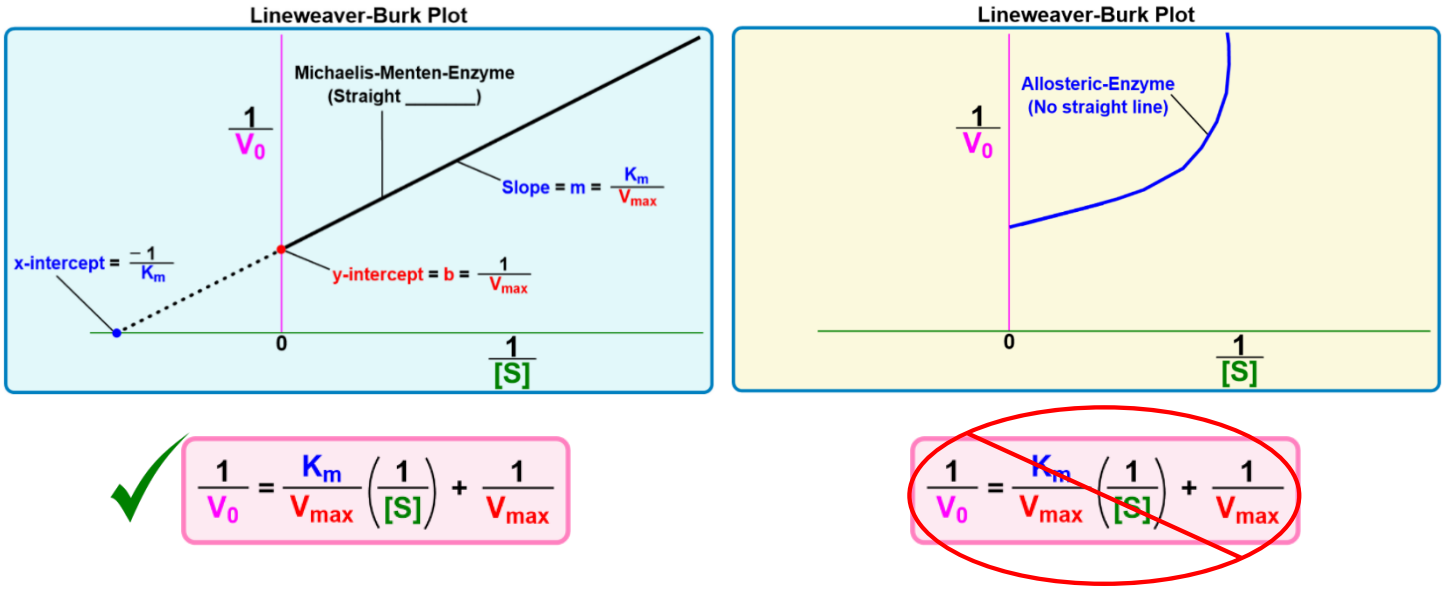
●Most allosteric enzymes display a _____ ("S"-shaped) curve on a kinetics plot instead of a rectangular hyperbola.

□ _____ is the *allosteric enzyme* equivalent of the K_m for Michaelis-Menten enzymes.



Allosteric Enzymes on Lineweaver-Burk-Plots

●Allosteric enzyme kinetic data does _____ form a straight line on a Lineweaver-Burk plot.



$$\frac{1}{V_0} = \frac{K_m}{V_{max}}\left(\frac{1}{[S]}\right) + \frac{1}{V_{max}}$$

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PRACTICE: Which of the following statements regarding allosteric kinetics is false?

a) The rate of an allosteric enzyme reaction is dependent on substrate concentration [S].

b) The reaction velocity and substrate concentration always proportionally change in a Lineweaver-Burk plot.

c) At saturating [S], the kinetics of an allosteric enzyme will follow the Michaelis-Menten model.

d) Allosteric enzymes display second order kinetics leading to sigmoidal curvature on a kinetics plot.

e) None are false because all of the above are true.

CONCEPT: ALLOSTERIC KINETICS

Threshold Effect of Allosteric Enzymes

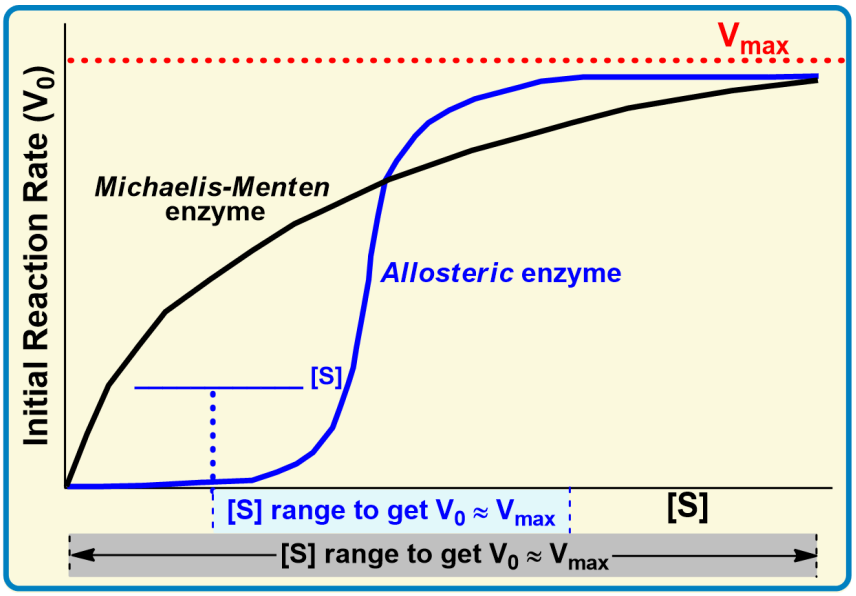
●At *very* _____ [**S**], *Michaelis-Menten*-enzymes are _____ sensitive to Δ[**S**] than *allosteric* enzymes.

□ HOWEVER; a _____ [**S**] is reached where _____ enzymes are much *more* sensitive to Δ[**S**].

□ $\mathbf{V_0}$ of allosteric enzymes can approach $\mathbf{V_{max}}$ within a *smaller*, more _____ range of [**S**].

□ This creates a _____ *effect* for many *allosteric* enzymes that Michaelis-Menten enzymes don't have.

●*Threshold effect*: below a certain [___], there's little to no *allosteric* enzyme activity (threshold [**S**] acts as "on/off" switch).



PRACTICE: Because of the _____ substrate-binding-site(s) & conformation(s) on an allosteric enzyme, the range of [S] to reach the V_{max} is _____ for allosteric enzymes than it is for Michaelis-Menten enzymes.

a) Single, smaller.
b) Single, greater.
c) Multiple, narrower.
d) Multiple, wider.