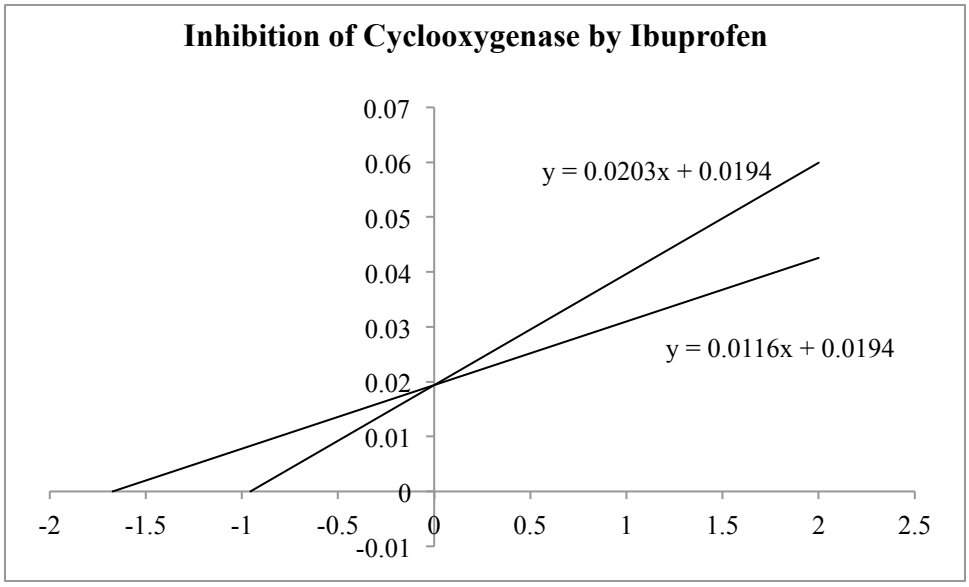
CHEM 4400 Worksheet Fall 2014



1. Label the x and y axes and then use the above graph to fill in the following table:

	Km	Vmax
No inhibitor		
Ibuprofen, 10 mg/ml		

2. What kind of inhibition is this? What evidence did you use to determine this?

3. Write the equilibrium reactions for the Enzyme, Substrate and Inhibitor.

4. Draw a line on the graph to show the expected results if 20mg/mL of ibuprofen was used.

5. What will happen to the terms listed below, when an enzyme is added to the following reaction? Circle the best answer for each.

$$S \underset{k_2}{\overset{k_1}{\leftrightarrow}} P \qquad K_{eq} = [P]/[S]$$

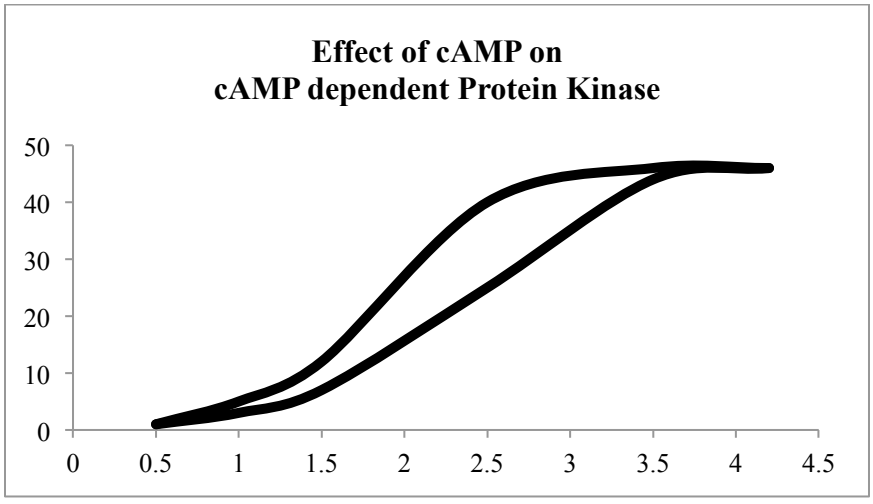
a. K_{eq}	increase	decrease	stay the same
b. k_1	increase	decrease	stay the same
c. k_2	increase	decrease	stay the same
d. $\Delta G'^{\circ}$	increase	decrease	stay the same
e. $\Delta G^{\pm}$	increase	decrease	stay the same

6. An enzyme catalyzes the reaction A←→B, the Km for the substrate A is 4μM and k_{cat} = 20 min^{-1}.
a. When [A] = 6mM, v_o = 480nM/min, what is E_t?

b. When E_t = 0.5μM, v_o = 5μM/min, what was [A]?

c. Does this enzyme have catalytic perfection? Why or why not?

7. Use the graph shown below to answer the following questions.



a. Label the y and x axes.
b. Label the line that shows the activity of cAMP dependent kinase when cAMP is present.
c. What kind of enzyme control is this? How do you know?