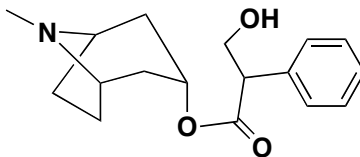


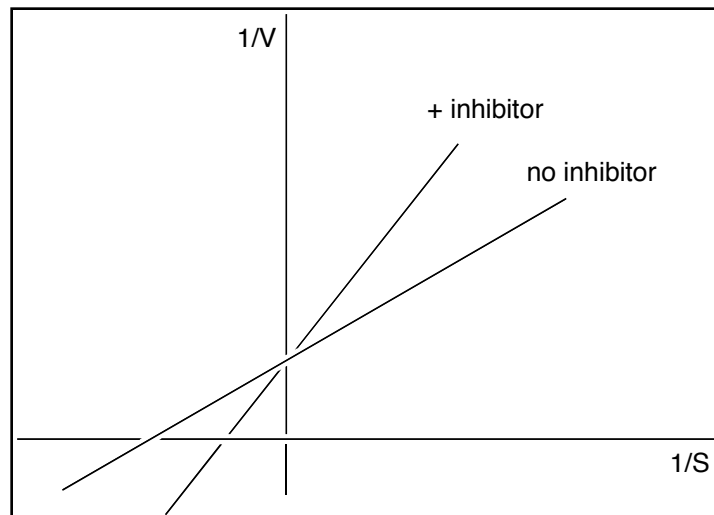
Practice Questions for Exam #1

- (1) For Michaelis-Menten kinetics, $\text{rate} = \text{rate}_{\text{max}} \cdot [\text{S}] / (\text{K}_m + [\text{S}])$. Which statements are true:
- i) A small value of K_m means the substrate has a high affinity for the active site
 - ii) A small value of K_m means the substrate has a low affinity for the active site
 - iii) When $[\text{S}] \gg \text{K}_m$, then $\text{rate} = \text{rate}_{\text{max}}$
 - iv) When $[\text{S}] \gg \text{K}_m$, then $\text{rate} = 1/2 \text{rate}_{\text{max}}$
- a) i and iii
b) i and iv
c) ii and iii
d) ii and iv
- (2) In water at neutral pH, the predominant structure of an amino acid would be:
- a) $\text{NH}_2\text{-CHR-CO}_2\text{H}$
 - b) $^-\text{NH}_3\text{-CHR-CO}_2^+$
 - c) $^+\text{NH}_3\text{-CHR-CO}_2^-$
 - d) None of the above
- (3) The drug below contains:



- a) Both an primary amine and an ether group
- b) Both an secondary amine and thiol group
- c) Both an amide and an alcohol group
- d) Both a tertiary amine and an ester group

- (4) The following Lineweaver-Burk relationships were plotted for a substrate with and without the presence of an inhibitor.



Which of the following statements are true:

- i) The inhibitor is competitive
 - ii) The inhibitor is non-competitive
 - iii) K_m for the two enzymatic reactions with and without inhibitor are the same
 - iv) V_{max} for the two reactions with and without the inhibitor are the same
- a) i and iii
 - b) i and iv
 - c) ii and iii
 - d) ii and iv
- (5) How many valence electrons does oxygen (O) have:
- a) 2
 - b) 4
 - c) 6
 - d) 8