Biochemistry tutorial 4: enzyme kinetics

Question 1

Figure 1. Lineweaver-Burke plot of the reciprocal of the velocity of the enzyme (in absorbance units per minute) versus the reciprocal of the substrate concentration in (in mmol-1).

Inhibitor A is a competitive inhibitor. This is evident by the plot of the uninhibited enzyme intersecting with the plot of the enzyme inhibited by A on the y-axis (indicating a similar 1/vmax value, and therefore similar vmax).

Inhibitor B is a non-competitive (mixed) inhibitor. Enzyme inhibited by B intersects with the uninhibited enzyme on the x-intercept (the same or similar 1/km value).

Question 2

a)There is a non-competitive (mixed) inhibitor. The Lineweaver Burke plots of reciprocal initial velocity versus reciprocal substrate concentration for the uninhibited and inhibited enzyme intercept on the x-axis. This indicates the same 1/Km and Km.

b)

In the presence of 1 mmol-1 inhibitor:

-KI = -x-intercept of secondary lineweaver-burke =