Problem Set 12 BB 450 / 550

1. Imagine you suffered a mutation that caused your body to be unable to break down prostanoids. Based on the processes described in class, what do you suspect would be the result of this? How would you treat it?

2. Your friend says her doctor told her that cancer is caused by proto-oncogenes. What do you tell her?

3. When a reaction $A \rightleftharpoons B$ is at equilibrium, there is more $B$ than $A$. What can you say about $\Delta G^o$?

4. When a reaction $A \rightleftharpoons B$ has $\Delta G^o = 0$ and there is more $A$ than $B$, what can you say about $\Delta G$?

5. When $A \rightleftharpoons B$ has more $A$ than $B$, what can you say about $\Delta G^o$ and $\Delta G$?

$\text{Pain}$  \hspace{1cm} \text{Thromboxanes - clotting}$^\uparrow$

$3 \hspace{1cm} \Delta G = \Delta G^o + R T \ln \frac{[B]}{[A]}$

$\Delta G = 0 = \Delta G^o + R T \ln \frac{[B]}{[A]}$

$(-) \hspace{1cm} (+)$

$4 \hspace{1cm} \Delta G = 0 + R T \ln \frac{[B]}{[A]} <$

$(-) = \hspace{1cm} (-)$

$5 \hspace{1cm} A \rightleftharpoons B \hspace{1cm} [A] > [B]$

$\Delta G = \Delta G^o + R T \ln \frac{[B]}{[A]} <$

$(-)$