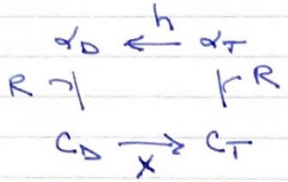
5/2/22



$$\dot{\alpha}_D = h\alpha_T - k_D^+ R \cdot \alpha_D + k_D^- C_D$$

$$\dot{\alpha}_T = -h\alpha_T - k_T^+ R \cdot \alpha_T + k_T^- C_T$$

$$\dot{C}_D = k_D^+ R \cdot \alpha_D - k_D^- C_D - x C_D$$

$$\dot{C}_T = k_T^+ R \cdot \alpha_T - k_T^- C_T + x C_D$$

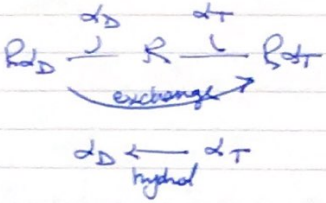
$$\dot{R} = -k_D^+ R \cdot \alpha_D + k_D^- C_D - k_T^+ R \cdot \alpha_T + k_T^- C_T$$

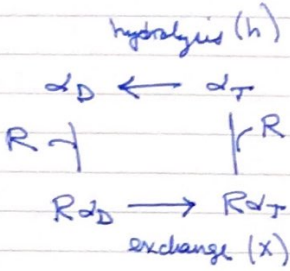
$$R^* = R + C_D + C_T \qquad \alpha_* = \alpha_D + \alpha_T + C_D + C_T$$

$$R = R^* - C_D - C_T \qquad \alpha_D = \alpha_* - \alpha_T - C_D - C_T$$

$$\begin{cases} \dot{\alpha}_T = -h\alpha_T - k_T^+ (R^* - C_D - C_T)\alpha_T + k_T^- C_T \\ \dot{C}_D = k_D^+ (R^* - C_D - C_T)(\alpha_* - \alpha_T - C_D - C_T) - k_D^- C_D - x C_D \\ \dot{C}_T = k_T^+ (R^* - C_D - C_T)\alpha_T - k_T^- C_T + x C_D \end{cases}$$

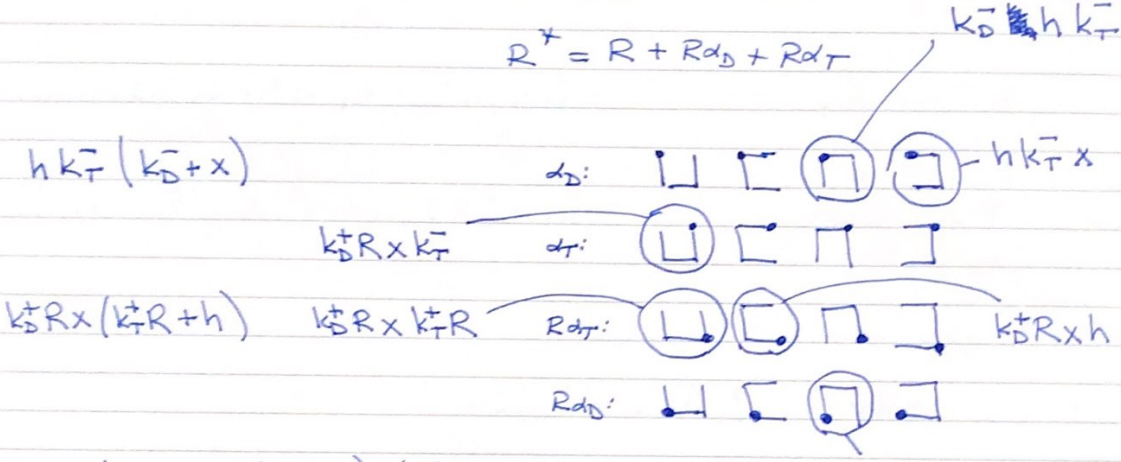
5/2/22





$$\alpha^* = \alpha_D + \alpha_T + R\alpha_D + R\alpha_T$$

$$R^* = R + R\alpha_D + R\alpha_T$$



$$\frac{\alpha_D}{\alpha^*} = hk_T^-(k_D^- + x)/\Sigma$$

$$\frac{\alpha_T}{\alpha^*} = k_D^+ R x k_T^-/\Sigma \qquad \frac{R\alpha_T}{\alpha^*} = k_D^+ R x (k_T^+ R + h) \qquad \frac{R\alpha_D}{\alpha^*} = k_D^+ R h k_T^-/\Sigma$$

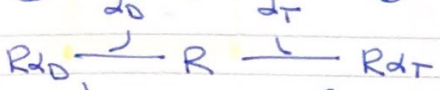
$$hK_T\left(K_D + \frac{x}{K_T^+}\right) \qquad RxK_T \qquad Rx\left(R + \frac{h}{K_T^+}\right) \qquad RhK_T$$

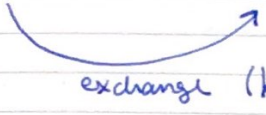
$x \to \infty$ ↓ ↓ ↓ ↓

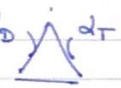
$$\frac{hK_T}{K_D^+} \qquad RK_T \qquad R\left(R + \frac{h}{K_T^+}\right) \qquad 0$$

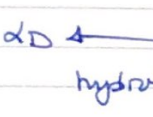
$$\frac{\alpha_T}{\alpha^*} = \frac{RK_T}{\frac{hK_T}{K_D^+} + RK_T + R\left(R + \frac{h}{K_T^+}\right)}$$

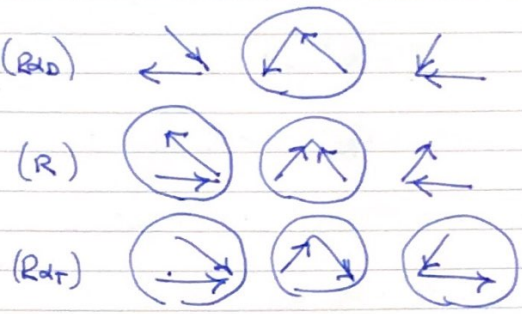
5/2/22



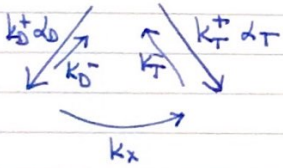








$$R + \alpha_T \underset{k_T^-}{\overset{k_T^+}{\rightleftharpoons}} R\alpha_T \qquad R + \alpha_D \underset{k_D^-}{\overset{k_D^+}{\rightleftharpoons}} R\alpha_D$$



$R\alpha_D$:	0	$k_D^+ \alpha_D k_T^-$	0
R:	$k_x k_T^-$	$k_D^- k_T^-$	0
$R\alpha_T$:	$k_x k_T^+ \alpha_T$	$k_D^- k_T^+ \alpha_T$	$k_D^+ \alpha_D k_x$

$$\frac{R}{R^*} = \left(x k_T^- + k_D^- k_T^- \right) \Big/ \left(k_D^+ \alpha_D k_T^- + x k_T^- + k_D^- k_T^- + x k_T^+ \alpha_T + k_D^- k_T^+ \alpha_T + k_D^+ \alpha_D x \right)$$

$$x k_T^- + k_D^- k_T^- + \alpha_D \left(k_D^+ k_T^- + k_D^+ x \right) + \alpha_T \left(x k_T^+ + k_D^- k_T^+ \right)$$

$$\frac{R}{R^*} = \left(\frac{x k_T}{k_D^+} + k_D k_T \right) \Big/ \left(\frac{x k_T}{k_D^+} + k_D k_T + \alpha_D \left(k_T + \frac{x}{k_T^+} \right) + \alpha_T \left(\frac{x}{k_D^+} + k_D \right) \right)$$

$x \to \infty$

$$\frac{R}{R^*} = \frac{k_T}{k_D^+} \Big/ \left(\frac{k_T}{k_D^+} + \frac{\alpha_D}{k_T^+} + \frac{\alpha_T}{k_D^+} \right)$$