

1.

$$\begin{aligned}
\dot{T}_L = & - \underbrace{\left[\alpha_1 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] T_L M}_{\text{Fagocitosis M}} - \underbrace{\alpha_2 T_L C_N}_{\text{Infeccion Cn}} \\
& - \underbrace{\left[\mu_1 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] T_L}_{\text{Muerte de parasito T}} \\
& + \underbrace{\left[\alpha_3 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] M_i}_{\text{Replicacion T}} + \underbrace{\alpha_4 C_i}_{\text{Replicacion T}}
\end{aligned}$$

2.

$$\begin{aligned}
\dot{M} = & \underbrace{\left[\nu_1 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] (M - M_0)}_{\text{Proliferacion M}} - \underbrace{\left[\alpha_1 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] T_L M}_{\text{Fagocitosis M}} \\
& - \underbrace{\left[\mu_2 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] M}_{\text{Muerte celular M}}
\end{aligned}$$

3.

$$\dot{C}_N = - \underbrace{\alpha_2 T_L C_N}_{\text{Infeccion Cn}} - \underbrace{\left[\mu_3 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] C_N}_{\text{Muerte celular Cn}}$$

4.

$$\dot{M}_i = \underbrace{\left[\alpha_1 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] T_L M}_{\text{Fagocitosis M}} - \underbrace{\left[\mu_5 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] M_i}_{\text{Muerte celular Mi}}$$

5.

$$\dot{C}_i = \underbrace{\alpha_2 T_L C_N}_{\text{Infeccion Cn}} - \underbrace{\left[\mu_6 \left(\frac{TNF^h}{\eta_{(M)(TNF)}^h + TNF^h} \right) \left(\frac{\eta_{(M)(IL10)}^h}{\eta_{(M)(IL10)}^h + IL10^h} \right) \right] C_i}_{\text{Muerte celular Ci}}$$

6.

$$TNF = \underbrace{[\alpha_5(\frac{\eta_{(TNF)(IL10)}^h}{\eta_{(TNF)(IL10)}^h + IL10^h})]M_i}_{\text{Secrecion Mi}} - \underbrace{\mu_7(TNF - qTNF)}_{\text{Degradacion TNF}} + \underbrace{[\alpha_5(\frac{\eta_{(TNF)(IL10)}^h}{\eta_{(TNF)(IL10)}^h + IL10^h})]C_i}_{\text{Secrecion Ci}}$$

7.

$$IL10 = \underbrace{\alpha_7 M_i}_{\text{Secrecion Mi}} - \underbrace{\mu_9(IL10 - qIL10)}_{\text{Degradacion IL10}}$$