



Simulated SIR Dynamics

$$\frac{dS}{dt} \sim -\frac{\beta_{\text{max}} \cdot I}{I_{50} + I} \cdot I \cdot \frac{S}{N}$$

$$\frac{dI}{dt} \sim \frac{\beta_{\text{max}} \cdot I}{I_{50} + I} \cdot I \cdot \frac{S}{N} - \left(\frac{\gamma_{\text{max}} \cdot I}{I_{50} + I} \right)^{-1} \cdot I + NB(\mu, s)$$

$$\frac{dR}{dt} \sim -\left(\frac{\gamma_{\text{max}} \cdot I}{I_{50} + I} \right)^{-1} \cdot I$$

