Ecuaciones deterministas del sistema de QS de *P. aeruginosa*

Alejandro Castellanos Sánchez

21 de febrero de 2022

Esquema del circuito

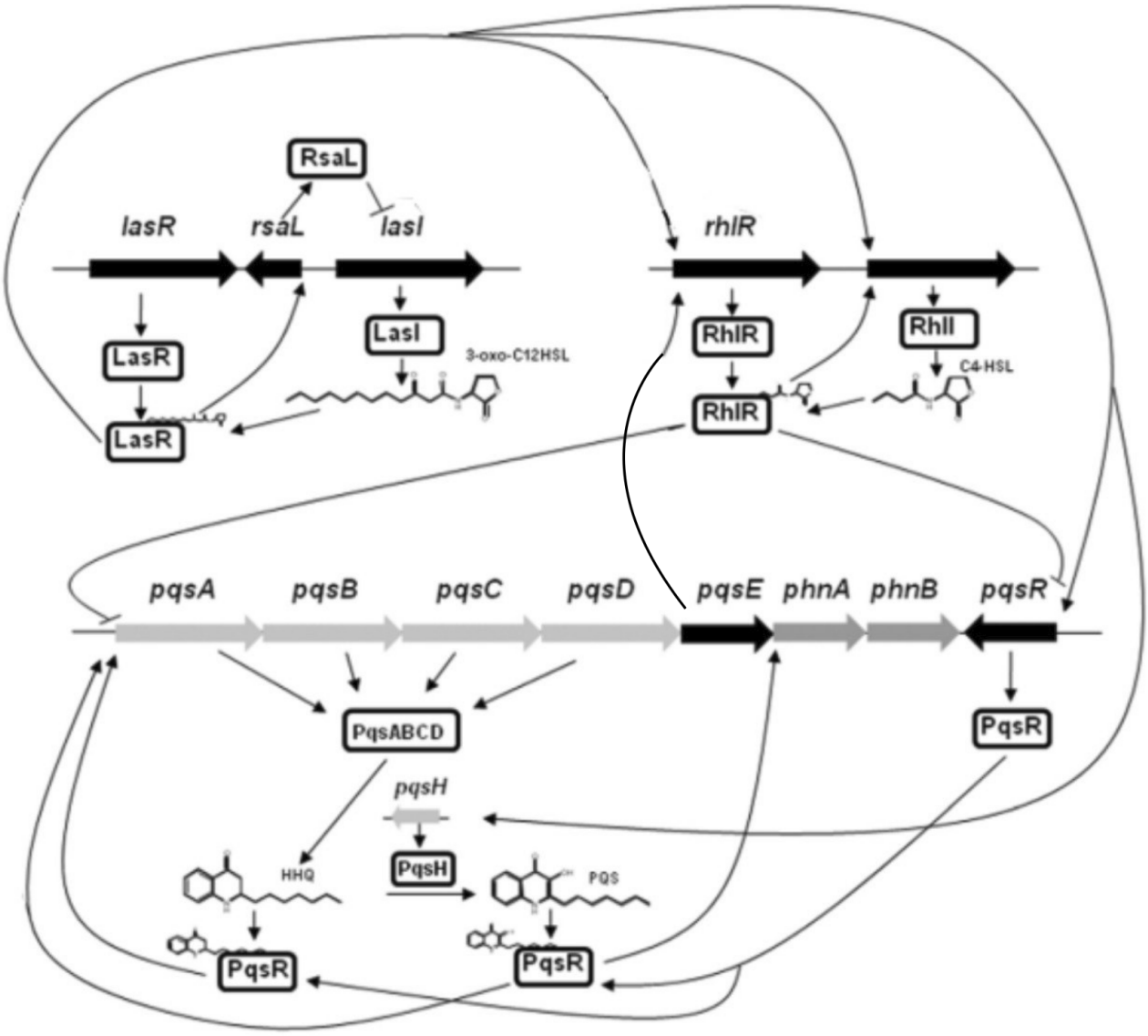

Figura 1: Representación esquemática del circuito de QS de *P. aeruginosa*.

Ecuaciones deterministas

LasR/LasI

$$[\dot{lasR}] = \kappa_{lasR} - [lasR]\gamma_{lasR} \tag{1}$$

$$[\dot{LasR}] = [lasR]\kappa_{LasR} + [LasR{\cdot}AI_1]\sigma_{LasR{\cdot}AI1} - [LasR]\gamma_{LasR} \tag{2}$$

$$[\dot{lasI}] = \alpha_{lasI} + \frac{\beta_{lasI}}{1 + \left(\frac{[LasR{\cdot}AI_1]}{K_1}\right)^{h_1}} - [lasI]\gamma_{lasI} \tag{3}$$

$$[\dot{LasI}] = [lasI]\kappa_{LasI} - [LasI]\gamma_{LasI} \tag{4}$$

$$[\dot{AI_1}] = [LasI]\kappa_{AI1} + [LasR{\cdot}AI_1]\sigma_{LasR{\cdot}AI1} - (d(AI_1 - AI_{1ext})) - [AI_1]\gamma_{AI1} \tag{5}$$

$$[\dot{AI_{1ext}}] = (N \cdot d(AI_1 - AI_{1ext})) - [AI_{1ext}](\gamma_{AI1ext} + d_{away}) \tag{6}$$

$$[\dot{LasR{\cdot}AI_1}] = [AI_1][LasR]\kappa_{LasR{\cdot}AI1} - [LasR{\cdot}AI_1](\gamma_{LasR{\cdot}AI1} + \sigma_{LasR{\cdot}AI1}) \tag{7}$$

$$[\dot{p}] = \alpha_p + \frac{\beta_p}{1 + \left(\frac{[LasR{\cdot}AI_1]}{K_2}\right)^{h_2}} - [p]\gamma_p \tag{8}$$

$$[\dot{P}] = [p]\kappa_P - [P]\gamma_P \tag{9}$$