

Symbol	Parameter	Value	Ref.
D_s	Oxygen diffusion coefficient	$1.53 \times 10^{-9} \text{ m}^2 \cdot \text{s}^{-1}$	[1]
D_q	QS molecule diffusion coefficient	$1.2 \times 10^{-10} \text{ m}^2 \cdot \text{s}^{-1}$	[1]
L_0	Initial biofilm thickness	$10 \mu\text{m}$	*
Y_{xs}	Yield coefficient of biomass on oxygen in batch	$0.5 (\text{g X})(\text{g s})^{-1}$	[6]
h_0	Characteristic length scale	$100 \mu\text{m}$	*
$k_L a$	Oxygen gas-liquid mass transfer coefficient	0.01 s^{-1}	*
q_0	Critical q value in defining f_{lasI}	$0.6 \text{ mg} \cdot \text{l}^{-1}$	*
s^0	Bulk concentration of oxygen	$6 \text{ mg} \cdot \text{l}^{-1}$	‡
t_0	Characteristic time scale	3600 s	*
α_1	Production of q due to $lasI$	$2 \times 10^4 (\text{g } q) \cdot (\text{g } lasI)^{-1}$	*
α_2	Suppression of $lasI$ by $rsaL$	$100 (\text{g } rsaL)^{-1} \cdot \text{l}$	*
α_3	Suppression of $rasL$ by oxygen	$1 (\text{g oxygen})^{-1} \cdot \text{l}$	*
μ_{max}	Maximum specific growth rate	0.1 h^{-1}	†
ρ_R	mRNA density	$6 \text{ g} \cdot \text{l}^{-1}$	*

Table S5: Parameter values for Quorum Sensing simulation. *: assumed, †: unpublished estimate, ‡: air saturation, other references are listed in **Text S1**.