

Supporting Information A

Kinetic parameters of the reaction rates listed in Table 2.

Parameter	Value
K_1	18.7 mM
K_2	11.8 mM
K_3	10.0 mM
K_4	3.08 mM
K_5	1.00 mM
K_6	0.00350 mM
K_7	0.0655 mM
K_9	1.15×10^4 mM
K_{12}	1.40×10^{-4} mM
K_{14}	1.00×10^{-6} mM
K_i	1340 mM
K_X	0.177 mM
V_1	1.61 h^{-1}
V_2	25.5 h^{-1}
V_3	100 h^{-1}
V_4	23.2 h^{-1}
V_5	1.00 h^{-1}
V_6	2.18 h^{-1}
V_7	8.80 h^{-1}
V_9	$9.82 \times 10^6 \text{ h}^{-1}$
V_{12}	475 h^{-1}
V_{14}	600 h^{-1}
α_8	$4.53 \times 10^3 \text{ mM}^{-2} \text{ h}^{-1}$
α_{10}	$0.0761 \text{ mM}^{-2} \text{ h}^{-1}$
α_{11}	$1.35 \times 10^{-4} \text{ mM}^{-2} \text{ h}^{-1}$
α_{13}	$5.00 \times 10^6 \text{ mM}^{-2} \text{ h}^{-1}$
α_{15}	$3.47 \times 10^6 \text{ mM}^{-2} \text{ h}^{-1}$
μ_{\max}	0.126 h^{-1}
r_{Ad}	$5.47 \times 10^{-3} \text{ mM h}^{-1}$
r_{Cf}	$3.24 \times 10^{-4} \text{ mM h}^{-1}$
r_{Ah}	0.289 mM h^{-1}
r_{Ad}^+	19.3 mM h^{-1}
r_{Cf}^+	$5.78 \times 10^{-4} \text{ mM h}^{-1}$
r_{Ah}^+	10.9 mM h^{-1}