

**Table S3: pR promoter logic parameter values.**

Parameter	Value	StdDev	Dimension	Source
$B_R$	134.5	–	FL	LoE
$B_I$	130.2	–	FL	LoE
$B_Z$	0	–	FL	fixed
$\theta_R \equiv Q_Z / Q_R$	6.9	–	–	LoE
$\theta_I \equiv Q_Z / Q_I$	3.01	–	–	LoE
$Q_Z$	2.52E4	1.4E4	FL	PLF
$m$	2	–	–	fixed
$n$	1.45	0.22	–	PLF
$\beta$	0.0282	9.8E-3	–	PLF
$\tilde{\delta}$	4.53E-4	2.1E-4	FL <sup>-1</sup>	PLF
$\tilde{\mu}$ [Sen]	2.76E-4	6.2E-5	OD <sup>-1</sup> FL <sup>-(1+m)/m</sup>	PLF
$\rho_{\max}$ [Sen]	0.1	–	OD	fixed
$\tilde{\mu}$ [Aut]	1.21E-3	–	OD <sup>-1</sup> FL <sup>-(1+m)/m</sup>	AUT
$\rho_{\max}$ [Aut]	0.05	–	OD	fixed

Key:

FL: Average per-pixel fluorescence intensity (Fig. 3, images)

OD: Optical density at 600 nm

LoE: Line of equivalence measurements (Fig. S2)

IND: Inducible promoter measurements (Fig. 3A,B)

PLF: Promoter logic function (Figs. 3C and S3)

AUT: Aut-RFB and Aut-IFB measurements (Fig. 5)