

**S5 Table. Re-optimized parameters of loops I to IV.** Refer to S1 Text.

Loop	mRNA/Protein	Parameter value
I	Protein P	$\alpha_1 = -0.43301, \alpha_2 = -0.4949,$ $\alpha_3 = 0.4358$
	LHY mRNA	$\alpha_4 = 4.8391, \alpha_5 = 2.9317,$ $\alpha_6 = 8.9448, \alpha_7 = -0.97069$
	LHY protein	$\alpha_8 = 0.91961, \alpha_9 = -0.69932$
	PRR9 mRNA	$\alpha_{10} = 0.0014509, \alpha_{11} = -0.50361$
	PRR9 protein	$\alpha_{12} = 0.075863, \alpha_{13} = -1.9014$
	PRR5 mRNA	$\alpha_{14} = 0.015717, \alpha_{15} = 0.10754,$ $\alpha_{16} = 0.052008, \alpha_{17} = -52.317$
	PRR5 protein	$\alpha_{18} = 5.5115, \alpha_{19} = -2.9011$
	TOC1 mRNA	$\alpha_{20} = 0.045856, \alpha_{21} = 0.15729,$ $\alpha_{22} = -3.5101$
	TOC1 protein	$\alpha_{23} = 0.61764, \alpha_{24} = -0.46954$
	Protein P	$\beta_1 = -0.43301, \beta_2 = -0.4949,$ $\beta_3 = 0.4358$
II	LHY mRNA	$\beta_4 = 1.6849, \beta_5 = 1.0514,$ $\beta_6 = 0.56448, \beta_7 = -1.1406$
	LHY protein	$\beta_8 = 0.63159, \beta_9 = -0.46862$
	PRR9 mRNA	$\beta_{10} = 0.0026547, \beta_{11} = -0.60063$
	PRR9 protein	$\beta_{12} = 0.051438, \beta_{13} = -1.7146$
	PRR7 mRNA	$\beta_{14} = 0.0033064, \beta_{15} = 0.10306,$ $\beta_{16} = -0.29026$
	PRR7 protein	$\beta_{17} = 0.37496, \beta_{18} = -0.25051$
	TOC1 mRNA	$\beta_{19} = 0.036621, \beta_{20} = 0.089066,$ $\beta_{21} = -4.5098$
	TOC1 protein	$\beta_{22} = 0.47306, \beta_{23} = -0.34138$

**S5 Table. (Continued)**

Loop	mRNA/Protein	Parameter value
III	Protein P	$\gamma_1 = -0.43301, \gamma_2 = -0.4949,$ $\gamma_3 = 0.4358$
	LHY mRNA	$\gamma_4 = 0.032732, \gamma_5 = 0.11689,$ $\gamma_6 = 0.34663, \gamma_7 = -1.4559$
	LHY protein	$\gamma_8 = 0.73725, \gamma_9 = -0.45881$
	PRR9 mRNA	$\gamma_{10} = 0.39135, \gamma_{11} = -0.14337$
	PRR9 protein	$\gamma_{12} = 1.3024, \gamma_{13} = -0.35734$
	PRR7 mRNA	$\gamma_{14} = 0.0067299, \gamma_{15} = 0.00039876,$ $\gamma_{16} = -0.35087$
	PRR7 protein	$\gamma_{17} = 0.33168, \gamma_{18} = -0.2004$
	EC complex	$\gamma_{19} = 0.69819, \gamma_{20} = -0.41231$
	ELF3 mRNA	$\gamma_{21} = 0.076138, \gamma_{22} = 0.4676,$ $\gamma_{23} = -0.44998$
	ELF3 protein	$\gamma_{24} = 1.0179, \gamma_{25} = -2.1412$
IV	ELF4 mRNA	$\gamma_{26} = 0.027705, \gamma_{27} = 0.091673,$ $\gamma_{28} = 0.087689, \gamma_{29} = -4.3341$
	ELF4 protein	$\gamma_{30} = 1.7948, \gamma_{31} = -2.2835$
	LUX mRNA	$\gamma_{32} = 0.028849, \gamma_{33} = 0.10797,$ $\gamma_{34} = 0.00088557, \gamma_{35} = -5.1109$
	LUX protein	$\gamma_{36} = 1.9206, \gamma_{37} = -0.46888$
	Protein P	$\eta_1 = -0.43301, \eta_2 = -0.4949,$ $\eta_3 = 0.4358$
	LHY mRNA	$\eta_4 = 1.4534\text{e-}8, \eta_5 = 1.92858\text{e-}5,$ $\eta_6 = 2.1802\text{e-}5, \eta_7 = -0.31409$
	LHY protein	$\eta_8 = 0.3093, \eta_9 = -0.27172$
	PRR9 mRNA	$\eta_{10} = 0.0062145, \eta_{11} = 0.35073,$ $\eta_{12} = 1.3424, \eta_{13} = -0.29322$
	PRR9 protein	$\eta_{14} = 1.0058, \eta_{15} = -0.25442$