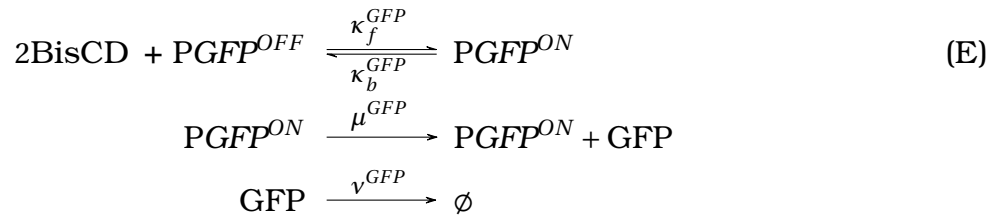
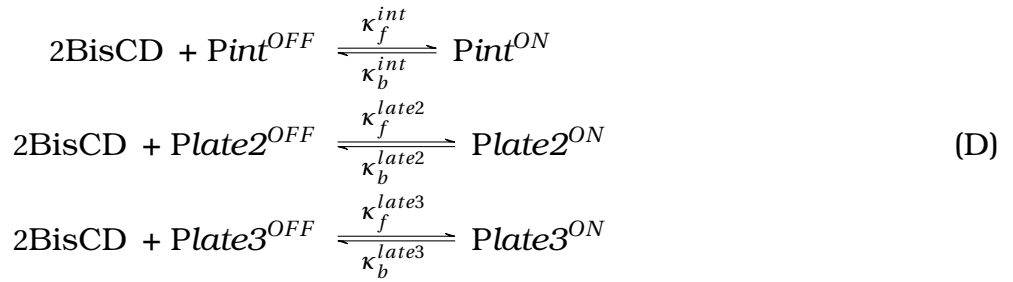
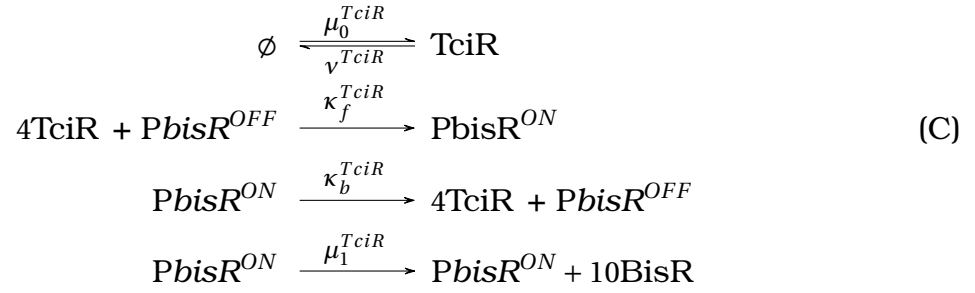
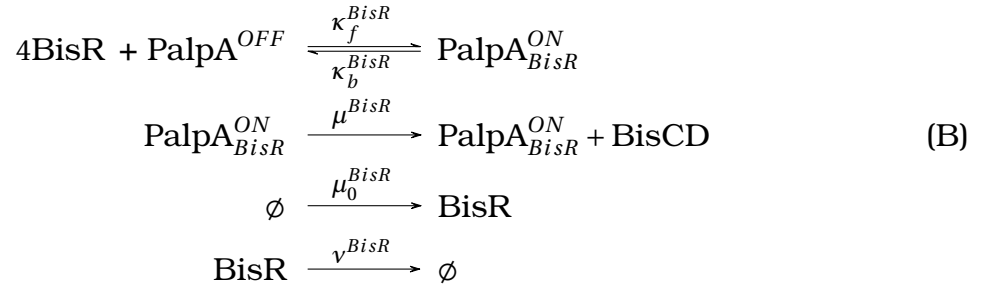
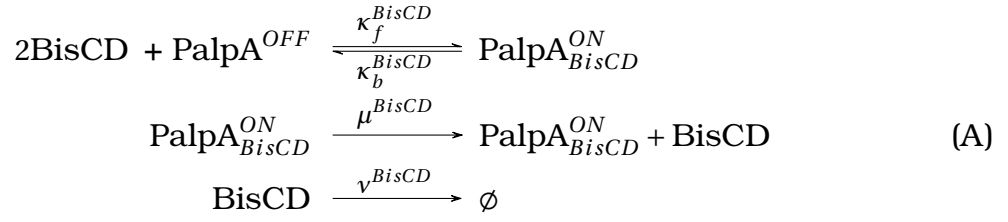


SUPPLEMENTARY MATERIAL
ICEclc transfer competence bistable regulatory model

REACTIONS

- A: BisDC feedback loop on alpA-promoter
- B: BisDC feedback loop on alpA-promoter, initiated by BisR
- C: TciR activating bisR-promoter
- D: BisDC activating three downstream (late) promoters
- E: BisDC activating GFP reporter.



List of variables	
Variable	Explanation
BisCD	Activator protein complex for P_{alpA} and for late promoters
P_{alpA}	Promoter driving expression of <i>bisCD</i>
BisR	Activator protein for P_{alpA}
TciR	Activator protein for P_{bisR}
P_{bisR}	Promoter driving expression of <i>bisR</i>
P_{int}	(Late) promoter driving expression of the integrase
P_{late2}	Late promoter nr 2 activated by BisCD
P_{late3}	Late promoter nr 3 activated by BisCD
P_{GFP}	Late promoter controlling artificial expression of GFP, activated by BisCD

List of parameters			
Parameter	Value	Symbol in Julia	Explanation
κ_f^{BisCD}	1.0 or 5.0	A1	binding rate of BisCD to P_{alpA}
κ_b^{BisCD}	1.0 or 5.0	A2	unbinding rate of BisCD to P_{alpA}
μ^{BisCD}	1.0	A3	production rate of BisCD when BisCD is bound to P_{alpA}
ν^{BisCD}	0.17 - 0.3	A4	degradation rate of BisCD
κ_f^{BisR}	1.0	B1	binding rate of BisR to P_{alpA}
κ_b^{BisR}	1.0	B2	unbinding rate of BisR to P_{alpA}
μ^{BisR}	1.0	B3	production rate of BisCD when BisR is bound to P_{alpA}
μ_0^{BisR}	0.0 - 1.0	B4	basal production rate of BisR
ν^{BisR}	0.17	B5	degradation rate of BisR
μ_0^{TciR}	0.35	C1	basal production rate of TciR
ν^{TciR}	0.17	C2	degradation rate of TciR
κ_f^{TciR}	1.0	C3	binding rate of TciR to P_{bisR}
κ_b^{TciR}	1.0	C4	unbinding rate of TciR to P_{bisR}
μ_1^{TciR}	1.0	C5	production rate of BisR when TciR is bound to P_{bisR}
κ_f^{int}	1.0	D1	binding rate of BisCD to P_{int}
κ_b^{int}	1.0	D2	unbinding rate of BisCD to P_{int}
κ_f^{late2}	1.0	D3	binding rate of BisCD to P_{late2}
κ_b^{late2}	1.0	D4	unbinding rate of BisCD to P_{late2}
κ_f^{late3}	1.0	D5	binding rate of BisCD to P_{late3}
κ_b^{late3}	1.0	D6	unbinding rate of BisCD to P_{late3}
κ_f^{GFP}	1.0	E1	binding rate of BisCD to P_{GFP}
κ_b^{GFP}	1.0	E2	unbinding rate of BisCD to P_{GFP}
μ^{GFP}	1.0	E3	production rate of GFP when BisCD is bound to P_{GFP}
ν^{GFP}	0 or 0.17	E4	degradation rate of GFP