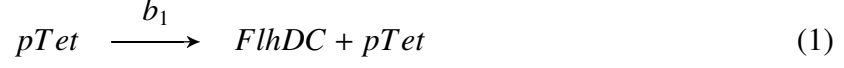
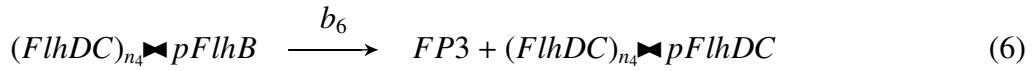
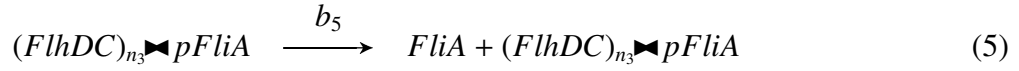
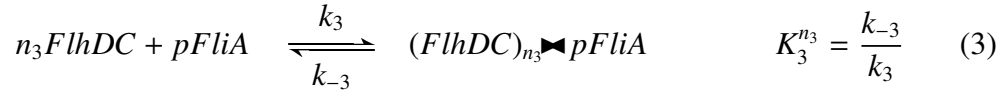


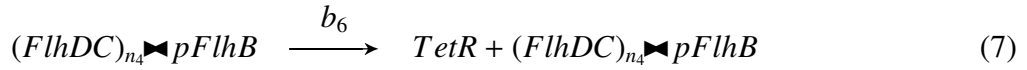
specific to pTet-circuit



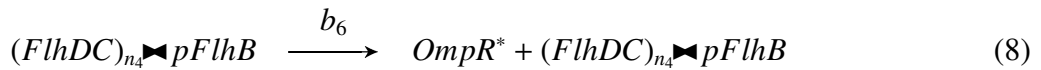
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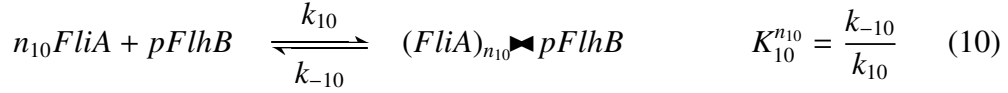
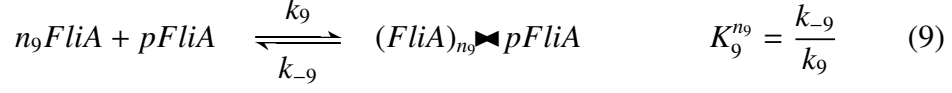


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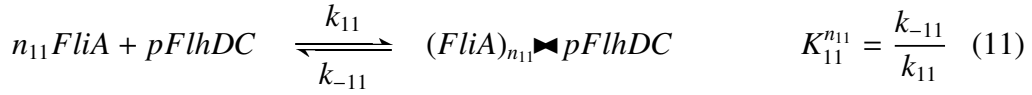


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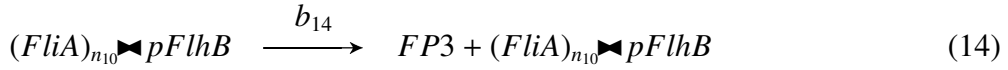
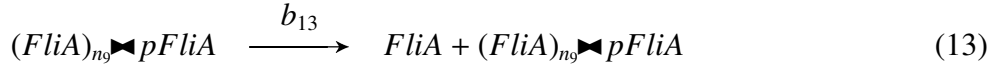
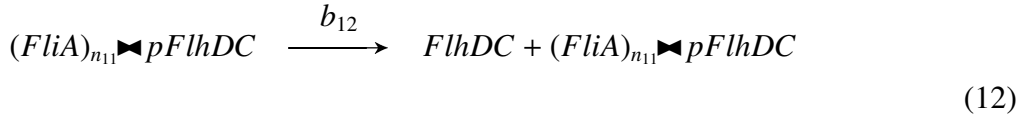




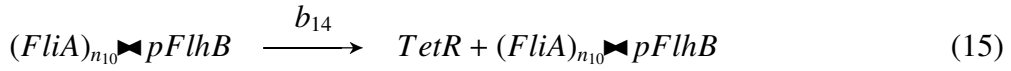
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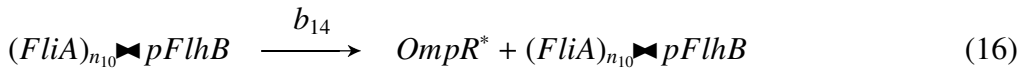
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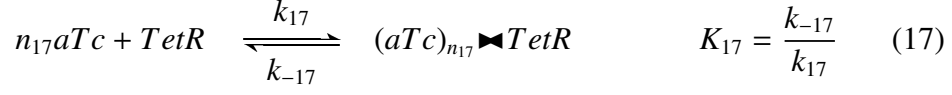
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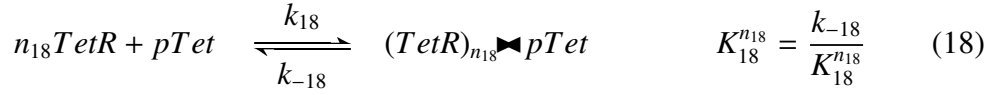
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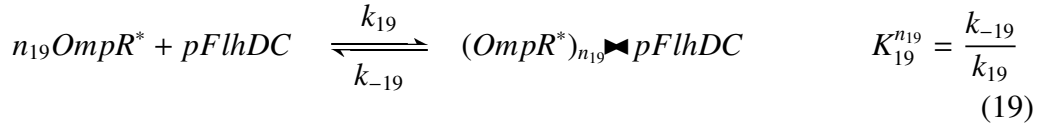
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specific to pTet-circuit



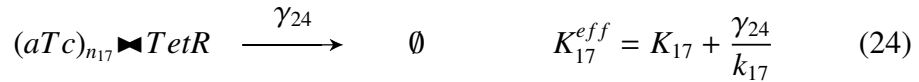
specific to pFlhDC-circuit



specific to pTet-circuit



specific to pTet-circuit



specific to pFlhDC-circuit



$$(3) \Rightarrow [(FlhDC)_{n_3} \blacktriangleright pFliA]_{eq} = \frac{[FlhDC]^{n_3}}{K_3^{n_3} + [FlhDC]^{n_3}} \cdot [pFliA^{total}] \quad (26)$$

$$(4) \Rightarrow [(FlhDC)_{n_4} \blacktriangleright pFlhB]_{eq} = \frac{[FlhDC]^{n_4}}{K_4^{n_4} + [FlhDC]^{n_4}} \cdot [pFlhB^{total}] \quad (27)$$

$$(9) \Rightarrow [(FliA)_{n_9} \blacktriangleright pFliA]_{eq} = \frac{[FliA]^{n_9}}{K_9^{n_9} + [FliA]^{n_9}} \cdot [pFliA^{total}] \quad (28)$$

$$(10) \Rightarrow [(FliA)_{n_{10}} \blacktriangleright pFlhB]_{eq} = \frac{[FliA]^{n_{10}}}{K_{10}^{n_{10}} + [FliA]^{n_{10}}} \cdot [pFlhB^{total}] \quad (29)$$

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$$(11) \Rightarrow [(FliA)_{n_{11}} \blacktriangleright pFlhDC]_{eq} = \frac{[FliA]^{n_{11}}}{K_{11}^{n_{11}} + [FliA]^{n_{11}}} \cdot [pFlhDC^{total}] \quad (30)$$

specific to pTet-circuit

$$(17) \Rightarrow \left\{ \begin{array}{l} [TetR^{free}] = [TetR^{total}] - [(aTc)_{n_{17}} \blacktriangleright TetR] \\ ([aTc]_i - [(aTc)_{n_{17}} \blacktriangleright TetR]_{eq})^{n_{17}} \left([TetR^{total}] - [(aTc)_{n_{17}} \blacktriangleright TetR]_{eq} \right) - K_{17}^{eff} [(aTc)_{n_{17}} \blacktriangleright TetR]_{eq} = 0 \\ 0 < n_{17} [(aTc)_{n_{17}} \blacktriangleright TetR]_{eq} < [aTc]_i \quad ; \quad 0 < [(aTc)_{n_{17}} \blacktriangleright TetR]_{eq} < [TetR^{total}] \end{array} \right. \quad (31)$$

specific to pTet-circuit

$$(18) \Rightarrow [pTet]_{eq} = \frac{K_{18}^{n_{18}}}{K_{18}^{n_{18}} + [TetR^{free}]^{n_{18}}} \cdot [pTet^{total}] \quad (32)$$

specific to pFlhDC-circuit

$$(19) \Rightarrow [pFlhDC]_{eq} = \frac{K_{19}^{n_{19}}}{K_{19}^{n_{19}} + [OmpR^*]^{n_{19}}} \cdot [pFlhDC^{total}] \quad (33)$$

specific to pTet-circuit

$$\begin{aligned} (1) & \Rightarrow \frac{d[FlhDC]}{dt} = b_1[pTet]_{eq} - \gamma_{20}[FlhDC] \\ (20) & \end{aligned} \quad (34a)$$

$$\begin{aligned} (31) & \Rightarrow \frac{d[FlhDC]}{dt} = \beta_1 \cdot \frac{K_{18}^{n_{18}}}{K_{18}^{n_{18}} + [TetR^{free}]^{n_{18}}} - \gamma_{20}[FlhDC] \\ (32) & \end{aligned} \quad (34)$$

specific to pFlhDC-circuit

$$\begin{aligned} (2) & \Rightarrow \frac{d[FlhDC]}{dt} = b_2[pFlhDC^{free}]_{eq} + b_{12}[(FliA)_{n_{11}} \blacktriangleright pFlhDC]_{eq} - \gamma_{20}[FlhDC] \\ (12) & \\ (20) & \end{aligned} \quad (35a)$$

$$\begin{aligned} (30) & \Rightarrow \frac{d[FlhDC]}{dt} = \frac{K_{19}^{n_{19}}}{K_{19}^{n_{19}} + [OmpR^*]^{n_{19}}} \left(\beta_2 \cdot \frac{K_{11}^{n_{11}}}{K_{11}^{n_{11}} + [FliA]^{n_{11}}} + \beta_{12} \cdot \frac{[FliA]^{n_{11}}}{K_{11}^{n_{11}} + [FliA]^{n_{11}}} \right) - \gamma_{20}[FlhDC] \\ (33) & \end{aligned} \quad (35)$$

$$\begin{aligned} (5) & \Rightarrow \frac{d[FliA]}{dt} = b_5[(FlhDC)_{n_3} \blacktriangleright pFliA]_{eq} + b_{13}[(FliA)_{n_9} \blacktriangleright pFliA]_{eq} - \gamma_{21}[FliA] \\ (13) & \\ (21) & \end{aligned} \quad (36a)$$

$$\begin{aligned} (26) & \Rightarrow \frac{d[FliA]}{dt} = \beta_5 \cdot \frac{[FlhDC]^{n_3}}{K_3^{n_3} + [FlhDC]^{n_3}} + \beta_{13} \cdot \frac{[FliA]^{n_9}}{K_9^{n_9} + [FliA]^{n_9}} - \gamma_{21}[FliA] \\ (28) & \end{aligned} \quad (36)$$

$$\begin{aligned} (6) & \Rightarrow \frac{d[FP3]}{dt} = b_6[(FlhDC)_{n_4} \blacktriangleright pFlhB]_{eq} + b_{14}[(FliA)_{n_{10}} \blacktriangleright pFlhB]_{eq} - \gamma_{22}[FP3] \\ (14) & \\ (22) & \end{aligned} \quad (37a)$$

$$\begin{aligned} (27) & \Rightarrow \frac{d[FP3]}{dt} = \beta_6 \cdot \frac{[FlhDC]^{n_4}}{K_4^{n_4} + [FlhDC]^{n_4}} + \beta_{14} \cdot \frac{[FliA]^{n_{10}}}{K_{10}^{n_{10}} + [FliA]^{n_{10}}} - \gamma_{22}[FP3] \\ (29) & \end{aligned} \quad (37)$$

specific to pTet-circuit

$$\begin{aligned} (7) & \Rightarrow \frac{d[TetR]}{dt} = b_6[(FlhDC)_{n_4} \blacktriangleright pFlhB]_{eq} + b_{14}[(FliA)_{n_{10}} \blacktriangleright pFlhB]_{eq} - \gamma_{23}[TetR] \\ (15) & \\ (23) & \end{aligned} \quad (38a)$$

$$(27) \Rightarrow \frac{d[TetR]}{dt} = \beta_6 \cdot \frac{[FlhDC]^{n_4}}{K_4^{n_4} + [FlhDC]^{n_4}} + \beta_{14} \cdot \frac{[FliA]^{n_{10}}}{K_{10}^{n_{10}} + [FliA]^{n_{10}}} - \gamma_{23}[TetR] \quad (38)$$

Solve then eqn.(31) to get $[TetR^{free}]$ in function of $[TetR^{total}] := [TetR]$

specific to pFlhDC-circuit

$$(8) \Rightarrow \frac{d[OmpR^*]}{dt} = b_6[(FlhDC)_{n_4} \blacktriangleright pFlhB]_{eq} + b_{14}[(FliA)_{n_{10}} \blacktriangleright pFlhB]_{eq} - \gamma_{25}[OmpR^*] \quad (39a)$$

$$(27) \Rightarrow \frac{d[OmpR^*]}{dt} = \beta_6 \cdot \frac{[FlhDC]^{n_4}}{K_4^{n_4} + [FlhDC]^{n_4}} + \beta_{14} \cdot \frac{[FliA]^{n_{10}}}{K_{10}^{n_{10}} + [FliA]^{n_{10}}} - \gamma_{25}[OmpR^*] \quad (39)$$