







$$(3) \Rightarrow \frac{d[(FlhDC)_{n_3} \blacktriangleright P_{fliA}]}{dt} = k_3 [FlhDC]^{n_3} [P_{fliA}] - k_{-3} [(FlhDC)_{n_3} \blacktriangleright P_{fliA}] \quad (25)$$

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

$$(4) \Rightarrow \frac{d[(FlhDC)_{n_4} \blacktriangleright P_{flhB}]}{dt} = k_4 [FlhDC]^{n_4} [P_{flhB}] - k_{-4} [(FlhDC)_{n_4} \blacktriangleright P_{flhB}] \quad (27)$$

$$\Rightarrow [(FlhDC)_{n_4} \blacktriangleright P_{flhB}]_{eq} = \frac{[FlhDC]^{n_4}}{K_4 + [FlhDC]^{n_4}} \cdot [P_{flhB}^{total}] \quad (28)$$

$$(9) \Rightarrow \frac{d[(FliA)_{n_9} \blacktriangleright P_{fliA}]}{dt} = k_9 [FliA]^{n_9} [P_{fliA}] - k_{-9} [(FliA)_{n_9} \blacktriangleright P_{fliA}] \quad (29)$$

$$\Rightarrow [(FliA)_{n_9} \blacktriangleright P_{fliA}]_{eq} = \frac{[FliA]^{n_9}}{K_9 + [FliA]^{n_9}} \cdot [P_{fliA}^{total}] \quad (30)$$

$$(10) \Rightarrow \frac{d[(FliA)_{n_{10}} \blacktriangleright P_{flhB}]}{dt} = k_{10} [FliA]^{n_{10}} [P_{flhB}] - k_{-10} [(FliA)_{n_{10}} \blacktriangleright P_{flhB}] \quad (31)$$

$$\Rightarrow [(FliA)_{n_{10}} \blacktriangleright P_{flhB}]_{eq} = \frac{[FliA]^{n_{10}}}{K_{10} + [FliA]^{n_{10}}} \cdot [P_{flhB}^{total}] \quad (32)$$

$$(11) \Rightarrow \frac{d[(FliA)_{n_{11}} \blacktriangleright P_{flhDC}]}{dt} = k_9 [FliA]^{n_{11}} [P_{flhDC}] - k_{-11} [(FliA)_{n_{11}} \blacktriangleright P_{flhDC}] \quad (33)$$

$$\Rightarrow [(FliA)_{n_{11}} \blacktriangleright P_{flhDC}]_{eq} = \frac{[FliA]^{n_{11}}}{K_{11} + [FliA]^{n_{11}}} \cdot [P_{flhDC}^{total}] \quad (34)$$

$$(18) \Rightarrow \frac{d[P_{tet}]}{dt} = -k_{18}[TetR][P_{tet}] + k_{-18}[(TetR)_{n_{18}} \blacktriangleleft P_{tet}] \quad (35)$$

$$\Rightarrow [P_{tet}]_{eq} = \frac{K_{18}}{K_{18} + [TetR]^{n_{18}}} \cdot [P_{tet}^{total}] \quad (36)$$

$$(17) \Rightarrow \frac{d[TetR]}{dt} = -k_{17}[TetR][aTc] + k_{-17}[aTc \blacktriangleright TetR] \quad (37)$$

$$\Rightarrow [TetR]_{eq} = \frac{K_{17}}{K_{17} + [aTc]} \cdot [TetR^{produced}] \quad (38)$$

$$(19) \Rightarrow \frac{d[P_{flhDC}]}{dt} = -k_{19}[OmpR^* \blacktriangleleft HSL]^{n_{19}} [P_{flhDC}] + k_{-19}[(OmpR^*)_{n_{19}} \blacktriangleright P_{flhDC}] \quad (39)$$

$$\Rightarrow [P_{flhDC}]_{eq} = \frac{K_{19}}{K_{19} + [OmpR^*]^{n_{19}}} \cdot [P_{flhDC}^{total}] \quad (40)$$

$$(1)\text{and}(38)\text{and}(20) \Rightarrow \frac{d[FlhDC]}{dt} = \beta_1[P_{tet}]_{eq} - \gamma_{20}[FlhDC] \quad (41)$$

$$(2)\text{and}(40)\text{and}(12)\text{and}(34)\text{and}(20) \Rightarrow \frac{d[FlhDC]}{dt} = \beta_2[P_{flhDC}]_{eq} + \beta_{12}[(FliA)_{n_{11}} \blacktriangleright P_{flhDC}]_{eq} - \gamma_{20}[FlhDC] \quad (42)$$

$$(5)\text{and}(26)\text{and}(13)\text{and}(30)\text{and}(21) \Rightarrow \frac{d[FliA]}{dt} = \beta_5[(FlhDC)_{n_3} \blacktriangleright P_{fliA}]_{eq} + \beta_5[(FliA)_{n_9} \blacktriangleright P_{fliA}]_{eq} - \gamma_{21}[FliA] \quad (43)$$

$$(6)\text{and}(27)\text{and}(14)\text{and}(31)\text{and}(22) \Rightarrow \frac{d[GFP]}{dt} = \beta_6[(FlhDC)_{n_4} \blacktriangleright P_{flhB}]_{eq} + \beta_{14}[(FliA)_{n_{10}} \blacktriangleright P_{flhB}]_{eq} - \gamma_{22}[GFP] \quad (44)$$

$$(7)\text{and}(28)\text{and}(15)\text{and}(32)\text{and}(23) \Rightarrow \frac{d[TetR]}{dt} = \beta_6[(FlhDC)_{n_4} \blacktriangleright P_{flhB}]_{eq} + \beta_{14}[(FliA)_{n_{10}} \blacktriangleright P_{flhB}]_{eq} - \gamma_{23}[TetR] \quad (45)$$

$$\begin{aligned}
 (8)\text{and}(28)\text{and}(16)\text{and}(32)\text{and}(24) \Rightarrow \frac{d[OmpR^*]}{dt} = & \beta_6[(FlhDC)_{n_4} \blacktriangleright P_{flhB}]_{eq} \\
 & + \beta_{14}[(FliA)_{n_{10}} \blacktriangleright P_{flhB}]_{eq} \\
 & - \gamma_{23}[OmpR^*]
 \end{aligned}
 \tag{46}$$