1. $V_P \cdot \dfrac{dC_P}{dt} = (Q_T - L_T) \cdot C_{Tv} + (Q_B - L_B) \cdot C_{Bv} + (L_T + L_B) \cdot C_L - Q_T \cdot C_P - Q_B \cdot C_P$

2. $V_{Tv} \cdot \dfrac{dC_{Tv}}{dt} = Q_T \cdot C_P - (Q_T - L_T) \cdot C_{Tv} - ((1 - \sigma_{Tv}) \cdot L_T \cdot C_{Tv}) - CL_{UP_T} \cdot C_{Tv} + CL_{UP_T} \cdot FR \cdot C_{TE,B}$

3. $V_{TE} \cdot \dfrac{dC_{TE,U}}{dt} = CL_{UP_T} \cdot (C_{Tv} + C_{TI}) - V_{TE} \cdot (k_{onFcRn} \cdot C_{TE,U} \cdot C_{TFcRn,U} + k_{offFcRn} \cdot C_{TE,B} - k_{deg} \cdot C_{TE,U})$

4. $V_{TE} \cdot \dfrac{dC_{TE,B}}{dt} = V_{TE} \cdot (k_{onFcRn} \cdot C_{TE,U} \cdot C_{TFcRn,U} - k_{offFcRn} \cdot C_{TE,B}) - CL_{UP_T} \cdot C_{TE,B}$

5. $V_{TI} \cdot \dfrac{dC_{TI}}{dt} = (1 - \sigma_{Tv}) \cdot L_T \cdot C_{Tv} - (1 - \sigma_{TL}) \cdot L_T \cdot C_{TI} + CL_{UP_T} \cdot (1 - FR) \cdot C_{TE,B} - CL_{UP_T} \cdot C_{TI}$

6. $V_{Bv} \cdot \dfrac{dC_{Bv}}{dt} = Q_B \cdot C_P - (Q_B - L_B) \cdot C_{Bv} - (1 - \sigma_{BBB}) \cdot Q_{BECF} \cdot C_{Bv} - (1 - \sigma_{BCSFB}) \cdot Q_{BCSF} \cdot C_{Bv}$
$\qquad - CL_{UP_B} \cdot C_{Bv} + CL_{UP_{BBB}} \cdot FR_B \cdot C_{BEBBB,B} + CL_{UP_{BCSFB}} \cdot FR_B \cdot C_{BEBCSFB,B}$

7. $V_{BEBBB} \cdot \dfrac{dC_{BEBBB,U}}{dt} = CL_{UP_{BBB}} \cdot (C_{Bv} + C_{BI})$
$\qquad + V_{BEBBB} \cdot (- k_{onFcRn} \cdot C_{BEBBB,U} \cdot C_{BBBBFcRn,U} + k_{offFcRn} \cdot C_{BEBBB,B} - k_{deg} \cdot C_{BEBBB,U})$

8. $V_{BEBBB} \cdot \dfrac{dC_{BEBBB,B}}{dt} = V_{BEBBB} \cdot (k_{onFcRn} \cdot C_{BEBBB,U} \cdot C_{BBBBFcRn,U} - k_{offFcRn} \cdot C_{BEBBB,B}) - CL_{UP_{BBB}} \cdot C_{BEBBB,B}$

9. $V_{BI} \cdot \dfrac{dC_{BI}}{dt} = (1 - \sigma_{BBB}) \cdot Q_{BECF} \cdot C_{Bv} - (1 - \sigma_{BISF}) \cdot Q_{BECF} \cdot C_{BI} + CL_{UP_{BBB}} \cdot (1 - FR_B) \cdot C_{BEBBB,B}$
$\qquad - CL_{UP_{BBB}} \cdot C_{BI} - Q_{BECF} \cdot C_{BI} + Q_{BECF} \cdot C_{BCSF}$

10. $V_{BEBCSFB} \cdot \dfrac{dC_{BEBCSFB,U}}{dt} = CL_{UP_{BCSFB}} \cdot C_{Bv} + CL_{UP_{BCSFB}} \cdot C_{BCSF}$
$\qquad + V_{BEBCSFB} \cdot (-k_{onFcRn} \cdot C_{BEBCSFB,U} \cdot C_{BBCSFBFcRn,U} + k_{offFcRn} \cdot C_{BEBCSFB,B} - k_{deg} \cdot C_{BEBCSFB,U})$

11. $V_{BEBCSFB} \cdot \dfrac{dC_{BEBCSFB,B}}{dt} = V_{BEBCSFB} \cdot (k_{onFcRn} \cdot C_{BEBCSFB,U} \cdot C_{BBCSFBFcRn,U} - k_{offFcRn} \cdot C_{BEBCSFB,B}) - CL_{UP_{BCSFB}} \cdot C_{BEBCSFB,B}$

12. $V_{CSF} \cdot \dfrac{dC_{BCSF}}{dt} = (1 - \sigma_{BCSFB}) \cdot Q_{BCSF} \cdot C_{Bv} - CL_{UP_{BCSFB}} \cdot C_{BCSF} + CL_{UP_{BCSFB}} \cdot (1 - FR_B) \cdot C_{BEBCSFB,B}$
$\qquad + Q_{BECF} \cdot C_{BI} - (1 - \sigma_{BCSF}) \cdot Q_{BCSF} \cdot C_{BCSF} - Q_{BECF} \cdot C_{BCSF}$

13. $V_L \cdot \dfrac{dC_L}{dt} = (1 - \sigma_{TL}) \cdot L_T \cdot C_{TI} + (1 - \sigma_{BCSF}) \cdot Q_{BCSF} \cdot C_{BCSF} + (1 - \sigma_{BISF}) \cdot Q_{BECF} \cdot C_{BI} - (L_T + L_B) \cdot C_L$

14. $V_{TE} \cdot \dfrac{dC_{TFcRn,U}}{dt} = - V_{TE} \cdot (k_{onFcRn} \cdot C_{TE,U} \cdot C_{TFcRn,U} + k_{offFcRn} \cdot C_{TE,B}) + CL_{UP_T} \cdot C_{TE,B}$

15. $V_{BEBBB} \cdot \dfrac{dC_{BBBBFcRn,U}}{dt} = V_{BEBBB} \cdot (-k_{onFcRn} \cdot C_{BEBBB,U} \cdot C_{BBBBFcRn,U} + k_{offFcRn} \cdot C_{BEBBB,B}) + CL_{UP_{BBB}} \cdot C_{BEBBB,B}$

16. $V_{BEBCSFB} \cdot \dfrac{dC_{BBCSFBFcRn,U}}{dt} = V_{BEBCSFB} \cdot (-k_{onFcRn} \cdot C_{BEBCSFB,U} \cdot C_{BBCSFBFcRn,U} + k_{offFcRn} \cdot C_{BEBCSFB,B}) + CL_{UP_{BCSFB}} \cdot C_{BEBCSFB,B}$