$$\dot{\boldsymbol{x}} = \begin{pmatrix} k_t B_{max} - k_t x_1 - k_{on} x_1 x_2 + k_{off} x_3 + k_{ex} x_4 \\ -k_{om} x_1 x_2 + k_{off} x_3 + k_{ex} x_4 \\ k_{on} x_1 x_2 - k_{off} x_3 - k_{ex} x_3 \\ k_e x_3 - k_{ex} x_4 - k_{di} x_4 - k_{de} x_4 \end{pmatrix} \begin{array}{c} \text{Epo-EpoR} \\ \text{Epo-EpoR} \\ \text{Epo-EpoR} \\ \text{Epo-EpoR} \\ \text{dEpo}_i \\ \text{dEpo}_e \end{pmatrix}$$

$$\boldsymbol{y} = \begin{pmatrix} \kappa_1 \left(x_2 + 2x_6 \right) \\ \kappa_2 \left(x_3 \right) \\ \kappa_3 \left(x_4 + x_5 \right) \end{pmatrix} \begin{array}{c} \text{Epo-EpoR} \\ \text{Epo-EpoR} \\ \text{Epo-EpoR} \\ \text{Epo-EpoR} \\ \text{Epo-EpoR} \\ \text{Epo-EpoR}_i + \text{dEpo}_i \end{pmatrix}$$

$$\boldsymbol{u} = k_t \boldsymbol{B} \quad \text{max}$$