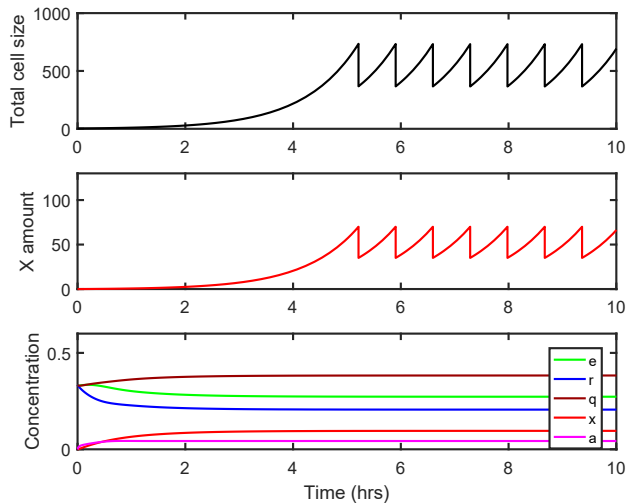


A

Model dynamics



B

Steady-state

$$\begin{aligned}
 e &= f_E (1 - a) \sim f_E && \text{Protein sector concentration} \\
 r &= f_R (1 - a) \sim f_R && = \\
 q &= f_Q (1 - a) \sim f_Q && \text{sector allocation fraction} \\
 x &= f_X (1 - a) \sim f_X && \times \\
 &&& \text{total protein concentration}
 \end{aligned}$$

$$a \ll 1 \text{ because } \delta = f_R/a \gg 1$$

$$\text{Growth rate } \alpha = k e = \sigma r_a \frac{a}{a + a_{sat}}$$

Balance between
precursor synthesis and protein synthesis

$$V_{div} = \frac{X_{div}}{f_X (1 - a)} \sim \frac{X_{div}}{f_X}$$

Size at division
=
X division threshold
/
X concentration