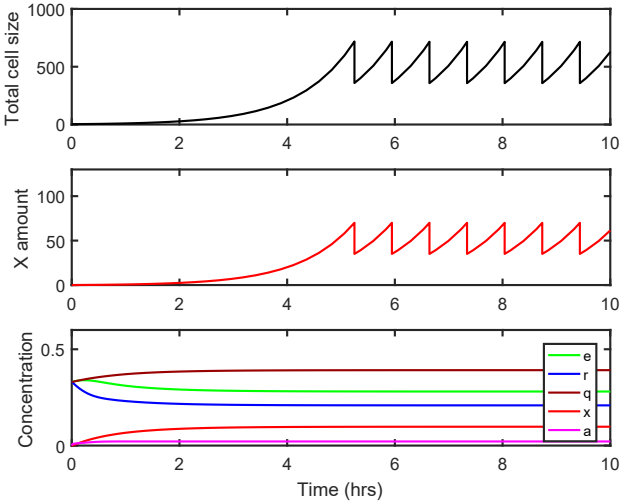
A

Model dynamics



B

Steady-state

$$e = f_E\,(1-a) \sim f_E$$
$$r = f_R\,(1-a) \sim f_R$$
$$q = f_Q\,(1-a) \sim f_Q$$
$$x = f_X\,(1-a) \sim f_X$$

Protein sector concentration
=
sector allocation fraction
X
total protein concentration

Growth rate α

$$= k f_E (1-a) = \sigma\left[f_R - \frac{r_i}{1-a}\right]\frac{a}{a+a_{sat}}$$

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