



Fig. 3 Our initial hypothesis for the set of biochemical reactions that describe the signal flow through the Raf-MEK-ERK cascade in Y1 cells. Once we applied the QSS approximation to all reactions, each one is accompanied by its respective value of catalytic constants (k_i^{cat}) and of Michaelis constant ($K_i m$)

Table 2
Initial concentrations of the two models of Ras/ERK pathway in Y1 cells that were presented in this paper

Chemical species	Initial concentration (nM)
Ras-GTP	40
Raf	82
Raf*	18
MEK	272
p-MEK	20
pp-MEK	8
ERK	288
p-ERK	9
pp-ERK	3

In both models, the same initial values were used. All the initial concentrations are given in nM

$$\begin{aligned} d[\text{pp-MEK}]/dt &= k_4^{\text{cat}} [\text{Raf}^*] [\text{p-MEK}] / (K_4 m + [\text{p-MEK}]) \\ &\quad - k_6^{\text{cat}} [\text{P'ase}_2] [\text{pp-MEK}] / (K_6 m + [\text{pp-MEK}]) \end{aligned} \tag{26}$$

$$\begin{aligned} d[\text{ERK}]/dt &= k_9^{\text{cat}} [\text{P'ase}_3] [\text{p-ERK}] / (K_9 m + [\text{p-ERK}]) \\ &\quad - k_7^{\text{cat}} [\text{pp-MEK}] [\text{ERK}] / (K_7 m + [\text{ERK}]) \end{aligned} \tag{27}$$