

Table 1

Parameter values of selected steps in the EGF signal transduction pathway, and the effect of variations in these parameters on the duration of MAPK cascade activation over 60 min simulated continuous exposure to EGF

Reaction number	Parameter	Value	Reference	Change in value	Sustained activation		
					Ras	MEK	ERK
1	total receptors, [Rs+Ri]	1.5×10^4 molecules/cell	[22]	↑	×	×	×
2, 3, 5, 6, 8	ke, receptor internalisation	0.7/min	[8]	↓	×	×	×
9	km, Shc phosphorylation	816 molecules/cell	[39]	↓	×	×	×
9	k, Shc phosphorylation	12/min	[39]	↑	×	×	×
27	k, SOS phosphorylation	1.2/min	[26] ^a	↓	✓	✓	✓
27	V, SOS dephosphorylation	75 molecules/cell/min	[23,25,26] ^a	↑	✓	✓	✓
15	k, GAP	720/min	[40,41] ^a	↓	✓	✓	✓
24, 26	V, ERK PTPase	2.5×10^5 molecules/cell/min	[23,25,26] ^a	↓	×	×	✓
18	V, PP2A	9.7×10^4 molecules/cell/min	[23,25,26] ^a	↓	×	✓	✓
20, 22	V, PP2A	9.7×10^5 molecules/cell/min	[23,25,26] ^a	↓	×	✓	✓
24, 26	V, PP2A	2.5×10^5 molecules/cell/min	[23,25,26] ^a	↓	×	✓	✓
1	[EGF]	100 nM	[29]	–	–	–	–

^aThe value assigned to the parameter is consistent with a range of measured or estimated values given in the literature.