

mass action model

Dynamic variables + starting concentrations

P2Y12	1.40084643502425 (fitted)
P2Y12_act	0
P2Y12_ARC	0
P2Y1	1.84098730107818 (fitted)
P2Y1_act	0
P2Y1_MSR	0
Cadts	95540.2412026579 (fitted)
Cac	0.000120392444466385 (fitted)
Rap1	10.3189716986701 (fitted)
aRap1	1.00525729588068e-05 (fitted)
PI3K	34768.079285122 (fitted)
aPI3K	35794.6630239584 (fitted)
Akt	0.0259785232696396 (fitted)
aAkt	0.0281407868019933 (fitted)
Int	3101.44824671293 (fitted)
aInt	0
PTP	1.60706272926785 (fitted)
aPTP	3.16865763058907 (fitted)
Src	2509.00865150426 (fitted)
aSrc	0.214676780914537 (fitted)
Throm	0
ThromR	0.0416829526983803 (fitted)
ThromR_act	0

Dynamic parameters

P2Y1_activation	0.000140135104666352 (fitted)
P2Y12_activation	7.23910903203781 (fitted)
P2Y1_inhibition	1.43090897924936 (fitted)
P2Y12_inhibition	5.06830056587005 (fitted)
P2Y1_deactivation	0.973677319443713 (fitted)
P2Y12_deactivation	4.17955372482896 (fitted)
Ca_release	3.73597289923005 (fitted)
Ca_reuptake	0.988207242150881 (fitted)
Rap1_activation	2.38531767765998e-05 (fitted)
Rap1_deactivation	0.05254013086997 (fitted)
Src_activation_Int	119.375494432195 (fitted)
Src_activation_Src	0.277631432433337 (fitted)
Src_deactivation_PTP	0.000845768418704683 (fitted)
Src_deactivation	0.273907861938351 (fitted)
PTP_activation_PTP	0.11034028481118 (fitted)
PTP_deactivation_Src	0.282178348609175 (fitted)
PTP_deactivation	0.240178855565488 (fitted)
Akt_activation	0.274158354533438 (fitted)
Akt_deactivation	1324.82746229713 (fitted)
Int_activation_Rap1	91.156430556807 (fitted)
Int_activation_Akt	5.10770739737398e-05 (fitted)
Int_activation_ThromR	0.000103015467170691 (fitted)
Akt_activation_Src	1821.86567577199 (fitted)
Int_deactivation	99983.0216029571 (fitted)
Throm_production	1260.65204508931 (fitted)
ThromR_activation	2168.50287464957 (fitted)
ThromR_deactivation	0.00114390086613387 (fitted)
ADP_input1	0.112395872926789 (fitted)
ADP_input2	0.686217869630415 (fitted)
ADP_input3	9.99468128647925 (fitted)
PI3K_activation	0.249023655452825 (fitted)

PI3K_deactivation 0.186728976789345 (fitted)

Driving inputs

ADP
ADP1
ADP2
ADP3
ARC
MSR

Ordinary differential equations

P2Y12: $dP2Y12/dt = -P2Y12_activation * P2Y12 * ADP - P2Y12 * ADP1 * P2Y12_activation * ADP_input1 - P2Y12 * ADP2 * P2Y12_activation * ADP_input2 - P2Y12 * ADP3 * P2Y12_activation * ADP_input3 + P2Y12_deactivation * P2Y12_act - P2Y12_inhibition * P2Y12 * ARC;$

P2Y12_act: $dP2Y12_act/dt = P2Y12_activation * P2Y12 * ADP + P2Y12 * ADP1 * P2Y12_activation * ADP_input1 + P2Y12 * ADP2 * P2Y12_activation * ADP_input2 + P2Y12 * ADP3 * P2Y12_activation * ADP_input3 - P2Y12_deactivation * P2Y12_act;$

P2Y12_ARC: $dP2Y12_ARC/dt = P2Y12_inhibition * P2Y12 * ARC;$

P2Y1: $dP2Y1/dt = -P2Y1_activation * P2Y1 * ADP - P2Y1 * ADP1 * P2Y1_activation * ADP_input1 - P2Y1 * ADP2 * P2Y1_activation * ADP_input2 - P2Y1 * ADP3 * P2Y1_activation * ADP_input3 + P2Y1_deactivation * P2Y1_act - P2Y1_inhibition * P2Y1 * MSR;$

P2Y1_act: $dP2Y1_act/dt = P2Y1_activation * P2Y1 * ADP + P2Y1 * ADP1 * P2Y1_activation * ADP_input1 + P2Y1 * ADP2 * P2Y1_activation * ADP_input2 + P2Y1 * ADP3 * P2Y1_activation * ADP_input3 - P2Y1_deactivation * P2Y1_act;$

P2Y1_MSR: $dP2Y1_MSR/dt = P2Y1_inhibition * P2Y1 * MSR;$

Cadts: $dCadts/dt = -Ca_release * Cadts * P2Y1_act + Ca_reuptake * Cac;$

Cac: $dCac/dt = Ca_release * Cadts * P2Y1_act - Ca_reuptake * Cac;$

Rap1: $dRap1/dt = -Rap1_activation * Rap1 * Cac + Rap1_deactivation * aRap1;$

aRap1: $daRap1/dt = Rap1_activation * Rap1 * Cac - Rap1_deactivation * aRap1;$

PI3K: $dPI3K/dt = -PI3K_activation * PI3K * P2Y12_act + PI3K_deactivation * aPI3K;$

aPI3K: $daPI3K/dt = PI3K_activation * PI3K * P2Y12_act - PI3K_deactivation * aPI3K;$

Akt: $dAkt/dt = -Akt * (Akt_activation * aPI3K + Akt_activation_Src * aSrc) + Akt_deactivation * aAkt;$

aAkt: $daAkt/dt = Akt * (Akt_activation * aPI3K + Akt_activation_Src * aSrc) - Akt_deactivation * aAkt;$

Int: $dInt/dt = -Int * (Int_activation_Rap1 * aRap1 + Int_activation_Akt * aAkt + Int_activation_ThromR * ThromR_act) + Int_deactivation * aInt;$

aInt: $daInt/dt = Int * (Int_activation_Rap1 * aRap1 + Int_activation_Akt * aAkt + Int_activation_ThromR * ThromR_act) - Int_deactivation * aInt;$

PTP: $dPTP/dt = -PTP_activation_PTP * PTP * aPTP + aPTP * (PTP_deactivation + PTP_deactivation_Src * aSrc);$

aPTP: $daPTP/dt = PTP_activation_PTP * PTP * aPTP - aPTP * (PTP_deactivation + PTP_deactivation_Src * aSrc);$

Src: $dSrc/dt = -Src * (Src_activation_Int * aInt + Src_activation_Src * aSrc) + aSrc * (Src_deactivation + Src_deactivation_PTP * aPTP);$

aSrc: $daSrc/dt = Src*(Src_activation_Int*aInt+Src_activation_Src*aSrc) - aSrc*(Src_deactivation+Src_deactivation_PTP*aPTP);$

Throm: $dThrom/dt = Throm_production * aInt;$

ThromR: $dThromR/dt = -ThromR_activation *ThromR * Throm + ThromR_deactivation *ThromR_act;$

ThromR_act: $dThromR_act/dt = ThromR_activation *ThromR * Throm - ThromR_deactivation *ThromR_act;$

Observation parameters

scale_Int_obs	155.981670362146 (fitted)
scale_Cac_obs	0.111105373443797 (fitted)
scale_Rap_obs	1.63434956513586 (fitted)
scale_Akt_obs	5.94070243611829 (fitted)