SBML Model Report

Model name: "Mol2013 - Immune Signal Transduction in Leishmaniasis"

May 6, 2016

1 General Overview

This is a document in SBML Level 2 Version 4 format. This model was created by the following three authors: Nick Juty[1], Vijayalakshmi Chelliah[2] and Milsee Mol[3] at September tenth 2013 at 2:43 p. m. and last time modified at October tenth 2014 at 11:11 a. m. Table 1 gives an overview of the quantities of all components of this model.

Table 1: Number of components in this model, which are described in the following sections.

Element	Quantity	Element	Quantity
compartment types	0	compartments	2
species types	0	species	43
events	0	constraints	0
reactions	49	function definitions	0
global parameters	0	unit definitions	3
rules	0	initial assignments	0

Model Notes

Created by The MathWorks, Inc. SimBiology tool, Version 3.3

[1]EMBL-EBI, juty@ebi.ac.uk
[2]EMBL-EBI, viji@ebi.ac.uk
[3]National Centre for Cell Science, NCCS Complex, Ganeshkhind, Pune University Campus, Pune, India, mmoljp@gmail.com

2 Unit Definitions

This is an overview of eight unit definitions of which five are predefined by SBML and not mentioned in the model.

2.1 Unit MWBUILTINPREFIX_nano_MWBUILTINUNIT_mole

Name nanomole

Definition 10^{-9} mol

2.2 Unit MWDERIVEDUNIT_1__second

Name 1/second

Definition $s^{-1} \cdot$ dimensionless

2.3 Unit MWDERIVEDUNIT_nanomole__second

Name nanomole/second

Definition $mol \cdot s^{-1} \cdot 10^{-9}$ dimensionless

2.4 Unit substance

Notes Mole is the predefined SBML unit for `substance`.

Definition mol

2.5 Unit volume

Notes Litre is the predefined SBML unit for `volume`.

Definition l

2.6 Unit area

Notes Square metre is the predefined SBML unit for `area` since SBML Level 2 Version 1.

Definition m^2

2.7 Unit length

Notes Metre is the predefined SBML unit for `length` since SBML Level 2 Version 1.

Definition m

2.8 Unit time

Notes Second is the predefined SBML unit for time.

Definition s

3 Compartments

This model contains two compartments.

Table 2: Properties of all compartments.

Id	Name	SBO	Spatial Dimensions	Size	Unit	Constant	Ou
mw0cba5a10_f303_4c95_aaf1_b6f942374d31	cytoplasm		3	1	litre	☑	
mwa5ac95a5_d135_4de0_bce2_093ac2c172db	nucleus		3	1	litre	☑	mw

3.1 Compartment mw0cba5a10_f303_4c95_aaf1_b6f942374d31

This is a three dimensional compartment with a constant size of one litre.

Name cytoplasm

3.2 Compartment mwa5ac95a5_d135_4de0_bce2_093ac2c172db

This is a three dimensional compartment with a constant size of one litre, which is surrounded by mw0cba5a10_f303_4c95_aaf1_b6f942374d31 (cytoplasm).

Name nucleus

4 Species

This model contains 43 species. Section 6 provides further details and the derived rates of change of each species.

Table 3: Properties of each species.

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw4d2e70a7-_f499_461d_ae18-_bc53b365b091	TNF	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw8cc67de0-_64e6_428f_ab09-_4c2825cc172c	TNFR1	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw6ee00a71-_ab68_454b_b1cd-_60c1ebd19cfa	TRADD_TRAF2_RIP	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw2dc73059-_a841_48d5_b4bd-_3ac24d94c42e	IkB	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw136c8391-_14f4_4a28_83a3-_35cc74a2e040	NIK	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw7204ab72-_2ee5_4b92_b420-_2583dacc4343	IkK_NFkB	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw6939cefe-_e7ff_4a3f_b45b-_a9234d1b5573	NFkB	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mwf8cfed1b-_6fcf_4cba_bc30-_b44490814a7a	MEKK1	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw702be69a-_eb4f_425e_87c7-_ef7d85254536	MKK4/7	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mwbee11634-_55df_4a3f_998a-_634dfaf46fd7	JNK	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw805b55df-_cc91_4227_bb52-_930e961b682c	ASK	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mwb71eb539-_dca6_47ab_8df5-_430d84af0bfb	p38	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mwa5d6f7e4-_dc4d_4931_91ce-_1e78e7b2f195	LPG	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw4079e13c-_446e_4aa2_9ec4-_233583833d02	CD14-TLR	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mwe5fade7d-_1715_4bb1_843f-_923da8ecddf1	MyD88	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw262497ec-_3d54_4367_bfe3-_76a9c57497cb	IRAK1/4	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw8bffd47e-_34de_4738_81bf-_7a39a40b3ae8	TRAF6	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw308b75ec-_28b7_4d97_92e2-_51a8ce04116a	TAB2_TAK1_TAB1	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw75377e12-_e23d_44b3_9823-_5fac9b23edc8	MKK1/2	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw67d0cf04-_d6a7_4725_a869-_098a96a3350d	ERK1/2	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw46ee629a-_dd6b_4163_9da1-_2614bb1d74bc	MKK3/6	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw0be0d193-_fd6b_4824_8928-_dbade8b5c99c	EGF	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw280197c8-_98de_43f0_bf01-_0f332a1ab689	EGFR	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw9a5baf6d-_0285_4ad3_9499-_059c553d9cf6	PLC gamma	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw05469f51-_73f7_4ba1_9f1a-_bce5fea143c2	PIP2	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mwf20834c8-_a115_460b_859c-_4e3ca1ffd953	DAG	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mwb4633da9-_f9d6_4ad8_a7e5-_da075c830e17	PKC	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw9bb804c9-_3e4e_4684_9f6b-_4e6f6706a58e	PI3K	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw64453fc5-_a275_4bba_84f0-_2af249b31514	Akt	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw323a57b4-_8e59_4116_9ad1-_fe547b89c858	Shc/Grb2/Sos1	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw173d8585-_5817_4b4c_932a-_cf7d673680ac	Ras	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw32c21c39-_237b_4d4c_bb5d-_117cb30ce68a	Raf	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw3832f277-_aef2_4f1d_87af-_abc2a3c1a7d5	JAK	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟
mw13651143-_feb5_49a5_adab-_9105c2647446	STAT1/3	mw0cba5a10_f303_4c95-_aaf1_b6f942374d31	10^{-9} mol	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw8a358487-_b18b_42df_a646-_cd75eb5bfcc2	NFkB	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟
mwd9e7a9b9-_6f1b_4bbc_afa5-_6cb192b62ce8	JNK	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟
mwfed5a135-_c91b_4d20_91b2-_3a61723544dd	cjun	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟
mw97345a67-_a8e8_42aa_8e62-_69e9d2b6cf45	p38	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟
mw5c67812a-_17f5_43cf_8acb-_9bde272c1911	cfos	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟
mw1f12e5bc-_ebbc_4347_b6b7-_5cd1740ac69a	ERK1/2	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟
mwda4716f1-_ae00_4149_aec3-_12531380425a	Akt	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟
mw17ae9adc-_54ab_407b_a34d-_8413a3a10cc6	STAT1/3	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟
mwc844b7c0-_98f5_4d0d_8f0c-_00dfe8b54e6d	TNF	mwa5ac95a5_d135_4de0-_bce2_093ac2c172db	10^{-9} mol	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition

5 Reactions

This model contains 49 reactions. All reactions are listed in the following table and are subsequently described in detail. If a reaction is affected by a modifier, the identifier of this species is written above the reaction arrow.

Table 4: Overview of all reactions

№	Id	Name	Reaction Equation	SBO
1	mw56c6d2a8-_5d66-_4b27_841a-_662ac710fac3	1	mw4d2e70a7_f499_461d_ae18_bc53b365b091	mw4d2e70a7_f499_461d_ae18_bc53b36
2	mw2055093c-_9534-_4ee3_999e-_dc4d7e0246cf	2	mw8cc67de0_64e6_428f_ab09_4c2825cc172c	mw8cc67de0_64e6_428f_ab09_4c2825cc
3	mw8d01ca0a-_dc27-_461f_a854-_cede0c0697dd	3	mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	mw6ee00a71_ab68_454b_b1cd_60c1ebd1
4	mwc021dbe5-_8831-_4239_b280-_9dcfb2ce1101	4	mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	mw6ee00a71_ab68_454b_b1cd_60c1ebd1
5	mwc064fbe4-_1c49-_4130_b601-_efefacd114e4	5	mw136c8391_14f4_4a28_83a3_35cc74a2e040	mw136c8391_14f4_4a28_83a3_35cc74a2

№	Id	Name	Reaction Equation	SBO
6	mw57e0090c-_072b-_4494_bdf6-_a005150e0f42	6	mw7204ab72_2ee5_4b92_b420_2583dacc4343	mw7204ab72_2ee5_4b92_b420_2583dac
7	mwd78707fa-_21d0-_4f82_b3d1-_a74ba6b8f727	7	mw6939cefe_e7ff_4a3f_b45b_a9234d1b5573	mw6939cefe_e7ff_4a3f_b45b_a9234d1b55
8	mw065ddcfd-_fe93-_45f6_9ad4-_a5aa4529aad4	8	mw2dc73059_a841_48d5_b4bd_3ac24d94c42e	mw2dc73059_a841_48d5_b4bd_3ac24d9
9	mwc23385ec-_434f-_4f84_897b-_fdb26e2fc8c9	9	mwf8cfed1b_6fcf_4cba_bc30_b44490814a7a	mwf8cfed1b_6fcf_4cba_bc30_b44490814a
10	mw4dded01e-_6e25-_4d1e_aa54-_62db26069cad	10	mw702be69a_eb4f_425e_87c7_ef7d85254536	mw702be69a_eb4f_425e_87c7_ef7d8525
11	mwef3506d1-_e875-_48e5_8c0a-_4ffebdcd0f32	11	mwbee11634_55df_4a3f_998a_634dfaf46fd7	mwbee11634_55df_4a3f_998a_634dfaf46f

№	Id	Name	Reaction Equation	SBO
12	mwc4a3a397-_b069-_48dc_9f2b-_411ca1448d98	12	mwd9e7a9b9_6f1b_4bbc_afa5_6cb192b62ce8	mwd9e7a9b9_6f1b_4bbc_afa5_6cb192b6
13	mwa502f05a-_b689-_4ad9_855e-_90ae77824ba0	13	mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	mw6ee00a71_ab68_454b_b1cd_60c1ebd1
14	mw01a7e271-_19c9-_40a0_bb62-_505bad155195	14	mw805b55df_cc91_4227_bb52_930e961b682c	mw805b55df_cc91_4227_bb52_930e961
15	mw7db85cdd-_f1ac-_4e07_9a35-_809b7ab77aec	15	mwb71eb539_dca6_47ab_8df5_430d84af0bfb	mwb71eb539_dca6_47ab_8df5_430d84af
16	mw8917d625-_0012-_45c7_aede-_8a528181d93d	16	mw97345a67_a8e8_42aa_8e62_69e9d2b6cf45	mw97345a67_a8e8_42aa_8e62_69e9d2b
17	mwd67b18a5-_bb79-_4581_8afa-_9bc34a4fe139	17	mwa5d6f7e4_dc4d_4931_91ce_1e78e7b2f195	mwa5d6f7e4_dc4d_4931_91ce_1e78e7b2

№	Id	Name	Reaction Equation	SBO
18	mwe28d9fcb-_8170-_4cbd_b3cc-_564c18d65fcc	18	mw4079e13c_446e_4aa2_9ec4_233583833d02	mw4079e13c_446e_4aa2_9ec4_2335838
19	mw215b36f5-_a3a1-_44bf_b976-_c52cb6daddb8	19	mwe5fade7d_1715_4bb1_843f_923da8ecddf1	mwe5fade7d_1715_4bb1_843f_923da8ecd
20	mw15c83962-_bdf0-_43f0_b5df-_9ab227af0595	20	mw262497ec_3d54_4367_bfe3_76a9c57497cb	mw262497ec_3d54_4367_bfe3_76a9c574
21	mwa3c7ed09-_4e90-_417b_a301-_2a0b4ac2e1d5	21	mw8bffd47e_34de_4738_81bf_7a39a40b3ae8	mw8bffd47e_34de_4738_81bf_7a39a40b3
22	mwb6a1c4c1-_677e-_41a0_8608-_c2d1f9037a16	22	mw308b75ec_28b7_4d97_92e2_51a8ce04116a	mw308b75ec_28b7_4d97_92e2_51a8ce0
23	mwa23e3682-_2d67-_49cf_913c-_52aa41335371	23	mw308b75ec_28b7_4d97_92e2_51a8ce04116a	mw308b75ec_28b7_4d97_92e2_51a8ce0

№	Id	Name	Reaction Equation	SBO
24	mw49bb8edf-_f533-_4abe_b55e-_468a1f3b296e	24	mw75377e12_e23d_44b3_9823_5fac9b23edc8	mw75377e12_e23d_44b3_9823_5fac9b2
25	mwe2722be2-_db07-_4c1d_879e-_272e1518fb8e	25	mw67d0cf04_d6a7_4725_a869_098a96a3350d	mw67d0cf04_d6a7_4725_a869_098a96a
26	mw573abe13-_d3cc-_4f5a_a886-_029e2d5da8df	26	mw308b75ec_28b7_4d97_92e2_51a8ce04116a	mw308b75ec_28b7_4d97_92e2_51a8ce0
27	mw0649b87c-_cb39-_43b6_820a-_0f21572f784e	27	mw308b75ec_28b7_4d97_92e2_51a8ce04116a	mw308b75ec_28b7_4d97_92e2_51a8ce0
28	mw17bf22e9-_37fd-_42b6_b648-_d2ae38fbc805	28	mw46ee629a_dd6b_4163_9da1_2614bb1d74bc	mw46ee629a_dd6b_4163_9da1_2614bb
29	mw75054b4a-_cf66-_4bfe_bda0-_44b88f715532	29	mw0be0d193_fd6b_4824_8928_dbade8b5c99c	mw0be0d193_fd6b_4824_8928_dbade8b

№	Id	Name	Reaction Equation	SBO
30	mw4e1795dc-_c8de-_4708_ba0d-_52d69fae724e	30	mw280197c8_98de_43f0_bf01_0f332a1ab689	mw280197c8_98de_43f0_bf01_0f332a1a
31	mw51210768-_0597-_4bf6_a013-_49896f03c73d	31	mw9a5baf6d_0285_4ad3_9499_059c553d9cf6	mw9a5baf6d_0285_4ad3_9499_059c553
32	mw05368c46-_8a41-_4609_b904-_25219691464b	32	mw05469f51_73f7_4ba1_9f1a_bce5fea143c2	mw05469f51_73f7_4ba1_9f1a_bce5fea14
33	mwb86f53d9-_af3e-_499e_9c41-_7aaf353919e0	33	mwf20834c8_a115_460b_859c_4e3ca1ffd953	mwf20834c8_a115_460b_859c_4e3ca1ff
34	mw1a0f986a-_5f18-_4312_bf3a-_9e79ae4e7f36	34	mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	mwb4633da9_f9d6_4ad8_a7e5_da075c8
35	mw17b927e1-_56f3-_4e65_a482-_b8f190af70aa	35	mw280197c8_98de_43f0_bf01_0f332a1ab689	mw280197c8_98de_43f0_bf01_0f332a1a

№	Id	Name	Reaction Equation	SBO
36	mw0549a0ba-_63b4-_4a0e_8506-_1c379b878280	36	mw9bb804c9_3e4e_4684_9f6b_4e6f6706a58e	mw9bb804c9_3e4e_4684_9f6b_4e6f6706
37	mw7ec21bdc-_6e00-_410d_8524-_046f820d0921	37	mw64453fc5_a275_4bba_84f0_2af249b31514	mw64453fc5_a275_4bba_84f0_2af249b3
38	mwbc35988a-_c061-_4dff_a2b0-_09fa8f45d873	38	mw280197c8_98de_43f0_bf01_0f332a1ab689	mw280197c8_98de_43f0_bf01_0f332a1a
39	mwffb70cc8-_3371-_416f_b374-_c518884ba240	39	mw323a57b4_8e59_4116_9ad1_fe547b89c858	mw323a57b4_8e59_4116_9ad1_fe547b8
40	mwcf26ace1-_325c-_4287_81d4-_382e2f2beb1c	40	mw173d8585_5817_4b4c_932a_cf7d673680ac	mw173d8585_5817_4b4c_932a_cf7d673
41	mwa52ff158-_9e98-_454a_a98e-_3bc52e4aa39f	41	mw32c21c39_237b_4d4c_bb5d_117cb30ce68a	mw32c21c39_237b_4d4c_bb5d_117cb30

№	Id	Name	Reaction Equation	SBO
42	mw427812f2-_a2ec-_476c_8359-_96749d8910f4	42	mw173d8585_5817_4b4c_932a_cf7d673680ac	mw173d8585_5817_4b4c_932a_cf7d673
43	mw72aabd27-_658a-_45ef_87b2-_cec59e2a548a	43	mw280197c8_98de_43f0_bf01_0f332a1ab689	mw280197c8_98de_43f0_bf01_0f332a1a
44	mw1498886c-_3fb6-_44f5_ae32-_7a8948030948	44	mw3832f277_aef2_4f1d_87af_abc2a3c1a7d5	mw3832f277_aef2_4f1d_87af_abc2a3c1a7
45	mwdcd61085-_a433-_4362_a836-_938c7ae43ded	45	mw13651143_feb5_49a5_adab_9105c2647446	mw13651143_feb5_49a5_adab_9105c26
46	mwe820c3d2-_bbc1-_4211_9818-_1e515a583b8a	46	mw8a358487_b18b_42df_a646_cd75eb5bfcc2	mw8a358487_b18b_42df_a646_cd75eb5b
47	mwd95fbca0-_6234-_4c19_81ea-_5e74b558e2f1	47	mwc844b7c0_98f5_4d0d_8f0c_00dfe8b54e6d	mwc844b7c0_98f5_4d0d_8f0c_00dfe8b5

№	Id	Name	Reaction Equation	SBO
48	mw36e7aae0-_ea29-_437f_a9c0-_57981e85b29e	48	mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	mwb4633da9_f9d6_4ad8_a7e5_da075c83
49	mwe6aec30e-_5e5f-_4427_bda2-_9c7edc4d5547	49	mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	mwb4633da9_f9d6_4ad8_a7e5_da075c83

5.1 Reaction mw56c6d2a8_5d66_4b27_841a_662ac710fac3

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 1

Reaction equation

$$\text{mw4d2e70a7\_f499\_461d\_ae18\_bc53b365b091} \xrightarrow{\text{mw4d2e70a7\_f499\_461d\_ae18\_bc53b365b091}} \text{mw8cc67de0\_64e6\_42} \quad (1)$$

Reactant

Table 5: Properties of each reactant.

Id	Name	SBO
mw4d2e70a7_f499_461d_ae18_bc53b365b091	TNF	

Modifier

Table 6: Properties of each modifier.

Id	Name	SBO
mw4d2e70a7_f499_461d_ae18_bc53b365b091	TNF	

Product

Table 7: Properties of each product.

Id	Name	SBO
mw8cc67de0_64e6_428f_ab09_4c2825cc172c	TNFR1	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_1 = \text{mw826aae9f\_9728\_4bbb\_a11b\_60578912218b} \cdot \text{mw4d2e70a7\_f499\_461d\_ae18\_bc53b365b091} \quad (2)$$

Table 8: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw826aae9f-_9728-_4bbb_a11b-_60578912218b	k1		1.2	$s^{-1} \cdot$ dimensionless	☑

5.2 Reaction mw2055093c_9534_4ee3_999e_dc4d7e0246cf

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 2

Reaction equation

$$\text{mw8cc67de0\_64e6\_428f\_ab09\_4c2825cc172c} \xrightarrow{\text{mw8cc67de0\_64e6\_428f\_ab09\_4c2825cc172c}} \text{mw6ee00a71\_ab68\_454} \quad (3)$$

Reactant

Table 9: Properties of each reactant.

Id	Name	SBO
mw8cc67de0_64e6_428f_ab09_4c2825cc172c	TNFR1	

Modifier

Table 10: Properties of each modifier.

Id	Name	SBO
mw8cc67de0_64e6_428f_ab09_4c2825cc172c	TNFR1	

Product

Table 11: Properties of each product.

Id	Name	SBO
mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	TRADD_TRAF2_RIP	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_2 = \mathrm{mw6834a7ac\_63c4\_4741\_b0fc\_069c665f1de2} \cdot \mathrm{mw8cc67de0\_64e6\_428f\_ab09\_4c2825cc172c} \quad (4)$$

Table 12: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw6834a7ac-_63c4-_4741_b0fc-_069c665f1de2	k2		1.18	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.3 Reaction mw8d01ca0a_dc27_461f_a854_cede0c0697dd

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 3

Reaction equation

$$\mathrm{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa} \xrightarrow{\mathrm{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}} \mathrm{mw136c8391\_14f4\_4a2} \quad (5)$$

Reactant

Table 13: Properties of each reactant.

Id	Name	SBO
mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	TRADD_TRAF2_RIP	

Modifier

Table 14: Properties of each modifier.

Id	Name	SBO
mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	TRADD_TRAF2_RIP	

Product

Table 15: Properties of each product.

Id	Name	SBO
mw136c8391_14f4_4a28_83a3_35cc74a2e040	NIK	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_3 = \frac{\mathrm{mw0733f43b\_b430\_40c4\_8b93\_1555a4bdbaa1} \cdot \mathrm{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}}{\mathrm{mw56211dd8\_6a88\_465e\_bed2\_f603bf8c5b52} + \mathrm{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}} \tag{6}$$

Table 16: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw56211dd8-_6a88-_465e_bed2-_f603bf8c5b52	k3		0.6	10^{-9} mol	☑
mw0733f43b-_b430-_40c4_8b93-_1555a4bdbaa1	v3		0.6	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑

5.4 Reaction mwc021dbe5_8831_4239_b280_9dcfb2ce1101

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 4

Reaction equation

$$\mathrm{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa} \xrightarrow{\mathrm{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}} \mathrm{mwf8cfed1b\_6fcf\_4cba} \tag{7}$$

Reactant

Table 17: Properties of each reactant.

Id	Name	SBO
mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	TRADD_TRAF2_RIP	

Modifier

Table 18: Properties of each modifier.

Id	Name	SBO
mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	TRADD_TRAF2_RIP	

Product

Table 19: Properties of each product.

Id	Name	SBO
mwf8cfed1b_6fcf_4cba_bc30_b44490814a7a	MEKK1	

Kinetic Law

Derived unit $0.9999999999999999 \text{ mol} \cdot \text{s}^{-1}$

$$v_4 = \frac{\text{mwf89fc9a4\_ad1e\_4e59\_8a06\_4b8dc2cc84a7} \cdot \text{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}}{\text{mwaad66a38\_26d2\_41fc\_9261\_79c57500a6d4} + \text{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}} \tag{8}$$

Table 20: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwf89fc9a4-_ad1e-_4e59_8a06-_4b8dc2cc84a7	v4		0.28	$\text{mol} \cdot \text{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mwaad66a38-_26d2-_41fc_9261-_79c57500a6d4	k4		1.50	10^{-9} mol	☑

5.5 Reaction mwc064fbe4_1c49_4130_b601_efefacd114e4

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 5

Reaction equation

$$\text{mw136c8391\_14f4\_4a28\_83a3\_35cc74a2e040} \xrightarrow{\text{mw136c8391\_14f4\_4a28\_83a3\_35cc74a2e040}} \text{mw2dc73059\_a841\_48} \tag{9}$$

Reactant

Table 21: Properties of each reactant.

Id	Name	SBO
mw136c8391_14f4_4a28_83a3_35cc74a2e040	NIK	

Modifier

Table 22: Properties of each modifier.

Id	Name	SBO
mw136c8391_14f4_4a28_83a3_35cc74a2e040	NIK	

Product

Table 23: Properties of each product.

Id	Name	SBO
mw2dc73059_a841_48d5_b4bd_3ac24d94c42e	IkB	

Kinetic Law

Derived unit $0.9999999999999999\ \text{mol} \cdot \text{s}^{-1}$

$$v_5 = \frac{\text{mw5fdc2487\_13a9\_449a\_b90c\_95446ddf7f37} \cdot \text{mw136c8391\_14f4\_4a28\_83a3\_35cc74a2e040}}{\text{mwbf5d43e3\_e386\_4b05\_997d\_4e70cbff9498} + \text{mw136c8391\_14f4\_4a28\_83a3\_35cc74a2e040}} \tag{10}$$

Table 24: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwbf5d43e3-_e386-_4b05_997d-_4e70cbff9498	k5		0.15	10^{-9} mol	☑

Id	Name	SBO	Value	Unit	Constant
mw5fdc2487-_13a9-_449a_b90c-_95446ddf7f37	v5		1.30	mol · s^{-1} · 10^{-9} dimensionless	☑

5.6 Reaction mw57e0090c_072b_4494_bdf6_a005150e0f42

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 6

Reaction equation

$$\text{mw7204ab72\_2ee5\_4b92\_b420\_2583dacc4343} \xrightarrow{\text{mw7204ab72\_2ee5\_4b92\_b420\_2583dacc4343}} \text{mw6939cefe\_e7ff\_4a3} \quad (11)$$

Reactant

Table 25: Properties of each reactant.

Id	Name	SBO
mw7204ab72_2ee5_4b92_b420_2583dacc4343	IkK_NFkB	

Modifier

Table 26: Properties of each modifier.

Id	Name	SBO
mw7204ab72_2ee5_4b92_b420_2583dacc4343	IkK_NFkB	

Product

Table 27: Properties of each product.

Id	Name	SBO
mw6939cefe_e7ff_4a3f_b45b_a9234d1b5573	NFkB	

Kinetic Law

Derived unit $0.9999999999999999 \text{ mol} \cdot \text{s}^{-1}$

$$v_6 = \frac{\text{mwd4bfd4cc\_6fd4\_4b3b\_980d\_547ce2740b7e} \cdot \text{mw7204ab72\_2ee5\_4b92\_b420\_2583dacc4343}}{\text{mw9ac53fed\_0388\_4261\_b457\_030cd631fa0e} + \text{mw7204ab72\_2ee5\_4b92\_b420\_2583dacc4343}} \quad (12)$$

Table 28: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw9ac53fed_0388_4261_b457_030cd631fa0e	k6		0.1	10^{-9} mol	☑
mwd4bfd4cc_6fd4_4b3b_980d_547ce2740b7e	v6		2.2	mol · s^{-1} · 10^{-9} dimensionless	☑

5.7 Reaction mwd78707fa_21d0_4f82_b3d1_a74ba6b8f727

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 7

Reaction equation

$$\text{mw6939cefe\_e7ff\_4a3f\_b45b\_a9234d1b5573} \xrightarrow{\text{mw6939cefe\_e7ff\_4a3f\_b45b\_a9234d1b5573}} \text{mw8a358487\_b18b\_42df} \quad (13)$$

Reactant

Table 29: Properties of each reactant.

Id	Name	SBO
mw6939cefe_e7ff_4a3f_b45b_a9234d1b5573	NFkB	

Modifier

Table 30: Properties of each modifier.

Id	Name	SBO
mw6939cefe_e7ff_4a3f_b45b_a9234d1b5573	NFkB	

Product

Table 31: Properties of each product.

Id	Name	SBO
mw8a358487_b18b_42df_a646_cd75eb5bfcc2	NFkB	

Kinetic Law

Derived unit $s^{-1} \cdot 10^{-9}$ mol

$$v_7 = \text{mwa68f7af3\_30af\_4fa0\_9290\_9e005c875763} \cdot \text{mw6939cefe\_e7ff\_4a3f\_b45b\_a9234d1b5573} \quad (14)$$

Table 32: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwa68f7af3_30af_4fa0_9290_9e005c875763	k7		1.4	$s^{-1} \cdot$ dimensionless	☑

5.8 Reaction mw065ddcfd_fe93_45f6_9ad4_a5aa4529aad4

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 8

Reaction equation

$$\text{mw2dc73059\_a841\_48d5\_b4bd\_3ac24d94c42e} \xrightarrow{\text{mw2dc73059\_a841\_48d5\_b4bd\_3ac24d94c42e}} \text{mw7204ab72\_2ee5\_4} \quad (15)$$

Reactant

Table 33: Properties of each reactant.

Id	Name	SBO
mw2dc73059_a841_48d5_b4bd_3ac24d94c42e	IkB	

Modifier

Table 34: Properties of each modifier.

Id	Name	SBO
mw2dc73059_a841_48d5_b4bd_3ac24d94c42e	IkB	

Product

Table 35: Properties of each product.

Id	Name	SBO
mw7204ab72_2ee5_4b92_b420_2583dacc4343	IkK_NFkB	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_8 = \frac{\text{mw2b6193d2\_d588\_46b7\_8463\_ce7bc30e1575} \cdot \text{mw2dc73059\_a841\_48d5\_b4bd\_3ac24d94c42e}}{\text{mwa7160f91\_3c68\_402a\_b3bd\_acd8490c5d2d} + \text{mw2dc73059\_a841\_48d5\_b4bd\_3ac24d94c42e}} \tag{16}$$

Table 36: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwa7160f91_3c68_402a_b3bd_acd8490c5d2d	k8		0.56	10^{-9} mol	☑
mw2b6193d2_d588_46b7_8463_ce7bc30e1575	v8		1.30	mol $\cdot$ s^{-1} $\cdot$ 10^{-9} dimensionless	☑

5.9 Reaction mwc23385ec_434f_4f84_897b_fdb26e2fc8c9

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 9

Reaction equation

$$\text{mwf8cfed1b\_6fcf\_4cba\_bc30\_b44490814a7a} \xrightarrow{\text{mwf8cfed1b\_6fcf\_4cba\_bc30\_b44490814a7a}} \text{mw702be69a\_eb4f\_425e\_} \tag{17}$$

Reactant

Table 37: Properties of each reactant.

Id	Name	SBO
mwf8cfed1b_6fcf_4cba_bc30_b44490814a7a	MEKK1	

Modifier

Table 38: Properties of each modifier.

Id	Name	SBO
mwf8cfed1b_6fcf_4cba_bc30_b44490814a7a	MEKK1	

Product

Table 39: Properties of each product.

Id	Name	SBO
mw702be69a_eb4f_425e_87c7_ef7d85254536	MKK4/7	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol \cdot s^{-1}}$

$$v_9 = \frac{\text{mw31c3bf7d\_10cd\_412a\_9a76\_0fb66845c18d} \cdot \text{mwf8cfed1b\_6fcf\_4cba\_bc30\_b44490814a7a}}{\text{mw37ac6d2c\_1be9\_4998\_a9c5\_8761d3e0ba0f} + \text{mwf8cfed1b\_6fcf\_4cba\_bc30\_b44490814a7a}} \tag{18}$$

Table 40: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw31c3bf7d-_10cd-_412a_9a76-_0fb66845c18d	v9		0.6	$\mathrm{mol \cdot s^{-1} \cdot 10^{-9}}$ dimensionless	☑

Id	Name	SBO	Value	Unit	Constant
mw37ac6d2c-_1be9-_4998_a9c5-_8761d3e0ba0f	k9		0.2	10^{-9} mol	☑

5.10 Reaction mw4dded01e_6e25_4d1e_aa54_62db26069cad

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 10

Reaction equation

$$\text{mw702be69a\_eb4f\_425e\_87c7\_ef7d85254536} \xrightarrow{\text{mw702be69a\_eb4f\_425e\_87c7\_ef7d85254536}} \text{mwbee11634\_55df\_4a3} \quad (19)$$

Reactant

Table 41: Properties of each reactant.

Id	Name	SBO
mw702be69a_eb4f_425e_87c7_ef7d85254536	MKK4/7	

Modifier

Table 42: Properties of each modifier.

Id	Name	SBO
mw702be69a_eb4f_425e_87c7_ef7d85254536	MKK4/7	

Product

Table 43: Properties of each product.

Id	Name	SBO
mwbee11634_55df_4a3f_998a_634dfaf46fd7	JNK	

Kinetic Law

Derived unit $0.9999999999999999 \text{ mol} \cdot \text{s}^{-1}$

$$v_{10} = \frac{\text{mw8adff9cb\_4657\_413f\_a2bd\_100d4aa53076} \cdot \text{mw702be69a\_eb4f\_425e\_87c7\_ef7d85254536}}{\text{mwc9cf88fa\_c525\_4372\_80e1\_c72b1cc758f1} + \text{mw702be69a\_eb4f\_425e\_87c7\_ef7d85254536}} \tag{20}$$

Table 44: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw8adff9cb-_4657-_413f_a2bd-_100d4aa53076	v10		0.98	mol · s^{-1} · 10^{-9} dimensionless	☑
mwc9cf88fa-_c525-_4372_80e1-_c72b1cc758f1	k10		0.15	10^{-9} mol	☑

5.11 Reaction mwef3506d1_e875_48e5_8c0a_4ffebdcd0f32

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 11

Reaction equation

$$\text{mwbee11634\_55df\_4a3f\_998a\_634dfaf46fd7} \xrightarrow{\text{mwbee11634\_55df\_4a3f\_998a\_634dfaf46fd7}} \text{mwd9e7a9b9\_6f1b\_4bbc\_} \tag{21}$$

Reactant

Table 45: Properties of each reactant.

Id	Name	SBO
mwbee11634_55df_4a3f_998a_634dfaf46fd7	JNK	

Modifier

Table 46: Properties of each modifier.

Id	Name	SBO
mwbee11634_55df_4a3f_998a_634dfaf46fd7	JNK	

Product

Table 47: Properties of each product.

Id	Name	SBO
mwd9e7a9b9_6f1b_4bbc_afa5_6cb192b62ce8	JNK	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{11} = \mathrm{mwafa60fbe\_9272\_468d\_94e7\_b82b985f938c} \cdot \mathrm{mwbee11634\_55df\_4a3f\_998a\_634dfaf46fd7} \tag{22}$$

Table 48: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwafa60fbe_9272_468d_94e7_b82b985f938c	k11		0.61	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.12 Reaction mwc4a3a397_b069_48dc_9f2b_411ca1448d98

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 12

Reaction equation

$$\mathrm{mwd9e7a9b9\_6f1b\_4bbc\_afa5\_6cb192b62ce8} \xrightarrow{\mathrm{mwd9e7a9b9\_6f1b\_4bbc\_afa5\_6cb192b62ce8}} \mathrm{mwfed5a135\_c91b\_4d2} \tag{23}$$

Reactant

Table 49: Properties of each reactant.

Id	Name	SBO
mwd9e7a9b9_6f1b_4bbc_afa5_6cb192b62ce8	JNK	

Modifier

Table 50: Properties of each modifier.

Id	Name	SBO
mwd9e7a9b9_6f1b_4bbc_afa5_6cb192b62ce8	JNK	

Product

Table 51: Properties of each product.

Id	Name	SBO
mwfed5a135_c91b_4d20_91b2_3a61723544dd	cjun	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{12} = \frac{\mathrm{mw1a1570ff\_e786\_473f\_860b\_2e7694acfcc2} \cdot \mathrm{mwd9e7a9b9\_6f1b\_4bbc\_afa5\_6cb192b62ce8}}{\mathrm{mwf88d190e\_a505\_4f7e\_ac8d\_e43997c74b9c} + \mathrm{mwd9e7a9b9\_6f1b\_4bbc\_afa5\_6cb192b62ce8}} \tag{24}$$

Table 52: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw1a1570ff_e786_473f_860b_2e7694acfcc2	v12		1.14	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mwf88d190e_a505_4f7e_ac8d_e43997c74b9c	k12		0.62	10^{-9} mol	☑

5.13 Reaction mwa502f05a_b689_4ad9_855e_90ae77824ba0

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 13

Reaction equation

$$\text{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa} \xrightarrow{\text{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}} \text{mw805b55df\_cc91\_422} \tag{25}$$

Reactant

Table 53: Properties of each reactant.

Id	Name	SBO
mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	TRADD_TRAF2_RIP	

Modifier

Table 54: Properties of each modifier.

Id	Name	SBO
mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa	TRADD_TRAF2_RIP	

Product

Table 55: Properties of each product.

Id	Name	SBO
mw805b55df_cc91_4227_bb52_930e961b682c	ASK	

Kinetic Law

Derived unit $0.9999999999999999\ \text{mol} \cdot \text{s}^{-1}$

$$v_{13} = \frac{\text{mw9d622ba3\_b43b\_4101\_bef8\_c964c2f158a0} \cdot \text{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}}{\text{mw2b1ea101\_d4a1\_42e9\_a70f\_cb8026911ed5} + \text{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa}} \tag{26}$$

Table 56: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw2b1ea101-_d4a1-_42e9_a70f-_cb8026911ed5	k13		0.08	10^{-9} mol	☑

Id	Name	SBO	Value	Unit	Constant
mw9d622ba3-_b43b-_4101_bef8-_c964c2f158a0	v13		0.99	mol · s^{-1} · 10^{-9} dimensionless	☑

5.14 Reaction mw01a7e271_19c9_40a0_bb62_505bad155195

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 14

Reaction equation

$$\text{mw805b55df\_cc91\_4227\_bb52\_930e961b682c} \xrightarrow{\text{mw805b55df\_cc91\_4227\_bb52\_930e961b682c}} \text{mw46ee629a\_dd6b\_4} \quad (27)$$

Reactant

Table 57: Properties of each reactant.

Id	Name	SBO
mw805b55df_cc91_4227_bb52_930e961b682c	ASK	

Modifier

Table 58: Properties of each modifier.

Id	Name	SBO
mw805b55df_cc91_4227_bb52_930e961b682c	ASK	

Product

Table 59: Properties of each product.

Id	Name	SBO
mw46ee629a_dd6b_4163_9da1_2614bb1d74bc	MKK3/6	

Kinetic Law

Derived unit $0.9999999999999999 \text{ mol} \cdot \text{s}^{-1}$

$$v_{14} = \frac{\mathrm{mw107b07de\_5145\_436d\_9fd7\_e4e2103106d7} \cdot \mathrm{mw805b55df\_cc91\_4227\_bb52\_930e961b682c}}{\mathrm{mwd51a525a\_5fea\_42c6\_a8fd\_40429ee627cf} + \mathrm{mw805b55df\_cc91\_4227\_bb52\_930e961b682c}} \tag{28}$$

Table 60: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw107b07de-_5145-_436d_9fd7-_e4e2103106d7	v14		1.20	mol · s^{-1} · 10^{-9} dimensionless	☑
mwd51a525a-_5fea-_42c6_a8fd-_40429ee627cf	k14		0.02	10^{-9} mol	☑

5.15 Reaction mw7db85cdd_f1ac_4e07_9a35_809b7ab77aec

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 15

Reaction equation

$$\mathrm{mwb71eb539\_dca6\_47ab\_8df5\_430d84af0bfb} \xrightarrow{\mathrm{mwb71eb539\_dca6\_47ab\_8df5\_430d84af0bfb}} \mathrm{mw97345a67\_a8e8\_42a} \tag{29}$$

Reactant

Table 61: Properties of each reactant.

Id	Name	SBO
mwb71eb539_dca6_47ab_8df5_430d84af0bfb	p38	

Modifier

Table 62: Properties of each modifier.

Id	Name	SBO
mwb71eb539_dca6_47ab_8df5_430d84af0bfb	p38	

Product

Table 63: Properties of each product.

Id	Name	SBO
mw97345a67_a8e8_42aa_8e62_69e9d2b6cf45	p38	

Kinetic Law

Derived unit $s^{-1} \cdot 10^{-9}$ mol

$$v_{15} = \text{mw286a7792\_09c4\_443e\_98f4\_a68f66a1f380} \cdot \text{mwb71eb539\_dca6\_47ab\_8df5\_430d84a80bfb} \quad (30)$$

Table 64: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw286a7792-_09c4-_443e_98f4-_a68f66a1f380	k15		1.0	$s^{-1} \cdot$ dimensionless	☑

5.16 Reaction mw8917d625_0012_45c7_aede_8a528181d93d

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 16

Reaction equation

$$\text{mw97345a67\_a8e8\_42aa\_8e62\_69e9d2b6cf45} \xrightarrow{\text{mw97345a67\_a8e8\_42aa\_8e62\_69e9d2b6cf45}} \text{mw5c67812a\_17f5\_43c} \quad (31)$$

Reactant

Table 65: Properties of each reactant.

Id	Name	SBO
mw97345a67_a8e8_42aa_8e62_69e9d2b6cf45	p38	

Modifier

Table 66: Properties of each modifier.

Id	Name	SBO
mw97345a67_a8e8_42aa_8e62_69e9d2b6cf45	p38	

Product

Table 67: Properties of each product.

Id	Name	SBO
mw5c67812a_17f5_43cf_8acb_9bde272c1911	cfos	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{16} = \frac{\mathrm{mw2a0659f9\_eab8\_4ada\_8f82\_23068b9986eb} \cdot \mathrm{mw97345a67\_a8e8\_42aa\_8e62\_69e9d2b6cf45}}{\mathrm{mw13b39522\_0751\_4041\_a78e\_871cd5d81592} + \mathrm{mw97345a67\_a8e8\_42aa\_8e62\_69e9d2b6cf45}} \tag{32}$$

Table 68: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw2a0659f9-_eab8-_4ada_8f82-_23068b9986eb	v16		1.5	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw13b39522-_0751-_4041_a78e-_871cd5d81592	k16		0.2	10^{-9} mol	☑

5.17 Reaction mwd67b18a5_bb79_4581_8afa_9bc34a4fe139

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 17

Reaction equation

$$\mathrm{mwa5d6f7e4\_dc4d\_4931\_91ce\_1e78e7b2f195} \xrightarrow{\mathrm{mwa5d6f7e4\_dc4d\_4931\_91ce\_1e78e7b2f195}} \mathrm{mw4079e13c\_446e\_4aa} \tag{33}$$

Reactant

Table 69: Properties of each reactant.

Id	Name	SBO
mwa5d6f7e4_dc4d_4931_91ce_1e78e7b2f195	LPG	

Modifier

Table 70: Properties of each modifier.

Id	Name	SBO
mwa5d6f7e4_dc4d_4931_91ce_1e78e7b2f195	LPG	

Product

Table 71: Properties of each product.

Id	Name	SBO
mw4079e13c_446e_4aa2_9ec4_233583833d02	CD14-TLR	

Kinetic Law

Derived unit $s^{-1} \cdot 10^{-9}$ mol

$$v_{17} = \text{mw6e048357\_d06d\_4522\_bb79\_a91c4f53bda7} \cdot \text{mwa5d6f7e4\_dc4d\_4931\_91ce\_1e78e7b2f195} \quad (32)$$

Table 72: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw6e048357-_d06d-_4522_bb79-_a91c4f53bda7	k17		0.6	$s^{-1} \cdot$ dimensionless	☑

5.18 Reaction mwe28d9fcb_8170_4cbd_b3cc_564c18d65fcc

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 18

Reaction equation

$$\text{mw4079e13c\_446e\_4aa2\_9ec4\_233583833d02} \xrightarrow{\text{mw4079e13c\_446e\_4aa2\_9ec4\_233583833d02}} \text{mwe5fade7d\_1715\_4b} \quad (35)$$

Reactant

Table 73: Properties of each reactant.

Id	Name	SBO
mw4079e13c_446e_4aa2_9ec4_233583833d02	CD14-TLR	

Modifier

Table 74: Properties of each modifier.

Id	Name	SBO
mw4079e13c_446e_4aa2_9ec4_233583833d02	CD14-TLR	

Product

Table 75: Properties of each product.

Id	Name	SBO
mwe5fade7d_1715_4bb1_843f_923da8ecddf1	MyD88	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{18} = \text{mw4c0ee457\_fb1c\_48fa\_a0b7\_ff10d632d1e0} \cdot \text{mw4079e13c\_446e\_4aa2\_9ec4\_233583833d02} \quad (36)$$

Table 76: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw4c0ee457-_fb1c-_48fa_a0b7-_ff10d632d1e0	k18		2.0	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.19 Reaction mw215b36f5_a3a1_44bf_b976_c52cb6daddb8

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 19

Reaction equation

$$\text{mwe5fade7d\_1715\_4bb1\_843f\_923da8ecddf1} \xrightarrow{\text{mwe5fade7d\_1715\_4bb1\_843f\_923da8ecddf1}} \text{mw262497ec\_3d54\_436} \quad (37)$$

Reactant

Table 77: Properties of each reactant.

Id	Name	SBO
mwe5fade7d_1715_4bb1_843f_923da8ecddf1	MyD88	

Modifier

Table 78: Properties of each modifier.

Id	Name	SBO
mwe5fade7d_1715_4bb1_843f_923da8ecddf1	MyD88	

Product

Table 79: Properties of each product.

Id	Name	SBO
mw262497ec_3d54_4367_bfe3_76a9c57497cb	IRAK1/4	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{19} = \text{mw5aa11378\_86b4\_45f6\_aea1\_27208e47e559} \cdot \text{mwe5fade7d\_1715\_4bb1\_843f\_923da8ecddf1} \quad (38)$$

Table 80: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw5aa11378-_86b4-_45f6_aea1-_27208e47e559	k19		0.72	$s^{-1} \cdot$ dimensionless	☑

5.20 Reaction mw15c83962_bdf0_43f0_b5df_9ab227af0595

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 20

Reaction equation

$$\text{mw262497ec\_3d54\_4367\_bfe3\_76a9c57497cb} \xrightarrow{\text{mw262497ec\_3d54\_4367\_bfe3\_76a9c57497cb}} \text{mw8bffd47e\_34de\_473} \quad (39)$$

Reactant

Table 81: Properties of each reactant.

Id	Name	SBO
mw262497ec_3d54_4367_bfe3_76a9c57497cb	IRAK1/4	

Modifier

Table 82: Properties of each modifier.

Id	Name	SBO
mw262497ec_3d54_4367_bfe3_76a9c57497cb	IRAK1/4	

Product

Table 83: Properties of each product.

Id	Name	SBO
mw8bffd47e_34de_4738_81bf_7a39a40b3ae8	TRAF6	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$v_{20} = \mathrm{mw36ee8f87\_d06f\_4d16\_ac13\_f4075b56c6f4} \cdot \mathrm{mw262497ec\_3d54\_4367\_bfe3\_76a9c57(40)cb}$

Table 84: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw36ee8f87-_d06f-_4d16_ac13-_f4075b56c6f4	k20		0.55	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.21 Reaction mwa3c7ed09_4e90_417b_a301_2a0b4ac2e1d5

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 21

Reaction equation

$$\mathrm{mw8bffd47e\_34de\_4738\_81bf\_7a39a40b3ae8} \xrightarrow{\mathrm{mw8bffd47e\_34de\_4738\_81bf\_7a39a40b3ae8}} \mathrm{mw308b75ec\_28b7\_4d9} \quad (41)$$

Reactant

Table 85: Properties of each reactant.

Id	Name	SBO
mw8bffd47e_34de_4738_81bf_7a39a40b3ae8	TRAF6	

Modifier

Table 86: Properties of each modifier.

Id	Name	SBO
mw8bffd47e_34de_4738_81bf_7a39a40b3ae8	TRAF6	

Product

Table 87: Properties of each product.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{21} = \mathrm{mwf0b9efb6\_f0e9\_4704\_b5b1\_dec2a68c3321} \cdot \mathrm{mw8bffd47e\_34de\_4738\_81bf\_7a39a40b3ae8} \tag{42}$$

Table 88: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwf0b9efb6-_f0e9-_4704_b5b1-_dec2a68c3321	k21		0.48	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.22 Reaction mwb6a1c4c1_677e_41a0_8608_c2d1f9037a16

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 22

Reaction equation

$$\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a} \xrightarrow{\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}} \mathrm{mw136c8391\_14f4\_4a} \tag{43}$$

Reactant

Table 89: Properties of each reactant.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Modifier

Table 90: Properties of each modifier.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Product

Table 91: Properties of each product.

Id	Name	SBO
mw136c8391_14f4_4a28_83a3_35cc74a2e040	NIK	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{22} = \frac{\mathrm{mwf5a1613b\_fb22\_43b0\_b95a\_2c18ecbcedd8} \cdot \mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}}{\mathrm{mw85a8c1da\_f29f\_4dcf\_a515\_bf9f9921240b} + \mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}} \tag{44}$$

Table 92: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwf5a1613b_fb22_43b0_b95a_2c18ecbcedd8	v22		0.5	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw85a8c1da_f29f_4dcf_a515_bf9f9921240b	k22		0.2	10^{-9} mol	☑

5.23 Reaction mwa23e3682_2d67_49cf_913c_52aa41335371

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 23

Reaction equation

$$\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a} \xrightarrow{\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}} \mathrm{mw75377e12\_e23d\_4} \tag{45}$$

Reactant

Table 93: Properties of each reactant.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Modifier

Table 94: Properties of each modifier.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Product

Table 95: Properties of each product.

Id	Name	SBO
mw75377e12_e23d_44b3_9823_5fac9b23edc8	MKK1/2	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{23} = \frac{\mathrm{mw1c3fcb1f\_0b90\_46dd\_b13a\_2950fb9e18ae} \cdot \mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}}{\mathrm{mw8a65d230\_2abb\_478d\_ab8a\_6719d972483d} + \mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}} \tag{46}$$

Table 96: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw1c3fcb1f_0b90_46dd_b13a_2950fb9e18ae	v23		0.20	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw8a65d230_2abb_478d_ab8a_6719d972483d	k23		0.01	10^{-9} mol	☑

5.24 Reaction mw49bb8edf_f533_4abe_b55e_468a1f3b296e

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 24

Reaction equation

$$\text{mw75377e12\_e23d\_44b3\_9823\_5fac9b23edc8} \xrightarrow{\text{mw75377e12\_e23d\_44b3\_9823\_5fac9b23edc8}} \text{mw67d0cf04\_d6a7\_47} \tag{47}$$

Reactant

Table 97: Properties of each reactant.

Id	Name	SBO
mw75377e12_e23d_44b3_9823_5fac9b23edc8	MKK1/2	

Modifier

Table 98: Properties of each modifier.

Id	Name	SBO
mw75377e12_e23d_44b3_9823_5fac9b23edc8	MKK1/2	

Product

Table 99: Properties of each product.

Id	Name	SBO
mw67d0cf04_d6a7_4725_a869_098a96a3350d	ERK1/2	

Kinetic Law

Derived unit $0.9999999999999999\ \text{mol} \cdot \text{s}^{-1}$

$$v_{24} = \frac{\text{mw5990b7f9\_7d15\_4306\_9047\_6237ecf066ca} \cdot \text{mw75377e12\_e23d\_44b3\_9823\_5fac9b23edc8}}{\text{mwc29ba5b1\_b0e7\_4fa1\_9e46\_a4c0bdbdacc4} + \text{mw75377e12\_e23d\_44b3\_9823\_5fac9b23edc8}} \tag{48}$$

Table 100: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw5990b7f9-_7d15-_4306_9047-_6237ecf066ca	v24		0.9	mol · s^{-1} · 10^{-9} dimensionless	☑
mwc29ba5b1-_b0e7-_4fa1_9e46-_a4c0bdbdacc4	k24		0.2	10^{-9} mol	☑

5.25 Reaction mwe2722be2_db07_4c1d_879e_272e1518fb8e

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 25

Reaction equation

mw67d0cf04_d6a7_4725_a869_098a96a3350d $\xrightarrow{\text{mw67d0cf04\_d6a7\_4725\_a869\_098a96a3350d}}$ mw1f12e5bc_ebbc_43 (49)

Reactant

Table 101: Properties of each reactant.

Id	Name	SBO
mw67d0cf04_d6a7_4725_a869_098a96a3350d	ERK1/2	

Modifier

Table 102: Properties of each modifier.

Id	Name	SBO
mw67d0cf04_d6a7_4725_a869_098a96a3350d	ERK1/2	

Product

Table 103: Properties of each product.

Id	Name	SBO
mw1f12e5bc_ebbc_4347_b6b7_5cd1740ac69a	ERK1/2	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{25} = \mathrm{mwd2f6a3b7\_5a74\_4d77\_b40c\_1a6713b98554} \cdot \mathrm{mw67d0cf04\_d6a7\_4725\_a869\_098a96a3350d} \tag{50}$$

Table 104: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwd2f6a3b7-_5a74-_4d77_b40c-_1a6713b98554	k25		0.42	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.26 Reaction mw573abe13_d3cc_4f5a_a886_029e2d5da8df

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 26

Reaction equation

$$\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a} \xrightarrow{\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}} \mathrm{mw702be69a\_eb4f\_42} \tag{51}$$

Reactant

Table 105: Properties of each reactant.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Modifier

Table 106: Properties of each modifier.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Product

Table 107: Properties of each product.

Id	Name	SBO
mw702be69a_eb4f_425e_87c7_ef7d85254536	MKK4/7	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{26} = \frac{\mathrm{mw75017b10\_387d\_43e4\_9fb1\_fed7ce6bd490} \cdot \mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}}{\mathrm{mw251bb80a\_5527\_4b9c\_9834\_99556d4e824a} + \mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}} \tag{52}$$

Table 108: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw75017b10_387d_43e4_9fb1_fed7ce6bd490	v26		0.30	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw251bb80a_5527_4b9c_9834_99556d4e824a	k26		0.01	10^{-9} mol	☑

5.27 Reaction mw0649b87c_cb39_43b6_820a_0f21572f784e

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 27

Reaction equation

$$\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a} \xrightarrow{\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}} \mathrm{mw46ee629a\_dd6b\_4} \tag{53}$$

Reactant

Table 109: Properties of each reactant.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Modifier

Table 110: Properties of each modifier.

Id	Name	SBO
mw308b75ec_28b7_4d97_92e2_51a8ce04116a	TAB2_TAK1_TAB1	

Product

Table 111: Properties of each product.

Id	Name	SBO
mw46ee629a_dd6b_4163_9da1_2614bb1d74bc	MKK3/6	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol \cdot s^{-1}}$

$$v_{27} = \frac{\mathrm{mw6ac279a2\_23fe\_4e48\_a910\_2a94ef61244c} \cdot \mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}}{\mathrm{mw0e1c63a9\_8b8a\_4ec7\_9608\_0059208d992f} + \mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a}} \tag{54}$$

Table 112: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw6ac279a2_23fe_4e48_a910_2a94ef61244c	v27		0.10	$\mathrm{mol \cdot s^{-1} \cdot 10^{-9}}$ dimensionless	☑
mw0e1c63a9_8b8a_4ec7_9608_0059208d992f	k27		0.01	10^{-9} mol	☑

5.28 Reaction mw17bf22e9_37fd_42b6_b648_d2ae38fbc805

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 28

Reaction equation

$$\text{mw46ee629a\_dd6b\_4163\_9da1\_2614bb1d74bc} \xrightarrow{\text{mw46ee629a\_dd6b\_4163\_9da1\_2614bb1d74bc}} \text{mwb71eb539\_dca6\_4} \tag{55}$$

Reactant

Table 113: Properties of each reactant.

Id	Name	SBO
mw46ee629a_dd6b_4163_9da1_2614bb1d74bc	MKK3/6	

Modifier

Table 114: Properties of each modifier.

Id	Name	SBO
mw46ee629a_dd6b_4163_9da1_2614bb1d74bc	MKK3/6	

Product

Table 115: Properties of each product.

Id	Name	SBO
mwb71eb539_dca6_47ab_8df5_430d84af0bfb	p38	

Kinetic Law

Derived unit $0.9999999999999999\ \text{mol} \cdot \text{s}^{-1}$

$$v_{28} = \frac{\text{mwcad6928f\_259d\_4125\_987e\_977e0c40ef7d} \cdot \text{mw46ee629a\_dd6b\_4163\_9da1\_2614bb1d74bc}}{\text{mw1670fb0f\_e301\_4b7a\_93d4\_35fe7f504e92} + \text{mw46ee629a\_dd6b\_4163\_9da1\_2614bb1d74bc}} \tag{56}$$

Table 116: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwcad6928f-_259d-_4125_987e-_977e0c40ef7d	v28		1.50	mol · s^{-1} · 10^{-9} dimensionless	☑
mw1670fb0f-_e301-_4b7a_93d4-_35fe7f504e92	k28		0.03	10^{-9} mol	☑

5.29 Reaction mw75054b4a_cf66_4bfe_bda0_44b88f715532

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 29

Reaction equation

mw0be0d193_fd6b_4824_8928_dbade8b5c99c $\xrightarrow{\text{mw0be0d193\_fd6b\_4824\_8928\_dbade8b5c99c}}$ mw280197c8_98de_4 (57)

Reactant

Table 117: Properties of each reactant.

Id	Name	SBO
mw0be0d193_fd6b_4824_8928_dbade8b5c99c	EGF	

Modifier

Table 118: Properties of each modifier.

Id	Name	SBO
mw0be0d193_fd6b_4824_8928_dbade8b5c99c	EGF	

Product

Table 119: Properties of each product.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{29} = \mathrm{mw1a4dcdaf\_ff4b\_41a9\_ac1d\_79fd2d942260} \cdot \mathrm{mw0be0d193\_fd6b\_4824\_8928\_dbade8b5899c} \quad (58)$$

Table 120: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw1a4dcdaf-_ff4b-_41a9_ac1d-_79fd2d942260	k29		0.6	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.30 Reaction mw4e1795dc_c8de_4708_ba0d_52d69fae724e

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 30

Reaction equation

$$\mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689} \xrightarrow{\mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}} \mathrm{mw9a5baf6d\_0285\_4ad} \quad (59)$$

Reactant

Table 121: Properties of each reactant.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Modifier

Table 122: Properties of each modifier.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Product

Table 123: Properties of each product.

Id	Name	SBO
mw9a5baf6d_0285_4ad3_9499_059c553d9cf6	PLC gamma	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{30} = \frac{\mathrm{mwb3751ef8\_2226\_4ec3\_9ac9\_f92f5771a1a4} \cdot \mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}}{\mathrm{mw244e346b\_4442\_45db\_864e\_0442ceca94d1} + \mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}} \tag{60}$$

Table 124: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwb3751ef8_2226_4ec3_9ac9_f92f5771a1a4	v30		$2 \cdot 10^{-4}$	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw244e346b_4442_45db_864e_0442ceca94d1	k30		0.500	10^{-9} mol	☑

5.31 Reaction mw51210768_0597_4bf6_a013_49896f03c73d

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 31

Reaction equation

$$\mathrm{mw9a5baf6d\_0285\_4ad3\_9499\_059c553d9cf6} \xrightarrow{\mathrm{mw9a5baf6d\_0285\_4ad3\_9499\_059c553d9cf6}} \mathrm{mw05469f51\_73f7\_4ba} \tag{61}$$

Reactant

Table 125: Properties of each reactant.

Id	Name	SBO
mw9a5baf6d_0285_4ad3_9499_059c553d9cf6	PLC gamma	

Modifier

Table 126: Properties of each modifier.

Id	Name	SBO
mw9a5baf6d_0285_4ad3_9499_059c553d9cf6	PLC gamma	

Product

Table 127: Properties of each product.

Id	Name	SBO
mw05469f51_73f7_4ba1_9f1a_bce5fea143c2	PIP2	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{31} = \frac{\mathrm{mw18e075a4\_dde4\_42be\_9315\_e0e90d461b99} \cdot \mathrm{mw9a5baf6d\_0285\_4ad3\_9499\_059c553d9cf6}}{\mathrm{mw6d4dc2a5\_6fe8\_4d80\_93f4\_b9f438b6eb0e} + \mathrm{mw9a5baf6d\_0285\_4ad3\_9499\_059c553d9cf6}} \tag{62}$$

Table 128: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw18e075a4-_dde4-_42be_9315-_e0e90d461b99	v31		0.6	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw6d4dc2a5-_6fe8-_4d80_93f4-_b9f438b6eb0e	k31		1.0	10^{-9} mol	☑

5.32 Reaction mw05368c46_8a41_4609_b904_25219691464b

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 32

Reaction equation

$$\text{mw05469f51\_73f7\_4ba1\_9f1a\_bce5fea143c2} \xrightarrow{\text{mw05469f51\_73f7\_4ba1\_9f1a\_bce5fea143c2}} \text{mwf20834c8\_a115\_460b} \tag{63}$$

Reactant

Table 129: Properties of each reactant.

Id	Name	SBO
mw05469f51_73f7_4ba1_9f1a_bce5fea143c2	PIP2	

Modifier

Table 130: Properties of each modifier.

Id	Name	SBO
mw05469f51_73f7_4ba1_9f1a_bce5fea143c2	PIP2	

Product

Table 131: Properties of each product.

Id	Name	SBO
mwf20834c8_a115_460b_859c_4e3ca1ffd953	DAG	

Kinetic Law

Derived unit $0.9999999999999999\ \text{mol} \cdot \text{s}^{-1}$

$$v_{32} = \frac{\text{mweaee0b65\_7c40\_4c9e\_bd70\_c5454eeb41fa} \cdot \text{mw05469f51\_73f7\_4ba1\_9f1a\_bce5fea143c2}}{\text{mw84020ddc\_e419\_4aa4\_ab12\_e84989ad461d} + \text{mw05469f51\_73f7\_4ba1\_9f1a\_bce5fea143c2}} \tag{64}$$

Table 132: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mweaee0b65-_7c40-_4c9e_bd70-_c5454eeb41fa	v32		0.9	mol · s^{-1} · 10^{-9} dimensionless	☑
mw84020ddc-_e419-_4aa4_ab12-_e84989ad461d	k32		0.3	10^{-9} mol	☑

5.33 Reaction mwb86f53d9_af3e_499e_9c41_7aaf353919e0

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 33

Reaction equation

mwf20834c8_a115_460b_859c_4e3ca1ffd953 $\xrightarrow{\text{mwf20834c8\_a115\_460b\_859c\_4e3ca1ffd953}}$ mwb4633da9_f9d6_4ad8 (65)

Reactant

Table 133: Properties of each reactant.

Id	Name	SBO
mwf20834c8_a115_460b_859c_4e3ca1ffd953	DAG	

Modifier

Table 134: Properties of each modifier.

Id	Name	SBO
mwf20834c8_a115_460b_859c_4e3ca1ffd953	DAG	

Product

Table 135: Properties of each product.

Id	Name	SBO
mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	PKC	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{33} = \mathrm{mw9d566811\_669e\_4b95\_8452\_c4853f54a2de} \cdot \mathrm{mwf20834c8\_a115\_460b\_859c\_4e3ca1f6d953} \quad (66)$$

Table 136: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw9d566811-_669e-_4b95_8452-_c4853f54a2de	k33		0.35	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.34 Reaction mw1a0f986a_5f18_4312_bf3a_9e79ae4e7f36

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 34

Reaction equation

$$\mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17} \xrightarrow{\mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}} \mathrm{mw7204ab72\_2ee5\_4b} \quad (67)$$

Reactant

Table 137: Properties of each reactant.

Id	Name	SBO
mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	PKC	

Modifier

Table 138: Properties of each modifier.

Id	Name	SBO
mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	PKC	

Product

Table 139: Properties of each product.

Id	Name	SBO
mw7204ab72_2ee5_4b92_b420_2583dacc4343	IkK_NFkB	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{34} = \frac{\mathrm{mw99befd62\_975f\_49e1\_bfaf\_22a482ce44ea} \cdot \mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}}{\mathrm{mwb38e4258\_82d9\_4b48\_8059\_eccf9fd6f8e3} + \mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}} \tag{68}$$

Table 140: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw99befd62_975f_49e1_bfaf_22a482ce44ea	v34		1.2	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mwb38e4258_82d9_4b48_8059_eccf9fd6f8e3	k34		0.2	10^{-9} mol	☑

5.35 Reaction mw17b927e1_56f3_4e65_a482_b8f190af70aa

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 35

Reaction equation

$$\mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689} \xrightarrow{\mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}} \mathrm{mw9bb804c9\_3e4e\_468} \tag{69}$$

Reactant

Table 141: Properties of each reactant.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Modifier

Table 142: Properties of each modifier.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Product

Table 143: Properties of each product.

Id	Name	SBO
mw9bb804c9_3e4e_4684_9f6b_4e6f6706a58e	PI3K	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{35} = \frac{\mathrm{mw78df1f4c\_2a96\_4d8f\_a009\_c19ba0ec406a} \cdot \mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}}{\mathrm{mw6a74caa7\_9d44\_449b\_854b\_c1678b36ac1d} + \mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}} \tag{70}$$

Table 144: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw78df1f4c_2a96_4d8f_a009_c19ba0ec406a	v35		0.2	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw6a74caa7_9d44_449b_854b_c1678b36ac1d	k35		0.8	10^{-9} mol	☑

5.36 Reaction mw0549a0ba_63b4_4a0e_8506_1c379b878280

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 36

Reaction equation

$$\text{mw9bb804c9\_3e4e\_4684\_9f6b\_4e6f6706a58e} \xrightarrow{\text{mw9bb804c9\_3e4e\_4684\_9f6b\_4e6f6706a58e}} \text{mw64453fc5\_a275\_4bb} \tag{71}$$

Reactant

Table 145: Properties of each reactant.

Id	Name	SBO
mw9bb804c9_3e4e_4684_9f6b_4e6f6706a58e	PI3K	

Modifier

Table 146: Properties of each modifier.

Id	Name	SBO
mw9bb804c9_3e4e_4684_9f6b_4e6f6706a58e	PI3K	

Product

Table 147: Properties of each product.

Id	Name	SBO
mw64453fc5_a275_4bba_84f0_2af249b31514	Akt	

Kinetic Law

Derived unit $0.9999999999999999\ \text{mol} \cdot \text{s}^{-1}$

$$v_{36} = \frac{\text{mw3690266b\_c916\_4ba1\_a98a\_b589dc75c1cd} \cdot \text{mw9bb804c9\_3e4e\_4684\_9f6b\_4e6f6706a58e}}{\text{mwb69d510c\_dcde\_4bfb\_9e4a\_89954f6a7bf5} + \text{mw9bb804c9\_3e4e\_4684\_9f6b\_4e6f6706a58e}} \tag{72}$$

Table 148: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw3690266b-_c916-_4ba1_a98a-_b589dc75c1cd	v36		0.8	mol · s^{-1} · 10^{-9} dimensionless	☑
mwb69d510c-_dcde-_4bfb_9e4a-_89954f6a7bf5	k36		1.5	10^{-9} mol	☑

5.37 Reaction mw7ec21bdc_6e00_410d_8524_046f820d0921

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 37

Reaction equation

mw64453fc5_a275_4bba_84f0_2af249b31514 $\xrightarrow{\text{mw64453fc5\_a275\_4bba\_84f0\_2af249b31514}}$ mwda4716f1_ae00_414 (73)

Reactant

Table 149: Properties of each reactant.

Id	Name	SBO
mw64453fc5_a275_4bba_84f0_2af249b31514	Akt	

Modifier

Table 150: Properties of each modifier.

Id	Name	SBO
mw64453fc5_a275_4bba_84f0_2af249b31514	Akt	

Product

Table 151: Properties of each product.

Id	Name	SBO
mwda4716f1_ae00_4149_aec3_12531380425a	Akt	

Kinetic Law

Derived unit $s^{-1} \cdot 10^{-9}$ mol

$$v_{37} = \text{mwb336e12c\_0e62\_4fff\_94c0\_2771b1a19065} \cdot \text{mw64453fc5\_a275\_4bba\_84f0\_2af249b6714} \quad (74)$$

Table 152: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwb336e12c-_0e62-_4fff_94c0-_2771b1a19065	k37		0.2	$s^{-1} \cdot$ dimensionless	☑

5.38 Reaction mwbc35988a_c061_4dff_a2b0_09fa8f45d873

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 38

Reaction equation

$$\text{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689} \xrightarrow{\text{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}} \text{mw323a57b4\_8e59\_411} \quad (75)$$

Reactant

Table 153: Properties of each reactant.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Modifier

Table 154: Properties of each modifier.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Product

Table 155: Properties of each product.

Id	Name	SBO
mw323a57b4_8e59_4116_9ad1_fe547b89c858	Shc/Grb2/Sos1	

Kinetic Law

Derived unit $s^{-1} \cdot 10^{-9}$ mol

$$v_{38} = \text{mw661c7759\_2bd3\_4c93\_bb0a\_823bb37b9820} \cdot \text{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689} \tag{76}$$

Table 156: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw661c7759-_2bd3-_4c93_bb0a-_823bb37b9820	k38		0.299	$s^{-1} \cdot$ dimensionless	☑

5.39 Reaction mwffb70cc8_3371_416f_b374_c518884ba240

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 39

Reaction equation

$$\text{mw323a57b4\_8e59\_4116\_9ad1\_fe547b89c858} \xrightarrow{\text{mw323a57b4\_8e59\_4116\_9ad1\_fe547b89c858}} \text{mw173d8585\_5817\_4} \tag{77}$$

Reactant

Table 157: Properties of each reactant.

Id	Name	SBO
mw323a57b4_8e59_4116_9ad1_fe547b89c858	Shc/Grb2/Sos1	

Modifier

Table 158: Properties of each modifier.

Id	Name	SBO
mw323a57b4_8e59_4116_9ad1_fe547b89c858	Shc/Grb2/Sos1	

Product

Table 159: Properties of each product.

Id	Name	SBO
mw173d8585_5817_4b4c_932a_cf7d673680ac	Ras	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{39} = \frac{\mathrm{mw883852ed\_c433\_4dec\_baa0\_386309fc085c} \cdot \mathrm{mw323a57b4\_8e59\_4116\_9ad1\_fe547b89c858}}{\mathrm{mw6069097b\_159a\_4bcf\_a591\_e496d06cf0a9} + \mathrm{mw323a57b4\_8e59\_4116\_9ad1\_fe547b89c858}} \tag{78}$$

Table 160: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw883852ed-_c433-_4dec_baa0-_386309fc085c	v39		0.24	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw6069097b-_159a-_4bcf_a591-_e496d06cf0a9	k39		1.20	10^{-9} mol	☑

5.40 Reaction mwcf26ace1_325c_4287_81d4_382e2f2beb1c

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 40

Reaction equation

$$\text{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac} \xrightarrow{\text{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac}} \text{mw32c21c39\_237b\_4c} \tag{79}$$

Reactant

Table 161: Properties of each reactant.

Id	Name	SBO
mw173d8585_5817_4b4c_932a_cf7d673680ac	Ras	

Modifier

Table 162: Properties of each modifier.

Id	Name	SBO
mw173d8585_5817_4b4c_932a_cf7d673680ac	Ras	

Product

Table 163: Properties of each product.

Id	Name	SBO
mw32c21c39_237b_4d4c_bb5d_117cb30ce68a	Raf	

Kinetic Law

Derived unit $0.9999999999999999\ \text{mol} \cdot \text{s}^{-1}$

$$v_{40} = \frac{\text{mw78a1e67e\_883c\_497f\_86a6\_f85da783010e} \cdot \text{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac}}{\text{mw5d6cf9c6\_4dc0\_4fe6\_9afc\_da397fe896b2} + \text{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac}} \tag{80}$$

Table 164: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw78a1e67e-_883c-_497f_86a6-_f85da783010e	v40		0.2	mol · s^{-1} · 10^{-9} dimensionless	☑
mw5d6cf9c6-_4dc0-_4fe6_9afc-_da397fe896b2	k40		1.5	10^{-9} mol	☑

5.41 Reaction mwa52ff158_9e98_454a_a98e_3bc52e4aa39f

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 41

Reaction equation

mw32c21c39_237b_4d4c_bb5d_117cb30ce68a $\xrightarrow{\text{mw32c21c39\_237b\_4d4c\_bb5d\_117cb30ce68a}}$ mw75377e12_e23d_4 (81)

Reactant

Table 165: Properties of each reactant.

Id	Name	SBO
mw32c21c39_237b_4d4c_bb5d_117cb30ce68a	Raf	

Modifier

Table 166: Properties of each modifier.

Id	Name	SBO
mw32c21c39_237b_4d4c_bb5d_117cb30ce68a	Raf	

Product

Table 167: Properties of each product.

Id	Name	SBO
mw75377e12_e23d_44b3_9823_5fac9b23edc8	MKK1/2	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{41} = \frac{\mathrm{mw26de6022\_cc14\_484b\_a172\_db4173a1ccaa} \cdot \mathrm{mw32c21c39\_237b\_4d4c\_bb5d\_117cb30ce68a}}{\mathrm{mw7e75e47c\_6d88\_49fb\_a9c4\_9154f12cc4d5} + \mathrm{mw32c21c39\_237b\_4d4c\_bb5d\_117cb30ce68a}} \tag{82}$$

Table 168: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw26de6022-_cc14-_484b_a172-_db4173a1ccaa	v41		0.7	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw7e75e47c-_6d88-_49fb_a9c4-_9154f12cc4d5	k41		1.5	10^{-9} mol	☑

5.42 Reaction mw427812f2_a2ec_476c_8359_96749d8910f4

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 42

Reaction equation

$$\mathrm{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac} \xrightarrow{\mathrm{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac}} \mathrm{mw702be69a\_eb4f\_42} \tag{83}$$

Reactant

Table 169: Properties of each reactant.

Id	Name	SBO
mw173d8585_5817_4b4c_932a_cf7d673680ac	Ras	

Modifier

Table 170: Properties of each modifier.

Id	Name	SBO
mw173d8585_5817_4b4c_932a_cf7d673680ac	Ras	

Product

Table 171: Properties of each product.

Id	Name	SBO
mw702be69a_eb4f_425e_87c7_ef7d85254536	MKK4/7	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{42} = \frac{\mathrm{mw2f1f65d1\_5633\_4625\_b2b7\_0eb267eac293} \cdot \mathrm{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac}}{\mathrm{mw0b0869f4\_26bb\_4d13\_9124\_b2c1b28e3ae1} + \mathrm{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac}} \tag{84}$$

Table 172: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw2f1f65d1_5633_4625_b2b7_0eb267eac293	v42		0.4	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw0b0869f4_26bb_4d13_9124_b2c1b28e3ae1	k42		1.5	10^{-9} mol	☑

5.43 Reaction mw72aabd27_658a_45ef_87b2_cec59e2a548a

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 43

Reaction equation

$$\text{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689} \xrightarrow{\text{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}} \text{mw3832f277\_aef2\_4f1d} \tag{85}$$

Reactant

Table 173: Properties of each reactant.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Modifier

Table 174: Properties of each modifier.

Id	Name	SBO
mw280197c8_98de_43f0_bf01_0f332a1ab689	EGFR	

Product

Table 175: Properties of each product.

Id	Name	SBO
mw3832f277_aef2_4f1d_87af_abc2a3c1a7d5	JAK	

Kinetic Law

Derived unit $0.9999999999999999\ \text{mol} \cdot \text{s}^{-1}$

$$v_{43} = \frac{\text{mw234b354b\_eb7b\_4af6\_a678\_9339f6b5eb8d} \cdot \text{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}}{\text{mw18baeb4d\_ad18\_4c22\_95c4\_2ada0f618c65} + \text{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689}} \tag{86}$$

Table 176: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw234b354b-_eb7b-_4af6_a678-_9339f6b5eb8d	v43		0.01	$\text{mol} \cdot \text{s}^{-1} \cdot 10^{-9}$ dimensionless	☑

Id	Name	SBO	Value	Unit	Constant
mw18baeb4d-_ad18-_4c22_95c4-_2ada0f618c65	k43		1.80	10^{-9} mol	☑

5.44 Reaction mw1498886c_3fb6_44f5_ae32_7a8948030948

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 44

Reaction equation

mw3832f277_aef2_4f1d_87af_abc2a3c1a7d5 $\xrightarrow{\text{mw3832f277\_aef2\_4f1d\_87af\_abc2a3c1a7d5}}$ mw13651143_feb5_49a5_ (87)

Reactant

Table 177: Properties of each reactant.

Id	Name	SBO
mw3832f277_aef2_4f1d_87af_abc2a3c1a7d5	JAK	

Modifier

Table 178: Properties of each modifier.

Id	Name	SBO
mw3832f277_aef2_4f1d_87af_abc2a3c1a7d5	JAK	

Product

Table 179: Properties of each product.

Id	Name	SBO
mw13651143_feb5_49a5_adab_9105c2647446	STAT1/3	

Kinetic Law

Derived unit 0.9999999999999999 $\text{mol} \cdot \text{s}^{-1}$

$$v_{44} = \frac{\text{mw66285193\_607e\_42b6\_b726\_c2409a2ce563} \cdot \text{mw3832f277\_aef2\_4f1d\_87af\_abc2a3c1a7d5}}{\text{mwa4c28075\_8524\_4874\_aee5\_c38231bfbaae} + \text{mw3832f277\_aef2\_4f1d\_87af\_abc2a3c1a7d5}} \quad (88)$$

Table 180: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw66285193-_607e-_42b6_b726-_c2409a2ce563	v44		1.0	$\text{mol} \cdot \text{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mwa4c28075-_8524-_4874_aee5-_c38231bfbaae	k44		1.5	10^{-9} mol	☑

5.45 Reaction mwdcd61085_a433_4362_a836_938c7ae43ded

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 45

Reaction equation

$$\text{mw13651143\_feb5\_49a5\_adab\_9105c2647446} \xrightarrow{\text{mw13651143\_feb5\_49a5\_adab\_9105c2647446}} \text{mw17ae9adc\_54ab\_40} \quad (89)$$

Reactant

Table 181: Properties of each reactant.

Id	Name	SBO
mw13651143_feb5_49a5_adab_9105c2647446	STAT1/3	

Modifier

Table 182: Properties of each modifier.

Id	Name	SBO
mw13651143_feb5_49a5_adab_9105c2647446	STAT1/3	

Product

Table 183: Properties of each product.

Id	Name	SBO
mw17ae9adc_54ab_407b_a34d_8413a3a10cc6	STAT1/3	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{45} = \mathrm{mw9a480703\_d4bb\_4de8\_8975\_13a18205ce53} \cdot \mathrm{mw13651143\_feb5\_49a5\_adab\_9105c2647446} \tag{90}$$

Table 184: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw9a480703-_d4bb-_4de8_8975-_13a18205ce53	k45		0.19	$\mathrm{s}^{-1} \cdot$ dimensionless	☑

5.46 Reaction mwe820c3d2_bbc1_4211_9818_1e515a583b8a

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 46

Reaction equation

$$\mathrm{mw8a358487\_b18b\_42df\_a646\_cd75eb5bfcc2} \xrightarrow{\mathrm{mw8a358487\_b18b\_42df\_a646\_cd75eb5bfcc2}} \mathrm{mwc844b7c0\_98f5\_4d0} \tag{91}$$

Reactant

Table 185: Properties of each reactant.

Id	Name	SBO
mw8a358487_b18b_42df_a646_cd75eb5bfcc2	NFkB	

Modifier

Table 186: Properties of each modifier.

Id	Name	SBO
mw8a358487_b18b_42df_a646_cd75eb5bfcc2	NFkB	

Product

Table 187: Properties of each product.

Id	Name	SBO
mwc844b7c0_98f5_4d0d_8f0c_00dfe8b54e6d	TNF	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{46} = \frac{\mathrm{mwbad3f510\_fbca\_4aa7\_a4c2\_5c1b47297802} \cdot \mathrm{mw8a358487\_b18b\_42df\_a646\_cd75eb5bfcc2}^{\mathrm{mw4d5fd70d\_8603\_4056\_a}}}{\mathrm{mw2fa0d3fe\_4e99\_49d2\_a339\_089198589a1e} + \mathrm{mw8a358487\_b18b\_42df\_a646\_cd75eb5bfcc2}^{\mathrm{mw4d5fd70d\_8603\_4056\_}}} \tag{92}$$

Table 188: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwbad3f510_fbca_4aa7_a4c2_5c1b47297802	v46		2.35	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw4d5fd70d_8603_4056_adfa_5af26d657455	n46		1.00		☑
mw2fa0d3fe_4e99_49d2_a339_089198589a1e	kp47		0.43	10^{-9} mol	☑

5.47 Reaction mwd95fbca0_6234_4c19_81ea_5e74b558e2f1

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 47

Reaction equation

$$\text{mwc844b7c0\_98f5\_4d0d\_8f0c\_00dfe8b54e6d} \xrightarrow{\text{mwc844b7c0\_98f5\_4d0d\_8f0c\_00dfe8b54e6d}} \text{mw4d2e70a7\_f499\_461} \quad (93)$$

Reactant

Table 189: Properties of each reactant.

Id	Name	SBO
mwc844b7c0_98f5_4d0d_8f0c_00dfe8b54e6d	TNF	

Modifier

Table 190: Properties of each modifier.

Id	Name	SBO
mwc844b7c0_98f5_4d0d_8f0c_00dfe8b54e6d	TNF	

Product

Table 191: Properties of each product.

Id	Name	SBO
mw4d2e70a7_f499_461d_ae18_bc53b365b091	TNF	

Kinetic Law

Derived unit $\mathrm{s}^{-1} \cdot 10^{-9}\ \mathrm{mol}$

$$v_{47} = \text{mw2b132eeb\_ce2a\_4a53\_8c22\_c102ebd2edb9} \cdot \text{mwc844b7c0\_98f5\_4d0d\_8f0c\_00dfe8b54e6d} \quad (94)$$

Table 192: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw2b132eeb-_ce2a-_4a53_8c22-_c102ebd2edb9	k47		1.1	$s^{-1} \cdot$ dimensionless	☑

5.48 Reaction mw36e7aae0_ea29_437f_a9c0_57981e85b29e

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 48

Reaction equation

$$\text{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17} \xrightarrow{\text{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}} \text{mw173d8585\_5817\_4b} \quad (95)$$

Reactant

Table 193: Properties of each reactant.

Id	Name	SBO
mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	PKC	

Modifier

Table 194: Properties of each modifier.

Id	Name	SBO
mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	PKC	

Product

Table 195: Properties of each product.

Id	Name	SBO
mw173d8585_5817_4b4c_932a_cf7d673680ac	Ras	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{48} = \frac{\mathrm{mwdeab2870\_570e\_4b2c\_b73d\_84c1ad8c2262} \cdot \mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}}{\mathrm{mw4945db3d\_e20c\_4870\_b96b\_6fb98c4b12f6} + \mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}} \tag{96}$$

Table 196: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mwdeab2870-_570e-_4b2c_b73d-_84c1ad8c2262	v48		1.0	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw4945db3d-_e20c-_4870_b96b-_6fb98c4b12f6	k48		1.0	10^{-9} mol	☑

5.49 Reaction mwe6aec30e_5e5f_4427_bda2_9c7edc4d5547

This is an irreversible reaction of one reactant forming one product influenced by one modifier.

Name 49

Reaction equation

$$\mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17} \xrightarrow{\mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}} \mathrm{mw32c21c39\_237b\_4d} \tag{97}$$

Reactant

Table 197: Properties of each reactant.

Id	Name	SBO
mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	PKC	

Modifier

Table 198: Properties of each modifier.

Id	Name	SBO
mwb4633da9_f9d6_4ad8_a7e5_da075c830e17	PKC	

Product

Table 199: Properties of each product.

Id	Name	SBO
mw32c21c39_237b_4d4c_bb5d_117cb30ce68a	Raf	

Kinetic Law

Derived unit $0.9999999999999999\ \mathrm{mol} \cdot \mathrm{s}^{-1}$

$$v_{49} = \frac{\mathrm{mw0f1ee85e\_95a3\_42c7\_94ae\_71f36061aaf0} \cdot \mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}}{\mathrm{mw933afd80\_4eff\_4c6c\_967b\_d15b2244e55d} + \mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17}} \tag{98}$$

Table 200: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
mw0f1ee85e_95a3_42c7_94ae_71f36061aaf0	v49		1.0	$\mathrm{mol} \cdot \mathrm{s}^{-1} \cdot 10^{-9}$ dimensionless	☑
mw933afd80_4eff_4c6c_967b_d15b2244e55d	k49		1.0	10^{-9} mol	☑

6 Derived Rate Equations

When interpreted as an ordinary differential equation framework, this model implies the following set of equations for the rates of change of each species.

6.1 Species mw4d2e70a7_f499_461d_ae18_bc53b365b091

Name TNF

Initial amount 1.5 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw56c6d2a8_5d66_4b27_841a_662ac710fac3 and as a product in mwd95fbca0_6234_4c19_81ea_5e74b558e2f1 and as a modifier in mw56c6d2a8_5d66_4b27_841a_662ac710fac3).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw4d2e70a7\_f499\_461d\_ae18\_bc53b365b091} = v_{47} - v_1 \tag{99}$$

6.2 Species mw8cc67de0_64e6_428f_ab09_4c2825cc172c

Name TNFR1

Initial amount 1.3 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw2055093c_9534_4ee3_999e_dc4d7e0246cf and as a product in mw56c6d2a8_5d66_4b27_841a_662ac710fac3 and as a modifier in mw2055093c_9534_4ee3_999e_dc4d7e0246cf).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw8cc67de0\_64e6\_428f\_ab09\_4c2825cc172c} = v_1 - v_2 \tag{100}$$

6.3 Species mw6ee00a71_ab68_454b_b1cd_60c1ebd19cfa

Name TRADD_TRAF2_RIP

SBO:0000296 macromolecular complex

Initial amount 1.3 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in seven reactions (as a reactant in mw8d01ca0a_dc27_461f_a854_cede0c0697dd, mwc021dbe5_8831_4239_b280_9dcfb2ce1101, mwa502f05a_b689_4ad9_855e_90ae77824ba0 and as a product in mw2055093c_9534_4ee3_999e_dc4d7e0246cf and as a modifier in mw8d01ca0a_dc27_461f_a854_cede0c0697dd, mwc021dbe5_8831_4239_b280_9dcfb2ce1101, mwa502f05a_b689_4ad9_855e_90ae77824ba0).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw6ee00a71\_ab68\_454b\_b1cd\_60c1ebd19cfa} = v_2 - v_3 - v_4 - v_{13} \tag{101}$$

6.4 Species mw2dc73059_a841_48d5_b4bd_3ac24d94c42e

Name IkB

Initial amount 0.8 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw065ddcfd_fe93_45f6_9ad4_a5aa4529aad4 and as a product in mwc064fbe4_1c49_4130_b601_efefacd114e4 and as a modifier in mw065ddcfd_fe93_45f6_9ad4_a5aa4529aad4).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw2dc73059\_a841\_48d5\_b4bd\_3ac24d94c42e} = v_5 - v_8 \tag{102}$$

6.5 Species mw136c8391_14f4_4a28_83a3_35cc74a2e040

Name NIK

Initial amount 1.5 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in four reactions (as a reactant in mwc064fbe4_1c49_4130_b601_efefacd114e4 and as a product in mw8d01ca0a_dc27_461f_a854_cede0c0697dd, mwb6a1c4c1_677e_41a0-_8608_c2d1f9037a16 and as a modifier in mwc064fbe4_1c49_4130_b601_efefacd114e4).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw136c8391\_14f4\_4a28\_83a3\_35cc74a2e040} = v_3 + v_{22} - v_5 \tag{103}$$

6.6 Species mw7204ab72_2ee5_4b92_b420_2583dacc4343

Name IkK_NFkB

Initial amount 1.4 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in four reactions (as a reactant in mw57e0090c_072b_4494_bdf6_a005150e0f42 and as a product in mw065ddcfd_fe93_45f6_9ad4_a5aa4529aad4, mw1a0f986a_5f18_4312-_bf3a_9e79ae4e7f36 and as a modifier in mw57e0090c_072b_4494_bdf6_a005150e0f42).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw7204ab72\_2ee5\_4b92\_b420\_2583dacc4343} = v_8 + v_{34} - v_6 \tag{104}$$

6.7 Species mw6939cefe_e7ff_4a3f_b45b_a9234d1b5573

Name NFkB

Initial amount 1.2 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwd78707fa_21d0_4f82_b3d1-_a74ba6b8f727 and as a product in mw57e0090c_072b_4494_bdf6_a005150e0f42 and as a modifier in mwd78707fa_21d0_4f82_b3d1_a74ba6b8f727).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw6939cefe\_e7ff\_4a3f\_b45b\_a9234d1b5573} = v_6 - v_7 \tag{105}$$

6.8 Species mwf8cfed1b_6fcf_4cba_bc30_b44490814a7a

Name MEKK1

Initial amount 1.4 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwc23385ec_434f_4f84_897b-_fdb26e2fc8c9 and as a product in mwc021dbe5_8831_4239_b280_9dcfb2ce1101 and as a modifier in mwc23385ec_434f_4f84_897b_fdb26e2fc8c9).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwf8cfed1b\_6fcf\_4cba\_bc30\_b44490814a7a} = v_4 - v_9 \tag{106}$$

6.9 Species mw702be69a_eb4f_425e_87c7_ef7d85254536

Name MKK4/7

Initial amount 1.2 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in five reactions (as a reactant in mw4dded01e_6e25_4d1e_aa54_62db26069cad and as a product in mwc23385ec_434f_4f84_897b_fdb26e2fc8c9, mw573abe13_d3cc_4f5a-_a886_029e2d5da8df, mw427812f2_a2ec_476c_8359_96749d8910f4 and as a modifier in mw4dded01e_6e25_4d1e_aa54_62db26069cad).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw702be69a\_eb4f\_425e\_87c7\_ef7d85254536} = v_9 + v_{26} + v_{42} - v_{10} \tag{107}$$

6.10 Species mwbee11634_55df_4a3f_998a_634dfaf46fd7

Name JNK

Initial amount 1.2 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwef3506d1_e875_48e5_8c0a-_4ffebdcd0f32 and as a product in mw4dded01e_6e25_4d1e_aa54_62db26069cad and as a modifier in mwef3506d1_e875_48e5_8c0a_4ffebdcd0f32).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwbee11634\_55df\_4a3f\_998a\_634dfaf46fd7} = v_{10} - v_{11} \tag{108}$$

6.11 Species mw805b55df_cc91_4227_bb52_930e961b682c

Name ASK

Initial amount 1.5 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw01a7e271_19c9_40a0_bb62-_505bad155195 and as a product in mwa502f05a_b689_4ad9_855e_90ae77824ba0 and as a modifier in mw01a7e271_19c9_40a0_bb62_505bad155195).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw805b55df\_cc91\_4227\_bb52\_930e961b682c} = v_{13} - v_{14} \tag{109}$$

6.12 Species mwb71eb539_dca6_47ab_8df5_430d84af0bfb

Name p38

Initial amount 0.9 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw7db85cdd_f1ac_4e07_9a35-_809b7ab77aec and as a product in mw17bf22e9_37fd_42b6_b648_d2ae38fbc805 and as a modifier in mw7db85cdd_f1ac_4e07_9a35_809b7ab77aec).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwb71eb539\_dca6\_47ab\_8df5\_430d84af0bfb} = v_{28} - v_{15} \tag{110}$$

6.13 Species mwa5d6f7e4_dc4d_4931_91ce_1e78e7b2f195

Name LPG

Initial amount 1.5 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in two reactions (as a reactant in mwd67b18a5_bb79_4581_8afa_9bc34a4fe139 and as a modifier in mwd67b18a5_bb79_4581_8afa_9bc34a4fe139).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwa5d6f7e4\_dc4d\_4931\_91ce\_1e78e7b2f195} = -v_{17} \tag{111}$$

6.14 Species mw4079e13c_446e_4aa2_9ec4_233583833d02

Name CD14-TLR

Initial amount 1.5 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwe28d9fcb_8170_4cbd_b3cc_564c18d65fcc and as a product in mwd67b18a5_bb79_4581_8afa_9bc34a4fe139 and as a modifier in mwe28d9fcb_8170_4cbd_b3cc_564c18d65fcc).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw4079e13c\_446e\_4aa2\_9ec4\_233583833d02} = v_{17} - v_{18} \tag{112}$$

6.15 Species mwe5fade7d_1715_4bb1_843f_923da8ecddf1

Name MyD88

Initial amount 0.85 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw215b36f5_a3a1_44bf_b976_c52cb6daddb8 and as a product in mwe28d9fcb_8170_4cbd_b3cc_564c18d65fcc and as a modifier in mw215b36f5_a3a1_44bf_b976_c52cb6daddb8).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwe5fade7d\_1715\_4bb1\_843f\_923da8ecddf1} = v_{18} - v_{19} \tag{113}$$

6.16 Species mw262497ec_3d54_4367_bfe3_76a9c57497cb

Name IRAK1/4

Initial amount 1 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw15c83962_bdf0_43f0_b5df_9ab227af0595 and as a product in mw215b36f5_a3a1_44bf_b976_c52cb6daddb8 and as a modifier in mw15c83962_bdf0_43f0_b5df_9ab227af0595).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw262497ec\_3d54\_4367\_bfe3\_76a9c57497cb} = v_{19} - v_{20} \tag{114}$$

6.17 Species mw8bffd47e_34de_4738_81bf_7a39a40b3ae8

Name TRAF6

Initial amount 1.1 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwa3c7ed09_4e90_417b_a301_2a0b4ac2e1d5 and as a product in mw15c83962_bdf0_43f0_b5df_9ab227af0595 and as a modifier in mwa3c7ed09_4e90_417b_a301_2a0b4ac2e1d5).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw8bffd47e\_34de\_4738\_81bf\_7a39a40b3ae8} = v_{20} - v_{21} \tag{115}$$

6.18 Species mw308b75ec_28b7_4d97_92e2_51a8ce04116a

Name TAB2_TAK1_TAB1

Initial amount 1.3 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in nine reactions (as a reactant in mwb6a1c4c1_677e_41a0_8608_c2d1f9037a16, mwa23e3682_2d67_49cf_913c_52aa41335371, mw573abe13_d3cc_4f5a_a886_029e2d5da8df, mw0649b87c_cb39_43b6_820a_0f21572f784e and as a product in mwa3c7ed09_4e90_417b_a301_2a0b4ac2e1d5 and as a modifier in mwb6a1c4c1_677e_41a0_8608_c2d1f9037a16, mwa23e3682_2d67_49cf_913c_52aa41335371, mw573abe13_d3cc_4f5a_a886_029e2d5da8df, mw0649b87c_cb39_43b6_820a_0f21572f784e).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw308b75ec\_28b7\_4d97\_92e2\_51a8ce04116a} = v_{21} - v_{22} - v_{23} - v_{26} - v_{27} \tag{116}$$

6.19 Species mw75377e12_e23d_44b3_9823_5fac9b23edc8

Name MKK1/2

Initial amount 1.1 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in four reactions (as a reactant in mw49bb8edf_f533_4abe_b55e_468a1f3b296e and as a product in mwa23e3682_2d67_49cf_913c_52aa41335371, mwa52ff158_9e98_454a_a98e_3bc52e4aa39f and as a modifier in mw49bb8edf_f533_4abe_b55e_468a1f3b296e).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw75377e12\_e23d\_44b3\_9823\_5fac9b23edc8} = v_{23} + v_{41} - v_{24} \tag{117}$$

6.20 Species mw67d0cf04_d6a7_4725_a869_098a96a3350d

Name ERK1/2

Initial amount 0.8 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwe2722be2_db07_4c1d_879e-_272e1518fb8e and as a product in mw49bb8edf_f533_4abe_b55e_468a1f3b296e and as a modifier in mwe2722be2_db07_4c1d_879e_272e1518fb8e).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw67d0cf04\_d6a7\_4725\_a869\_098a96a3350d} = v_{24} - v_{25} \tag{118}$$

6.21 Species mw46ee629a_dd6b_4163_9da1_2614bb1d74bc

Name MKK3/6

Initial amount 1.5 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in four reactions (as a reactant in mw17bf22e9_37fd_42b6_b648_d2ae38fbc805 and as a product in mw01a7e271_19c9_40a0_bb62_505bad155195, mw0649b87c_cb39_43b6-_820a_0f21572f784e and as a modifier in mw17bf22e9_37fd_42b6_b648_d2ae38fbc805).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw46ee629a\_dd6b\_4163\_9da1\_2614bb1d74bc} = v_{14} + v_{27} - v_{28} \tag{119}$$

6.22 Species mw0be0d193_fd6b_4824_8928_dbade8b5c99c

Name EGF

Initial amount 1.6 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in two reactions (as a reactant in mw75054b4a_cf66_4bfe_bda0_44b88f715532 and as a modifier in mw75054b4a_cf66_4bfe_bda0_44b88f715532).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw0be0d193\_fd6b\_4824\_8928\_dbade8b5c99c} = -v_{29} \tag{120}$$

6.23 Species mw280197c8_98de_43f0_bf01_0f332a1ab689

Name EGFR

Initial amount 1.3 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in nine reactions (as a reactant in mw4e1795dc_c8de_4708_ba0d_52d69fae724e, mw17b927e1_56f3_4e65_a482_b8f190af70aa, mwbc35988a_c061_4dff_a2b0_09fa8f45d873, mw72aabd27_658a_45ef_87b2_cec59e2a548a and as a product in mw75054b4a_cf66_4bfe-_bda0_44b88f715532 and as a modifier in mw4e1795dc_c8de_4708_ba0d_52d69fae724e, mw17b927e1_56f3_4e65_a482_b8f190af70aa, mwbc35988a_c061_4dff_a2b0_09fa8f45d873, mw72aabd27_658a_45ef_87b2_cec59e2a548a).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw280197c8\_98de\_43f0\_bf01\_0f332a1ab689} = v_{29} - v_{30} - v_{35} - v_{38} - v_{43} \tag{121}$$

6.24 Species mw9a5baf6d_0285_4ad3_9499_059c553d9cf6

Name PLC gamma

Initial amount 1.6 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw51210768_0597_4bf6_a013_49896f03c73d and as a product in mw4e1795dc_c8de_4708_ba0d_52d69fae724e and as a modifier in mw51210768_0597_4bf6_a013_49896f03c73d).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw9a5baf6d\_0285\_4ad3\_9499\_059c553d9cf6} = v_{30} - v_{31} \tag{122}$$

6.25 Species mw05469f51_73f7_4ba1_9f1a_bce5fea143c2

Name PIP2

Initial amount 1.45 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw05368c46_8a41_4609_b904_25219691464b and as a product in mw51210768_0597_4bf6_a013_49896f03c73d and as a modifier in mw05368c46_8a41_4609_b904_25219691464b).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw05469f51\_73f7\_4ba1\_9f1a\_bce5fea143c2} = v_{31} - v_{32} \tag{123}$$

6.26 Species mwf20834c8_a115_460b_859c_4e3ca1ffd953

Name DAG

Initial amount 0.9 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwb86f53d9_af3e_499e_9c41_7aaf353919e0 and as a product in mw05368c46_8a41_4609_b904_25219691464b and as a modifier in mwb86f53d9_af3e_499e_9c41_7aaf353919e0).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwf20834c8\_a115\_460b\_859c\_4e3ca1ffd953} = v_{32} - v_{33} \tag{124}$$

6.27 Species mwb4633da9_f9d6_4ad8_a7e5_da075c830e17

Name PKC

Initial amount 1.5 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in seven reactions (as a reactant in mw1a0f986a_5f18_4312_bf3a_9e79ae4e7f36, mw36e7aae0_ea29_437f_a9c0_57981e85b29e, mwe6aec30e_5e5f_4427_bda2_9c7edc4d5547 and as a product in mwb86f53d9_af3e_499e_9c41_7aaf353919e0 and as a modifier in mw1a0f986a_5f18_4312_bf3a_9e79ae4e7f36, mw36e7aae0_ea29_437f_a9c0_57981e85b29e, mwe6aec30e_5e5f_4427_bda2_9c7edc4d5547).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwb4633da9\_f9d6\_4ad8\_a7e5\_da075c830e17} = v_{33} - v_{34} - v_{48} - v_{49} \tag{125}$$

6.28 Species mw9bb804c9_3e4e_4684_9f6b_4e6f6706a58e

Name PI3K

Initial amount 1.6 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw0549a0ba_63b4_4a0e_8506_1c379b878280 and as a product in mw17b927e1_56f3_4e65_a482_b8f190af70aa and as a modifier in mw0549a0ba_63b4_4a0e_8506_1c379b878280).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw9bb804c9\_3e4e\_4684\_9f6b\_4e6f6706a58e} = v_{35} - v_{36} \tag{126}$$

6.29 Species mw64453fc5_a275_4bba_84f0_2af249b31514

Name Akt

Initial amount 1.2 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw7ec21bdc_6e00_410d_8524_046f820d0921 and as a product in mw0549a0ba_63b4_4a0e_8506_1c379b878280 and as a modifier in mw7ec21bdc_6e00_410d_8524_046f820d0921).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw64453fc5\_a275\_4bba\_84f0\_2af249b31514} = v_{36} - v_{37} \tag{127}$$

6.30 Species mw323a57b4_8e59_4116_9ad1_fe547b89c858

Name Shc/Grb2/Sos1

SBO:0000296 macromolecular complex

Initial amount 0.3 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwffb70cc8_3371_416f_b374_c518884ba240 and as a product in mwbc35988a_c061_4dff_a2b0_09fa8f45d873 and as a modifier in mwffb70cc8_3371_416f_b374_c518884ba240).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw323a57b4\_8e59\_4116\_9ad1\_fe547b89c858} = v_{38} - v_{39} \tag{128}$$

6.31 Species mw173d8585_5817_4b4c_932a_cf7d673680ac

Name Ras

Initial amount 1.2 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in six reactions (as a reactant in mwcf26ace1_325c_4287_81d4_382e2f2beb1c, mw427812f2_a2ec_476c_8359_96749d8910f4 and as a product in mwffb70cc8_3371_416f_b374_c518884ba240, mw36e7aae0_ea29_437f_a9c0_57981e85b29e and as a modifier in mwcf26ace1_325c_4287_81d4_382e2f2beb1c, mw427812f2_a2ec_476c_8359_96749d8910f4).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw173d8585\_5817\_4b4c\_932a\_cf7d673680ac} = v_{39} + v_{48} - v_{40} - v_{42} \tag{129}$$

6.32 Species mw32c21c39_237b_4d4c_bb5d_117cb30ce68a

Name Raf

Initial amount 1.2 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in four reactions (as a reactant in mwa52ff158_9e98_454a_a98e_3bc52e4aa39f and as a product in mwcf26ace1_325c_4287_81d4_382e2f2beb1c, mwe6aec30e_5e5f_4427-_bda2_9c7edc4d5547 and as a modifier in mwa52ff158_9e98_454a_a98e_3bc52e4aa39f).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw32c21c39\_237b\_4d4c\_bb5d\_117cb30ce68a} = v_{40} + v_{49} - v_{41} \tag{130}$$

6.33 Species mw3832f277_aef2_4f1d_87af_abc2a3c1a7d5

Name JAK

Initial amount 1.6 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw1498886c_3fb6_44f5_ae32-_7a8948030948 and as a product in mw72aabd27_658a_45ef_87b2_cec59e2a548a and as a modifier in mw1498886c_3fb6_44f5_ae32_7a8948030948).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw3832f277\_aef2\_4f1d\_87af\_abc2a3c1a7d5} = v_{43} - v_{44} \tag{131}$$

6.34 Species mw13651143_feb5_49a5_adab_9105c2647446

Name STAT1/3

Initial amount 1.1 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwdcd61085_a433_4362_a836-_938c7ae43ded and as a product in mw1498886c_3fb6_44f5_ae32_7a8948030948 and as a modifier in mwdcd61085_a433_4362_a836_938c7ae43ded).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw13651143\_feb5\_49a5\_adab\_9105c2647446} = v_{44} - v_{45} \tag{132}$$

6.35 Species mw8a358487_b18b_42df_a646_cd75eb5bfcc2

Name NFkB

Initial amount 0.2 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwe820c3d2_bbc1_4211_9818-_1e515a583b8a and as a product in mwd78707fa_21d0_4f82_b3d1_a74ba6b8f727 and as a modifier in mwe820c3d2_bbc1_4211_9818_1e515a583b8a).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw8a358487\_b18b\_42df\_a646\_cd75eb5bfcc2} = v_7 - v_{46} \tag{133}$$

6.36 Species mwd9e7a9b9_6f1b_4bbc_afa5_6cb192b62ce8

Name JNK

Initial amount 0.6 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwc4a3a397_b069_48dc_9f2b-_411ca1448d98 and as a product in mwef3506d1_e875_48e5_8c0a_4ffebdcd0f32 and as a modifier in mwc4a3a397_b069_48dc_9f2b_411ca1448d98).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwd9e7a9b9\_6f1b\_4bbc\_afa5\_6cb192b62ce8} = v_{11} - v_{12} \tag{134}$$

6.37 Species mwfed5a135_c91b_4d20_91b2_3a61723544dd

Name cjun

Initial amount 0.91 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in one reaction (as a product in mwc4a3a397_b069_48dc_9f2b_411ca1448d98).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwfed5a135\_c91b\_4d20\_91b2\_3a61723544dd} = v_{12} \tag{135}$$

6.38 Species mw97345a67_a8e8_42aa_8e62_69e9d2b6cf45

Name p38

Initial amount 0.8 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mw8917d625_0012_45c7_aede-_8a528181d93d and as a product in mw7db85cdd_f1ac_4e07_9a35_809b7ab77aec and as a modifier in mw8917d625_0012_45c7_aede_8a528181d93d).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw97345a67\_a8e8\_42aa\_8e62\_69e9d2b6cf45} = v_{15} - v_{16} \tag{136}$$

6.39 Species mw5c67812a_17f5_43cf_8acb_9bde272c1911

Name cfos

Initial amount 0.5 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in one reaction (as a product in mw8917d625_0012_45c7_aede_8a528181d93d).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw5c67812a\_17f5\_43cf\_8acb\_9bde272c1911} = v_{16} \tag{137}$$

6.40 Species mw1f12e5bc_ebbc_4347_b6b7_5cd1740ac69a

Name ERK1/2

Initial amount 0 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in one reaction (as a product in mwe2722be2_db07_4c1d_879e_272e1518fb8e).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw1f12e5bc\_ebbc\_4347\_b6b7\_5cd1740ac69a} = v_{25} \tag{138}$$

6.41 Species mwda4716f1_ae00_4149_aec3_12531380425a

Name Akt

Initial amount 0 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in one reaction (as a product in mw7ec21bdc_6e00_410d_8524_046f820d0921).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwda4716f1\_ae00\_4149\_aec3\_12531380425a} = v_{37} \tag{139}$$

6.42 Species mw17ae9adc_54ab_407b_a34d_8413a3a10cc6

Name STAT1/3

Initial amount 0 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in one reaction (as a product in mwdcd61085_a433_4362_a836_938c7ae43ded).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw17ae9adc\_54ab\_407b\_a34d\_8413a3a10cc6} = v_{45} \tag{140}$$

6.43 Species mwc844b7c0_98f5_4d0d_8f0c_00dfe8b54e6d

Name TNF

Initial amount 0 $UnknownunitMWBUILTINPREFIX_nano_MWBUILTINUNIT_mole$

This species takes part in three reactions (as a reactant in mwd95fbca0_6234_4c19_81ea_5e74b558e2f1 and as a product in mwe820c3d2_bbc1_4211_9818_1e515a583b8a and as a modifier in mwd95fbca0_6234_4c19_81ea_5e74b558e2f1).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwc844b7c0\_98f5\_4d0d\_8f0c\_00dfe8b54e6d} = v_{46} - v_{47} \tag{141}$$

A Glossary of Systems Biology Ontology Terms

SBO:0000296 macromolecular complex: Non-covalent complex of one or more macromolecules and zero or more simple chemicals

SBML2LaTeX was developed by Andreas Dräger[a], Hannes Planatscher[a], Dieudonné M Wouamba[a], Adrian Schröder[a], Michael Hucka[b], Lukas Endler[c], Martin Golebiewski[d] and Andreas Zell[a]. Please see http://www.ra.cs.uni-tuebingen.de/software/SBML2LaTeX for more information.

[a]Center for Bioinformatics Tübingen (ZBIT), Germany
[b]California Institute of Technology, Beckman Institute BNMC, Pasadena, United States
[c]European Bioinformatics Institute, Wellcome Trust Genome Campus, Hinxton, United Kingdom
[d]EML Research gGmbH, Heidelberg, Germany