SBML Model Report

Model name: “Dwivedi2014 - Crohns IL6 Disease model - Anti-IL6R Antibody”

May 6, 2016

1 General Overview

This is a document in SBML Level 2 Version 4 format. This model was created by Vincent Knight-Schrijver[1] at August sixth 2014 at 11:45 a. m. and last time modified at April eighth 2016 at 5:41 p. m. Table 1 provides 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	4
species types	0	species	44
events	6	constraints	0
reactions	73	function definitions	55
global parameters	53	unit definitions	2
rules	4	initial assignments	9

Model Notes

Dwivedi2014 - Crohns IL6 Disease model -Anti-IL6R AntibodyThis model is comprised of four models:

[1] EMBL-EBI, vknight@ebi.ac.uk

- [BIOMD0000000534] Healthy Volunteer model
- [BIOMD0000000535] Crohn's Disease - IL-6 Antibody
- [BIOMD0000000536] Crohn's Disease - sgp130FC
- [BIOMD0000000537] Crohn's Disease - IL-6Ra Antibody

Possible avenues for Interleukin-6 (IL-6) inhibition intreating Crohn's disease are compared here. Each model refers toseparate ligands. The system simulates differential activity of theligands on the signalling of IL-6. This affects Signal Transducer and Activator ofTranscription 3 (STAT3) activity on the production ofbiomarker C-Reactive Protein (CRP) expression.
Figures referring to this Crohn's Disease model are 3a, 4d,4e, 4f and 5b.

This model is described in the article:A multiscale model of interleukin-6-mediated immune regulation in Crohn's disease and its application in drug discovery and development.Dwivedi G, Fitz L, Hegen M, Martin SW, Harrold J, Heatherington A, Li C.CPT Pharmacometrics Syst Pharmacol 2014; 3: e89

Abstract:

In this study, we have developed a multiscale systems model of interleukin (IL)-6-mediated immune regulation in Crohn's disease, by integrating intracellular signaling with organ-level dynamics of pharmacological markers underlying the disease. This model was linked to a general pharmacokinetic model for therapeutic monoclonal antibodies and used to comparatively study various biotherapeutic strategies targeting IL-6-mediated signaling in Crohn's disease. Our work illustrates techniques to develop mechanistic models of disease biology to study drug-system interaction. Despite a sparse training data set, predictions of the model were qualitatively validated by clinical biomarker data from a pilot trial with tocilizumab. Model-based analysis suggests that strategies targeting IL-6, IL-6R?, or the IL-6/sIL-6R? complex are less effective at suppressing pharmacological markers of Crohn's than dual targeting the IL-6/sIL-6R? complex in addition to IL-6 or IL-6R?. The potential value of multiscale system pharmacology modeling in drug discovery and development is also discussed.CPT: Pharmacometrics & Systems Pharmacology (2014) 3, e89; doi:10.1038/psp.2013.64; advance online publication 8 January 2014.

This model is hosted on BioModels Database and identified by: BIOMD0000000537.

To cite BioModels Database, please use: BioModels Database: An enhanced, curated and annotated resource for published quantitative kinetic models.

2 Unit Definitions

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

2.1 Unit `time`

Name time

Definition 3600 s

2.2 Unit `substance`

Name substance

Definition nmol

2.3 Unit `volume`

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

Definition l

2.4 Unit `area`

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

Definition m^2

2.5 Unit `length`

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

Definition m

3 Compartments

This model contains four compartments.

Table 2: Properties of all compartments.

Id	Name	SBO	Spatial Dimensions	Size	Unit	Constant	Ou
`mw53ffe9e6_beef_45c4_90a5_a79197ed506e`	serum		3	1	litre	☑	
`mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e`	liver		3	1	litre	☑	
`mwe9501423_9fb4_494b_b5b6_288f3fcb17b5`	gut		3	1	litre	☑	
`mw8fbcbf3b_47d8_4adc_8ad4_f9fc547d3e87`	peripheral		3	1	litre	☑	

3.1 Compartment mw53ffe9e6_beef_45c4_90a5_a79197ed506e

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

Name serum

3.2 Compartment mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e

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

Name liver

3.3 Compartment mwe9501423_9fb4_494b_b5b6_288f3fcb17b5

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

Name gut

3.4 Compartment mw8fbcbf3b_47d8_4adc_8ad4_f9fc547d3e87

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

Name peripheral

4 Species

This model contains 44 species. The boundary condition of four of these species is set to `true` so that these species' amount cannot be changed by any reaction. Section 11 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
mwf626e95e-_543f_41e4_aad4-_c6bf60ab345b	IL6	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mwbbbce920-_e8dd_4320_9386-_fc94bfb2fc99	sgp130	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw810ff751-_fa4e_4143_bd50-_169b3e325e1e	sR_IL6_sgp130	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw114aa90f-_5f5b_4fe8_9406-_361c8489b6a1	CRP	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw30ae63db-_6cd3_4b6f_93ad-_3350cd360bcc	sR	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw03db56ac-_8dc6_4931_ae82-_fef706d2ee3d	sR_IL6	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mwf345ed7a-_0622_403c_b816-_c8749a2c9ded	Ab	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw1da111f2-_a036_4392_8512-_015005bdcbb7	Ab_sR	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol \cdot l^{-1}}$	⊟	⊟
mw9947742a-_0e4b_4636_9a4b-_b6eef2a8f6ac	Ab_sR_IL6	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol \cdot l^{-1}}$	⊟	⊟
CRP_Suppression___	CRP Suppression (%)	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol \cdot l^{-1}}$	⊟	☑
CRP____of_baseline	CRP (% of baseline)	mw53ffe9e6_beef_45c4-_90a5_a79197ed506e	$\mathrm{nmol \cdot l^{-1}}$	⊟	☑
mw80848184-_e2dd_47ce_86d7-_7a21479342bd	gp130	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol \cdot l^{-1}}$	⊟	⊟
mwd2d9d93a-_3bd1_4f17_bac1-_baba9ef2d55a	R_IL6_gp130	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol \cdot l^{-1}}$	⊟	⊟
mw4638f126-_8cb8_4021_ab41-_6ae195743ba0	sR_IL6	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol \cdot l^{-1}}$	⊟	⊟
mw10315fa3-_6f13_4618_bda8-_a8694bd3c374	R	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol \cdot l^{-1}}$	⊟	⊟
mw0adf3eb4-_a196_4c48_b10d-_4e9e9faaf9e1	IL6	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol \cdot l^{-1}}$	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw7d86cc23-_a1af_44c3_bdb9-_71e9b1bb2a83	R_IL6	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw0eb6c959-_d408_45a0_a450-_928b8c5876bb	Ractive	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw42054cd7-_17af_46da_970c-_7f99151906ad	STAT3	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw39c2e431-_fdc3_4964_be29-_6ca856620b1b	pSTAT3	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mwd5313618-_89eb_4c8c_bc82-_66f10f966349	CRP	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	☑
mw2e464cf3-_a09c_4b7c_9f3c-_06720016a48e	sR	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw36ea78c1-_ed71_4def_96d3-_857a442d7195	CRPExtracellular	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw147d30ec-_478e_4090_b496-_128a131d29eb	sgp130	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mwab41493c-_6349_45f1_a226-_3030cfed0e06	sR_IL6_sgp130	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mwf405687b-_7401_44ec_a0d6-_4a2b35c13e8a	Ab_sR	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw3667a5e1-_02c9_44a0_acb4-_b0431faa822d	Ab	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw772cbf20-_3fc1_4800_ae59-_77884f1ae333	Ab_R	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw2ba2b802-_9f07_4f4d_94c6-_24c8de1a95cf	Ab_sR_IL6	mw88ca8d9a_f5cf_41bf-_9d9d_fc48f6e1a19e	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw7becb5fe-_8da8_4285_a821-_0d77ad811b62	sR_IL6	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw8c9107e6-_f51d_442d_b2dc-_2bfdbb8482ca	gp130	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw824bc3d4-_1ac3_4912_9b51-_8f14ff1c96b9	R_IL6_gp130	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw6cce2109-_0e32_4dd9_98ec-_41173e8ef07d	Ractive	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw2b255f94-_8018_4b99_bde8-_918eeac45446	STAT3	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw48867e93-_f170_44e8_ac7a-_185b23e1bf3b	pSTAT3	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw0083d743-_836f_4238_a17f-_4602193d5bc0	geneProduct	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	☑
mwd31f52cc-_04e7_40e0_885f-_c7b2d9e62215	sR	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw2c9b0499-_3325_4394_8af3-_bbf653a944a0	IL6	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mwd65b5b39-_dc1b_4e77_a999-_67277a880e5e	sgp130	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw6335d5d7-_c7b0_4bc0_b883-_f7ee4915c2c3	sR_IL6_sgp130	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mwf7796221-_1fea_4274_a93e-_c00adbf5778c	Ab	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mw5d764bb8-_5693_4ac8_9557-_f65992cc5eb0	Ab_sR	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟
mwedc1bc00-_adf7_4144_a1c2-_7dc1a9565dc2	Ab_sR_IL6	mwe9501423_9fb4_494b-_b5b6_288f3fcb17b5	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mwbc2f5464-_81e5_43fd_8b39-_f5a2756af72f	Ab	mw8fbcbf3b_47d8_4adc-_8ad4_f9fc547d3e87	$\mathrm{nmol} \cdot \mathrm{l}^{-1}$	⊟	⊟

5 Parameters

This model contains 53 global parameters.

Table 4: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
kRLOn	kRLOn		0.384		☑
kRLOff	kRLOff		1.920		☑
kgp130On	kgp130On		20.520		☑
kgp130Off	kgp130Off		1.026		☑
kRAct	kRAct		155.000		☑
kRint	kRint		1.960		☑
kRsynth	kRsynth		0.069		☑
kRdeg	kRintBasal		0.156		☑
kIL6Synth	ksynthIL6		0.006		☑
kIL6Decay	kdegIL6		34.820		☑
kCRPDecay	kdegCRP		0.360		☑
mwfd291862-_195f-_4979_94b5-_b4e5ae1b7d52	KmSTATDephos		5.340		☑
mwd36b0261-_2480-_4cab_9222-_2cf8fb0e65dc	VmSTATDephos		0.620		☑
mw1667a8e0-_9d20-_4e59_ba51-_596148aba787	VmRDephos		0.525		☑
mwfcf06900-_5f2f-_4bb3_bb1f-_12023612b8a8	KmRDephos		155.300		☑
mw9442cd0e-_4d7c-_4ba6_a695-_f84919bdf569	kcatSTATPhos		145.000		☑
mwe8fc1900-_f07d-_468b_b5c8-_15400a583c3d	KmSTATPhos		219.000		☑

Id	Name	SBO	Value	Unit	Constant
mw08950572-_81b0-_4570_b2e4-_b9c3462c1425	KmProtSynth		10.000		☑
mw92d854a7-_8aaf-_458e_b5e2-_20a63ce9b654	VmProtSynth		330.000		☑
mw862f1480-_c60c-_4863_a565-_b2c1c77e238e	kCRPSecretion		0.500		☑
mw65c85954-_5ca0-_4df2_9e22-_ff2aa3fbe3f1	ksynthCRP		0.420		☑
mwc4c58db7-_5535-_4590_aaa5-_bbc8ed53cdab	ksynthsR		0.100		☑
mw88a75379-_f9a1-_4acc_baeb-_94c32bb736a5	kdegsR		0.300		☑
mw1f41474c-_c399-_4a60_a53a-_9926dd092e8d	ksynthsgp130		3.900		☑
mwbcb5a310-_9b67-_405e_89ec-_43d25e8cc93d	kdegsgp130		1.000		☑
mwa8d72918-_f6c2-_4d81_bf3b-_fc2b464d5e69	ksynthIL6Gut		0.036		☑
mw06241335-_b5f2-_47ed_bdcc-_ef77b68a2b98	kdegIL6Gut		1.000		☑

Id	Name	SBO	Value	Unit	Constant
mwce10678d-_8197-_408c_ad47-_1daec8104cd8	kdistTissueToSerum		0.847		☑
mwc67e1333-_079a-_4bea_9b4f-_0a1b15ddd7bb	kdistSerumToTissue		1.213		☑
mw5832a2dc-_ee18-_44df_aa59-_ccb21cb74df2	kRShedding		0.005		☑
mwf44f7f27-_5bb1-_4c7f_8964-_560fa5e1743a	kintActiveR		0.010		☑
mwa09d6284-_843e-_404e_abbb-_052fbb535197	kIL6RBind		1000.000		☑
mw1c4bc9c3-_52ad-_4ef7_bf7f-_97b0e2101ead	kIL6RUnbind		2.500		☑
mwdc9e2eb7-_c8f4-_4026_a8d0-_eff8ce1f1aea	infusionTime		1.000		☑
mw640ca705-_e089-_4c64_a5f4-_9562317e8c76	kAbSerumToLiver		0.021		☑
mw43ccad8c-_cabf-_4eaf_90d5-_e06ae43be2cb	kAbLiverToSerum		0.021		☑
mw9f83bdd3-_3aa1-_47ff_abd6-_54e5ce60704a	kAbSerumToGut		0.010		☑

Id	Name	SBO	Value	Unit	Constant
mwa071fdbe-_d498-_4620_a7a4-_940aa31c8161	kAbGutToSerum		0.021		☑
mw2c605ff5-_50f5-_45f2_a70c-_53fcd866d14c	VSerum		2.880		☑
mwc691d0d1-_8c1b-_4ce4_85c6-_1315c42e97b1	VLiver		2.880		☑
mwa8283449-_0e21-_41a1_baac-_ebf697b3555a	VGut		1.440		☑
mw6729db10-_c577-_4319_b355-_2e3f11c0f942	VPeriph		0.576		☑
mw434adaf5-_cef0-_4a33_9ad2-_a4e49e1fd825	QSerumLiver		0.060		☑
mw6a5e10a9-_d442-_4dde_8ec3-_6a26c9807374	QSerumGut		0.030		☑
mw1366c3b5-_e79b-_44a7_93cc-_ee09d383eabf	QSerumPeriph		0.001		☑
mwf67caf9d-_2f4b-_4986_abf2-_e6090bbb72ce	kAbSerumToPeriph		$3.47222222222222 \cdot 10^{-4}$		☑
mw4aea26f6-_8860-_414c_97f5-_40d325196f2e	kAbPeriphToSerum		0.002		☑

Id	Name	SBO	Value	Unit	Constant
mwbd1d5bc3-_d4b9-_4aec_9b86-_6f776da20a30	kdegAb		0.002		☑
Dose	Dose		300.000		☑
parameter_1	DoseQ2W		0.000		☑
Metabolite-_40	Initial for CRP		221.064		☑
ModelValue-_99	Initial for DoseQ2W		0.000		☑
ModelValue-_98	Initial for Dose		300.000		☑

6 Initialassignments

This is an overview of nine initialassignments.

6.1 Initialassignment mw640ca705_e089_4c64_a5f4_9562317e8c76

Derived unit contains undeclared units

Math $\frac{\text{mw434adaf5\_cef0\_4a33\_9ad2\_a4e49e1fd825}}{\text{mw2c605ff5\_50f5\_45f2\_a70c\_53fcd866d14c}}$

6.2 Initialassignment mw43ccad8c_cabf_4eaf_90d5_e06ae43be2cb

Derived unit contains undeclared units

Math $\frac{\text{mw434adaf5\_cef0\_4a33\_9ad2\_a4e49e1fd825}}{\text{mwc691d0d1\_8c1b\_4ce4\_85c6\_1315c42e97b1}}$

6.3 Initialassignment mw9f83bdd3_3aa1_47ff_abd6_54e5ce60704a

Derived unit contains undeclared units

Math $\frac{\text{mw6a5e10a9\_d442\_4dde\_8ec3\_6a26c9807374}}{\text{mw2c605ff5\_50f5\_45f2\_a70c\_53fcd866d14c}}$

6.4 Initialassignment mwa071fdbe_d498_4620_a7a4_940aa31c8161

Derived unit contains undeclared units

Math $\frac{\text{mw6a5e10a9\_d442\_4dde\_8ec3\_6a26c9807374}}{\text{mwa8283449\_0e21\_41a1\_baac\_ebf697b3555a}}$

6.5 Initialassignment mwf67caf9d_2f4b_4986_abf2_e6090bbb72ce

Derived unit contains undeclared units

Math $\frac{\text{mw1366c3b5\_e79b\_44a7\_93cc\_ee09d383eabf}}{\text{mw2c605ff5\_50f5\_45f2\_a70c\_53fcd866d14c}}$

6.6 Initialassignment mw4aea26f6_8860_414c_97f5_40d325196f2e

Derived unit contains undeclared units

Math $\frac{\text{mw1366c3b5\_e79b\_44a7\_93cc\_ee09d383eabf}}{\text{mw6729db10\_c577\_4319\_b355\_2e3f11c0f942}}$

6.7 Initialassignment Metabolite_40

Derived unit $\text{nmol} \cdot \text{l}^{-1}$

Math [mw114aa90f_5f5b_4fe8_9406_361c8489b6a1]

6.8 Initialassignment ModelValue_99

Derived unit contains undeclared units

Math parameter_1

6.9 Initialassignment ModelValue_98

Derived unit contains undeclared units

Math Dose

7 Function definitions

This is an overview of 55 function definitions.

7.1 Function definition Function_for_reaction_12

Name Function for reaction_12_2_3_2

Arguments kRint, vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), [mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55

Mathematical Expression

$$\frac{\text{kRint} \cdot [\text{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{1}$$

7.2 Function definition Function_for_mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6

Name Function for mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6_2_3_2

Arguments kgp130Off, kgp130On, [mw147d30ec_478e_4090_b496_128a131d29eb], [mw4638f126_8cb8_4021_ab4
vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), [mwab41493c_6349_45f1_a226_3030cfed0e06]

Mathematical Expression

$$\frac{\text{kgp130On} \cdot [\text{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}] \cdot [\text{mw147d30ec\_478e\_4090\_b496\_128a131d29eb}] - \text{kg}}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \quad (2)$$

7.3 Function definition Function_for_reaction_7

Name Function for reaction_7_2_3_2

Arguments kRLOff, kRLOn, [mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1], [mw10315fa3_6f13_4618_bda8_a869
[mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e)

Mathematical Expression

$$\frac{\text{kRLOn} \cdot [\text{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}] \cdot [\text{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}] - \text{kRLOf}}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \quad (3)$$

7.4 Function definition Function_for_mw9629d028_fcc0_4886_9e4d_36eecdb0381d

Name Function for mw9629d028_fcc0_4886_9e4d_36eecdb0381d_2_3_2

Arguments mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30, vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5),
[mwf7796221_1fea_4274_a93e_c00adbf5778c]

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}]}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \quad (4)$$

7.5 Function definition Function_for_reaction_2

Name Function for reaction_2_2_3_2

Arguments kgp130Off, kgp130On, [mw03db56ac_8dc6_4931_ae82_fef706d2ee3d], vol (mw53ffe9e6_beef_45c4_90
[mw810ff751_fa4e_4143_bd50_169b3e325e1e], [mwbbbce920_e8dd_4320_9386_fc94bfb2fc99]

Mathematical Expression

$$\frac{\text{kgp130On} \cdot [\text{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}] \cdot [\text{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}] - \text{kgp}}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \quad (5)$$

7.6 Function definition

Function_for_mwe84cc3ad_af35_43a8_aa6a_9f68a6d68185

Name Function for mwe84cc3ad_af35_43a8_aa6a_9f68a6d68185_2_3_2

Arguments mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30, vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5), [mwedc1bc00_adf7_4144_a1c2_7dc1a9565dc2]

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2}]}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{6}$$

7.7 Function definition

Function_for_mwfeae4233_1272_453f_a97f_70982c445b43

Name Function for mwfeae4233_1272_453f_a97f_70982c445b43_2_3_2

Arguments [mw2ba2b802_9f07_4f4d_94c6_24c8de1a95cf], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{7}$$

7.8 Function definition

Function_for_mw5e1e306a_63ed_43a8_b79f_b403516e7963

Name Function for mw5e1e306a_63ed_43a8_b79f_b403516e7963_2_3_2

Arguments vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), [mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac], mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}]}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{8}$$

7.9 Function definition Function_for_mw4a00a3a4_778f_4952_8100_2dc3cc2b7046

Name Function for mw4a00a3a4_778f_4952_8100_2dc3cc2b7046_2_3_2

Arguments kRdeg, [mw80848184_e2dd_47ce_86d7_7a21479342bd], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a

Mathematical Expression

$$\frac{\text{kRdeg} \cdot [\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{9}$$

7.10 Function definition Function_for_reaction_15

Name Function for reaction_15_2_3_2

Arguments kRdeg, [mw10315fa3_6f13_4618_bda8_a8694bd3c374], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a1

Mathematical Expression

$$\frac{\text{kRdeg} \cdot [\text{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{10}$$

7.11 Function definition Function_for_reaction_41

Name Function for reaction_41_2_3_2

Arguments kgp130Off, kgp130On, [mw7becb5fe_8da8_4285_a821_0d77ad811b62], [mw824bc3d4_1ac3_4912_9b5
[mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca], vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5)

Mathematical Expression

$$\frac{\text{kgp130On} \cdot [\text{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}] \cdot [\text{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}] - \text{kgp}}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{11}$$

7.12 Function definition Function_for_mw6f470e13_f0e4_4294_83d8_59dd5670d10c

Name Function for mw6f470e13_f0e4_4294_83d8_59dd5670d10c_2_3_2

Arguments kRdeg, [mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca], vol (mwe9501423_9fb4_494b_b5b6_288f3fcb1

Mathematical Expression

$$\frac{\text{kRdeg} \cdot [\text{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}]}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{12}$$

7.13 Function definition Function_for_reaction_45

Name Function for reaction_45_2_3_2

Arguments [mw6cce2109_0e32_4dd9_98ec_41173e8ef07d], vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5), mwf44f7f27_5bb1_4c7f_8964_560fa5e1743a

Mathematical Expression

$$\frac{\text{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a} \cdot [\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}]}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{13}$$

7.14 Function definition Function_for_reaction_1

Name Function for reaction_1_2_3_2

Arguments kRLOff, kRLOn, [mw03db56ac_8dc6_4931_ae82_fef706d2ee3d], [mw30ae63db_6cd3_4b6f_93ad_3350 vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), [mwf626e95e_543f_41e4_aad4_c6bf60ab345b]

Mathematical Expression

$$\frac{\text{kRLOn} \cdot [\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}] \cdot [\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}] - \text{kRLOff}}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{14}$$

7.15 Function definition Function_for_mwa812f08f_1035_42bd_82d2_72d691308f88

Name Function for mwa812f08f_1035_42bd_82d2_72d691308f88_2_3_2

Arguments kRLOff, kRLOn, [mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1], [mw2e464cf3_a09c_4b7c_9f3c_0672 [mw4638f126_8cb8_4021_ab41_6ae195743ba0], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e)

Mathematical Expression

$$\frac{\text{kRLOn} \cdot [\text{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}] \cdot [\text{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}] - \text{kRLOff}}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{15}$$

7.16 Function definition Function_for_mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1

Name Function for mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1_2_3_2

Arguments mw1c4bc9c3_52ad_4ef7_bf7f_97b0e2101ead, [mw2e464cf3_a09c_4b7c_9f3c_06720016a48e], [mw3667a5e1_02c9_44a0_acb4_b0431faa822d], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwa09d6284_843e_404e_abbb_052fbb535197, [mwf405687b_7401_44ec_a0d6_4a2b35c13e8a]

Mathematical Expression

$$\frac{\text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}] \cdot [\text{mw2e464cf3\_a09}}{\text{vol}\,(\text{mw88ca8d9a\_f}} \tag{16}$$

7.17 Function definition

Function_for_mwab0012ac_e5f2_4904_9893_820fd210402e

Name Function for mwab0012ac_e5f2_4904_9893_820fd210402e_2_3_2

Arguments mw862f1480_c60c_4863_a565_b2c1c77e238e, vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), [mwd5313618_89eb_4c8c_bc82_66f10f966349]

Mathematical Expression

$$\frac{\text{mw862f1480\_c60c\_4863\_a565\_b2c1c77e238e} \cdot [\text{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{17}$$

7.18 Function definition

Function_for_mw30abb016_4300_4f40_a1b3_f865d0a45707

Name Function for mw30abb016_4300_4f40_a1b3_f865d0a45707_2_3_2

Arguments [mw1da111f2_a036_4392_8512_015005bdcbb7], vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}]}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{18}$$

7.19 Function definition

Function_for_mw2ae288ab_7d03_4a84_a024_c711ad2b77e6

Name Function for mw2ae288ab_7d03_4a84_a024_c711ad2b77e6_2_3_2

Arguments [mw3667a5e1_02c9_44a0_acb4_b0431faa822d], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{19}$$

7.20 Function definition

Function_for_mw391f3b8e_5649_4851_b2e2_782cb3e015b6

Name Function for mw391f3b8e_5649_4851_b2e2_782cb3e015b6_2_3_2

Arguments kRsynth, vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e)

Mathematical Expression

$$\frac{\text{kRsynth}}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{20}$$

7.21 Function definition Function_for_reaction_13

Name Function for reaction_13_2_3_2

Arguments [mw0eb6c959_d408_45a0_a450_928b8c5876bb], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwf44f7f27_5bb1_4c7f_8964_560fa5e1743a

Mathematical Expression

$$\frac{\text{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a} \cdot [\text{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{21}$$

7.22 Function definition Function_for_reaction_6

Name Function for reaction_6_2_3_2

Arguments kgp130Off, kgp130On, [mw4638f126_8cb8_4021_ab41_6ae195743ba0], [mw80848184_e2dd_47ce_86d vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), [mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a]

Mathematical Expression

$$\frac{\text{kgp130On} \cdot [\text{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}] \cdot [\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}] - \text{kg}}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{22}$$

7.23 Function definition Function_for_mw432fde6e_59ab_47f0_9fb1_086433a602e3

Name Function for mw432fde6e_59ab_47f0_9fb1_086433a602e3_2_3_2

Arguments vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), mwc4c58db7_5535_4590_aaa5_bbc8ed53cdab

Mathematical Expression

$$\frac{\text{mwc4c58db7\_5535\_4590\_aaa5\_bbc8ed53cdab}}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{23}$$

7.24 Function definition
Function_for_mw6b46c550_674f_4857_b947_d31221cd8dd3

Name Function for mw6b46c550_674f_4857_b947_d31221cd8dd3_2_3_2

Arguments [mw10315fa3_6f13_4618_bda8_a8694bd3c374], mw1c4bc9c3_52ad_4ef7_bf7f_97b0e2101ead, [mw3667a5e1_02c9_44a0_acb4_b0431faa822d], [mw772cbf20_3fc1_4800_ae59_77884f1ae333], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwa09d6284_843e_404e_abbb_052fbb535197

Mathematical Expression

$$\frac{\text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}] \cdot [\text{mw10315fa3\_6f1}}{\text{vol}\,(\text{mw88ca8d9a\_f}} \quad (24)$$

7.25 Function definition
Function_for_mw41c27823_d7ee_4554_9eac_3d5beec8e854

Name Function for mw41c27823_d7ee_4554_9eac_3d5beec8e854_2_3_2

Arguments [mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc], vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), mw88a75379_f9a1_4acc_baeb_94c32bb736a5

Mathematical Expression

$$\frac{\text{mw88a75379\_f9a1\_4acc\_baeb\_94c32bb736a5} \cdot [\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}]}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \quad (25)$$

7.26 Function definition Function_for_reaction_3

Name Function for reaction_3_2_3_2

Arguments kIL6Synth, vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e)

Mathematical Expression

$$\frac{\text{kIL6Synth}}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \quad (26)$$

7.27 Function definition Function_for_reaction_5

Name Function for reaction_5_2_3_2

Arguments kCRPDecay, [mw114aa90f_5f5b_4fe8_9406_361c8489b6a1], vol (mw53ffe9e6_beef_45c4_90a5_a7919

Mathematical Expression

$$\frac{\text{kCRPDecay} \cdot [\text{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}]}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \quad (27)$$

7.28 Function definition
Function_for_mwba7f4605_8571_439b_b3ab_eb0b43808db8

Name Function for mwba7f4605_8571_439b_b3ab_eb0b43808db8_2_3_2

Arguments vol(mw53ffe9e6_beef_45c4_90a5_a79197ed506e), mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30, [mwf345ed7a_0622_403c_b816_c8749a2c9ded]

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]}{\text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{28}$$

7.29 Function definition
Function_for_mw4c099d5c_200f_474e_8ec1_59e9223a8afd

Name Function for mw4c099d5c_200f_474e_8ec1_59e9223a8afd_2_3_2

Arguments kRLOff, kRLOn, [mw2c9b0499_3325_4394_8af3_bbf653a944a0], [mw7becb5fe_8da8_4285_a821_0d7
[mwd31f52cc_04e7_40e0_885f_c7b2d9e62215], vol(mwe9501423_9fb4_494b_b5b6_288f3fcb17b5)

Mathematical Expression

$$\frac{\text{kRLOn} \cdot [\text{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}] \cdot [\text{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}] - \text{kRLOf}}{\text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{29}$$

7.30 Function definition Function_for_reaction_14

Name Function for reaction_14_2_3_2

Arguments kRsynth, vol(mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e)

Mathematical Expression

$$\frac{\text{kRsynth}}{\text{vol}(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{30}$$

7.31 Function definition
Function_for_mw3e76b10b_5420_4828_8c70_b91b767132d0

Name Function for mw3e76b10b_5420_4828_8c70_b91b767132d0_2_3_2

Arguments vol(mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30, [mwf405687b_7401_44ec_a0d6_4a2b35c13e8a]

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]}{\text{vol}(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{31}$$

7.32 Function definition Function_for_reaction_4

Name Function for reaction_4_2_3_2

Arguments kIL6Decay, vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), [mwf626e95e_543f_41e4_aad4_c6bf60

Mathematical Expression

$$\frac{\text{kIL6Decay} \cdot [\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{32}$$

7.33 Function definition Function_for_mwb1879013_5fcd_490c_8b01_eaf84df15b9a

Name Function for mwb1879013_5fcd_490c_8b01_eaf84df15b9a_2_3_2

Arguments mw1c4bc9c3_52ad_4ef7_bf7f_97b0e2101ead, [mw1da111f2_a036_4392_8512_015005bdcbb7], [mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc], vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), mwa09d6284_843e_404e_abbb_052fbb535197, [mwf345ed7a_0622_403c_b816_c8749a2c9ded]

Mathematical Expression

$$\frac{\text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \cdot [\text{mw30ae63db\_6cd}}{\text{vol}\,(\text{mw53ffe9e6\_be}} \tag{33}$$

7.34 Function definition Function_for_mw71d90b81_8211_4039_8807_12a7fe03206c

Name Function for mw71d90b81_8211_4039_8807_12a7fe03206c_2_3_2

Arguments [mw114aa90f_5f5b_4fe8_9406_361c8489b6a1], vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), mw5832a2dc_ee18_44df_aa59_ccb21cb74df2

Mathematical Expression

$$\frac{\text{mw5832a2dc\_ee18\_44df\_aa59\_ccb21cb74df2} \cdot [\text{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}]}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{34}$$

7.35 Function definition Function_for_reaction_44

Name Function for reaction_44_2_3_2

Arguments kRint, [mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9], vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17

Mathematical Expression

$$\frac{\text{kRint} \cdot [\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}]}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{35}$$

7.36 Function definition Function_for_reaction_11

Name Function for reaction_11_2_3_2

Arguments kRint, [mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83], vol(mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19

Mathematical Expression

$$\frac{\text{kRint} \cdot [\text{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}]}{\text{vol}(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{36}$$

7.37 Function definition Function_for_mw64df7c9e_35da_4c7f_be56_c5dabfb060b6

Name Function for mw64df7c9e_35da_4c7f_be56_c5dabfb060b6_2_3_2

Arguments mw1667a8e0_9d20_4e59_ba51_596148aba787, [mw6cce2109_0e32_4dd9_98ec_41173e8ef07d], vol(mwe9501423_9fb4_494b_b5b6_288f3fcb17b5), mwfcf06900_5f2f_4bb3_bb1f_12023612b8a8

Mathematical Expression

$$\frac{\frac{\text{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787} \cdot [\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}]}{\text{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8} + [\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}]}}{\text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{37}$$

7.38 Function definition Function_for_reaction_10

Name Function for reaction_10_2_3_2

Arguments [mw39c2e431_fdc3_4964_be29_6ca856620b1b], vol(mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwd36b0261_2480_4cab_9222_2cf8fb0e65dc, mwfd291862_195f_4979_94b5_b4e5ae1b7d52

Mathematical Expression

$$\frac{\frac{\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc} \cdot [\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}]}{\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52} + [\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}]}}{\text{vol}(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{38}$$

7.39 Function definition Function_for_mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1

Name Function for mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1_2_3_2

Arguments mw1c4bc9c3_52ad_4ef7_bf7f_97b0e2101ead, [mw5d764bb8_5693_4ac8_9557_f65992cc5eb0], mwa09d6284_843e_404e_abbb_052fbb535197, [mwd31f52cc_04e7_40e0_885f_c7b2d9e62215], vol(mwe9501423_9fb4_494b_b5b6_288f3fcb17b5), [mwf7796221_1fea_4274_a93e_c00adbf5778c]

Mathematical Expression

$$\frac{\text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}] \cdot [\text{mwd31f52cc\_04e7}}{\text{vol}(\text{mwe9501423\_9f}} \tag{39}$$

7.40 Function definition Function_for_reaction_9

Name Function for reaction_9_2_3_2

Arguments [mw0eb6c959_d408_45a0_a450_928b8c5876bb], [mw42054cd7_17af_46da_970c_7f99151906ad], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mw9442cd0e_4d7c_4ba6_a695_f84919bdf569, mwe8fc1900_f07d_468b_b5c8_15400a583c3d

Mathematical Expression

$$\frac{\text{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569} \cdot [\text{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}] \cdot [\text{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}]}{\text{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d} + [\text{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}]} \quad (40)$$
$$\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})$$

7.41 Function definition Function_for_mwb6a99eb5_ea4c_4733_98dd_1daf5ec6b0db

Name Function for mwb6a99eb5_ea4c_4733_98dd_1daf5ec6b0db_2_3_2

Arguments vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), [mwbbbce920_e8dd_4320_9386_fc94bfb2fc99], mwbcb5a310_9b67_405e_89ec_43d25e8cc93d

Mathematical Expression

$$\frac{\text{mwbcb5a310\_9b67\_405e\_89ec\_43d25e8cc93d} \cdot [\text{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}]}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \quad (41)$$

7.42 Function definition Function_for_mw920e142e_b2c4_42b2_88f4_9f68cc50142e

Name Function for mw920e142e_b2c4_42b2_88f4_9f68cc50142e_2_3_2

Arguments [mw772cbf20_3fc1_4800_ae59_77884f1ae333], vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \quad (42)$$

7.43 Function definition Function_for_reaction_8

Name Function for reaction_8_2_3_2

Arguments kgp130Off, kgp130On, [mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83], [mw80848184_e2dd_47ce_86d
vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), [mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a]

Mathematical Expression

$$\frac{\text{kgp130On} \cdot [\text{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}] \cdot [\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}] - \text{kg}}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{43}$$

7.44 Function definition

Function_for_mw50c6744c_e883_4612_8663_e38750cbad1b

Name Function for mw50c6744c_e883_4612_8663_e38750cbad1b_2_3_2

Arguments mw1f41474c_c399_4a60_a53a_9926dd092e8d, vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e)

Mathematical Expression

$$\frac{\text{mw1f41474c\_c399\_4a60\_a53a\_9926dd092e8d}}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{44}$$

7.45 Function definition

Function_for_mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c

Name Function for mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c_2_3_2

Arguments kgp130Off, kgp130On, [mw6335d5d7_c7b0_4bc0_b883_f7ee4915c2c3], [mw7becb5fe_8da8_4285_a82
[mwd65b5b39_dc1b_4e77_a999_67277a880e5e], vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5)

Mathematical Expression

$$\frac{\text{kgp130On} \cdot [\text{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e}] \cdot [\text{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}] - \text{kg}}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{45}$$

7.46 Function definition

Function_for_mw1ce0c484_681f_4d85_8ffe_392d0c100cfa

Name Function for mw1ce0c484_681f_4d85_8ffe_392d0c100cfa_2_3_2

Arguments mwa8d72918_f6c2_4d81_bf3b_fc2b464d5e69, vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5)

Mathematical Expression

$$\frac{\text{mwa8d72918\_f6c2\_4d81\_bf3b\_fc2b464d5e69}}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{46}$$

7.47 Function definition
Function_for_mw6db30657_4e56_4c3a_8575_9c67393dde4f

Name Function for mw6db30657_4e56_4c3a_8575_9c67393dde4f_2_3_2

Arguments kRsynth, vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5)

Mathematical Expression

$$\frac{\text{kRsynth}}{\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)} \tag{47}$$

7.48 Function definition
Function_for_mw8b4e96ed_0bcc_4ad6_b560_366e173a6e6b

Name Function for mw8b4e96ed_0bcc_4ad6_b560_366e173a6e6b_2_3_2

Arguments [mw5d764bb8_5693_4ac8_9557_f65992cc5eb0], mwbd1d5bc3_d4b9_4aec_9b86_6f776da20a30, vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5)

Mathematical Expression

$$\frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot \left[\text{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}\right]}{\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)} \tag{48}$$

7.49 Function definition Function_for_reaction_43

Name Function for reaction_43_2_3_2

Arguments [mw48867e93_f170_44e8_ac7a_185b23e1bf3b], mwd36b0261_2480_4cab_9222_2cf8fb0e65dc, vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5), mwfd291862_195f_4979_94b5_b4e5ae1b7d52

Mathematical Expression

$$\frac{\frac{\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc} \cdot \left[\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}\right]}{\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52} + \left[\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}\right]}}{\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)} \tag{49}$$

7.50 Function definition Function_for_reaction_42

Name Function for reaction_42_2_3_2

Arguments [mw2b255f94_8018_4b99_bde8_918eeac45446], [mw6cce2109_0e32_4dd9_98ec_41173e8ef07d], mw9442cd0e_4d7c_4ba6_a695_f84919bdf569, mwe8fc1900_f07d_468b_b5c8_15400a583c3d, vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5)

Mathematical Expression

$$\frac{\frac{\text{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569} \cdot \left[\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}\right] \cdot \left[\text{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}\right]}{\text{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d} + \left[\text{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}\right]}}{\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)} \tag{50}$$

7.51 Function definition Function_for_reaction_46

Name Function for reaction_46_2_3_2

Arguments kRAct, [mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9], vol (mwe9501423_9fb4_494b_b5b6_288f3fcb1

Mathematical Expression

$$\frac{\text{kRAct} \cdot [\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}]}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{51}$$

7.52 Function definition Function_for_mwf913ea0b_785a_4701_ac91_b18ab5dd5a89

Name Function for mwf913ea0b_785a_4701_ac91_b18ab5dd5a89_2_3_2

Arguments mw06241335_b5f2_47ed_bdcc_ef77b68a2b98, [mw2c9b0499_3325_4394_8af3_bbf653a944a0], vol (mwe9501423_9fb4_494b_b5b6_288f3fcb17b5)

Mathematical Expression

$$\frac{\text{mw06241335\_b5f2\_47ed\_bdcc\_ef77b68a2b98} \cdot [\text{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}]}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{52}$$

7.53 Function definition Function_for_mwb675e13a_26c0_4b18_a8c3_0f5a62090ba4

Name Function for mwb675e13a_26c0_4b18_a8c3_0f5a62090ba4_2_3_2

Arguments [mw0eb6c959_d408_45a0_a450_928b8c5876bb], mw1667a8e0_9d20_4e59_ba51_596148aba787, vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), mwfcf06900_5f2f_4bb3_bb1f_12023612b8a8

Mathematical Expression

$$\frac{\frac{\text{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787} \cdot [\text{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}]}{\text{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8} + [\text{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}]}}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{53}$$

7.54 Function definition Function_for_mwff2ebcf1_dcf1_47b9_9cac_7306fc6f7f76

Name Function for mwff2ebcf1_dcf1_47b9_9cac_7306fc6f7f76_2_3_2

Arguments vol (mw53ffe9e6_beef_45c4_90a5_a79197ed506e), mw65c85954_5ca0_4df2_9e22_ff2aa3fbe3f1

Mathematical Expression

$$\frac{\text{mw65c85954\_5ca0\_4df2\_9e22\_ff2aa3fbe3f1}}{\text{vol}\,(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{54}$$

7.55 Function definition Function_for_reaction_16

Name Function for reaction_16_2_3_2

Arguments kRAct, vol (mw88ca8d9a_f5cf_41bf_9d9d_fc48f6e1a19e), [mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d5

Mathematical Expression

$$\frac{\text{kRAct} \cdot [\text{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{55}$$

8 Rules

This is an overview of four rules.

8.1 Rule CRP_Suppression___

Rule CRP_Suppression___ is an assignment rule for species CRP_Suppression___:

$$\text{CRP\_Suppression}_{\_\_\_} = \frac{[\text{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}] - \text{Metabolite\_40}}{\frac{\text{Metabolite\_40}}{100}} \tag{56}$$

8.2 Rule CRP____of_baseline

Rule CRP____of_baseline is an assignment rule for species CRP____of_baseline:

$$\text{CRP}_{\_\_\_\_}\text{of\_baseline} = \frac{[\text{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}]}{\text{Metabolite\_40}} \cdot 100 \tag{57}$$

8.3 Rule mwd5313618_89eb_4c8c_bc82_66f10f966349

Rule mwd5313618_89eb_4c8c_bc82_66f10f966349 is an assignment rule for species mwd5313618-_89eb_4c8c_bc82_66f10f966349:

$$\begin{aligned}&\text{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349} \\ &= \frac{\text{mw92d854a7\_8aaf\_458e\_b5e2\_20a63ce9b654} \cdot [\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}]}{\text{mw08950572\_81b0\_4570\_b2e4\_b9c3462c1425} + [\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}]}\end{aligned} \tag{58}$$

8.4 Rule mw0083d743_836f_4238_a17f_4602193d5bc0

Rule mw0083d743_836f_4238_a17f_4602193d5bc0 is an assignment rule for species mw0083d743-_836f_4238_a17f_4602193d5bc0:

$$\begin{aligned}&\text{mw0083d743\_836f\_4238\_a17f\_4602193d5bc0} \\ &= \frac{\text{mw92d854a7\_8aaf\_458e\_b5e2\_20a63ce9b654} \cdot [\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}]}{\text{mw08950572\_81b0\_4570\_b2e4\_b9c3462c1425} + [\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}]}\end{aligned} \tag{59}$$

9 Events

This is an overview of six events. Each event is initiated whenever its trigger condition switches from `false` to `true`. A delay function postpones the effects of an event to a later time point. At the time of execution, an event can assign values to species, parameters or compartments if these are not set to constant.

9.1 Event `Week0`

Name Week0

Trigger condition

$$\text{time} \geq 0.1 \tag{60}$$

Delay

$$0 \tag{61}$$

Assignment

$$\begin{aligned} &\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \\ &= [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \\ &\quad + (\text{ModelValue\_99} + \text{ModelValue\_98}) \cdot 2.346 \end{aligned} \tag{62}$$

9.2 Event `Week4_0`

Name Week4

Trigger condition

$$\text{time} \geq 672 \tag{63}$$

Delay

$$0 \tag{64}$$

Assignment

$$\begin{aligned} &\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \\ &= [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \\ &\quad + (\text{ModelValue\_99} + \text{ModelValue\_98}) \cdot 2.346 \end{aligned} \tag{65}$$

9.3 Event `Week8`

Name Week8

Trigger condition

$$\text{time} \geq 1344 \tag{66}$$

Delay

$$0 \tag{67}$$

Assignment

$$\begin{aligned} &\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \\ &= [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \\ &\quad + (\text{ModelValue\_99} + \text{ModelValue\_98}) \cdot 2.346 \end{aligned} \tag{68}$$

9.4 Event event_1

Name Week2

Trigger condition

$$\text{time} \geq 336 \tag{69}$$

Delay

$$0 \tag{70}$$

Assignment

$$\begin{aligned} &\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \\ &= [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] + \text{ModelValue\_99} \cdot 2.346 \end{aligned} \tag{71}$$

9.5 Event event_2

Name Week6

Trigger condition

$$\text{time} \geq 1008 \tag{72}$$

Delay

$$0 \tag{73}$$

Assignment

$$\begin{aligned} &\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \\ &= [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] + \text{ModelValue\_99} \cdot 2.346 \end{aligned} \tag{74}$$

9.6 Event event_3

Name Week10

Trigger condition

$$\text{time} \geq 1680 \tag{75}$$

Delay

$$0 \tag{76}$$

Assignment

$$\begin{aligned} &\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \\ &= [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] + \text{ModelValue\_99} \cdot 2.346 \end{aligned} \tag{77}$$

10 Reactions

This model contains 73 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 5: Overview of all reactions

№	Id	Name	Reaction Equation	SBO
1	reaction_1	reaction_1	mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc + mwf626e95e_543f_41e4_aad4_c6bf60ab345b ⟶ mw03db56ac_8dc6_4931_ae82_fef706d2	
2	reaction_2	reaction_2	mw03db56ac_8dc6_4931_ae82_fef706d2ee3d + mwbbbce920_e8dd_4320_9386_fc94bfb2fc99 ⟶ mw03db56ac_8dc6_4931_ae82_fef706d2	
3	reaction_3	reaction_3	∅ ⟶ mwf626e95e_543f_41e4_aad4_c6bf60ab345b	
4	reaction_4	reaction_4	mwf626e95e_543f_41e4_aad4_c6bf60ab345b ⟶ mwf626e95e_543f_41e4_aad4_c6bf60ab3	
5	reaction_5	reaction_5	mw114aa90f_5f5b_4fe8_9406_361c8489b6a1 ⟶ mw114aa90f_5f5b_4fe8_9406_361c8489	
6	reaction_6	reaction_6	mw4638f126_8cb8_4021_ab41_6ae195743ba0 + mw80848184_e2dd_47ce_86d7_7a21479342bd ⟶ mw4638f126_8cb8_4021_ab41_6ae195	
7	reaction_7	reaction_7	mw10315fa3_6f13_4618_bda8_a8694bd3c374 + mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1 ⟶ mw0adf3eb4_a196_4c48_b10d_4e9e9faaf	
8	reaction_8	reaction_8	mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83 + mw80848184_e2dd_47ce_86d7_7a21479342bd ⟶ mw7d86cc23_a1af_44c3_bdb9_71e9b1b	
9	reaction_16	reaction_16	mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a ⟶ mwd2d9d93a_3bd1_4f17_bac1_baba9ef2	
10	reaction_9	reaction_9	mw42054cd7_17af_46da_970c_7f99151906ad + mw0eb6c959_d408_45a0_a450_928b8c5876bb ⟶ mw0eb6c959_d408_45a0_a450_928b8c5876bb	
11	reaction_10	reaction_10	mw39c2e431_fdc3_4964_be29_6ca856620b1b ⟶ mw39c2e431_fdc3_4964_be29_6ca8566	
12	reaction_15	reaction_15	mw10315fa3_6f13_4618_bda8_a8694bd3c374 ⟶ mw10315fa3_6f13_4618_bda8_a8694bd	

№	Id	Name	Reaction Equation	SBO
13	reaction_11	reaction_11	mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83	mw7d86cc23_a1af_44c3_bdb9_71e9b1bb
14	reaction_12	reaction_12	mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a	mwd2d9d93a_3bd1_4f17_bac1_baba9ef2
15	reaction_13	reaction_13	mw0eb6c959_d408_45a0_a450_928b8c5876bb	mw0eb6c959_d408_45a0_a450_928b8c5
16	reaction_14	reaction_14	∅ ⟶ mw10315fa3_6f13_4618_bda8_a8694bd3c374	
17	reaction_41	reaction_41	mw7becb5fe_8da8_4285_a821_0d77ad811b62 + mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca	mw7becb5fe_8da8_4285_a821_0d77ad8
18	reaction_46	reaction_46	mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9	mw824bc3d4_1ac3_4912_9b51_8f14ff1c9
19	reaction_42	reaction_42	mw2b255f94_8018_4b99_bde8_918eeac45446 + mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	mw2b255f94_8018_4b99_bde8_918eeac4
			mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	
20	reaction_43	reaction_43	mw48867e93_f170_44e8_ac7a_185b23e1bf3b	mw48867e93_f170_44e8_ac7a_185b23e1
21	reaction_44	reaction_44	mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9	mw824bc3d4_1ac3_4912_9b51_8f14ff1c9
22	reaction_45	reaction_45	mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	mw6cce2109_0e32_4dd9_98ec_41173e8e
23	mwb675e13a-_26c0-_4b18_a8c3-_0f5a62090ba4	mwb675e13a_26c0_4b18_a8c3-_0f5a62090ba4	mw0eb6c959_d408_45a0_a450_928b8c5876bb	mw0eb6c959_d408_45a0_a450_928b8c5
24	mw64df7c9e-_35da-_4c7f_be56-_c5dabfb060b6	mw64df7c9e_35da_4c7f_be56_c5dabfb060b6	mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	mw6cce2109_0e32_4dd9_98ec_41173e8e
25	mw391f3b8e-_5649-_4851_b2e2-_782cb3e015b6	mw391f3b8e_5649_4851_b2e2-_782cb3e015b6	∅ ⟶ mw80848184_e2dd_47ce_86d7_7a21479342bd	

№	Id	Name	Reaction Equation	SBO
26	mw4a00a3a4-_778f-_4952_8100-_2dc3cc2b7046	mw4a00a3a4_778f_4952_8100-_2dc3cc2b7046	mw80848184_e2dd_47ce_86d7_7a21479342bd	mw80848184_e2dd_47ce_86d7_7a2147
27	mw6db30657-_4e56-_4c3a_8575-_9c67393dde4f	mw6db30657_4e56_4c3a_8575-_9c67393dde4f	∅ ⟶ mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca	
28	mw6f470e13-_f0e4-_4294_83d8-_59dd5670d10c	mw6f470e13_f0e4_4294_83d8-_59dd5670d10c	mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca	mw8c9107e6_f51d_442d_b2dc_2bfdbb84
29	mwfb35eca9-_7afc-_4ba8_a46c-_738cab57eb9f	mwfb35eca9_7afc_4ba8_a46c_738cab57eb9f	mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	mw30ae63db_6cd3_4b6f_93ad_3350cd3
30	mw61d2af92-_6da5-_41ce_b90e-_aa6f430e6ba1	mw61d2af92_6da5_41ce_b90e_aa6f430e6ba1	mwf626e95e_543f_41e4_aad4_c6bf60ab345b	mwf626e95e_543f_41e4_aad4_c6bf60ab3
31	mw4c099d5c-_200f-_474e_8ec1-_59e9223a8afd	mw4c099d5c_200f_474e_8ec1_59e9223a8afd	mwd31f52cc_04e7_40e0_885f_c7b2d9e62215 + mw2c9b0499_3325_4394_8af3_bbf653a944a0	mw2c9b0499_3325_4394_8af3_bbf653a

№	Id	Name	Reaction Equation	SBO
32	mwbe8567ce-_3349-_4442_8b12-_53cd9bc168e7	mwbe8567ce_3349_4442_8b12-_53cd9bc168e7	mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	mw03db56ac_8dc6_4931_ae82_fef706d2
33	mw12a9fa7e-_a273-_4c1e_b970-_ed33f3a9a705	mw12a9fa7e_a273_4c1e_b970_ed33f3a9a705	mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	mw30ae63db_6cd3_4b6f_93ad_3350cd3
34	mw1046000b-_e1e8-_4f6f_82a1-_532d2aa793bb	mw1046000b_e1e8_4f6f_82a1-_532d2aa793bb	mwf626e95e_543f_41e4_aad4_c6bf60ab345b	mwf626e95e_543f_41e4_aad4_c6bf60ab3
35	mw8e8b65a8-_6830-_4091_9a40-_19645e8fe554	mw8e8b65a8_6830_4091_9a40-_19645e8fe554	mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	mw03db56ac_8dc6_4931_ae82_fef706d2
36	mwa812f08f-_1035-_42bd_82d2-_72d691308f88	mwa812f08f_1035_42bd_82d2-_72d691308f88	mw2e464cf3_a09c_4b7c_9f3c_06720016a48e + mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1	mw0adf3eb4_a196_4c48_b10d_4e9e9faaf
37	mwab0012ac-_e5f2-_4904_9893-_820fd210402e	mwab0012ac_e5f2_4904_9893-_820fd210402e	mwd5313618_89eb_4c8c_bc82_66f10f966349	mwd5313618_89eb_4c8c_bc82_66f10f96

№	Id	Name	Reaction Equation	SBO
38	mwcdc24bd4-_d9e4-_47fe_8300-_d222d853111c	mwcdc24bd4_d9e4_47fe_8300-_d222d853111c	mw114aa90f_5f5b_4fe8_9406_361c8489b6a1 ⟸	mw114aa90f_5f5b_4fe8_9406_361c8489
39	mwff2ebcf1-_dcf1-_47b9_9cac-_7306fc6f7f76	mwff2ebcf1_dcf1_47b9_9cac_7306fc6f7f76	∅ ⟶ mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	
40	mw1c5a5ff7-_5130-_490f_a740-_6a744ccf8a94	mw1c5a5ff7_5130_490f_a740_6a744ccf8a94	mwbbbce920_e8dd_4320_9386_fc94bfb2fc99 ⟸	mwbbbce920_e8dd_4320_9386_fc94bfb2
41	mw7b56053c-_7256-_4703_a8c3-_4fd46b2c23d0	mw7b56053c_7256_4703_a8c3-_4fd46b2c23d0	mwbbbce920_e8dd_4320_9386_fc94bfb2fc99 ⟸	mwbbbce920_e8dd_4320_9386_fc94bfb2
42	mw8be158f1-_ea81-_45bf_80d4-_6e31cd83fe6c	mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c	mwd65b5b39_dc1b_4e77_a999_67277a880e5e + mw7becb5fe_8da8_4285_a821_0d77ad811b62 ⟸	+ mw6335d5d7_c7b0_4bc0_b883_f7ee491
43	mwd77df15b-_fed7-_41a8_a3d6-_b0f6c590c5f6	mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6	mw4638f126_8cb8_4021_ab41_6ae195743ba0 + mw147d30ec_478e_4090_b496_128a131d29eb ⟸	+ mw147d30ec_478e_4090_b496_128a13

№	Id	Name	Reaction Equation	SBO
44	mw01babcdf-_0f03-_46b0_81b1-_201cc846e361	mw01babcdf_0f03_46b0_81b1-_201cc846e361	mw810ff751_fa4e_4143_bd50_169b3e325e1e ⟷	mw810ff751_fa4e_4143_bd50_169b3e32
45	mwae5dbb44-_7de5-_46ab_8c20-_ac4f8956b0f0	mwae5dbb44_7de5_46ab_8c20-_ac4f8956b0f0	mw810ff751_fa4e_4143_bd50_169b3e325e1e ⟷	mw810ff751_fa4e_4143_bd50_169b3e32
46	mw432fde6e-_59ab-_47f0_9fb1-_086433a602e3	mw432fde6e_59ab_47f0_9fb1_086433a602e3	∅ ⟶ mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	
47	mw41c27823-_d7ee-_4554_9eac-_3d5beec8e854	mw41c27823_d7ee_4554_9eac-_3d5beec8e854	mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc ⟷	mw30ae63db_6cd3_4b6f_93ad_3350cd36
48	mw50c6744c-_e883-_4612_8663-_e38750cbad1b	mw50c6744c_e883_4612_8663-_e38750cbad1b	∅ ⟶ mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	
49	mwb6a99eb5-_ea4c-_4733_98dd-_1daf5ec6b0db	mwb6a99eb5_ea4c_4733_98dd-_1daf5ec6b0db	mwbbbce920_e8dd_4320_9386_fc94bfb2fc99 ⟷	mwbbbce920_e8dd_4320_9386_fc94bfb2

№	Id	Name	Reaction Equation	SBO
50	mw1ce0c484-_681f-_4d85_8ffe-_392d0c100cfa	mw1ce0c484_681f_4d85_8ffe_392d0c100cfa	∅ ⟶ mw2c9b0499_3325_4394_8af3_bbf653a944a0	
51	mwf913ea0b-_785a-_4701_ac91-_b18ab5dd5a89	mwf913ea0b_785a_4701_ac91-_b18ab5dd5a89	mw2c9b0499_3325_4394_8af3_bbf653a944a0 ⟶ mw2c9b0499_3325_4394_8af3_bbf653a9	
52	mw71d90b81-_8211-_4039_8807-_12a7fe03206c	mw71d90b81_8211_4039_8807-_12a7fe03206c	mw114aa90f_5f5b_4fe8_9406_361c8489b6a1 ⟶ mw114aa90f_5f5b_4fe8_9406_361c8489b mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	
53	mwdf4ba845-_7271-_4ada_b43f-_fdac83df3b5c	mwdf4ba845_7271_4ada_b43f_fdac83df3b5c	mwf345ed7a_0622_403c_b816_c8749a2c9ded ⟵ mwf345ed7a_0622_403c_b816_c8749a2	
54	mwb1879013-_5fcd-_490c_8b01-_eaf84df15b9a	mwb1879013_5fcd_490c_8b01_eaf84df15b9a	mwf345ed7a_0622_403c_b816_c8749a2c9ded + mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc ⟵ mw1da111f2_a036_4392_8512_015005b	
55	mw30abb016-_4300-_4f40_a1b3-_f865d0a45707	mw30abb016_4300_4f40_a1b3-_f865d0a45707	mw1da111f2_a036_4392_8512_015005bdcbb7 ⟶ mw1da111f2_a036_4392_8512_015005b	

№	Id	Name	Reaction Equation	SBO
56	mwba7f4605-_8571-_439b_b3ab-_eb0b43808db8	mwba7f4605_8571_439b_b3ab-_eb0b43808db8	mwf345ed7a_0622_403c_b816_c8749a2c9ded	mwf345ed7a_0622_403c_b816_c8749a2c
57	mw8b4e96ed-_0bcc-_4ad6_b560-_366e173a6e6b	mw8b4e96ed_0bcc_4ad6_b560-_366e173a6e6b	mw5d764bb8_5693_4ac8_9557_f65992cc5eb0	mw5d764bb8_5693_4ac8_9557_f65992c
58	mwa3cb4a9b-_d628-_4807_8847-_bdcd9b40c7f1	mwa3cb4a9b_d628_4807_8847-_bdcd9b40c7f1	mwf7796221_1fea_4274_a93e_c00adbf5778c + mwd31f52cc_04e7_40e0_885f_c7b2d9e62215	mw5d764bb8_5693_4ac8_9557_f65992c
59	mw8fb6c0a7-_b05d-_4c2a_8866-_77eb81f063d1	mw8fb6c0a7_b05d_4c2a_8866-_77eb81f063d1	mw3667a5e1_02c9_44a0_acb4_b0431faa822d + mw2e464cf3_a09c_4b7c_9f3c_06720016a48e	mw2e464cf3_a09c_4b7c_9f3c_0672001
60	mw3e76b10b-_5420-_4828_8c70-_b91b767132d0	mw3e76b10b_5420_4828_8c70-_b91b767132d0	mwf405687b_7401_44ec_a0d6_4a2b35c13e8a	mwf405687b_7401_44ec_a0d6_4a2b35c
61	mw131e3c9d-_e77d-_48c0_bdbb-_77b2c10aaf3d	mw131e3c9d_e77d_48c0_bdbb-_77b2c10aaf3d	mwf345ed7a_0622_403c_b816_c8749a2c9ded	mwf345ed7a_0622_403c_b816_c8749a2

№	Id	Name	Reaction Equation	SBO
62	mw14940d1f_6a1f_47cb_8170_801ba645f4c1	mw14940d1f_6a1f_47cb_8170_801ba645f4c1	mwf345ed7a_0622_403c_b816_c8749a2c9ded	mwf345ed7a_0622_403c_b816_c8749a2
63	mwa2f4d966_ae2c_4ed2_b522_12755f12ff15	mwa2f4d966_ae2c_4ed2_b522_12755f12ff15	mw1da111f2_a036_4392_8512_015005bdcbb7	mw1da111f2_a036_4392_8512_015005
64	mw700e677e_d3b6_4a97_991f_279605a9abeb	mw700e677e_d3b6_4a97_991f_279605a9abeb	mw1da111f2_a036_4392_8512_015005bdcbb7	mw1da111f2_a036_4392_8512_015005
65	mw2ae288ab_7d03_4a84_a024_c711ad2b77e6	mw2ae288ab_7d03_4a84_a024_c711ad2b77e6	mw3667a5e1_02c9_44a0_acb4_b0431faa822d	mw3667a5e1_02c9_44a0_acb4_b0431faa
66	mw9629d028_fcc0_4886_9e4d_36eecdb0381d	mw9629d028_fcc0_4886_9e4d_36eecdb0381d	mwf7796221_1fea_4274_a93e_c00adbf5778c	mwf7796221_1fea_4274_a93e_c00adbf57
67	mw6b46c550_674f_4857_b947_d31221cd8dd3	mw6b46c550_674f_4857_b947_d31221cd8dd3	mw3667a5e1_02c9_44a0_acb4_b0431faa822d + mw10315fa3_6f13_4618_bda8_a8694bd3c374	mw10315fa3_6f13_4618_bda8_a8694bd

№	Id	Name	Reaction Equation	SBO
68	mw920e142e-_b2c4-_42b2_88f4-_9f68cc50142e	mw920e142e_b2c4_42b2_88f4-_9f68cc50142e	mw772cbf20_3fc1_4800_ae59_77884f1ae333	mw772cbf20_3fc1_4800_ae59_77884f1ae
69	mw1b09ae22-_e4c7-_4830_b566-_f263cf4e3f9c	mw1b09ae22_e4c7_4830_b566_f263cf4e3f9c	mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	mw9947742a_0e4b_4636_9a4b_b6eef2a8
70	mwf9c93372-_1c4e-_4988_b8a7-_7b9981192b30	mwf9c93372_1c4e_4988_b8a7-_7b9981192b30	mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	mw9947742a_0e4b_4636_9a4b_b6eef2a8
71	mw5e1e306a-_63ed-_43a8_b79f-_b403516e7963	mw5e1e306a_63ed_43a8_b79f-_b403516e7963	mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	mw9947742a_0e4b_4636_9a4b_b6eef2a8
72	mwfeae4233-_1272-_453f_a97f-_70982c445b43	mwfeae4233_1272_453f_a97f_70982c445b43	mw2ba2b802_9f07_4f4d_94c6_24c8de1a95cf	mw2ba2b802_9f07_4f4d_94c6_24c8de1a
73	mwe84cc3ad-_af35-_43a8_aa6a-_9f68a6d68185	mwe84cc3ad_af35_43a8_aa6a_9f68a6d68185	mwedc1bc00_adf7_4144_a1c2_7dc1a9565dc2	mwedc1bc00_adf7_4144_a1c2_7dc1a956

10.1 Reaction reaction_1

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name reaction_1

Reaction equation

$$\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc} + \text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b} \xrightleftharpoons[\text{(78)}]{\text{mw03db56ac\_8dc6\_4}}$$

Reactants

Table 6: Properties of each reactant.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	
mwf626e95e_543f_41e4_aad4_c6bf60ab345b	IL6	

Modifiers

Table 7: Properties of each modifier.

Id	Name	SBO
mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	sR_IL6	
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	
mwf626e95e_543f_41e4_aad4_c6bf60ab345b	IL6	

Product

Table 8: Properties of each product.

Id	Name	SBO
mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$v_1 = \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \mathrm{Function\_for\_reaction\_1}\left(\mathrm{kRLOff},\ \mathrm{kRLOn},\ [\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}],\ [\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}],\ \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right),\ [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]\right) \tag{79}$$

$$\mathrm{Function\_for\_reaction\_1}\left(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}], [\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]\right) = \frac{\mathrm{kRLOn} \cdot [\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}] \cdot [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}] - \mathrm{kRLO}}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{80}$$

$$\mathrm{Function\_for\_reaction\_1}\left(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}], [\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]\right) = \frac{\mathrm{kRLOn} \cdot [\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}] \cdot [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}] - \mathrm{kRLO}}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{81}$$

10.2 Reaction `reaction_2`

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name reaction_2

Reaction equation

$$\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d} + \mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99} \rightleftharpoons \mathrm{mw03db56ac\_8dc6\_4} \tag{82}$$

Reactants

Table 9: Properties of each reactant.

Id	Name	SBO
mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	sR_IL6	
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	

Modifiers

Table 10: Properties of each modifier.

Id	Name	SBO
mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	sR_IL6	
mw810ff751_fa4e_4143_bd50_169b3e325e1e	sR_IL6_sgp130	
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	

Product

Table 11: Properties of each product.

Id	Name	SBO
mw810ff751_fa4e_4143_bd50_169b3e325e1e	sR_IL6_sgp130	

Kinetic Law

Derived unit contains undeclared units

$$v_2 = \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \mathrm{Function\_for\_reaction\_2}\left(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), [\mathrm{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e}], [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}]\right) \tag{83}$$

$$\mathrm{Function\_for\_reaction\_2}\left(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), [\mathrm{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e}], [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}]\right) = \frac{\mathrm{kgp130On} \cdot [\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}] \cdot [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}] - \mathrm{kg}}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{84}$$

$$\mathrm{Function\_for\_reaction\_2}\left(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), [\mathrm{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e}], [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}]\right) = \frac{\mathrm{kgp130On} \cdot [\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}] \cdot [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}] - \mathrm{kg}}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{85}$$

10.3 Reaction `reaction_3`

This is an irreversible reaction of no reactant forming one product.

Name reaction_3

Reaction equation

$$\emptyset \longrightarrow \text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b} \tag{86}$$

Product

Table 12: Properties of each product.

Id	Name	SBO
`mwf626e95e_543f_41e4_aad4_c6bf60ab345b`	IL6	

Kinetic Law

Derived unit contains undeclared units

$$v_3 = \text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \text{Function\_for\_reaction\_3}\left(\text{kIL6Synth}, \text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)\right) \tag{87}$$

$$\text{Function\_for\_reaction\_3}\left(\text{kIL6Synth}, \text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)\right) = \frac{\text{kIL6Synth}}{\text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{88}$$

$$\text{Function\_for\_reaction\_3}\left(\text{kIL6Synth}, \text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)\right) = \frac{\text{kIL6Synth}}{\text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{89}$$

10.4 Reaction `reaction_4`

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name reaction_4

Reaction equation

$$\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b} \xrightarrow{\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}} \emptyset \tag{90}$$

Reactant

Table 13: Properties of each reactant.

Id	Name	SBO
mwf626e95e_543f_41e4_aad4_c6bf60ab345b	IL6	

Modifier

Table 14: Properties of each modifier.

Id	Name	SBO
mwf626e95e_543f_41e4_aad4_c6bf60ab345b	IL6	

Kinetic Law

Derived unit contains undeclared units

$$v_4 = \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \mathrm{Function\_for\_reaction\_4}\left(\mathrm{kIL6Decay}, \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]\right) \tag{91}$$

$$\mathrm{Function\_for\_reaction\_4}\left(\mathrm{kIL6Decay}, \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]\right) = \frac{\mathrm{kIL6Decay} \cdot [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{92}$$

$$\mathrm{Function\_for\_reaction\_4}\left(\mathrm{kIL6Decay}, \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]\right) = \frac{\mathrm{kIL6Decay} \cdot [\mathrm{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{93}$$

10.5 Reaction reaction_5

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name reaction_5

Reaction equation

$$\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1} \xrightarrow{\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}} \emptyset \tag{94}$$

Reactant

Table 15: Properties of each reactant.

Id	Name	SBO
mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	CRP	

Modifier

Table 16: Properties of each modifier.

Id	Name	SBO
mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	CRP	

Kinetic Law

Derived unit contains undeclared units

$$v_5 = \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}) \cdot \mathrm{Function\_for\_reaction\_5}\,(\mathrm{kCRPDecay}, [\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}], \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})) \tag{95}$$

$$\mathrm{Function\_for\_reaction\_5}\,(\mathrm{kCRPDecay}, [\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}], \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})) = \frac{\mathrm{kCRPDecay} \cdot [\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}]}{\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{96}$$

$$\mathrm{Function\_for\_reaction\_5}\,(\mathrm{kCRPDecay}, [\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}], \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})) = \frac{\mathrm{kCRPDecay} \cdot [\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}]}{\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{97}$$

10.6 Reaction reaction_6

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name reaction_6

Reaction equation

$$\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0} + \mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd} \rightleftharpoons \mathrm{mw4638f126\_8cb8} \tag{98}$$

Reactants

Table 17: Properties of each reactant.

Id	Name	SBO
mw4638f126_8cb8_4021_ab41_6ae195743ba0	sR_IL6	
mw80848184_e2dd_47ce_86d7_7a21479342bd	gp130	

Modifiers

Table 18: Properties of each modifier.

Id	Name	SBO
mw4638f126_8cb8_4021_ab41_6ae195743ba0	sR_IL6	
mw80848184_e2dd_47ce_86d7_7a21479342bd	gp130	
mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a	R_IL6_gp130	

Product

Table 19: Properties of each product.

Id	Name	SBO
mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a	R_IL6_gp130	

Kinetic Law

Derived unit contains undeclared units

$$v_6 = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_reaction\_6}\left(\mathrm{kgp130Off},\ \mathrm{kgp130On},\ [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}],\ [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}],\ \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\ [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]\right) \tag{99}$$

$$\mathrm{Function\_for\_reaction\_6}\left(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}], [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]\right) \tag{100}$$

$$= \frac{\mathrm{kgp130On} \cdot [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}] \cdot [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}] - \mathrm{I}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

$$\begin{aligned}&\text{Function\_for\_reaction\_6}\left(\text{kgp130Off}, \text{kgp130On}, \right. \\ &[\text{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}], \\ &[\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}], \\ &\left.\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \right. \\ &\left.[\text{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]\right) \\ &= \frac{\text{kgp130On} \cdot [\text{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}] \cdot [\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}] - \text{I}}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}\end{aligned} \tag{101}$$

10.7 Reaction `reaction_7`

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name reaction_7

Reaction equation

$$\text{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374} + \text{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1} \overleftrightarrow{\text{mw0adf3eb4\_a196\_4c}} \tag{102}$$

Reactants

Table 20: Properties of each reactant.

Id	Name	SBO
mw10315fa3_6f13_4618_bda8_a8694bd3c374	R	
mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1	IL6	

Modifiers

Table 21: Properties of each modifier.

Id	Name	SBO
mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1	IL6	
mw10315fa3_6f13_4618_bda8_a8694bd3c374	R	
mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83	R_IL6	

Product

Table 22: Properties of each product.

Id	Name	SBO
mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83	R_IL6	

Id	Name	SBO

Kinetic Law

Derived unit contains undeclared units

$$v_7 = \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}) \cdot \mathrm{Function\_for\_reaction\_7}\,(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}], [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) \quad (103)$$

$$\mathrm{Function\_for\_reaction\_7}\,(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}], [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) = \frac{\mathrm{kRLOn} \cdot [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}] \cdot [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}] - \mathrm{kRLO}}{\mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \quad (104)$$

$$\mathrm{Function\_for\_reaction\_7}\,(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}], [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) = \frac{\mathrm{kRLOn} \cdot [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}] \cdot [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}] - \mathrm{kRLO}}{\mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \quad (105)$$

10.8 Reaction `reaction_8`

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name reaction_8

Reaction equation

$$\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83} + \mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd} \rightleftharpoons \mathrm{mw7d86cc23\_a1af\_} \quad (106)$$

Reactants

Table 23: Properties of each reactant.

Id	Name	SBO
mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83	R_IL6	
mw80848184_e2dd_47ce_86d7_7a21479342bd	gp130	

Modifiers

Table 24: Properties of each modifier.

Id	Name	SBO
mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83	R_IL6	
mw80848184_e2dd_47ce_86d7_7a21479342bd	gp130	
mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a	R_IL6_gp130	

Product

Table 25: Properties of each product.

Id	Name	SBO
mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a	R_IL6_gp130	

Kinetic Law

Derived unit contains undeclared units

$$v_8 = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_reaction\_8}\left(\mathrm{kgp130Off},\ \mathrm{kgp130On},\ [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}],\ [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}],\ \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\ [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]\right) \tag{107}$$

$$\mathrm{Function\_for\_reaction\_8}\left(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}], [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]\right) \tag{108}$$

$$= \frac{\mathrm{kgp130On} \cdot [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}] \cdot [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}] - \mathrm{k}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

$$\begin{aligned}&\text{Function\_for\_reaction\_8}\,(\text{kgp130Off}, \text{kgp130On}, \\ &[\text{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}], \\ &[\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}], \\ &\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})\,, \\ &[\text{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]) \\ &= \frac{\text{kgp130On} \cdot [\text{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}] \cdot [\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}] - \text{k}}{\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})}\end{aligned} \tag{109}$$

10.9 Reaction `reaction_16`

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

Name reaction_16

Reaction equation

$$\text{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a} \xrightarrow{\text{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}} \text{mw0eb6c959\_d408\_45a} \tag{110}$$

Reactant

Table 26: Properties of each reactant.

Id	Name	SBO
`mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a`	R_IL6_gp130	

Modifier

Table 27: Properties of each modifier.

Id	Name	SBO
`mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a`	R_IL6_gp130	

Product

Table 28: Properties of each product.

Id	Name	SBO
`mw0eb6c959_d408_45a0_a450_928b8c5876bb`	Ractive	

Kinetic Law

Derived unit contains undeclared units

$$v_9 = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_reaction\_16}\left(\mathrm{kRAct}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \left[\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}\right]\right) \tag{111}$$

$$\mathrm{Function\_for\_reaction\_16}\left(\mathrm{kRAct}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \left[\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}\right]\right) = \frac{\mathrm{kRAct} \cdot \left[\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}\right]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{112}$$

$$\mathrm{Function\_for\_reaction\_16}\left(\mathrm{kRAct}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \left[\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}\right]\right) = \frac{\mathrm{kRAct} \cdot \left[\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}\right]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{113}$$

10.10 Reaction `reaction_9`

This is an irreversible reaction of two reactants forming two products influenced by two modifiers.

Name reaction_9

Reaction equation

$$\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad} + \mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb} \xrightarrow{\mathrm{mw0eb6c959\_d408\_} \quad} \tag{114}$$

Reactants

Table 29: Properties of each reactant.

Id	Name	SBO
`mw42054cd7_17af_46da_970c_7f99151906ad`	STAT3	
`mw0eb6c959_d408_45a0_a450_928b8c5876bb`	Ractive	

Modifiers

Table 30: Properties of each modifier.

Id	Name	SBO
mw0eb6c959_d408_45a0_a450_928b8c5876bb	Ractive	
mw42054cd7_17af_46da_970c_7f99151906ad	STAT3	

Products

Table 31: Properties of each product.

Id	Name	SBO
mw39c2e431_fdc3_4964_be29_6ca856620b1b	pSTAT3	
mw0eb6c959_d408_45a0_a450_928b8c5876bb	Ractive	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{10} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \\ \cdot \mathrm{Function\_for\_reaction\_9}\left([\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}],\right. \\ [\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}], \\ \left.\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\right. \\ \left.\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569},\right. \\ \left.\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d}\right) \end{aligned} \tag{115}$$

$$\begin{aligned} &\mathrm{Function\_for\_reaction\_9}\left([\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}],\right. \\ &[\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}], \\ &\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ &\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569}, \\ &\left.\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d}\right) \end{aligned} \tag{116}$$

$$= \frac{\frac{\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569} \cdot [\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}] \cdot [\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}]}{\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d} + [\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}]}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

$$\begin{aligned} &\mathrm{Function\_for\_reaction\_9}\left([\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}],\right. \\ &[\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}], \\ &\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ &\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569}, \\ &\left.\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d}\right) \end{aligned} \tag{117}$$

$$= \frac{\frac{\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569} \cdot [\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}] \cdot [\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}]}{\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d} + [\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad}]}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

10.11 Reaction reaction_10

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

Name reaction_10

Reaction equation

$$\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b} \xrightarrow{\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}} \text{mw42054cd7\_17af\_46} \tag{118}$$

Reactant

Table 32: Properties of each reactant.

Id	Name	SBO
mw39c2e431_fdc3_4964_be29_6ca856620b1b	pSTAT3	

Modifier

Table 33: Properties of each modifier.

Id	Name	SBO
mw39c2e431_fdc3_4964_be29_6ca856620b1b	pSTAT3	

Product

Table 34: Properties of each product.

Id	Name	SBO
mw42054cd7_17af_46da_970c_7f99151906ad	STAT3	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{11} = {} & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \\ & \cdot \text{Function\_for\_reaction\_10}\left(\left[\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}\right],\right. \\ & \qquad \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \qquad \text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc}, \\ & \qquad \left.\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}\right) \end{aligned} \tag{119}$$

$$\begin{aligned}&\text{Function\_for\_reaction\_10}\left([\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}],\right.\\&\quad\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\\&\quad\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc},\\&\quad\left.\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}\right)\\&\quad=\frac{\frac{\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc}\cdot[\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}]}{\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}+[\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}]}}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}\end{aligned} \tag{120}$$

$$\begin{aligned}&\text{Function\_for\_reaction\_10}\left([\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}],\right.\\&\quad\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\\&\quad\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc},\\&\quad\left.\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}\right)\\&\quad=\frac{\frac{\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc}\cdot[\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}]}{\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}+[\text{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b}]}}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}\end{aligned} \tag{121}$$

10.12 Reaction `reaction_15`

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name reaction_15

Reaction equation

$$\text{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374} \xrightarrow{\text{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}} \emptyset \tag{122}$$

Reactant

Table 35: Properties of each reactant.

Id	Name	SBO
`mw10315fa3_6f13_4618_bda8_a8694bd3c374`	R	

Modifier

Table 36: Properties of each modifier.

Id	Name	SBO
`mw10315fa3_6f13_4618_bda8_a8694bd3c374`	R	

Kinetic Law

Derived unit contains undeclared units

$$v_{12} = \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}) \cdot \mathrm{Function\_for\_reaction\_15}\,(\mathrm{kRdeg}, [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) \tag{123}$$

$$\mathrm{Function\_for\_reaction\_15}\,(\mathrm{kRdeg}, [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) = \frac{\mathrm{kRdeg} \cdot [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}]}{\mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{124}$$

$$\mathrm{Function\_for\_reaction\_15}\,(\mathrm{kRdeg}, [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) = \frac{\mathrm{kRdeg} \cdot [\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}]}{\mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{125}$$

10.13 Reaction `reaction_11`

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name reaction_11

Reaction equation

$$\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83} \xrightarrow{\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}} \emptyset \tag{126}$$

Reactant

Table 37: Properties of each reactant.

Id	Name	SBO
`mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83`	R_IL6	

Modifier

Table 38: Properties of each modifier.

Id	Name	SBO
mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83	R_IL6	

Kinetic Law

Derived unit contains undeclared units

$$v_{13} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_reaction\_11}\left(\mathrm{kRint}, [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)\right) \tag{127}$$

$$\mathrm{Function\_for\_reaction\_11}\left(\mathrm{kRint}, [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)\right) = \frac{\mathrm{kRint} \cdot [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{128}$$

$$\mathrm{Function\_for\_reaction\_11}\left(\mathrm{kRint}, [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)\right) = \frac{\mathrm{kRint} \cdot [\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83}]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{129}$$

10.14 Reaction reaction_12

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name reaction_12

Reaction equation

$$\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a} \xrightarrow{\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}} \emptyset \tag{130}$$

Reactant

Table 39: Properties of each reactant.

Id	Name	SBO
mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a	R_IL6_gp130	

Modifier

Table 40: Properties of each modifier.

Id	Name	SBO
mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a	R_IL6_gp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{14} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_reaction\_12}\left(\mathrm{kRint}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]\right) \tag{131}$$

$$\mathrm{Function\_for\_reaction\_12}\left(\mathrm{kRint}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]\right) = \frac{\mathrm{kRint} \cdot [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{132}$$

$$\mathrm{Function\_for\_reaction\_12}\left(\mathrm{kRint}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]\right) = \frac{\mathrm{kRint} \cdot [\mathrm{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a}]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{133}$$

10.15 Reaction reaction_13

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name reaction_13

Reaction equation

$$\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb} \xrightarrow{\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}} \emptyset \tag{134}$$

Reactant

Table 41: Properties of each reactant.

Id	Name	SBO
mw0eb6c959_d408_45a0_a450_928b8c5876bb	Ractive	

Modifier

Table 42: Properties of each modifier.

Id	Name	SBO
mw0eb6c959_d408_45a0_a450_928b8c5876bb	Ractive	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{15} = {} & \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \\ & \cdot \mathrm{Function\_for\_reaction\_13}\left(\left[\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}\right],\right. \\ & \qquad \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \qquad \left.\mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a}\right) \end{aligned} \tag{135}$$

$$\begin{aligned} & \mathrm{Function\_for\_reaction\_13}\left(\left[\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}\right],\right. \\ & \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \left.\mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a}\right) \\ = {} & \frac{\mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a} \cdot \left[\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}\right]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \end{aligned} \tag{136}$$

$$\begin{aligned} & \mathrm{Function\_for\_reaction\_13}\left(\left[\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}\right],\right. \\ & \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \left.\mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a}\right) \\ = {} & \frac{\mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a} \cdot \left[\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}\right]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \end{aligned} \tag{137}$$

10.16 Reaction reaction_14

This is an irreversible reaction of no reactant forming one product.

Name reaction_14

Reaction equation

$$\emptyset \longrightarrow \mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374} \tag{138}$$

Product

Table 43: Properties of each product.

Id	Name	SBO
mw10315fa3_6f13_4618_bda8_a8694bd3c374	R	

Kinetic Law

Derived unit contains undeclared units

$$v_{16} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_reaction\_14}\left(\mathrm{kRsynth}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)\right) \tag{139}$$

$$\mathrm{Function\_for\_reaction\_14}\left(\mathrm{kRsynth}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)\right) = \frac{\mathrm{kRsynth}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{140}$$

$$\mathrm{Function\_for\_reaction\_14}\left(\mathrm{kRsynth}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)\right) = \frac{\mathrm{kRsynth}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{141}$$

10.17 Reaction reaction_41

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name reaction_41

Reaction equation

$$\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62} + \mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca} \rightleftharpoons \mathrm{mw7becb5fe\_8da8\_4} \tag{142}$$

Reactants

Table 44: Properties of each reactant.

Id	Name	SBO
mw7becb5fe_8da8_4285_a821_0d77ad811b62	sR_IL6	
mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca	gp130	

Modifiers

Table 45: Properties of each modifier.

Id	Name	SBO
mw7becb5fe_8da8_4285_a821_0d77ad811b62	sR_IL6	
mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9	R_IL6_gp130	
mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca	gp130	

Product

Table 46: Properties of each product.

Id	Name	SBO
mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9	R_IL6_gp130	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{17} = {} & \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \\ & \cdot \mathrm{Function\_for\_reaction\_41}\,(\mathrm{kgp130Off}, \mathrm{kgp130On}, \\ & \qquad [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}], \\ & \qquad [\mathrm{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}], \\ & \qquad [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}], \\ & \qquad \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \end{aligned} \tag{143}$$

$$\begin{aligned} & \mathrm{Function\_for\_reaction\_41}\,(\mathrm{kgp130Off}, \mathrm{kgp130On}, \\ & [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}], \\ & [\mathrm{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}], \\ & [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}], \\ & \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \\ = {} & \frac{\mathrm{kgp130On} \cdot [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}] \cdot [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}] - \mathrm{k}}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \end{aligned} \tag{144}$$

$$\begin{aligned} & \mathrm{Function\_for\_reaction\_41}\,(\mathrm{kgp130Off}, \mathrm{kgp130On}, \\ & [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}], \\ & [\mathrm{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}], \\ & [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}], \\ & \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \\ = {} & \frac{\mathrm{kgp130On} \cdot [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}] \cdot [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}] - \mathrm{k}}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \end{aligned} \tag{145}$$

10.18 Reaction reaction_46

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

Name reaction_46

Reaction equation

$$\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9} \xrightarrow{\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}} \text{mw6cce2109\_0e32\_4dd} \tag{146}$$

Reactant

Table 47: Properties of each reactant.

Id	Name	SBO
mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9	R_IL6_gp130	

Modifier

Table 48: Properties of each modifier.

Id	Name	SBO
mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9	R_IL6_gp130	

Product

Table 49: Properties of each product.

Id	Name	SBO
mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	Ractive	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{18} = {} & \text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right) \\ & \cdot \text{Function\_for\_reaction\_46}\left(\text{kRAct}, [\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}], \right. \\ & \left. \qquad \text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)\right) \end{aligned} \tag{147}$$

$$\begin{aligned}&\text{Function\_for\_reaction\_46}\left(\text{kRAct}, [\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}],\right.\\&\left.\quad \text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)\right)\\&\quad = \frac{\text{kRAct} \cdot [\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}]}{\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)}\end{aligned} \tag{148}$$

$$\begin{aligned}&\text{Function\_for\_reaction\_46}\left(\text{kRAct}, [\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}],\right.\\&\left.\quad \text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)\right)\\&\quad = \frac{\text{kRAct} \cdot [\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}]}{\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)}\end{aligned} \tag{149}$$

10.19 Reaction `reaction_42`

This is an irreversible reaction of two reactants forming two products influenced by two modifiers.

Name reaction_42

Reaction equation

$$\text{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446} + \text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d} \xrightarrow{\text{mw2b255f94\_8018\_4}} \tag{150}$$

Reactants

Table 50: Properties of each reactant.

Id	Name	SBO
`mw2b255f94_8018_4b99_bde8_918eeac45446`	STAT3	
`mw6cce2109_0e32_4dd9_98ec_41173e8ef07d`	Ractive	

Modifiers

Table 51: Properties of each modifier.

Id	Name	SBO
`mw2b255f94_8018_4b99_bde8_918eeac45446`	STAT3	
`mw6cce2109_0e32_4dd9_98ec_41173e8ef07d`	Ractive	

Products

Table 52: Properties of each product.

Id	Name	SBO
mw48867e93_f170_44e8_ac7a_185b23e1bf3b	pSTAT3	
mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	Ractive	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{19} = \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \\ \cdot \mathrm{Function\_for\_reaction\_42}([\mathrm{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}], \\ [\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}], \\ \mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569}, \\ \mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d}, \\ \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \end{aligned} \tag{151}$$

$$\begin{aligned} &\mathrm{Function\_for\_reaction\_42}([\mathrm{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}], \\ &[\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}], \\ &\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569}, \\ &\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d}, \\ &\mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \end{aligned} \tag{152}$$

$$= \frac{\frac{\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569} \cdot [\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}] \cdot [\mathrm{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}]}{\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d} + [\mathrm{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}]}}{\mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}$$

$$\begin{aligned} &\mathrm{Function\_for\_reaction\_42}([\mathrm{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}], \\ &[\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}], \\ &\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569}, \\ &\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d}, \\ &\mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \end{aligned} \tag{153}$$

$$= \frac{\frac{\mathrm{mw9442cd0e\_4d7c\_4ba6\_a695\_f84919bdf569} \cdot [\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}] \cdot [\mathrm{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}]}{\mathrm{mwe8fc1900\_f07d\_468b\_b5c8\_15400a583c3d} + [\mathrm{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446}]}}{\mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}$$

10.20 Reaction reaction_43

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

Name reaction_43

Reaction equation

$$\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b} \xrightarrow{\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}} \text{mw2b255f94\_8018\_4b9} \tag{154}$$

Reactant

Table 53: Properties of each reactant.

Id	Name	SBO
mw48867e93_f170_44e8_ac7a_185b23e1bf3b	pSTAT3	

Modifier

Table 54: Properties of each modifier.

Id	Name	SBO
mw48867e93_f170_44e8_ac7a_185b23e1bf3b	pSTAT3	

Product

Table 55: Properties of each product.

Id	Name	SBO
mw2b255f94_8018_4b99_bde8_918eeac45446	STAT3	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{20} = {} & \text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right) \\ & \cdot \text{Function\_for\_reaction\_43}\left(\left[\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}\right],\right. \\ & \qquad \text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc}, \\ & \qquad \text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right), \\ & \qquad \left.\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}\right) \end{aligned} \tag{155}$$

$$\begin{aligned}&\text{Function\_for\_reaction\_43}\left([\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}],\right.\\&\quad\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc},\\&\quad\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right),\\&\quad\left.\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}\right)\\&\quad=\frac{\frac{\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc}\cdot[\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}]}{\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}+[\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}]}}{\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)}\end{aligned}\tag{156}$$

$$\begin{aligned}&\text{Function\_for\_reaction\_43}\left([\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}],\right.\\&\quad\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc},\\&\quad\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right),\\&\quad\left.\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}\right)\\&\quad=\frac{\frac{\text{mwd36b0261\_2480\_4cab\_9222\_2cf8fb0e65dc}\cdot[\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}]}{\text{mwfd291862\_195f\_4979\_94b5\_b4e5ae1b7d52}+[\text{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b}]}}{\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)}\end{aligned}\tag{157}$$

10.21 Reaction `reaction_44`

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name reaction_44

Reaction equation

$$\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}\xrightarrow{\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}}\emptyset\tag{158}$$

Reactant

Table 56: Properties of each reactant.

Id	Name	SBO
`mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9`	R_IL6_gp130	

Modifier

Table 57: Properties of each modifier.

Id	Name	SBO
`mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9`	R_IL6_gp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{21} = \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \mathrm{Function\_for\_reaction\_44}\,(\mathrm{kRint}, [\mathrm{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \tag{159}$$

$$\mathrm{Function\_for\_reaction\_44}\,(\mathrm{kRint}, [\mathrm{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{kRint} \cdot [\mathrm{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}]}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{160}$$

$$\mathrm{Function\_for\_reaction\_44}\,(\mathrm{kRint}, [\mathrm{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{kRint} \cdot [\mathrm{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9}]}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{161}$$

10.22 Reaction `reaction_45`

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name reaction_45

Reaction equation

$$\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d} \xrightarrow{\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}} \emptyset \tag{162}$$

Reactant

Table 58: Properties of each reactant.

Id	Name	SBO
`mw6cce2109_0e32_4dd9_98ec_41173e8ef07d`	Ractive	

Modifier

Table 59: Properties of each modifier.

Id	Name	SBO
mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	Ractive	

Kinetic Law

Derived unit contains undeclared units

$$v_{22} = \mathrm{vol}\left(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right) \cdot \mathrm{Function\_for\_reaction\_45}\left(\left[\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}\right], \mathrm{vol}\left(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right), \mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a}\right) \tag{163}$$

$$\mathrm{Function\_for\_reaction\_45}\left(\left[\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}\right], \mathrm{vol}\left(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right), \mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a}\right) = \frac{\mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a} \cdot \left[\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}\right]}{\mathrm{vol}\left(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)} \tag{164}$$

$$\mathrm{Function\_for\_reaction\_45}\left(\left[\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}\right], \mathrm{vol}\left(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right), \mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a}\right) = \frac{\mathrm{mwf44f7f27\_5bb1\_4c7f\_8964\_560fa5e1743a} \cdot \left[\mathrm{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}\right]}{\mathrm{vol}\left(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right)} \tag{165}$$

10.23 Reaction mwb675e13a_26c0_4b18_a8c3_0f5a62090ba4

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

Name mwb675e13a_26c0_4b18_a8c3_0f5a62090ba4

Reaction equation

$$\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb} \xrightarrow{\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}} \mathrm{mwd2d9d93a\_3bd1\_4} \tag{166}$$

Reactant

Table 60: Properties of each reactant.

Id	Name	SBO
mw0eb6c959_d408_45a0_a450_928b8c5876bb	Ractive	

Modifier

Table 61: Properties of each modifier.

Id	Name	SBO
mw0eb6c959_d408_45a0_a450_928b8c5876bb	Ractive	

Product

Table 62: Properties of each product.

Id	Name	SBO
mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a	R_IL6_gp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{23} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_mwb675e13a\_26c0\_4b18\_a8c3\_0f5a62090ba4}\left([\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}], \mathrm{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8}\right) \tag{167}$$

$$\mathrm{Function\_for\_mwb675e13a\_26c0\_4b18\_a8c3\_0f5a62090ba4}\left([\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}], \mathrm{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8}\right) = \frac{\frac{\mathrm{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787} \cdot [\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}]}{\mathrm{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8} + [\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}]}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

$$\mathrm{Function\_for\_mwb675e13a\_26c0\_4b18\_a8c3\_0f5a62090ba4}\left([\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}], \mathrm{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8}\right) = \frac{\frac{\mathrm{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787} \cdot [\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}]}{\mathrm{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8} + [\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb}]}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

10.24 Reaction mw64df7c9e_35da_4c7f_be56_c5dabfb060b6

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

Name mw64df7c9e_35da_4c7f_be56_c5dabfb060b6

Reaction equation

$$\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d} \xrightarrow{\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}} \text{mw824bc3d4\_1ac3\_49} \tag{170}$$

Reactant

Table 63: Properties of each reactant.

Id	Name	SBO
mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	Ractive	

Modifier

Table 64: Properties of each modifier.

Id	Name	SBO
mw6cce2109_0e32_4dd9_98ec_41173e8ef07d	Ractive	

Product

Table 65: Properties of each product.

Id	Name	SBO
mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9	R_IL6_gp130	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{24} = {} & \mathrm{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right) \\ & \cdot \text{Function\_for\_mw64df7c9e\_35da\_4c7f\_be56\_c5dabfb060b6}\left(\text{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787},\right. \\ & \qquad [\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}], \\ & \qquad \mathrm{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right), \\ & \qquad \left.\text{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8}\right) \end{aligned} \tag{171}$$

$$\begin{aligned}&\text{Function\_for\_mw64df7c9e\_35da\_4c7f\_be56\_c5dabfb060b6}\,(\text{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787},\\&[\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}],\\&\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}),\\&\text{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8})\\&=\frac{\frac{\text{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787}\cdot[\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}]}{\text{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8}+[\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}]}}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}\end{aligned}$$

$$\begin{aligned}&\text{Function\_for\_mw64df7c9e\_35da\_4c7f\_be56\_c5dabfb060b6}\,(\text{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787},\\&[\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}],\\&\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}),\\&\text{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8})\\&=\frac{\frac{\text{mw1667a8e0\_9d20\_4e59\_ba51\_596148aba787}\cdot[\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}]}{\text{mwfcf06900\_5f2f\_4bb3\_bb1f\_12023612b8a8}+[\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d}]}}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}\end{aligned}$$

10.25 Reaction mw391f3b8e_5649_4851_b2e2_782cb3e015b6

This is an irreversible reaction of no reactant forming one product.

Name mw391f3b8e_5649_4851_b2e2_782cb3e015b6

Reaction equation

$$\emptyset \longrightarrow \text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd} \tag{174}$$

Product

Table 66: Properties of each product.

Id	Name	SBO
mw80848184_e2dd_47ce_86d7_7a21479342bd	gp130	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned}v_{25} = {}&\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})\\&\cdot \text{Function\_for\_mw391f3b8e\_5649\_4851\_b2e2\_782cb3e015b6}\,(\text{kRsynth},\\&\qquad\text{vol}\,(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}))\end{aligned} \tag{175}$$

$$\begin{aligned}&\text{Function\_for\_mw391f3b8e\_5649\_4851\_b2e2\_782cb3e015b6}\left(\text{kRsynth},\right.\\&\left.\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)\right)\\&\quad=\frac{\text{kRsynth}}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}\end{aligned}\tag{176}$$

$$\begin{aligned}&\text{Function\_for\_mw391f3b8e\_5649\_4851\_b2e2\_782cb3e015b6}\left(\text{kRsynth},\right.\\&\left.\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)\right)\\&\quad=\frac{\text{kRsynth}}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}\end{aligned}\tag{177}$$

10.26 Reaction mw4a00a3a4_778f_4952_8100_2dc3cc2b7046

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw4a00a3a4_778f_4952_8100_2dc3cc2b7046

Reaction equation

$$\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd} \xrightarrow{\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}} \emptyset \tag{178}$$

Reactant

Table 67: Properties of each reactant.

Id	Name	SBO
mw80848184_e2dd_47ce_86d7_7a21479342bd	gp130	

Modifier

Table 68: Properties of each modifier.

Id	Name	SBO
mw80848184_e2dd_47ce_86d7_7a21479342bd	gp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{26} = \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}) \cdot \mathrm{Function\_for\_mw4a00a3a4\_778f\_4952\_8100\_2dc3cc2b7046}\,(\mathrm{kRdeg}, [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) \tag{179}$$

$$\mathrm{Function\_for\_mw4a00a3a4\_778f\_4952\_8100\_2dc3cc2b7046}\,(\mathrm{kRdeg}, [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) = \frac{\mathrm{kRdeg} \cdot [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}]}{\mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{180}$$

$$\mathrm{Function\_for\_mw4a00a3a4\_778f\_4952\_8100\_2dc3cc2b7046}\,(\mathrm{kRdeg}, [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) = \frac{\mathrm{kRdeg} \cdot [\mathrm{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd}]}{\mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{181}$$

10.27 Reaction mw6db30657_4e56_4c3a_8575_9c67393dde4f

This is an irreversible reaction of no reactant forming one product.

Name mw6db30657_4e56_4c3a_8575_9c67393dde4f

Reaction equation

$$\emptyset \longrightarrow \mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca} \tag{182}$$

Product

Table 69: Properties of each product.

Id	Name	SBO
mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca	gp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{27} = \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \mathrm{Function\_for\_mw6db30657\_4e56\_4c3a\_8575\_9c67393dde4f}\,(\mathrm{kRsynth}, \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \tag{183}$$

$$\text{Function\_for\_mw6db30657\_4e56\_4c3a\_8575\_9c67393dde4f}(\text{kRsynth}, \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\text{kRsynth}}{\text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{184}$$

$$\text{Function\_for\_mw6db30657\_4e56\_4c3a\_8575\_9c67393dde4f}(\text{kRsynth}, \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\text{kRsynth}}{\text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{185}$$

10.28 Reaction `mw6f470e13_f0e4_4294_83d8_59dd5670d10c`

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw6f470e13_f0e4_4294_83d8_59dd5670d10c

Reaction equation

$$\text{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca} \xrightarrow{\text{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}} \emptyset \tag{186}$$

Reactant

Table 70: Properties of each reactant.

Id	Name	SBO
`mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca`	gp130	

Modifier

Table 71: Properties of each modifier.

Id	Name	SBO
`mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca`	gp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{28} = \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \mathrm{Function\_for\_mw6f470e13\_f0e4\_4294\_83d8\_59dd5670d10c}\,(\mathrm{kRdeg}, [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \tag{187}$$

$$\mathrm{Function\_for\_mw6f470e13\_f0e4\_4294\_83d8\_59dd5670d10c}\,(\mathrm{kRdeg}, [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{kRdeg} \cdot [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}]}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{188}$$

$$\mathrm{Function\_for\_mw6f470e13\_f0e4\_4294\_83d8\_59dd5670d10c}\,(\mathrm{kRdeg}, [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{kRdeg} \cdot [\mathrm{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca}]}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{189}$$

10.29 Reaction mwfb35eca9_7afc_4ba8_a46c_738cab57eb9f

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mwfb35eca9_7afc_4ba8_a46c_738cab57eb9f

Reaction equation

$$\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc} \rightleftharpoons \mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc, mwd31f52cc\_04e7\_40} \tag{190}$$

Reactant

Table 72: Properties of each reactant.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	

Modifiers

Table 73: Properties of each modifier.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	
mwd31f52cc_04e7_40e0_885f_c7b2d9e62215	sR	

Product

Table 74: Properties of each product.

Id	Name	SBO
mwd31f52cc_04e7_40e0_885f_c7b2d9e62215	sR	

Kinetic Law

Derived unit contains undeclared units

$$v_{29} = \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \cdot [\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}] - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \cdot [\text{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}] \quad (191)$$

10.30 Reaction mw61d2af92_6da5_41ce_b90e_aa6f430e6ba1

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw61d2af92_6da5_41ce_b90e_aa6f430e6ba1

Reaction equation

$$\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b} \xrightleftharpoons{\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b, mw2c9b0499\_3325\_439}} \quad (192)$$

Reactant

Table 75: Properties of each reactant.

Id	Name	SBO
mwf626e95e_543f_41e4_aad4_c6bf60ab345b	IL6	

Modifiers

Table 76: Properties of each modifier.

Id	Name	SBO
mwf626e95e_543f_41e4_aad4_c6bf60ab345b	IL6	
mw2c9b0499_3325_4394_8af3_bbf653a944a0	IL6	

Product

Table 77: Properties of each product.

Id	Name	SBO
mw2c9b0499_3325_4394_8af3_bbf653a944a0	IL6	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{30} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}] \end{aligned} \tag{193}$$

10.31 Reaction mw4c099d5c_200f_474e_8ec1_59e9223a8afd

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name mw4c099d5c_200f_474e_8ec1_59e9223a8afd

Reaction equation

$$\text{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215} + \text{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0} \xrightleftharpoons{\text{mw2c9b0499\_3325\_4} \quad} \tag{194}$$

Reactants

Table 78: Properties of each reactant.

Id	Name	SBO
mwd31f52cc_04e7_40e0_885f_c7b2d9e62215	sR	
mw2c9b0499_3325_4394_8af3_bbf653a944a0	IL6	

Modifiers

Table 79: Properties of each modifier.

Id	Name	SBO
mw2c9b0499_3325_4394_8af3_bbf653a944a0	IL6	
mw7becb5fe_8da8_4285_a821_0d77ad811b62	sR_IL6	
mwd31f52cc_04e7_40e0_885f_c7b2d9e62215	sR	

Product

Table 80: Properties of each product.

Id	Name	SBO
mw7becb5fe_8da8_4285_a821_0d77ad811b62	sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$v_{31} = \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \mathrm{Function\_for\_mw4c099d5c\_200f\_474e\_8ec1\_59e9223a8afd}(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}], [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}], [\mathrm{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}], \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \quad (195)$$

$$\mathrm{Function\_for\_mw4c099d5c\_200f\_474e\_8ec1\_59e9223a8afd}(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}], [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}], [\mathrm{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}], \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \quad (196)$$

$$= \frac{\mathrm{kRLOn} \cdot [\mathrm{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}] \cdot [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}] - \mathrm{kRL}}{\mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}$$

$$\mathrm{Function\_for\_mw4c099d5c\_200f\_474e\_8ec1\_59e9223a8afd}(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}], [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}], [\mathrm{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}], \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \quad (197)$$

$$= \frac{\mathrm{kRLOn} \cdot [\mathrm{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}] \cdot [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}] - \mathrm{kRL}}{\mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}$$

10.32 Reaction mwbe8567ce_3349_4442_8b12_53cd9bc168e7

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mwbe8567ce_3349_4442_8b12_53cd9bc168e7

Reaction equation

$$\text{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d} \xrightleftharpoons{\text{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d, mw7becb5fe\_8da8\_428}} \tag{198}$$

Reactant

Table 81: Properties of each reactant.

Id	Name	SBO
mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	sR_IL6	

Modifiers

Table 82: Properties of each modifier.

Id	Name	SBO
mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	sR_IL6	
mw7becb5fe_8da8_4285_a821_0d77ad811b62	sR_IL6	

Product

Table 83: Properties of each product.

Id	Name	SBO
mw7becb5fe_8da8_4285_a821_0d77ad811b62	sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{32} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}] \end{aligned} \tag{199}$$

10.33 Reaction mw12a9fa7e_a273_4c1e_b970_ed33f3a9a705

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw12a9fa7e_a273_4c1e_b970_ed33f3a9a705

Reaction equation

$$\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc} \xrightleftharpoons{\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc, mw2e464cf3\_a09c\_4b} \quad (200)$$

Reactant

Table 84: Properties of each reactant.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	

Modifiers

Table 85: Properties of each modifier.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	
mw2e464cf3_a09c_4b7c_9f3c_06720016a48e	sR	

Product

Table 86: Properties of each product.

Id	Name	SBO
mw2e464cf3_a09c_4b7c_9f3c_06720016a48e	sR	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{33} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}] \end{aligned} \quad (201)$$

10.34 Reaction mw1046000b_e1e8_4f6f_82a1_532d2aa793bb

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw1046000b_e1e8_4f6f_82a1_532d2aa793bb

Reaction equation

$$\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b} \xrightleftharpoons{\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b, mw0adf3eb4\_a196\_4c4}} \tag{202}$$

Reactant

Table 87: Properties of each reactant.

Id	Name	SBO
mwf626e95e_543f_41e4_aad4_c6bf60ab345b	IL6	

Modifiers

Table 88: Properties of each modifier.

Id	Name	SBO
mwf626e95e_543f_41e4_aad4_c6bf60ab345b	IL6	
mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1	IL6	

Product

Table 89: Properties of each product.

Id	Name	SBO
mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1	IL6	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{34} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}] \end{aligned} \tag{203}$$

10.35 Reaction mw8e8b65a8_6830_4091_9a40_19645e8fe554

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw8e8b65a8_6830_4091_9a40_19645e8fe554

Reaction equation

$$\text{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d} \xrightleftharpoons{\text{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d, mw4638f126\_8cb8\_402}} \tag{204}$$

Reactant

Table 90: Properties of each reactant.

Id	Name	SBO
mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	sR_IL6	

Modifiers

Table 91: Properties of each modifier.

Id	Name	SBO
mw03db56ac_8dc6_4931_ae82_fef706d2ee3d	sR_IL6	
mw4638f126_8cb8_4021_ab41_6ae195743ba0	sR_IL6	

Product

Table 92: Properties of each product.

Id	Name	SBO
mw4638f126_8cb8_4021_ab41_6ae195743ba0	sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{35} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}] \end{aligned} \tag{205}$$

10.36 Reaction mwa812f08f_1035_42bd_82d2_72d691308f88

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name mwa812f08f_1035_42bd_82d2_72d691308f88

Reaction equation

$$\text{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e} + \text{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1} \underset{(206)}{\rightleftharpoons} \text{mw0adf3eb4\_a196\_4c}$$

Reactants

Table 93: Properties of each reactant.

Id	Name	SBO
mw2e464cf3_a09c_4b7c_9f3c_06720016a48e	sR	
mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1	IL6	

Modifiers

Table 94: Properties of each modifier.

Id	Name	SBO
mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1	IL6	
mw2e464cf3_a09c_4b7c_9f3c_06720016a48e	sR	
mw4638f126_8cb8_4021_ab41_6ae195743ba0	sR_IL6	

Product

Table 95: Properties of each product.

Id	Name	SBO
mw4638f126_8cb8_4021_ab41_6ae195743ba0	sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$v_{36} = \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}) \cdot \mathrm{Function\_for\_mwa812f08f\_1035\_42bd\_82d2\_72d691308f88}\,(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}], [\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}], [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) \tag{207}$$

$$\mathrm{Function\_for\_mwa812f08f\_1035\_42bd\_82d2\_72d691308f88}\,(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}], [\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}], [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) = \frac{\mathrm{kRLOn} \cdot [\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}] \cdot [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}] - \mathrm{kRLO}}{\mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{208}$$

$$\mathrm{Function\_for\_mwa812f08f\_1035\_42bd\_82d2\_72d691308f88}\,(\mathrm{kRLOff}, \mathrm{kRLOn}, [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}], [\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}], [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}], \mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})) = \frac{\mathrm{kRLOn} \cdot [\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}] \cdot [\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1}] - \mathrm{kRLO}}{\mathrm{vol}\,(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{209}$$

10.37 Reaction mwab0012ac_e5f2_4904_9893_820fd210402e

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

Name mwab0012ac_e5f2_4904_9893_820fd210402e

Reaction equation

$$\mathrm{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349} \xrightarrow{\mathrm{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349}} \mathrm{mw36ea78c1\_ed71\_4d} \tag{210}$$

Reactant

Table 96: Properties of each reactant.

Id	Name	SBO
mwd5313618_89eb_4c8c_bc82_66f10f966349	CRP	

Modifier

Table 97: Properties of each modifier.

Id	Name	SBO
mwd5313618_89eb_4c8c_bc82_66f10f966349	CRP	

Product

Table 98: Properties of each product.

Id	Name	SBO
mw36ea78c1_ed71_4def_96d3_857a442d7195	CRPExtracellular	

Kinetic Law

Derived unit contains undeclared units

$$v_{37} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_mwab0012ac\_e5f2\_4904\_9893\_820fd210402e}\left(\mathrm{mw862f1480\_c60c\_4863\_a565\_b2c1c77e238e}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349}]\right) \tag{211}$$

$$\mathrm{Function\_for\_mwab0012ac\_e5f2\_4904\_9893\_820fd210402e}\left(\mathrm{mw862f1480\_c60c\_4863\_a565\_b2c1c77e238e}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349}]\right) = \frac{\mathrm{mw862f1480\_c60c\_4863\_a565\_b2c1c77e238e} \cdot [\mathrm{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349}]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

$$\mathrm{Function\_for\_mwab0012ac\_e5f2\_4904\_9893\_820fd210402e}\left(\mathrm{mw862f1480\_c60c\_4863\_a565\_b2c1c77e238e}, \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349}]\right) = \frac{\mathrm{mw862f1480\_c60c\_4863\_a565\_b2c1c77e238e} \cdot [\mathrm{mwd5313618\_89eb\_4c8c\_bc82\_66f10f966349}]}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

10.38 Reaction mwcdc24bd4_d9e4_47fe_8300_d222d853111c

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mwcdc24bd4_d9e4_47fe_8300_d222d853111c

Reaction equation

$$\text{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1} \rightleftharpoons \text{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1, mw36ea78c1\_ed71\_4de} \tag{214}$$

Reactant

Table 99: Properties of each reactant.

Id	Name	SBO
mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	CRP	

Modifiers

Table 100: Properties of each modifier.

Id	Name	SBO
mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	CRP	
mw36ea78c1_ed71_4def_96d3_857a442d7195	CRPExtracellular	

Product

Table 101: Properties of each product.

Id	Name	SBO
mw36ea78c1_ed71_4def_96d3_857a442d7195	CRPExtracellular	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{38} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw36ea78c1\_ed71\_4def\_96d3\_857a442d7195}] \end{aligned} \tag{215}$$

10.39 Reaction mwff2ebcf1_dcf1_47b9_9cac_7306fc6f7f76

This is an irreversible reaction of no reactant forming one product.

Name mwff2ebcf1_dcf1_47b9_9cac_7306fc6f7f76

Reaction equation

$$\emptyset \longrightarrow \text{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1} \tag{216}$$

Product

Table 102: Properties of each product.

Id	Name	SBO
mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	CRP	

Kinetic Law

Derived unit contains undeclared units

$$v_{39} = \text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}) \cdot \text{Function\_for\_mwff2ebcf1\_dcf1\_47b9\_9cac\_7306fc6f7f76}(\text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}), \text{mw65c85954\_5ca0\_4df2\_9e22\_ff2aa3fbe3f1}) \tag{217}$$

$$\text{Function\_for\_mwff2ebcf1\_dcf1\_47b9\_9cac\_7306fc6f7f76}(\text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}), \text{mw65c85954\_5ca0\_4df2\_9e22\_ff2aa3fbe3f1}) = \frac{\text{mw65c85954\_5ca0\_4df2\_9e22\_ff2aa3fbe3f1}}{\text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{218}$$

$$\text{Function\_for\_mwff2ebcf1\_dcf1\_47b9\_9cac\_7306fc6f7f76}(\text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}), \text{mw65c85954\_5ca0\_4df2\_9e22\_ff2aa3fbe3f1}) = \frac{\text{mw65c85954\_5ca0\_4df2\_9e22\_ff2aa3fbe3f1}}{\text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{219}$$

10.40 Reaction mw1c5a5ff7_5130_490f_a740_6a744ccf8a94

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw1c5a5ff7_5130_490f_a740_6a744ccf8a94

Reaction equation

$$\text{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99} \rightleftharpoons \text{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99, mwd65b5b39\_dc1b\_4e} \tag{220}$$

Reactant

Table 103: Properties of each reactant.

Id	Name	SBO
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	

Modifiers

Table 104: Properties of each modifier.

Id	Name	SBO
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	
mwd65b5b39_dc1b_4e77_a999_67277a880e5e	sgp130	

Product

Table 105: Properties of each product.

Id	Name	SBO
mwd65b5b39_dc1b_4e77_a999_67277a880e5e	sgp130	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{40} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e}] \end{aligned} \tag{221}$$

10.41 Reaction mw7b56053c_7256_4703_a8c3_4fd46b2c23d0

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw7b56053c_7256_4703_a8c3_4fd46b2c23d0

Reaction equation

$$\text{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99} \xrightleftharpoons{\text{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99, mw147d30ec\_478e\_40}} \tag{222}$$

Reactant

Table 106: Properties of each reactant.

Id	Name	SBO
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	

Modifiers

Table 107: Properties of each modifier.

Id	Name	SBO
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	
mw147d30ec_478e_4090_b496_128a131d29eb	sgp130	

Product

Table 108: Properties of each product.

Id	Name	SBO
mw147d30ec_478e_4090_b496_128a131d29eb	sgp130	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{41} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw147d30ec\_478e\_4090\_b496\_128a131d29eb}] \end{aligned} \tag{223}$$

10.42 Reaction mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c

Reaction equation

$$\text{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e} + \text{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62} \rightleftharpoons \text{mw6335d5d7\_c7b0} \tag{224}$$

Reactants

Table 109: Properties of each reactant.

Id	Name	SBO
mwd65b5b39_dc1b_4e77_a999_67277a880e5e	sgp130	
mw7becb5fe_8da8_4285_a821_0d77ad811b62	sR_IL6	

Modifiers

Table 110: Properties of each modifier.

Id	Name	SBO
mw6335d5d7_c7b0_4bc0_b883_f7ee4915c2c3	sR_IL6_sgp130	
mw7becb5fe_8da8_4285_a821_0d77ad811b62	sR_IL6	
mwd65b5b39_dc1b_4e77_a999_67277a880e5e	sgp130	

Product

Table 111: Properties of each product.

Id	Name	SBO
mw6335d5d7_c7b0_4bc0_b883_f7ee4915c2c3	sR_IL6_sgp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{42} = \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \mathrm{Function\_for\_mw8be158f1\_ea81\_45bf\_80d4\_6e31cd83fe6c}(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw6335d5d7\_c7b0\_4bc0\_b883\_f7ee4915c2c3}], [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}], [\mathrm{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e}], \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \quad (225)$$

$$\mathrm{Function\_for\_mw8be158f1\_ea81\_45bf\_80d4\_6e31cd83fe6c}(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw6335d5d7\_c7b0\_4bc0\_b883\_f7ee4915c2c3}], [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}], [\mathrm{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e}], \mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \quad (226)$$

$$= \frac{\mathrm{kgp130On} \cdot [\mathrm{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e}] \cdot [\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}] - k}{\mathrm{vol}(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}$$

$$\begin{aligned}&\text{Function\_for\_mw8be158f1\_ea81\_45bf\_80d4\_6e31cd83fe6c}\,(\text{kgp130Off}, \qquad (227)\\ &\text{kgp130On}, [\text{mw6335d5d7\_c7b0\_4bc0\_b883\_f7ee4915c2c3}],\\ &[\text{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}],\\ &[\text{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e}],\\ &\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}))\\ =\ &\frac{\text{kgp130On}\cdot[\text{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e}]\cdot[\text{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62}]-\text{k}}{\text{vol}\,(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}\end{aligned}$$

10.43 Reaction mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6

Reaction equation

$$\text{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0} + \text{mw147d30ec\_478e\_4090\_b496\_128a131d29eb} \overset{\text{mw147d30ec\_478e}}{\rightleftharpoons} \qquad (228)$$

Reactants

Table 112: Properties of each reactant.

Id	Name	SBO
mw4638f126_8cb8_4021_ab41_6ae195743ba0	sR_IL6	
mw147d30ec_478e_4090_b496_128a131d29eb	sgp130	

Modifiers

Table 113: Properties of each modifier.

Id	Name	SBO
mw147d30ec_478e_4090_b496_128a131d29eb	sgp130	
mw4638f126_8cb8_4021_ab41_6ae195743ba0	sR_IL6	
mwab41493c_6349_45f1_a226_3030cfed0e06	sR_IL6_sgp130	

Product

Table 114: Properties of each product.

Id	Name	SBO
mwab41493c_6349_45f1_a226_3030cfed0e06	sR_IL6_sgp130	

Id	Name	SBO

Kinetic Law

Derived unit contains undeclared units

$$v_{43} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_mwd77df15b\_fed7\_41a8\_a3d6\_b0f6c590c5f6}\left(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw147d30ec\_478e\_4090\_b496\_128a131d29eb}], [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwab41493c\_6349\_45f1\_a226\_3030cfed0e06}]\right) \tag{229}$$

$$\mathrm{Function\_for\_mwd77df15b\_fed7\_41a8\_a3d6\_b0f6c590c5f6}\left(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw147d30ec\_478e\_4090\_b496\_128a131d29eb}], [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwab41493c\_6349\_45f1\_a226\_3030cfed0e06}]\right) = \frac{\mathrm{kgp130On} \cdot [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}] \cdot [\mathrm{mw147d30ec\_478e\_4090\_b496\_128a131d29eb}] - 1}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{230}$$

$$\mathrm{Function\_for\_mwd77df15b\_fed7\_41a8\_a3d6\_b0f6c590c5f6}\left(\mathrm{kgp130Off}, \mathrm{kgp130On}, [\mathrm{mw147d30ec\_478e\_4090\_b496\_128a131d29eb}], [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), [\mathrm{mwab41493c\_6349\_45f1\_a226\_3030cfed0e06}]\right) = \frac{\mathrm{kgp130On} \cdot [\mathrm{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0}] \cdot [\mathrm{mw147d30ec\_478e\_4090\_b496\_128a131d29eb}] - 1}{\mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \tag{231}$$

10.44 Reaction mw01babcdf_0f03_46b0_81b1_201cc846e361

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw01babcdf_0f03_46b0_81b1_201cc846e361

Reaction equation

$$\mathrm{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e} \xrightleftharpoons{\mathrm{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e},\ \mathrm{mw6335d5d7\_c7b0\_4b}} \tag{232}$$

Reactant

Table 115: Properties of each reactant.

Id	Name	SBO
mw810ff751_fa4e_4143_bd50_169b3e325e1e	sR_IL6_sgp130	

Modifiers

Table 116: Properties of each modifier.

Id	Name	SBO
mw810ff751_fa4e_4143_bd50_169b3e325e1e	sR_IL6_sgp130	
mw6335d5d7_c7b0_4bc0_b883_f7ee4915c2c3	sR_IL6_sgp130	

Product

Table 117: Properties of each product.

Id	Name	SBO
mw6335d5d7_c7b0_4bc0_b883_f7ee4915c2c3	sR_IL6_sgp130	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{44} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw6335d5d7\_c7b0\_4bc0\_b883\_f7ee4915c2c3}] \end{aligned} \tag{233}$$

10.45 Reaction mwae5dbb44_7de5_46ab_8c20_ac4f8956b0f0

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mwae5dbb44_7de5_46ab_8c20_ac4f8956b0f0

Reaction equation

$$\text{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e} \xrightleftharpoons{\text{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e, mwab41493c\_6349\_45f} \quad} \tag{234}$$

Reactant

Table 118: Properties of each reactant.

Id	Name	SBO
mw810ff751_fa4e_4143_bd50_169b3e325e1e	sR_IL6_sgp130	

Modifiers

Table 119: Properties of each modifier.

Id	Name	SBO
mw810ff751_fa4e_4143_bd50_169b3e325e1e	sR_IL6_sgp130	
mwab41493c_6349_45f1_a226_3030cfed0e06	sR_IL6_sgp130	

Product

Table 120: Properties of each product.

Id	Name	SBO
mwab41493c_6349_45f1_a226_3030cfed0e06	sR_IL6_sgp130	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{45} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mwab41493c\_6349\_45f1\_a226\_3030cfed0e06}] \end{aligned} \tag{235}$$

10.46 Reaction mw432fde6e_59ab_47f0_9fb1_086433a602e3

This is an irreversible reaction of no reactant forming one product.

Name mw432fde6e_59ab_47f0_9fb1_086433a602e3

Reaction equation

$$\emptyset \longrightarrow \text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc} \tag{236}$$

Product

Table 121: Properties of each product.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	

Kinetic Law

Derived unit contains undeclared units

$$v_{46} = \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \mathrm{Function\_for\_mw432fde6e\_59ab\_47f0\_9fb1\_086433a602e3}\left(\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwc4c58db7\_5535\_4590\_aaa5\_bbc8ed53cdab}\right) \tag{237}$$

$$\mathrm{Function\_for\_mw432fde6e\_59ab\_47f0\_9fb1\_086433a602e3}\left(\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwc4c58db7\_5535\_4590\_aaa5\_bbc8ed53cdab}\right) = \frac{\mathrm{mwc4c58db7\_5535\_4590\_aaa5\_bbc8ed53cdab}}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{238}$$

$$\mathrm{Function\_for\_mw432fde6e\_59ab\_47f0\_9fb1\_086433a602e3}\left(\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwc4c58db7\_5535\_4590\_aaa5\_bbc8ed53cdab}\right) = \frac{\mathrm{mwc4c58db7\_5535\_4590\_aaa5\_bbc8ed53cdab}}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{239}$$

10.47 Reaction mw41c27823_d7ee_4554_9eac_3d5beec8e854

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw41c27823_d7ee_4554_9eac_3d5beec8e854

Reaction equation

$$\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc} \xrightarrow{\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}} \emptyset \tag{240}$$

Reactant

Table 122: Properties of each reactant.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	

Modifier

Table 123: Properties of each modifier.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	

Kinetic Law

Derived unit contains undeclared units

$$v_{47} = \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \mathrm{Function\_for\_mw41c27823\_d7ee\_4554\_9eac\_3d5beec8e854}\left([\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mw88a75379\_f9a1\_4acc\_baeb\_94c32bb736a5}\right) \tag{241}$$

$$\mathrm{Function\_for\_mw41c27823\_d7ee\_4554\_9eac\_3d5beec8e854}\left([\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mw88a75379\_f9a1\_4acc\_baeb\_94c32bb736a5}\right) = \frac{\mathrm{mw88a75379\_f9a1\_4acc\_baeb\_94c32bb736a5} \cdot [\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{242}$$

$$\mathrm{Function\_for\_mw41c27823\_d7ee\_4554\_9eac\_3d5beec8e854}\left([\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mw88a75379\_f9a1\_4acc\_baeb\_94c32bb736a5}\right) = \frac{\mathrm{mw88a75379\_f9a1\_4acc\_baeb\_94c32bb736a5} \cdot [\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{243}$$

10.48 Reaction mw50c6744c_e883_4612_8663_e38750cbad1b

This is an irreversible reaction of no reactant forming one product.

Name mw50c6744c_e883_4612_8663_e38750cbad1b

Reaction equation

$$\emptyset \longrightarrow \mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99} \tag{244}$$

Product

Table 124: Properties of each product.

Id	Name	SBO
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{48} = \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}) \cdot \mathrm{Function\_for\_mw50c6744c\_e883\_4612\_8663\_e38750cbad1b}\,(\mathrm{mw1f41474c\_c399\_4a60\_a53a\_9926dd092e8d},\ \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})) \tag{245}$$

$$\mathrm{Function\_for\_mw50c6744c\_e883\_4612\_8663\_e38750cbad1b}\,(\mathrm{mw1f41474c\_c399\_4a60\_a53a\_9926dd092e8d},\ \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})) = \frac{\mathrm{mw1f41474c\_c399\_4a60\_a53a\_9926dd092e8d}}{\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{246}$$

$$\mathrm{Function\_for\_mw50c6744c\_e883\_4612\_8663\_e38750cbad1b}\,(\mathrm{mw1f41474c\_c399\_4a60\_a53a\_9926dd092e8d},\ \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})) = \frac{\mathrm{mw1f41474c\_c399\_4a60\_a53a\_9926dd092e8d}}{\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{247}$$

10.49 Reaction mwb6a99eb5_ea4c_4733_98dd_1daf5ec6b0db

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mwb6a99eb5_ea4c_4733_98dd_1daf5ec6b0db

Reaction equation

$$\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99} \xrightarrow{\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}} \emptyset \tag{248}$$

Reactant

Table 125: Properties of each reactant.

Id	Name	SBO
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	

Modifier

Table 126: Properties of each modifier.

Id	Name	SBO
mwbbbce920_e8dd_4320_9386_fc94bfb2fc99	sgp130	

Kinetic Law

Derived unit contains undeclared units

$$v_{49} = \mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}) \cdot \mathrm{Function\_for\_mwb6a99eb5\_ea4c\_4733\_98dd\_1daf5ec6b0db}\,(\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}), [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}], \mathrm{mwbcb5a310\_9b67\_405e\_89ec\_43d25e8cc93d}) \tag{249}$$

$$\mathrm{Function\_for\_mwb6a99eb5\_ea4c\_4733\_98dd\_1daf5ec6b0db}\,(\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}), [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}], \mathrm{mwbcb5a310\_9b67\_405e\_89ec\_43d25e8cc93d}) = \frac{\mathrm{mwbcb5a310\_9b67\_405e\_89ec\_43d25e8cc93d} \cdot [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}]}{\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{250}$$

$$\mathrm{Function\_for\_mwb6a99eb5\_ea4c\_4733\_98dd\_1daf5ec6b0db}\,(\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}), [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}], \mathrm{mwbcb5a310\_9b67\_405e\_89ec\_43d25e8cc93d}) = \frac{\mathrm{mwbcb5a310\_9b67\_405e\_89ec\_43d25e8cc93d} \cdot [\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99}]}{\mathrm{vol}\,(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e})} \tag{251}$$

10.50 Reaction mw1ce0c484_681f_4d85_8ffe_392d0c100cfa

This is an irreversible reaction of no reactant forming one product.

Name mw1ce0c484_681f_4d85_8ffe_392d0c100cfa

Reaction equation

$$\emptyset \longrightarrow \mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0} \tag{252}$$

Product

Table 127: Properties of each product.

Id	Name	SBO
mw2c9b0499_3325_4394_8af3_bbf653a944a0	IL6	

Kinetic Law

Derived unit contains undeclared units

$$v_{50} = \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \mathrm{Function\_for\_mw1ce0c484\_681f\_4d85\_8ffe\_392d0c100cfa}\,(\mathrm{mwa8d72918\_f6c2\_4d81\_bf3b\_fc2b464d5e69}, \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \tag{253}$$

$$\mathrm{Function\_for\_mw1ce0c484\_681f\_4d85\_8ffe\_392d0c100cfa}\,(\mathrm{mwa8d72918\_f6c2\_4d81\_bf3b\_fc2b464d5e69}, \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{mwa8d72918\_f6c2\_4d81\_bf3b\_fc2b464d5e69}}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{254}$$

$$\mathrm{Function\_for\_mw1ce0c484\_681f\_4d85\_8ffe\_392d0c100cfa}\,(\mathrm{mwa8d72918\_f6c2\_4d81\_bf3b\_fc2b464d5e69}, \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{mwa8d72918\_f6c2\_4d81\_bf3b\_fc2b464d5e69}}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{255}$$

10.51 Reaction mwf913ea0b_785a_4701_ac91_b18ab5dd5a89

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mwf913ea0b_785a_4701_ac91_b18ab5dd5a89

Reaction equation

$$\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0} \xrightarrow{\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}} \emptyset \tag{256}$$

Reactant

Table 128: Properties of each reactant.

Id	Name	SBO
mw2c9b0499_3325_4394_8af3_bbf653a944a0	IL6	

Modifier

Table 129: Properties of each modifier.

Id	Name	SBO
mw2c9b0499_3325_4394_8af3_bbf653a944a0	IL6	

Id	Name	SBO

Kinetic Law

Derived unit contains undeclared units

$$v_{51} = \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \mathrm{Function\_for\_mwf913ea0b\_785a\_4701\_ac91\_b18ab5dd5a89}\,(\mathrm{mw06241335\_b5f2\_47ed\_bdcc\_ef77b68a2b98}, [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \tag{257}$$

$$\mathrm{Function\_for\_mwf913ea0b\_785a\_4701\_ac91\_b18ab5dd5a89}\,(\mathrm{mw06241335\_b5f2\_47ed\_bdcc\_ef77b68a2b98}, [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{mw06241335\_b5f2\_47ed\_bdcc\_ef77b68a2b98} \cdot [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}]}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{258}$$

$$\mathrm{Function\_for\_mwf913ea0b\_785a\_4701\_ac91\_b18ab5dd5a89}\,(\mathrm{mw06241335\_b5f2\_47ed\_bdcc\_ef77b68a2b98}, [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}], \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{mw06241335\_b5f2\_47ed\_bdcc\_ef77b68a2b98} \cdot [\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0}]}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{259}$$

10.52 Reaction mw71d90b81_8211_4039_8807_12a7fe03206c

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

Name mw71d90b81_8211_4039_8807_12a7fe03206c

Reaction equation

$$\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1} \xrightarrow{\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}} \mathrm{mw30ae63db\_6cd3\_4b6} \tag{260}$$

Reactant

Table 130: Properties of each reactant.

Id	Name	SBO
mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	CRP	

Modifier

Table 131: Properties of each modifier.

Id	Name	SBO
mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	CRP	

Products

Table 132: Properties of each product.

Id	Name	SBO
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	
mw114aa90f_5f5b_4fe8_9406_361c8489b6a1	CRP	

Kinetic Law

Derived unit contains undeclared units

$$v_{52} = \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \mathrm{Function\_for\_mw71d90b81\_8211\_4039\_8807\_12a7fe03206c}\left(\left[\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}\right], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mw5832a2dc\_ee18\_44df\_aa59\_ccb21cb74df2}\right) \tag{261}$$

$$\mathrm{Function\_for\_mw71d90b81\_8211\_4039\_8807\_12a7fe03206c}\left(\left[\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}\right], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mw5832a2dc\_ee18\_44df\_aa59\_ccb21cb74df2}\right) = \frac{\mathrm{mw5832a2dc\_ee18\_44df\_aa59\_ccb21cb74df2} \cdot \left[\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}\right]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{262}$$

$$\mathrm{Function\_for\_mw71d90b81\_8211\_4039\_8807\_12a7fe03206c}\left(\left[\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}\right], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mw5832a2dc\_ee18\_44df\_aa59\_ccb21cb74df2}\right) = \frac{\mathrm{mw5832a2dc\_ee18\_44df\_aa59\_ccb21cb74df2} \cdot \left[\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1}\right]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{263}$$

10.53 Reaction mwdf4ba845_7271_4ada_b43f_fdac83df3b5c

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mwdf4ba845_7271_4ada_b43f_fdac83df3b5c

Reaction equation

$$\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \rightleftharpoons \text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded, mwbc2f5464\_81e5\_43} \tag{264}$$

Reactant

Table 133: Properties of each reactant.

Id	Name	SBO
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	

Modifiers

Table 134: Properties of each modifier.

Id	Name	SBO
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	
mwbc2f5464_81e5_43fd_8b39_f5a2756af72f	Ab	

Product

Table 135: Properties of each product.

Id	Name	SBO
mwbc2f5464_81e5_43fd_8b39_f5a2756af72f	Ab	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{53} = {} & \text{mwf67caf9d\_2f4b\_4986\_abf2\_e6090bbb72ce} \\ & \cdot [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \\ & - \text{mw4aea26f6\_8860\_414c\_97f5\_40d325196f2e} \\ & \cdot [\text{mwbc2f5464\_81e5\_43fd\_8b39\_f5a2756af72f}] \end{aligned} \tag{265}$$

10.54 Reaction mwb1879013_5fcd_490c_8b01_eaf84df15b9a

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name mwb1879013_5fcd_490c_8b01_eaf84df15b9a

Reaction equation

$$\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} + \mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc} \rightleftharpoons \mathrm{mw1da111f2\_a036\_4} \tag{266}$$

Reactants

Table 136: Properties of each reactant.

Id	Name	SBO
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	

Modifiers

Table 137: Properties of each modifier.

Id	Name	SBO
mw1da111f2_a036_4392_8512_015005bdcbb7	Ab_sR	
mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc	sR	
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	

Product

Table 138: Properties of each product.

Id	Name	SBO
mw1da111f2_a036_4392_8512_015005bdcbb7	Ab_sR	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{54} = {} & \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \\ & \cdot \mathrm{Function\_for\_mwb1879013\_5fcd\_490c\_8b01\_eaf84df15b9a}\left(\mathrm{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_97b0e2101ead},\right. \\ & \qquad [\mathrm{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}], \\ & \qquad [\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}], \\ & \qquad \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \\ & \qquad \mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}, \\ & \qquad \left.[\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]\right) \end{aligned} \tag{267}$$

$$\text{Function\_for\_mwb1879013\_5fcd\_490c\_8b01\_eaf84df15b9a}(\text{mw1c4bc9c3\_52ad\_4ef7\_bf7f}(2780)\text{e2101ead}, [\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}], [\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}], \text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}), \text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}, [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]) = \frac{\text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \cdot [\text{mw30ae63db\_6}}{\text{vol}(\text{mw53ffe9e6}}$$

$$\text{Function\_for\_mwb1879013\_5fcd\_490c\_8b01\_eaf84df15b9a}(\text{mw1c4bc9c3\_52ad\_4ef7\_bf7f}(2780)\text{e2101ead}, [\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}], [\text{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc}], \text{vol}(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}), \text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}, [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]) = \frac{\text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \cdot [\text{mw30ae63db\_6}}{\text{vol}(\text{mw53ffe9e6}}$$

10.55 Reaction mw30abb016_4300_4f40_a1b3_f865d0a45707

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw30abb016_4300_4f40_a1b3_f865d0a45707

Reaction equation

$$\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7} \xrightarrow{\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}} \emptyset \quad (270)$$

Reactant

Table 139: Properties of each reactant.

Id	Name	SBO
mw1da111f2_a036_4392_8512_015005bdcbb7	Ab_sR	

Modifier

Table 140: Properties of each modifier.

Id	Name	SBO
mw1da111f2_a036_4392_8512_015005bdcbb7	Ab_sR	

Id	Name	SBO

Kinetic Law

Derived unit contains undeclared units

$$v_{55} = \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \mathrm{Function\_for\_mw30abb016\_4300\_4f40\_a1b3\_f865d0a45707}\left([\mathrm{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \tag{271}$$

$$\mathrm{Function\_for\_mw30abb016\_4300\_4f40\_a1b3\_f865d0a45707}\left([\mathrm{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) = \frac{\mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\mathrm{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{272}$$

$$\mathrm{Function\_for\_mw30abb016\_4300\_4f40\_a1b3\_f865d0a45707}\left([\mathrm{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}], \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) = \frac{\mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\mathrm{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{273}$$

10.56 Reaction `mwba7f4605_8571_439b_b3ab_eb0b43808db8`

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mwba7f4605_8571_439b_b3ab_eb0b43808db8

Reaction equation

$$\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \xrightarrow{\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}} \emptyset \tag{274}$$

Reactant

Table 141: Properties of each reactant.

Id	Name	SBO
`mwf345ed7a_0622_403c_b816_c8749a2c9ded`	Ab	

Modifier

Table 142: Properties of each modifier.

Id	Name	SBO
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	

Kinetic Law

Derived unit contains undeclared units

$$v_{56} = \mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \cdot \mathrm{Function\_for\_mwba7f4605\_8571\_439b\_b3ab\_eb0b43808db8}\left(\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, [\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]\right) \tag{275}$$

$$\mathrm{Function\_for\_mwba7f4605\_8571\_439b\_b3ab\_eb0b43808db8}\left(\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, [\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]\right) = \frac{\mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{276}$$

$$\mathrm{Function\_for\_mwba7f4605\_8571\_439b\_b3ab\_eb0b43808db8}\left(\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right), \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, [\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]\right) = \frac{\mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}]}{\mathrm{vol}\left(\mathrm{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \tag{277}$$

10.57 Reaction mw8b4e96ed_0bcc_4ad6_b560_366e173a6e6b

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw8b4e96ed_0bcc_4ad6_b560_366e173a6e6b

Reaction equation

$$\mathrm{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0} \xrightarrow{\mathrm{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}} \emptyset \tag{278}$$

Reactant

Table 143: Properties of each reactant.

Id	Name	SBO
mw5d764bb8_5693_4ac8_9557_f65992cc5eb0	Ab_sR	

Modifier

Table 144: Properties of each modifier.

Id	Name	SBO
mw5d764bb8_5693_4ac8_9557_f65992cc5eb0	Ab_sR	

Kinetic Law

Derived unit contains undeclared units

$$v_{57} = \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \mathrm{Function\_for\_mw8b4e96ed\_0bcc\_4ad6\_b560\_366e173a6e6b}\,([\mathrm{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}], \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) \tag{279}$$

$$\mathrm{Function\_for\_mw8b4e96ed\_0bcc\_4ad6\_b560\_366e173a6e6b}\,([\mathrm{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}], \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\mathrm{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}]}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{280}$$

$$\mathrm{Function\_for\_mw8b4e96ed\_0bcc\_4ad6\_b560\_366e173a6e6b}\,([\mathrm{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}], \mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})) = \frac{\mathrm{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\mathrm{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}]}{\mathrm{vol}\,(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{281}$$

10.58 Reaction mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1

Reaction equation

$$\mathrm{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c} + \mathrm{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215} \rightleftharpoons \mathrm{mw5d764bb8\_5693\_4} \tag{282}$$

Reactants

Table 145: Properties of each reactant.

Id	Name	SBO
mwf7796221_1fea_4274_a93e_c00adbf5778c	Ab	
mwd31f52cc_04e7_40e0_885f_c7b2d9e62215	sR	

Modifiers

Table 146: Properties of each modifier.

Id	Name	SBO
mw5d764bb8_5693_4ac8_9557_f65992cc5eb0	Ab_sR	
mwd31f52cc_04e7_40e0_885f_c7b2d9e62215	sR	
mwf7796221_1fea_4274_a93e_c00adbf5778c	Ab	

Product

Table 147: Properties of each product.

Id	Name	SBO
mw5d764bb8_5693_4ac8_9557_f65992cc5eb0	Ab_sR	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{58} = \mathrm{vol}\left(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right) \quad (283)\\
\cdot \mathrm{Function\_for\_mwa3cb4a9b\_d628\_4807\_8847\_bdcd9b40c7f1}\left(\mathrm{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_97b0e2101ead},\right.\\
\left[\mathrm{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}\right],\\
\mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197},\\
\left[\mathrm{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}\right],\\
\mathrm{vol}\left(\mathrm{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right),\\
\left.\left[\mathrm{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}\right]\right)
\end{aligned}
$$

$$\text{Function\_for\_mwa3cb4a9b\_d628\_4807\_8847\_bdcd9b40c7f1}(\text{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_2874e2101ead},\ [\text{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}],\ \text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197},\ [\text{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}],\ \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}),\ [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}]) = \frac{\text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}] \cdot [\text{mwd31f52cc\_04}}{\text{vol}(\text{mwe9501423\_}}$$

$$\text{Function\_for\_mwa3cb4a9b\_d628\_4807\_8847\_bdcd9b40c7f1}(\text{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_2874e2101ead},\ [\text{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}],\ \text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197},\ [\text{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215}],\ \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}),\ [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}]) = \frac{\text{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}] \cdot [\text{mwd31f52cc\_04}}{\text{vol}(\text{mwe9501423\_}}$$

10.59 Reaction mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1

Reaction equation

$$\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d} + \text{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e} \underset{(286)}{\overset{\text{mw2e464cf3\_a09c\_4}}{\rightleftharpoons}}$$

Reactants

Table 148: Properties of each reactant.

Id	Name	SBO
mw3667a5e1_02c9_44a0_acb4_b0431faa822d	Ab	
mw2e464cf3_a09c_4b7c_9f3c_06720016a48e	sR	

Modifiers

Table 149: Properties of each modifier.

Id	Name	SBO
mw2e464cf3_a09c_4b7c_9f3c_06720016a48e	sR	
mw3667a5e1_02c9_44a0_acb4_b0431faa822d	Ab	
mwf405687b_7401_44ec_a0d6_4a2b35c13e8a	Ab_sR	

Product

Table 150: Properties of each product.

Id	Name	SBO
mwf405687b_7401_44ec_a0d6_4a2b35c13e8a	Ab_sR	

Kinetic Law

Derived unit contains undeclared units

$$v_{59} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_mw8fb6c0a7\_b05d\_4c2a\_8866\_77eb81f063d1}\left(\mathrm{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_97b0e2101ead}, [\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}], [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}, [\mathrm{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]\right) \tag{287}$$

$$\mathrm{Function\_for\_mw8fb6c0a7\_b05d\_4c2a\_8866\_77eb81f063d1}\left(\mathrm{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_97b0e2101ead}, [\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}], [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}, [\mathrm{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]\right) = \frac{\mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}] \cdot [\mathrm{mw2e464cf3\_a0}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a}\right.} \tag{288}$$

$$\mathrm{Function\_for\_mw8fb6c0a7\_b05d\_4c2a\_8866\_77eb81f063d1}\left(\mathrm{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_97b0e2101ead}, [\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e}], [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}, [\mathrm{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]\right) = \frac{\mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}] \cdot [\mathrm{mw2e464cf3\_a0}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a}\right.} \tag{289}$$

10.60 Reaction mw3e76b10b_5420_4828_8c70_b91b767132d0

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw3e76b10b_5420_4828_8c70_b91b767132d0

Reaction equation

$$\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a} \xrightarrow{\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}} \emptyset \tag{290}$$

Reactant

Table 151: Properties of each reactant.

Id	Name	SBO
mwf405687b_7401_44ec_a0d6_4a2b35c13e8a	Ab_sR	

Modifier

Table 152: Properties of each modifier.

Id	Name	SBO
mwf405687b_7401_44ec_a0d6_4a2b35c13e8a	Ab_sR	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{60} = {} & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \\ & \cdot \text{Function\_for\_mw3e76b10b\_5420\_4828\_8c70\_b91b767132d0}\left(\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\right. \\ & \qquad \text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \\ & \qquad \left.[\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]\right) \end{aligned} \tag{291}$$

$$\begin{aligned} & \text{Function\_for\_mw3e76b10b\_5420\_4828\_8c70\_b91b767132d0}\left(\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\right. \\ & \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, [\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]\right) \\ = {} & \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \end{aligned} \tag{292}$$

$$\begin{aligned} & \text{Function\_for\_mw3e76b10b\_5420\_4828\_8c70\_b91b767132d0}\left(\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\right. \\ & \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, [\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]\right) \\ = {} & \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}]}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \end{aligned} \tag{293}$$

10.61 Reaction mw131e3c9d_e77d_48c0_bdbb_77b2c10aaf3d

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw131e3c9d_e77d_48c0_bdbb_77b2c10aaf3d

Reaction equation

$$\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \xrightleftharpoons{\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded, mw3667a5e1\_02c9\_44}} \tag{294}$$

Reactant

Table 153: Properties of each reactant.

Id	Name	SBO
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	

Modifiers

Table 154: Properties of each modifier.

Id	Name	SBO
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	
mw3667a5e1_02c9_44a0_acb4_b0431faa822d	Ab	

Product

Table 155: Properties of each product.

Id	Name	SBO
mw3667a5e1_02c9_44a0_acb4_b0431faa822d	Ab	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{61} = {} & \text{mw640ca705\_e089\_4c64\_a5f4\_9562317e8c76} \\ & \cdot [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \\ & - \text{mw43ccad8c\_cabf\_4eaf\_90d5\_e06ae43be2cb} \\ & \cdot [\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}] \end{aligned} \tag{295}$$

10.62 Reaction mw14940d1f_6a1f_47cb_8170_801ba645f4c1

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw14940d1f_6a1f_47cb_8170_801ba645f4c1

Reaction equation

$$\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} \xrightleftharpoons{\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded, mwf7796221\_1fea\_42}} \tag{296}$$

Reactant

Table 156: Properties of each reactant.

Id	Name	SBO
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	

Modifiers

Table 157: Properties of each modifier.

Id	Name	SBO
mwf345ed7a_0622_403c_b816_c8749a2c9ded	Ab	
mwf7796221_1fea_4274_a93e_c00adbf5778c	Ab	

Product

Table 158: Properties of each product.

Id	Name	SBO
mwf7796221_1fea_4274_a93e_c00adbf5778c	Ab	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{62} = {} & \text{mw9f83bdd3\_3aa1\_47ff\_abd6\_54e5ce60704a} \\ & \cdot [\text{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded}] \\ & - \text{mwa071fdbe\_d498\_4620\_a7a4\_940aa31c8161} \\ & \cdot [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}] \end{aligned} \tag{297}$$

10.63 Reaction mwa2f4d966_ae2c_4ed2_b522_12755f12ff15

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mwa2f4d966_ae2c_4ed2_b522_12755f12ff15

Reaction equation

$$\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7} \xrightleftharpoons{\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7, mwf405687b\_7401\_4}} \tag{298}$$

Reactant

Table 159: Properties of each reactant.

Id	Name	SBO
mw1da111f2_a036_4392_8512_015005bdcbb7	Ab_sR	

Modifiers

Table 160: Properties of each modifier.

Id	Name	SBO
mw1da111f2_a036_4392_8512_015005bdcbb7	Ab_sR	
mwf405687b_7401_44ec_a0d6_4a2b35c13e8a	Ab_sR	

Product

Table 161: Properties of each product.

Id	Name	SBO
mwf405687b_7401_44ec_a0d6_4a2b35c13e8a	Ab_sR	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{63} = {} & \text{mw640ca705\_e089\_4c64\_a5f4\_9562317e8c76} \\ & \cdot [\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}] \\ & - \text{mw43ccad8c\_cabf\_4eaf\_90d5\_e06ae43be2cb} \\ & \cdot [\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a}] \end{aligned} \tag{299}$$

10.64 Reaction mw700e677e_d3b6_4a97_991f_279605a9abeb

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw700e677e_d3b6_4a97_991f_279605a9abeb

Reaction equation

$$\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7} \xrightleftharpoons{\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7, mw5d764bb8\_5693\_} \quad (300)$$

Reactant

Table 162: Properties of each reactant.

Id	Name	SBO
mw1da111f2_a036_4392_8512_015005bdcbb7	Ab_sR	

Modifiers

Table 163: Properties of each modifier.

Id	Name	SBO
mw1da111f2_a036_4392_8512_015005bdcbb7	Ab_sR	
mw5d764bb8_5693_4ac8_9557_f65992cc5eb0	Ab_sR	

Product

Table 164: Properties of each product.

Id	Name	SBO
mw5d764bb8_5693_4ac8_9557_f65992cc5eb0	Ab_sR	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{64} = {} & \text{mw9f83bdd3\_3aa1\_47ff\_abd6\_54e5ce60704a} \\ & \cdot [\text{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7}] \\ & - \text{mwa071fdbe\_d498\_4620\_a7a4\_940aa31c8161} \\ & \cdot [\text{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0}] \end{aligned} \quad (301)$$

10.65 Reaction mw2ae288ab_7d03_4a84_a024_c711ad2b77e6

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw2ae288ab_7d03_4a84_a024_c711ad2b77e6

Reaction equation

$$\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d} \xrightarrow{\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}} \emptyset \tag{302}$$

Reactant

Table 165: Properties of each reactant.

Id	Name	SBO
mw3667a5e1_02c9_44a0_acb4_b0431faa822d	Ab	

Modifier

Table 166: Properties of each modifier.

Id	Name	SBO
mw3667a5e1_02c9_44a0_acb4_b0431faa822d	Ab	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{65} = {} & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \\ & \cdot \text{Function\_for\_mw2ae288ab\_7d03\_4a84\_a024\_c711ad2b77e6}\left(\left[\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}\right],\right. \\ & \qquad \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \qquad \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \end{aligned} \tag{303}$$

$$\begin{aligned} & \text{Function\_for\_mw2ae288ab\_7d03\_4a84\_a024\_c711ad2b77e6}\left(\left[\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}\right],\right. \\ & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \\ = {} & \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot \left[\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}\right]}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \end{aligned} \tag{304}$$

$$\text{Function\_for\_mw2ae288ab\_7d03\_4a84\_a024\_c711ad2b77e6}([\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}], \text{vol}(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}), \text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}) = \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}]}{\text{vol}(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e})} \tag{305}$$

10.66 Reaction mw9629d028_fcc0_4886_9e4d_36eecdb0381d

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw9629d028_fcc0_4886_9e4d_36eecdb0381d

Reaction equation

$$\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c} \xrightarrow{\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}} \emptyset \tag{306}$$

Reactant

Table 167: Properties of each reactant.

Id	Name	SBO
mwf7796221_1fea_4274_a93e_c00adbf5778c	Ab	

Modifier

Table 168: Properties of each modifier.

Id	Name	SBO
mwf7796221_1fea_4274_a93e_c00adbf5778c	Ab	

Kinetic Law

Derived unit contains undeclared units

$$v_{66} = \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}) \cdot \text{Function\_for\_mw9629d028\_fcc0\_4886\_9e4d\_36eecdb0381d}(\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}), [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}]) \tag{307}$$

$$\text{Function\_for\_mw9629d028\_fcc0\_4886\_9e4d\_36eecdb0381d}(\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}), [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}]) = \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}]}{\text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{309}$$

$$\text{Function\_for\_mw9629d028\_fcc0\_4886\_9e4d\_36eecdb0381d}(\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}), [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}]) = \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c}]}{\text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})} \tag{309}$$

10.67 Reaction mw6b46c550_674f_4857_b947_d31221cd8dd3

This is a reversible reaction of two reactants forming one product influenced by three modifiers.

Name mw6b46c550_674f_4857_b947_d31221cd8dd3

Reaction equation

$$\text{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d} + \text{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374} \overset{\text{mw10315fa3\_6f13\_4}}{\rightleftharpoons} \tag{310}$$

Reactants

Table 169: Properties of each reactant.

Id	Name	SBO
mw3667a5e1_02c9_44a0_acb4_b0431faa822d	Ab	
mw10315fa3_6f13_4618_bda8_a8694bd3c374	R	

Modifiers

Table 170: Properties of each modifier.

Id	Name	SBO
mw10315fa3_6f13_4618_bda8_a8694bd3c374	R	
mw3667a5e1_02c9_44a0_acb4_b0431faa822d	Ab	
mw772cbf20_3fc1_4800_ae59_77884f1ae333	Ab_R	

Product

Table 171: Properties of each product.

Id	Name	SBO
mw772cbf20_3fc1_4800_ae59_77884f1ae333	Ab_R	

Kinetic Law

Derived unit contains undeclared units

$$v_{67} = \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \cdot \mathrm{Function\_for\_mw6b46c550\_674f\_4857\_b947\_d31221cd8dd3}\left([\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], \mathrm{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_97b0e2101ead}, [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}], [\mathrm{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}\right) \tag{311}$$

$$\mathrm{Function\_for\_mw6b46c550\_674f\_4857\_b947\_d31221cd8dd3}\left([\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], \mathrm{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_97b0e2101ead}, [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}], [\mathrm{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}\right) \tag{312}$$

$$= \frac{\mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}] \cdot [\mathrm{mw10315fa3\_6}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a}\right.}$$

$$\mathrm{Function\_for\_mw6b46c550\_674f\_4857\_b947\_d31221cd8dd3}\left([\mathrm{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374}], \mathrm{mw1c4bc9c3\_52ad\_4ef7\_bf7f\_97b0e2101ead}, [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}], [\mathrm{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}], \mathrm{vol}\left(\mathrm{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197}\right) \tag{313}$$

$$= \frac{\mathrm{mwa09d6284\_843e\_404e\_abbb\_052fbb535197} \cdot [\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d}] \cdot [\mathrm{mw10315fa3\_6}}{\mathrm{vol}\left(\mathrm{mw88ca8d9a}\right.}$$

10.68 Reaction mw920e142e_b2c4_42b2_88f4_9f68cc50142e

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw920e142e_b2c4_42b2_88f4_9f68cc50142e

Reaction equation

$$\text{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333} \xrightarrow{\text{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}} \emptyset \tag{314}$$

Reactant

Table 172: Properties of each reactant.

Id	Name	SBO
mw772cbf20_3fc1_4800_ae59_77884f1ae333	Ab_R	

Modifier

Table 173: Properties of each modifier.

Id	Name	SBO
mw772cbf20_3fc1_4800_ae59_77884f1ae333	Ab_R	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{68} = {} & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \\ & \cdot \text{Function\_for\_mw920e142e\_b2c4\_42b2\_88f4\_9f68cc50142e}\left([\text{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}],\right. \\ & \qquad \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \qquad \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \end{aligned} \tag{315}$$

$$\begin{aligned} & \text{Function\_for\_mw920e142e\_b2c4\_42b2\_88f4\_9f68cc50142e}\left([\text{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}],\right. \\ & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \\ = {} & \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}]}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \end{aligned} \tag{316}$$

$$\begin{aligned} & \text{Function\_for\_mw920e142e\_b2c4\_42b2\_88f4\_9f68cc50142e}\left([\text{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}],\right. \\ & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \\ = {} & \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333}]}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \end{aligned} \tag{317}$$

10.69 Reaction mw1b09ae22_e4c7_4830_b566_f263cf4e3f9c

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mw1b09ae22_e4c7_4830_b566_f263cf4e3f9c

Reaction equation

$$\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac} \xrightleftharpoons{\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac, mwedc1bc00\_adf7\_414}} \tag{318}$$

Reactant

Table 174: Properties of each reactant.

Id	Name	SBO
mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	Ab_sR_IL6	

Modifiers

Table 175: Properties of each modifier.

Id	Name	SBO
mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	Ab_sR_IL6	
mwedc1bc00_adf7_4144_a1c2_7dc1a9565dc2	Ab_sR_IL6	

Product

Table 176: Properties of each product.

Id	Name	SBO
mwedc1bc00_adf7_4144_a1c2_7dc1a9565dc2	Ab_sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{69} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2}] \end{aligned} \tag{319}$$

10.70 Reaction mwf9c93372_1c4e_4988_b8a7_7b9981192b30

This is a reversible reaction of one reactant forming one product influenced by two modifiers.

Name mwf9c93372_1c4e_4988_b8a7_7b9981192b30

Reaction equation

$$\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac} \xrightleftharpoons{\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac, mw2ba2b802\_9f07\_4f4} \quad (320)$$

Reactant

Table 177: Properties of each reactant.

Id	Name	SBO
mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	Ab_sR_IL6	

Modifiers

Table 178: Properties of each modifier.

Id	Name	SBO
mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	Ab_sR_IL6	
mw2ba2b802_9f07_4f4d_94c6_24c8de1a95cf	Ab_sR_IL6	

Product

Table 179: Properties of each product.

Id	Name	SBO
mw2ba2b802_9f07_4f4d_94c6_24c8de1a95cf	Ab_sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{70} = {} & \text{mwc67e1333\_079a\_4bea\_9b4f\_0a1b15ddd7bb} \\ & \cdot [\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}] \\ & - \text{mwce10678d\_8197\_408c\_ad47\_1daec8104cd8} \\ & \cdot [\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf}] \end{aligned} \quad (321)$$

10.71 Reaction mw5e1e306a_63ed_43a8_b79f_b403516e7963

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mw5e1e306a_63ed_43a8_b79f_b403516e7963

Reaction equation

$$\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac} \xrightarrow{\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}} \emptyset \tag{322}$$

Reactant

Table 180: Properties of each reactant.

Id	Name	SBO
mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	Ab_sR_IL6	

Modifier

Table 181: Properties of each modifier.

Id	Name	SBO
mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac	Ab_sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{71} = {} & \text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right) \\ & \cdot \text{Function\_for\_mw5e1e306a\_63ed\_43a8\_b79f\_b403516e7963}\left(\text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right),\right. \\ & \left.[\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}],\right. \\ & \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \end{aligned} \tag{323}$$

$$\begin{aligned} & \text{Function\_for\_mw5e1e306a\_63ed\_43a8\_b79f\_b403516e7963}\left(\text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right),\right. \\ & \left.[\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}], \text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \\ = {} & \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}]}{\text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \end{aligned} \tag{324}$$

$$\begin{aligned} & \text{Function\_for\_mw5e1e306a\_63ed\_43a8\_b79f\_b403516e7963}\left(\text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right),\right. \\ & \left.[\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}], \text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \\ = {} & \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac}]}{\text{vol}\left(\text{mw53ffe9e6\_beef\_45c4\_90a5\_a79197ed506e}\right)} \end{aligned} \tag{325}$$

10.72 Reaction mwfeae4233_1272_453f_a97f_70982c445b43

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mwfeae4233_1272_453f_a97f_70982c445b43

Reaction equation

$$\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf} \xrightarrow{\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf}} \emptyset \tag{326}$$

Reactant

Table 182: Properties of each reactant.

Id	Name	SBO
mw2ba2b802_9f07_4f4d_94c6_24c8de1a95cf	Ab_sR_IL6	

Modifier

Table 183: Properties of each modifier.

Id	Name	SBO
mw2ba2b802_9f07_4f4d_94c6_24c8de1a95cf	Ab_sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned} v_{72} = {} & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right) \\ & \cdot \text{Function\_for\_mwfeae4233\_1272\_453f\_a97f\_70982c445b43}\left(\left[\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf}\right],\right. \\ & \qquad \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \qquad \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \end{aligned} \tag{327}$$

$$\begin{aligned} & \text{Function\_for\_mwfeae4233\_1272\_453f\_a97f\_70982c445b43}\left(\left[\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf}\right],\right. \\ & \text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right), \\ & \left.\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right) \\ = {} & \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot \left[\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf}\right]}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)} \end{aligned} \tag{328}$$

$$\text{Function\_for\_mwfeae4233\_1272\_453f\_a97f\_70982c445b43}\left([\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf}],\right. \tag{329}$$
$$\left.\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right),\ \text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}\right)$$
$$= \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf}]}{\text{vol}\left(\text{mw88ca8d9a\_f5cf\_41bf\_9d9d\_fc48f6e1a19e}\right)}$$

10.73 Reaction mwe84cc3ad_af35_43a8_aa6a_9f68a6d68185

This is an irreversible reaction of one reactant forming no product influenced by one modifier.

Name mwe84cc3ad_af35_43a8_aa6a_9f68a6d68185

Reaction equation

$$\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2} \xrightarrow{\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2}} \emptyset \tag{330}$$

Reactant

Table 184: Properties of each reactant.

Id	Name	SBO
mwedc1bc00_adf7_4144_a1c2_7dc1a9565dc2	Ab_sR_IL6	

Modifier

Table 185: Properties of each modifier.

Id	Name	SBO
mwedc1bc00_adf7_4144_a1c2_7dc1a9565dc2	Ab_sR_IL6	

Kinetic Law

Derived unit contains undeclared units

$$v_{73} = \text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right) \tag{331}$$
$$\cdot\text{Function\_for\_mwe84cc3ad\_af35\_43a8\_aa6a\_9f68a6d68185}\left(\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30},\right.$$
$$\text{vol}\left(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}\right),$$
$$\left.[\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2}]\right)$$

$$\text{Function\_for\_mwe84cc3ad\_af35\_43a8\_aa6a\_9f68a6d68185}(\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}), [\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2}]) = \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2}]}{\text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}$$

$$\text{Function\_for\_mwe84cc3ad\_af35\_43a8\_aa6a\_9f68a6d68185}(\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30}, \text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5}), [\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2}]) = \frac{\text{mwbd1d5bc3\_d4b9\_4aec\_9b86\_6f776da20a30} \cdot [\text{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2}]}{\text{vol}(\text{mwe9501423\_9fb4\_494b\_b5b6\_288f3fcb17b5})}$$

11 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.

Identifiers for kinetic laws highlighted in gray cannot be verified to evaluate to units of SBML `substance` per `time`. As a result, some SBML interpreters may not be able to verify the consistency of the units on quantities in the model. Please check if

- parameters without an unit definition are involved or
- volume correction is necessary because the `hasOnlySubstanceUnits` flag may be set to `false` and `spacialDimensions`> 0 for certain species.

11.1 Species mwf626e95e_543f_41e4_aad4_c6bf60ab345b

Name IL6

Initial concentration $4.35628896551166 \cdot 10^{-4}\ \text{nmol} \cdot \text{l}^{-1}$

This species takes part in nine reactions (as a reactant in reaction_1, reaction_4, mw61d2af92_6da5_41ce_b90e_aa6f430e6ba1, mw1046000b_e1e8_4f6f_82a1_532d2aa793bb and as a product in reaction_3 and as a modifier in reaction_1, reaction_4, mw61d2af92_6da5_41ce_b90e_aa6f430e6ba1, mw1046000b_e1e8_4f6f_82a1_532d2aa793bb).

$$\frac{\text{d}}{\text{d}t}\text{mwf626e95e\_543f\_41e4\_aad4\_c6bf60ab345b} = v_3 - v_1 - v_4 - v_{30} - v_{34} \quad (334)$$

11.2 Species mwbbbce920_e8dd_4320_9386_fc94bfb2fc99

Name sgp130

Initial concentration $3.9\ \text{nmol} \cdot \text{l}^{-1}$

This species takes part in nine reactions (as a reactant in reaction_2, mw1c5a5ff7_5130-_490f_a740_6a744ccf8a94, mw7b56053c_7256_4703_a8c3_4fd46b2c23d0, mwb6a99eb5_ea4c-_4733_98dd_1daf5ec6b0db and as a product in mw50c6744c_e883_4612_8663_e38750cbad1b and as a modifier in reaction_2, mw1c5a5ff7_5130_490f_a740_6a744ccf8a94, mw7b56053c-_7256_4703_a8c3_4fd46b2c23d0, mwb6a99eb5_ea4c_4733_98dd_1daf5ec6b0db).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwbbbce920\_e8dd\_4320\_9386\_fc94bfb2fc99} = v_{48} - v_2 - v_{40} - v_{41} - v_{49} \quad (335)$$

11.3 Species mw810ff751_fa4e_4143_bd50_169b3e325e1e

Name sR_IL6_sgp130

Initial concentration 0.0874060669217432 nmol · l^{-1}

This species takes part in six reactions (as a reactant in mw01babcdf_0f03_46b0_81b1_201cc846e361, mwae5dbb44_7de5_46ab_8c20_ac4f8956b0f0 and as a product in reaction_2 and as a modifier in reaction_2, mw01babcdf_0f03_46b0_81b1_201cc846e361, mwae5dbb44_7de5_46ab-_8c20_ac4f8956b0f0).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw810ff751\_fa4e\_4143\_bd50\_169b3e325e1e} = v_2 - v_{44} - v_{45} \quad (336)$$

11.4 Species mw114aa90f_5f5b_4fe8_9406_361c8489b6a1

Name CRP

Initial concentration 221.06367608557 nmol · l^{-1}

This species takes part in eight reactions (as a reactant in reaction_5, mwcdc24bd4_d9e4-_47fe_8300_d222d853111c, mw71d90b81_8211_4039_8807_12a7fe03206c and as a product in mwff2ebcf1_dcf1_47b9_9cac_7306fc6f7f76, mw71d90b81_8211_4039_8807_12a7fe03206c and as a modifier in reaction_5, mwcdc24bd4_d9e4_47fe_8300_d222d853111c, mw71d90b81-_8211_4039_8807_12a7fe03206c).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw114aa90f\_5f5b\_4fe8\_9406\_361c8489b6a1} = v_{39} + v_{52} - v_5 - v_{38} - v_{52} \quad (337)$$

11.5 Species mw30ae63db_6cd3_4b6f_93ad_3350cd360bcc

Name sR

Initial concentration 4.25350679194445 nmol · l^{-1}

This species takes part in twelve reactions (as a reactant in reaction_1, mwfb35eca9_7afc-_4ba8_a46c_738cab57eb9f, mw12a9fa7e_a273_4c1e_b970_ed33f3a9a705, mw41c27823_d7ee-_4554_9eac_3d5beec8e854, mwb1879013_5fcd_490c_8b01_eaf84df15b9a and as a product in mw432fde6e_59ab_47f0_9fb1_086433a602e3, mw71d90b81_8211_4039_8807_12a7fe03206c

and as a modifier in reaction_1, mwfb35eca9_7afc_4ba8_a46c_738cab57eb9f, mw12a9fa7e-_a273_4c1e_b970_ed33f3a9a705, mw41c27823_d7ee_4554_9eac_3d5beec8e854, mwb1879013-_5fcd_490c_8b01_eaf84df15b9a).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw30ae63db\_6cd3\_4b6f\_93ad\_3350cd360bcc} = v_{46} + v_{52} - v_{1} - v_{29} - v_{33} - v_{47} - v_{54} \tag{338}$$

11.6 Species mw03db56ac_8dc6_4931_ae82_fef706d2ee3d

Name sR_IL6

Initial concentration $0.00109424263781451\ \mathrm{nmol}\cdot\mathrm{l}^{-1}$

This species takes part in eight reactions (as a reactant in reaction_2, mwbe8567ce_3349-_4442_8b12_53cd9bc168e7, mw8e8b65a8_6830_4091_9a40_19645e8fe554 and as a product in reaction_1 and as a modifier in reaction_1, reaction_2, mwbe8567ce_3349_4442-_8b12_53cd9bc168e7, mw8e8b65a8_6830_4091_9a40_19645e8fe554).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw03db56ac\_8dc6\_4931\_ae82\_fef706d2ee3d} = v_{1} - v_{2} - v_{32} - v_{35} \tag{339}$$

11.7 Species mwf345ed7a_0622_403c_b816_c8749a2c9ded

Name Ab

Initial concentration $2.38181965637876\cdot 10^{-29}\ \mathrm{nmol}\cdot\mathrm{l}^{-1}$

Involved in events Week0, Week4_0, Week8, event_1, event_2, event_3

This species takes part in ten reactions (as a reactant in mwdf4ba845_7271_4ada_b43f_fdac83df3b5c, mwb1879013_5fcd_490c_8b01_eaf84df15b9a, mwba7f4605_8571_439b_b3ab_eb0b43808db8, mw131e3c9d_e77d_48c0_bdbb_77b2c10aaf3d, mw14940d1f_6a1f_47cb_8170_801ba645f4c1 and as a modifier in mwdf4ba845_7271_4ada_b43f_fdac83df3b5c, mwb1879013_5fcd_490c-_8b01_eaf84df15b9a, mwba7f4605_8571_439b_b3ab_eb0b43808db8, mw131e3c9d_e77d_48c0-_bdbb_77b2c10aaf3d, mw14940d1f_6a1f_47cb_8170_801ba645f4c1).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwf345ed7a\_0622\_403c\_b816\_c8749a2c9ded} = -v_{53} - v_{54} - v_{56} - v_{61} - v_{62} \tag{340}$$

Furthermore, six events influence this species' rate of change.

11.8 Species mw1da111f2_a036_4392_8512_015005bdcbb7

Name Ab_sR

Initial concentration $6.10439110812442\cdot 10^{-26}\ \mathrm{nmol}\cdot\mathrm{l}^{-1}$

This species takes part in eight reactions (as a reactant in mw30abb016_4300_4f40_a1b3-_f865d0a45707, mwa2f4d966_ae2c_4ed2_b522_12755f12ff15, mw700e677e_d3b6_4a97_991f-_279605a9abeb and as a product in mwb1879013_5fcd_490c_8b01_eaf84df15b9a and as a modifier in mwb1879013_5fcd_490c_8b01_eaf84df15b9a, mw30abb016_4300_4f40_a1b3-_f865d0a45707, mwa2f4d966_ae2c_4ed2_b522_12755f12ff15, mw700e677e_d3b6_4a97_991f-_279605a9abeb).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw1da111f2\_a036\_4392\_8512\_015005bdcbb7} = v_{54} - v_{55} - v_{63} - v_{64} \quad (341)$$

11.9 Species mw9947742a_0e4b_4636_9a4b_b6eef2a8f6ac

Name Ab_sR_IL6

Initial concentration $-7.413309014 \cdot 10^{-29}\ \mathrm{nmol \cdot l^{-1}}$

This species takes part in six reactions (as a reactant in mw1b09ae22_e4c7_4830_b566_f263cf4e3f9c, mwf9c93372_1c4e_4988_b8a7_7b9981192b30, mw5e1e306a_63ed_43a8_b79f_b403516e7963 and as a modifier in mw1b09ae22_e4c7_4830_b566_f263cf4e3f9c, mwf9c93372_1c4e_4988-_b8a7_7b9981192b30, mw5e1e306a_63ed_43a8_b79f_b403516e7963).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw9947742a\_0e4b\_4636\_9a4b\_b6eef2a8f6ac} = -v_{69} - v_{70} - v_{71} \quad (342)$$

11.10 Species CRP_Suppression___

Name CRP Suppression (%)

Initial concentration $0\ \mathrm{nmol \cdot l^{-1}}$

Involved in rule CRP_Suppression___

One rule determines the species' quantity.

11.11 Species CRP____of_baseline

Name CRP (% of baseline)

Initial concentration $100\ \mathrm{nmol \cdot l^{-1}}$

Involved in rule CRP____of_baseline

One rule determines the species' quantity.

11.12 Species mw80848184_e2dd_47ce_86d7_7a21479342bd

Name gp130

Initial concentration $0.388958921403941\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in seven reactions (as a reactant in reaction_6, reaction_8, mw4a00a3a4_778f_4952_8100_2dc3cc2b7046 and as a product in mw391f3b8e_5649_4851_b2e2_782cb3e015b6 and as a modifier in reaction_6, reaction_8, mw4a00a3a4_778f_4952_8100_2dc3cc2b7046).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw80848184\_e2dd\_47ce\_86d7\_7a21479342bd} = v_{25} - v_6 - v_8 - v_{26} \qquad (343)$$

11.13 Species mwd2d9d93a_3bd1_4f17_bac1_baba9ef2d55a

Name R_IL6_gp130

Initial concentration $6.59935877686372\cdot 10^{-5}\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in nine reactions (as a reactant in reaction_16, reaction_12 and as a product in reaction_6, reaction_8, mwb675e13a_26c0_4b18_a8c3_0f5a62090ba4 and as a modifier in reaction_6, reaction_8, reaction_16, reaction_12).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwd2d9d93a\_3bd1\_4f17\_bac1\_baba9ef2d55a} = v_6 + v_8 + v_{23} - v_9 - v_{14} \qquad (344)$$

11.14 Species mw4638f126_8cb8_4021_ab41_6ae195743ba0

Name sR_IL6

Initial concentration $9.76164943878914\cdot 10^{-4}\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in eight reactions (as a reactant in reaction_6, mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6 and as a product in mw8e8b65a8_6830_4091_9a40_19645e8fe554, mwa812f08f_1035_42bd_82d2_72d691308f88 and as a modifier in reaction_6, mw8e8b65a8_6830_4091_9a40_19645e8fe554, mwa812f08f_1035_42bd_82d2_72d691308f88, mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw4638f126\_8cb8\_4021\_ab41\_6ae195743ba0} = v_{35} + v_{36} - v_6 - v_{43} \qquad (345)$$

11.15 Species mw10315fa3_6f13_4618_bda8_a8694bd3c374

Name R

Initial concentration $0.438235811135574\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in seven reactions (as a reactant in reaction_7, reaction_15, mw6b46c550_674f_4857_b947_d31221cd8dd3 and as a product in reaction_14 and as a modifier in reaction_7, reaction_15, mw6b46c550_674f_4857_b947_d31221cd8dd3).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw10315fa3\_6f13\_4618\_bda8\_a8694bd3c374} = v_{16} - v_7 - v_{12} - v_{67} \qquad (346)$$

11.16 Species mw0adf3eb4_a196_4c48_b10d_4e9e9faaf9e1

Name IL6

Initial concentration $7.2566581144648 \cdot 10^{-4}$ nmol $\cdot$ l^{-1}

This species takes part in six reactions (as a reactant in reaction_7, mwa812f08f_1035_42bd_82d2_72d691308f88 and as a product in mw1046000b_e1e8_4f6f_82a1_532d2aa793bb and as a modifier in reaction_7, mw1046000b_e1e8_4f6f_82a1_532d2aa793bb, mwa812f08f_1035_42bd_82d2_72d691308f88).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw0adf3eb4\_a196\_4c48\_b10d\_4e9e9faaf9e1} = v_{34} - v_7 - v_{36} \tag{347}$$

11.17 Species mw7d86cc23_a1af_44c3_bdb9_71e9b1bb2a83

Name R_IL6

Initial concentration $1.60036523605187 \cdot 10^{-5}$ nmol $\cdot$ l^{-1}

This species takes part in six reactions (as a reactant in reaction_8, reaction_11 and as a product in reaction_7 and as a modifier in reaction_7, reaction_8, reaction_11).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw7d86cc23\_a1af\_44c3\_bdb9\_71e9b1bb2a83} = v_7 - v_8 - v_{13} \tag{348}$$

11.18 Species mw0eb6c959_d408_45a0_a450_928b8c5876bb

Name Ractive

Initial concentration 0.765416493681823 nmol $\cdot$ l^{-1}

This species takes part in eight reactions (as a reactant in reaction_9, reaction_13, mwb675e13a_26c0_4b18_a8c3_0f5a62090ba4 and as a product in reaction_16, reaction_9 and as a modifier in reaction_9, reaction_13, mwb675e13a_26c0_4b18_a8c3_0f5a62090ba4).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw0eb6c959\_d408\_45a0\_a450\_928b8c5876bb} = v_9 + v_{10} - v_{10} - v_{15} - v_{23} \tag{349}$$

11.19 Species mw42054cd7_17af_46da_970c_7f99151906ad

Name STAT3

Initial concentration 0.777537339578333 nmol $\cdot$ l^{-1}

This species takes part in three reactions (as a reactant in reaction_9 and as a product in reaction_10 and as a modifier in reaction_9).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw42054cd7\_17af\_46da\_970c\_7f99151906ad} = v_{11} - v_{10} \tag{350}$$

11.20 Species mw39c2e431_fdc3_4964_be29_6ca856620b1b

Name pSTAT3

Initial concentration 9.22246266042168 nmol · l^{-1}

This species takes part in three reactions (as a reactant in reaction_10 and as a product in reaction_9 and as a modifier in reaction_10).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw39c2e431\_fdc3\_4964\_be29\_6ca856620b1b} = v_{10} - v_{11} \tag{351}$$

11.21 Species mwd5313618_89eb_4c8c_bc82_66f10f966349

Name CRP

Initial concentration 158.325846781611 nmol · l^{-1}

Involved in rule mwd5313618_89eb_4c8c_bc82_66f10f966349

This species takes part in two reactions (as a reactant in mwab0012ac_e5f2_4904_9893_820fd210402e and as a modifier in mwab0012ac_e5f2_4904_9893_820fd210402e). Not these but one rule determines the species' quantity because this species is on the boundary of the reaction system.

11.22 Species mw2e464cf3_a09c_4b7c_9f3c_06720016a48e

Name sR

Initial concentration 6.08704712819469 nmol · l^{-1}

This species takes part in six reactions (as a reactant in mwa812f08f_1035_42bd_82d2_72d691308f88, mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1 and as a product in mw12a9fa7e_a273_4c1e_b970_ed33f3a9a705 and as a modifier in mw12a9fa7e_a273_4c1e_b970_ed33f3a9a705, mwa812f08f_1035_42bd_82d2_72d691308f88, mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw2e464cf3\_a09c\_4b7c\_9f3c\_06720016a48e} = v_{33} - v_{36} - v_{59} \tag{352}$$

11.23 Species mw36ea78c1_ed71_4def_96d3_857a442d7195

Name CRPExtracellular

Initial concentration 409.775322370541 nmol · l^{-1}

This species takes part in three reactions (as a product in mwab0012ac_e5f2_4904_9893_820fd210402e, mwcdc24bd4_d9e4_47fe_8300_d222d853111c and as a modifier in mwcdc24bd4_d9e4_47fe_8300_d222d853111c).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw36ea78c1\_ed71\_4def\_96d3\_857a442d7195} = v_{37} + v_{38} \tag{353}$$

11.24 Species mw147d30ec_478e_4090_b496_128a131d29eb

Name sgp130

Initial concentration $5.5896988923534\ \text{nmol} \cdot \text{l}^{-1}$

This species takes part in four reactions (as a reactant in mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6 and as a product in mw7b56053c_7256_4703_a8c3_4fd46b2c23d0 and as a modifier in mw7b56053c_7256_4703_a8c3_4fd46b2c23d0, mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6).

$$\frac{\text{d}}{\text{d}t}\text{mw147d30ec\_478e\_4090\_b496\_128a131d29eb} = v_{41} - v_{43} \tag{354}$$

11.25 Species mwab41493c_6349_45f1_a226_3030cfed0e06

Name sR_IL6_sgp130

Initial concentration $0.116343661809953\ \text{nmol} \cdot \text{l}^{-1}$

This species takes part in four reactions (as a product in mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6, mwae5dbb44_7de5_46ab_8c20_ac4f8956b0f0 and as a modifier in mwd77df15b_fed7_41a8_a3d6_b0f6c590c5f6, mwae5dbb44_7de5_46ab_8c20_ac4f8956b0f0).

$$\frac{\text{d}}{\text{d}t}\text{mwab41493c\_6349\_45f1\_a226\_3030cfed0e06} = v_{43} + v_{45} \tag{355}$$

11.26 Species mwf405687b_7401_44ec_a0d6_4a2b35c13e8a

Name Ab_sR

Initial concentration $8.616193096436 \cdot 10^{-26}\ \text{nmol} \cdot \text{l}^{-1}$

This species takes part in six reactions (as a reactant in mw3e76b10b_5420_4828_8c70_b91b767132d0 and as a product in mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1, mwa2f4d966_ae2c_4ed2_b522_12755f12ff15 and as a modifier in mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1, mw3e76b10b_5420_4828_8c70_b91b767132d0, mwa2f4d966_ae2c_4ed2_b522_12755f12ff15).

$$\frac{\text{d}}{\text{d}t}\text{mwf405687b\_7401\_44ec\_a0d6\_4a2b35c13e8a} = v_{59} + v_{63} - v_{60} \tag{356}$$

11.27 Species mw3667a5e1_02c9_44a0_acb4_b0431faa822d

Name Ab

Initial concentration $2.20020723250569 \cdot 10^{-29}\ \text{nmol} \cdot \text{l}^{-1}$

This species takes part in eight reactions (as a reactant in mw8fb6c0a7_b05d_4c2a_8866-_77eb81f063d1, mw2ae288ab_7d03_4a84_a024_c711ad2b77e6, mw6b46c550_674f_4857_b947-_d31221cd8dd3 and as a product in mw131e3c9d_e77d_48c0_bdbb_77b2c10aaf3d and as a modifier in mw8fb6c0a7_b05d_4c2a_8866_77eb81f063d1, mw131e3c9d_e77d_48c0_bdbb-_77b2c10aaf3d, mw2ae288ab_7d03_4a84_a024_c711ad2b77e6, mw6b46c550_674f_4857_b947-_d31221cd8dd3).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw3667a5e1\_02c9\_44a0\_acb4\_b0431faa822d} = v_{61} - v_{59} - v_{65} - v_{67} \quad (357)$$

11.28 Species mw772cbf20_3fc1_4800_ae59_77884f1ae333

Name Ab_R

Initial concentration $2.03371981683734 \cdot 10^{-27}$ nmol · l^{-1}

This species takes part in four reactions (as a reactant in mw920e142e_b2c4_42b2_88f4_9f68cc50142e and as a product in mw6b46c550_674f_4857_b947_d31221cd8dd3 and as a modifier in mw6b46c550-_674f_4857_b947_d31221cd8dd3, mw920e142e_b2c4_42b2_88f4_9f68cc50142e).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw772cbf20\_3fc1\_4800\_ae59\_77884f1ae333} = v_{67} - v_{68} \quad (358)$$

11.29 Species mw2ba2b802_9f07_4f4d_94c6_24c8de1a95cf

Name Ab_sR_IL6

Initial concentration $-3.077934746 \cdot 10^{-29}$ nmol · l^{-1}

This species takes part in four reactions (as a reactant in mwfeae4233_1272_453f_a97f_70982c445b43 and as a product in mwf9c93372_1c4e_4988_b8a7_7b9981192b30 and as a modifier in mwf9c93372-_1c4e_4988_b8a7_7b9981192b30, mwfeae4233_1272_453f_a97f_70982c445b43).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw2ba2b802\_9f07\_4f4d\_94c6\_24c8de1a95cf} = v_{70} - v_{72} \quad (359)$$

11.30 Species mw7becb5fe_8da8_4285_a821_0d77ad811b62

Name sR_IL6

Initial concentration 0.00130682388893128 nmol · l^{-1}

This species takes part in eight reactions (as a reactant in reaction_41, mw8be158f1_ea81-_45bf_80d4_6e31cd83fe6c and as a product in mw4c099d5c_200f_474e_8ec1_59e9223a8afd, mwbe8567ce_3349_4442_8b12_53cd9bc168e7 and as a modifier in reaction_41, mw4c099d5c-_200f_474e_8ec1_59e9223a8afd, mwbe8567ce_3349_4442_8b12_53cd9bc168e7, mw8be158f1-_ea81_45bf_80d4_6e31cd83fe6c).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw7becb5fe\_8da8\_4285\_a821\_0d77ad811b62} = v_{31} + v_{32} - v_{17} - v_{42} \quad (360)$$

11.31 Species mw8c9107e6_f51d_442d_b2dc_2bfdbb8482ca

Name gp130

Initial concentration $0.374962692933961\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in five reactions (as a reactant in reaction_41, mw6f470e13_f0e4_4294_83d8_59dd5670d10c and as a product in mw6db30657_4e56_4c3a_8575_9c67393dde4f and as a modifier in reaction_41, mw6f470e13_f0e4_4294_83d8_59dd5670d10c).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw8c9107e6\_f51d\_442d\_b2dc\_2bfdbb8482ca} = v_{27} - v_{17} - v_{28} \tag{361}$$

11.32 Species mw824bc3d4_1ac3_4912_9b51_8f14ff1c96b9

Name R_IL6_gp130

Initial concentration $8.44890497633549 \cdot 10^{-5}\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in seven reactions (as a reactant in reaction_46, reaction_44 and as a product in reaction_41, mw64df7c9e_35da_4c7f_be56_c5dabfb060b6 and as a modifier in reaction_41, reaction_46, reaction_44).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw824bc3d4\_1ac3\_4912\_9b51\_8f14ff1c96b9} = v_{17} + v_{24} - v_{18} - v_{21} \tag{362}$$

11.33 Species mw6cce2109_0e32_4dd9_98ec_41173e8ef07d

Name Ractive

Initial concentration $0.980272509547246\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in eight reactions (as a reactant in reaction_42, reaction_45, mw64df7c9e_35da_4c7f_be56_c5dabfb060b6 and as a product in reaction_46, reaction_42 and as a modifier in reaction_42, reaction_45, mw64df7c9e_35da_4c7f_be56_c5dabfb060b6).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw6cce2109\_0e32\_4dd9\_98ec\_41173e8ef07d} = v_{18} + v_{19} - v_{19} - v_{22} - v_{24} \tag{363}$$

11.34 Species mw2b255f94_8018_4b99_bde8_918eeac45446

Name STAT3

Initial concentration $0.610636013508212\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in three reactions (as a reactant in reaction_42 and as a product in reaction_43 and as a modifier in reaction_42).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw2b255f94\_8018\_4b99\_bde8\_918eeac45446} = v_{20} - v_{19} \tag{364}$$

11.35 Species mw48867e93_f170_44e8_ac7a_185b23e1bf3b

Name pSTAT3

Initial concentration 9.38936398649179 nmol · l^{-1}

This species takes part in three reactions (as a reactant in reaction_43 and as a product in reaction_42 and as a modifier in reaction_43).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw48867e93\_f170\_44e8\_ac7a\_185b23e1bf3b} = v_{19} - v_{20} \tag{365}$$

11.36 Species mw0083d743_836f_4238_a17f_4602193d5bc0

Name geneProduct

Initial concentration 159.80359735889 nmol · l^{-1}

Involved in rule mw0083d743_836f_4238_a17f_4602193d5bc0

One rule determines the species' quantity.

11.37 Species mwd31f52cc_04e7_40e0_885f_c7b2d9e62215

Name sR

Initial concentration 6.06410682471754 nmol · l^{-1}

This species takes part in six reactions (as a reactant in mw4c099d5c_200f_474e_8ec1_59e9223a8afd, mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1 and as a product in mwfb35eca9_7afc_4ba8_a46c_738cab57eb9f and as a modifier in mwfb35eca9_7afc_4ba8_a46c_738cab57eb9f, mw4c099d5c_200f_474e_8ec1_59e9223a8afd, mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwd31f52cc\_04e7\_40e0\_885f\_c7b2d9e62215} = v_{29} - v_{31} - v_{58} \tag{366}$$

11.38 Species mw2c9b0499_3325_4394_8af3_bbf653a944a0

Name IL6

Initial concentration 0.0093481986616084 nmol · l^{-1}

This species takes part in seven reactions (as a reactant in mw4c099d5c_200f_474e_8ec1_59e9223a8afd, mwf913ea0b_785a_4701_ac91_b18ab5dd5a89 and as a product in mw61d2af92_6da5_41ce_b90e_aa6f430e6ba1, mw1ce0c484_681f_4d85_8ffe_392d0c100cfa and as a modifier in mw61d2af92_6da5_41ce_b90e_aa6f430e6ba1, mw4c099d5c_200f_474e_8ec1_59e9223a8afd, mwf913ea0b_785a_4701_ac91_b18ab5dd5a89).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw2c9b0499\_3325\_4394\_8af3\_bbf653a944a0} = v_{30} + v_{50} - v_{31} - v_{51} \tag{367}$$

11.39 Species mwd65b5b39_dc1b_4e77_a999_67277a880e5e

Name sgp130

Initial concentration $5.56973864471412\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in four reactions (as a reactant in mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c and as a product in mw1c5a5ff7_5130_490f_a740_6a744ccf8a94 and as a modifier in mw1c5a5ff7_5130_490f_a740_6a744ccf8a94, mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwd65b5b39\_dc1b\_4e77\_a999\_67277a880e5e} = v_{40} - v_{42} \tag{368}$$

11.40 Species mw6335d5d7_c7b0_4bc0_b883_f7ee4915c2c3

Name sR_IL6_sgp130

Initial concentration $0.136303909449242\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in four reactions (as a product in mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c, mw01babcdf_0f03_46b0_81b1_201cc846e361 and as a modifier in mw8be158f1_ea81_45bf_80d4_6e31cd83fe6c, mw01babcdf_0f03_46b0_81b1_201cc846e361).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw6335d5d7\_c7b0\_4bc0\_b883\_f7ee4915c2c3} = v_{42} + v_{44} \tag{369}$$

11.41 Species mwf7796221_1fea_4274_a93e_c00adbf5778c

Name Ab

Initial concentration $2.1587895876493 \cdot 10^{-29}\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in six reactions (as a reactant in mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1, mw9629d028_fcc0_4886_9e4d_36eecdb0381d and as a product in mw14940d1f_6a1f_47cb_8170_801ba645f4c1 and as a modifier in mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1, mw14940d1f_6a1f_47cb_8170_801ba645f4c1, mw9629d028_fcc0_4886_9e4d_36eecdb0381d).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwf7796221\_1fea\_4274\_a93e\_c00adbf5778c} = v_{62} - v_{58} - v_{66} \tag{370}$$

11.42 Species mw5d764bb8_5693_4ac8_9557_f65992cc5eb0

Name Ab_sR

Initial concentration $2.62059686237767 \cdot 10^{-26}\ \text{nmol}\cdot\text{l}^{-1}$

This species takes part in six reactions (as a reactant in mw8b4e96ed_0bcc_4ad6_b560_366e173a6e6b and as a product in mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1, mw700e677e_d3b6_4a97_991f_279605a9abeb and as a modifier in mw8b4e96ed_0bcc_4ad6_b560_366e173a6e6b, mwa3cb4a9b_d628_4807_8847_bdcd9b40c7f1, mw700e677e_d3b6_4a97_991f_279605a9abeb).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw5d764bb8\_5693\_4ac8\_9557\_f65992cc5eb0} = v_{58} + v_{64} - v_{57} \tag{371}$$

11.43 Species mwedc1bc00_adf7_4144_a1c2_7dc1a9565dc2

Name Ab_sR_IL6

Initial concentration $-1.209166949 \cdot 10^{-28}$ nmol $\cdot$ l^{-1}

This species takes part in four reactions (as a reactant in mwe84cc3ad_af35_43a8_aa6a_9f68a6d68185 and as a product in mw1b09ae22_e4c7_4830_b566_f263cf4e3f9c and as a modifier in mw1b09ae22_e4c7_4830_b566_f263cf4e3f9c, mwe84cc3ad_af35_43a8_aa6a_9f68a6d68185).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwedc1bc00\_adf7\_4144\_a1c2\_7dc1a9565dc2} = v_{69} - v_{73} \tag{372}$$

11.44 Species mwbc2f5464_81e5_43fd_8b39_f5a2756af72f

Name Ab

Initial concentration $1.67920947537896 \cdot 10^{-29}$ nmol $\cdot$ l^{-1}

This species takes part in two reactions (as a product in mwdf4ba845_7271_4ada_b43f_fdac83df3b5c and as a modifier in mwdf4ba845_7271_4ada_b43f_fdac83df3b5c).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mwbc2f5464\_81e5\_43fd\_8b39\_f5a2756af72f} = v_{53} \tag{373}$$

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.

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