SBML Model Report

Model name: "Nayak2015 - Blood Coagulation Network - Predicting the Effects of Various Therapies on Biomarkers"

May 19, 2016

1 General Overview

This is a document in SBML Level 2 Version 4 format. This model was created by the following two authors: Satyaprakash Nayak[1] and Vijayalakshmi Chelliah[2] at December eighth 2015 at 9:40 a.m. and last time modified at May nineth 2016 at 2:03 p.m. Table 1 shows 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	1
species types	0	species	66
events	0	constraints	0
reactions	62	function definitions	0
global parameters	106	unit definitions	0
rules	1	initial assignments	17

Model Notes

Nayak2015 - Blood Coagulation Network - Predicting the Effects of Various Therapies on BiomarkersNote:The SBML model is generated from SimBiology. The SimBiology (.sbproj)

[1]Pfizer, `satyaprakash.nayak@pfizer.com`
[2]EMBL-EBI, `viji@ebi.ac.uk`

file is available for download from the curation tab.

This model is described in the article:Using a Systems Pharmacology Model of the Blood Coagulation Network to Predict the Effects of Various Therapies on Biomarkers.Nayak S, Lee D, Patel-Hett S, Pittman DD, Martin SW, Heatherington AC, Vicini P, Hua F.CPT Pharmacometrics Syst Pharmacol. 2015 Jul;4(7):396-405.

Abstract:

A number of therapeutics have been developed or are under development aiming to modulate the coagulation network to treat various diseases. We used a systems model to better understand the effect of modulating various components on blood coagulation. A computational model of the coagulation network was built to match in-house in vitro thrombin generation and activated Partial Thromboplastin Time (aPTT) data with various concentrations of recombinant factor VIIa (FVIIa) or factor Xa added to normal human plasma or factor VIII-deficient plasma. Sensitivity analysis applied to the model revealed that lag time, peak thrombin concentration, area under the curve (AUC) of the thrombin generation profile, and aPTT show different sensitivity to changes in coagulation factors' concentrations and type of plasma used (normal or factor VIII-deficient). We also used the model to explore how variability in concentrations of the proteins in coagulation network can impact the response to FVIIa treatment.

This model is hosted on BioModels Database and identified by: MODEL1511160000.

To cite BioModels Database, please use: BioModels: Content, Features, Functionality and Use.

2 Unit Definitions

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

2.1 Unit `substance`

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

Definition mol

2.2 Unit `volume`

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

Definition l

2.3 Unit `area`

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

Produced by SBML2LATEX

Definition m^2

2.4 Unit `length`

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

Definition m

2.5 Unit `time`

Notes Second is the predefined SBML unit for `time`.

Definition s

3 Compartment

This model contains one compartment.

Table 2: Properties of all compartments.

Id	Name	SBO	Spatial Dimensions	Size	Unit	Constant	Outside
mwa76931f0_7e48_4dcd_835f_4a2db486ed1b	blood		3	1	litre	☑	

3.1 Compartment `mwa76931f0_7e48_4dcd_835f_4a2db486ed1b`

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

Name blood

4 Species

This model contains 66 species. Section 9 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
TF	TF	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
TF_VII	TF_VII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
VII	VII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
TF_VIIa	TF_VIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
VIIa	VIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
Xa	Xa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
IIa	IIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
TF_VIIa_X	TF_VIIa_X	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
X	X	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
TF_VIIa_Xa	TF_VIIa_Xa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
IX	IX	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
TF_VIIa_IX	TF_VIIa_IX	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
IXa	IXa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
II	II	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
VIII	VIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
VIIIa	VIIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
IXa_VIIIa	IXa_VIIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
IXa_VIIIa_X	IXa_VIIIa_X	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
VIIIa1_L	VIIIa1_L	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
VIIIa2	VIIIa2	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
V	V	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
Va	Va	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
Xa_Va	Xa_Va	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
Xa_Va_II	Xa_Va_II	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mIIa	mIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
TFPI	TFPI	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
Xa_TFPI	Xa_TFPI	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
TF_VIIa_Xa_TFPI	TF_VIIa_Xa_TFPI	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
ATIII	ATIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
Xa_ATIII	Xa_ATIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mIIa_ATIII	mIIa_ATIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
IXa_ATIII	IXa_ATIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
IIa_ATIII	IIa_ATIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
TF_VIIa_ATIII	TF_VIIa_ATIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw4e2cf0b0-_bd70_45a4_9e60-_eba82fa5c3e4	CA	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw469042d3-_a94f_4ebe_af1c-_1ead580aad2a	XII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw6c404de5-_5b24_48d6_a0c4-_5491e07b1f72	XIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw8c2b9a07-_22c3_4912_adb1-_167a38ea4cb3	PK	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw819d0d09-_05ba_4674_85ba-_5c9439fb77f4	XIIa_PK	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw2be3652b-_79af_4228_9d1c-_9d65c7d0c70f	K	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw6a63ae22-_6bb4_4dcf_992f-_9287439dd556	XII_K	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mwcefd1303-_4967_4502_af6d-_e75c88c4d548	XIIa_ATIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mwe043d306-_ffdd_447b_9826-_4df8abbece4d	XI	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw6591152c-_8b5a_4c9b_b095-_956988a01ba0	XIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mwe51f72d2-_84fb_4b43_b900-_521410fdf99c	XIIa_XI	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw72ca05d8-_25b0_4765_ba03-_a6a0eb846aa0	XIa_ATIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mwe70b2c96-_44b9_48eb_967a-_7eb850a916a6	XIa_IX	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw64e9cef3-_5dd3_43f3_ad04-_58e8fc07a91b	IXa_X	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw6d041b25-_87db_4394_9b8b-_7ac61e01f359	VIIa_X	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw85e2714d-_e6e5_47d5_9ffc-_d90573faebe1	IIa_12mIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mwd68cbf38-_9266_4dfb_aa00-_f817c3421aec	Tmod	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mwa6be116e-_72f1_439e_bca6-_eb61f79cc68e	IIa_Tmod	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw6a8501d2-_9479_41ae_8616-_1e8d0e1bbfa9	PC	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟
mw3cec90c2-_500e_4f30_b6be-_325ef5194755	IIa_Tmod_PC	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	mol·l^{-1}	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mwedf22864-_05a0_40c3_a0d5-_ede45a3e7e8f	APC	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
mwd3e1ba39-_ab10_4702_addd-_fb6a7e184a4b	Fg	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
mwfa9d903a-_b5e5_4a38_a649-_dfe4719577aa	F	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
mw2e632a32-_3823_4933_95cb-_19567cbcc66a	APC_Va	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
mw8bdbd17d-_f542_4b8c_88c6-_a82eaf997a43	APC_VIIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
mw18e5caa7-_26eb_4521_b217-_da75bb3193ad	Va_deg	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
mwf5c3f9df-_7ccf_4ca7_b241-_471a66720da8	VIIIa_deg	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
mwa4fcfa0c-_6944_42fc_8c74-_7865f13953c8	APC_IXa_VIIIa	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟
mwe0bb059d-_deaa_45fa_b7dc-_ec1c4409c4ca	APC_IXa_VIIIa_X	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$\text{mol} \cdot \text{l}^{-1}$	⊟	⊟

Id	Name	Compartment	Derived Unit	Constant	Boundary Condition
mw7a1594c9-_f04f_478c_9f5f-_ccbe0b95a820	Xa_VIII	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$mol \cdot l^{-1}$	⊟	⊟
mwbdb849d8-_2b25_4551_8de8-_adc8bead2303	F12	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$mol \cdot l^{-1}$	⊟	⊟
mw931f65a6-_3967_4ac2_9904-_ba791b216fc2	F12_deg	mwa76931f0_7e48_4dcd-_835f_4a2db486ed1b	$mol \cdot l^{-1}$	⊟	⊟

5 Parameters

This model contains 106 global parameters.

Table 4: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
k1	k1		0.004		✓
k2	k2		0.004		✓
k3	k3		0.002		✓
k4	k4		0.076		✓
k5	k5		$3.3894832 \cdot 10^{-4}$		✓
k6	k6		0.010		✓
k7	k7		$1.1527134 \cdot 10^{-5}$		✓
k8	k8		1.380		✓
k9	k9		0.036		✓
k10	k10		8.999		✓
k11	k11		9.500		✓
k12	k12		0.033		✓
k13	k13		20.671		✓
k14	k14		0.011		✓
k15	k15		2.389		✓
k16	k16		$3.764127 \cdot 10^{-5}$		✓
k17	k17		1.449		✓
k18	k18		0.005		✓
k19	k19		0.117		✓
k20	k20		0.001		✓
k21	k21		0.049		✓
k22	k22		42.714		✓
k23	k23		$3.3 \cdot 10^{-5}$		✓
k24	k24		0.009		✓
k25	k25		0.001		✓
k26	k25_1		0.001		✓
k27	k26		$4.0233556 \cdot 10^{-4}$		✓
k29	k29		149.915		✓
k30	k30		0.100		✓
k31	k31		29.479		✓
k32	k32		0.219		✓
k33	k33		$1.801577 \cdot 10^{-4}$		✓
k34	k34		$4.5 \cdot 10^{-4}$		✓
k35	k35		$1.0062408 \cdot 10^{-4}$		✓
k36	k36		0.256		✓
k37	k37		0.025		✓
k38	k38		$1.0556718 \cdot 10^{-6}$		✓

Id	Name	SBO	Value	Unit	Constant
k39	k39		$3.55 \cdot 10^{-6}$		☑
k40	k40		$2.8169728 \cdot 10^{-7}$		☑
k41	k41		$3.917682 \cdot 10^{-6}$		☑
k42	k42		$3.2905257 \cdot 10^{-7}$		☑
mwe5422617-_5481-_47c8_bf98-_d6e3f1e96384	k43		$8.5153312 \cdot 10^{-6}$		☑
mw3ab61faa-_95e4-_40a9_93de-_5c51755957c4	k44		0.092		☑
mw862c3fea-_05a0-_4d3d_ba5c-_9727bbb67907	k45		1800.000		☑
mw107e9839-_b4a4-_46c8_9102-_da7d857fd655	k46		47.928		☑
mweb1be1ac-_0c60-_4849_b306-_071c8f9370c0	k47		0.150		☑
mw94d2be4e-_839e-_4154_a6f0-_f0d6b61e50a9	k48		57.614		☑
mw6f439ade-_bb02-_4671_8e45-_8beaa312b3d2	k49		4.183		☑
mwf677450c-_a4e3-_41df_be5a-_9c8928ac27f4	k50		$1.08 \cdot 10^{-8}$		☑
mweacc6c48-_8e8c-_481b_92ce-_0cb9ccb3be00	k54		$4.8 \cdot 10^{-7}$		☑

Id	Name	SBO	Value	Unit	Constant
mwc0cb654e-_d95f-_4d4b_8dc2-_3a21afd35a19	k55		0.131		⊟
mwb01ef86f-_18d8-_45e7_a452-_31878dcb3d49	k56		30.668		☑
mw7300dcac-_9389-_4201_88c7-_7effa7fdb0f3	k57		10.566		☑
mw44adf04a-_f1e2-_4ca9_9615-_5a9f4d3bbea8	k58		0.133		☑
mwc189e7ea-_7518-_4a4f_be0f-_03f2d073b29e	k59		83.207		☑
mwaec203ce-_06d5-_4003_bfdb-_7244d3d77255	k60		0.001		☑
mw05b4111c-_4463-_4be0_aa1e-_5a8f50c7bf67	k61		0.060		☑
mw7b89687a-_3110-_4d5f_a9ec-_7ca8761f0d41	k62		84.660		☑
mw61fdd721-_9193-_442c_bc9e-_f1058c4720e7	k63		$1.2943783 \cdot 10^{-5}$		☑
mw1ddc2a05-_bc78-_4434_a2d9-_d06701483346	k67		19.338		☑

Id	Name	SBO	Value	Unit	Constant
mw4fc81076-_be53-_4fc3_9ade-_3587e8d60355	k68		0.186		☑
mwa4cc6bbe-_c310-_445f_bba7-_a94868342831	k70		10740.276		☑
mwd6b996b1-_d7fe-_42de_b17e-_b2482109c54d	k71		0.104		☑
mwc5dc3645-_536d-_4bb4_88c7-_4aeac4f5a241	k72		2.065		☑
mwc85f8d37-_7f39-_41b2_8ea4-_00b5adad2eac	k73		0.079		☑
mw807b9a99-_fb16-_421f_b724-_69f29f3fcfb2	k74		1.990		☑
mw234b484f-_d2d5-_4ae8_a077-_217c600588d8	k75		0.240		☑
mwa2636601-_825e-_4846_aa2d-_c35bd242ec99	k76		0.032		☑
mw70d2f292-_be41-_4999_99cb-_9c146808db85	k77		0.078		☑
mw0e80d629-_98c1-_44a6_bd57-_3a4027c87b4c	k78		2.087		☑

Id	Name	SBO	Value	Unit	Constant
mw7aeacec0-_be36-_49bf_8548-_7a3e2b5fe3cb	k79		0.030		☑
mwb63aa5ed-_b6d8-_4241_9987-_54828945aea3	k80		0.129		☑
mw4d2fe532-_2ccd-_42c4_9b4b-_759022a87484	k81		1.400		☑
mw6b555ed1-_194e-_4fa4_9688-_8105aa7c60c0	k82		0.013		☑
mwaa306898-_0d0f-_4748_b48a-_fcd56bdc0b16	k83		0.150		☑
mwec1b7289-_5544-_4c2b_b9f6-_bf6524cabda5	k84		3.150		☑
mw6843129b-_7601-_452f_be5d-_977f7203bfb5	k85		0.035		☑
mwc7a68e9d-_cc1f-_48bf_a582-_c06056d082ad	ATIII_ss		3400.000		☑
mwbcd76870-_e02a-_442b_abdf-_e42cd7086a1f	Dilution		1.714		☐
mw69d180ec-_210d-_4add_b599-_e567c88ee538	Fg_ss		9000.000		☑

Id	Name	SBO	Value	Unit	Constant
mwf402f97a-_30c4-_457f_9ef4-_1be774a61358	II_ss		1400.000		☑
mwed93f2e8-_0fdb-_4c44_bb8f-_aeef60171b0a	IX_ss		90.000		☑
mw61f543e9-_43eb-_442d_9985-_d08f83a35bcd	PC_ss		60.000		☑
mwf4279c86-_df09-_4b2e_9fae-_a6b9436be477	PK_ss		450.000		☑
mw09b305e5-_8e0c-_4d34_a367-_72e681d24550	TF_ss		0.002		☑
mwf417c223-_4f28-_436b_be61-_dc0a6db906e9	TFPI_ss		2.500		☑
mw21356d0a-_52a7-_47d9_a80b-_c83f72f91249	Tmod_ss		0.500		☑
mw6657e10d-_433c-_402e_af1d-_edde69570dc7	V_ss		20.000		☑
mw3c8d8702-_954e-_4beb_9094-_8fae9207cfb4	VII_ss		10.000		☑
mw10579ad2-_4018-_4dc2_bd2d-_cbc2b46014d2	VIIa_ss		0.100		☑

Id	Name	SBO	Value	Unit	Constant
mwa8eaa9b8- _8166- _49f0_b98a- _ee69239b6f37	VIII_ss		0.700		☑
mw2555880e- _202e- _42c6_bcb5- _c565dd6748d7	X_ss		160.000		☑
mw889568f2- _c2e0- _4ea3_ad4c- _b26b66888184	Xa_ss		0.000		⊟
mwd49f57a8- _7e48- _4891_bb1e- _3e83f28d63a2	XI_ss		31.000		☑
mw069bc62a- _eef3- _452c_9c80- _6ac8e99131f3	XII_ss		340.000		☑
mwea0d7c35- _f4d2- _4205_8c59- _11ac05134dde	k86		$1.0958881 \cdot 10^{-4}$		☑
mw8482ca53- _fca1- _4841_ac2f- _2469a76a758e	k28		0.129		☑
mwaf2c7981- _908c- _4f4c_898e- _2491a9f04e17	k66		0.105		☑
mw3b48c5e7- _774a- _4dc4_917f- _8f8cff8d9c4b	k69		90.212		☑
mw1511789f- _5e7b- _43bf_b162- _d930b027a867	k27		0.006		☑

Id	Name	SBO	Value	Unit	Constant
mw7ff84021- _4836- _4a63_84fc- _4389e5f74f81	k51		0.136		☑
mw204ea0fc- _f851- _4d50_9b82- _bc66e34ac7dc	k52		18.705		☑
mw95ac212b- _a197- _49d6_8c76- _bc6154a4cf5e	k53		$3.5000006 \cdot 10^{-4}$		☑
mw9bcd5c0b- _3384- _4d5e_92ce- _70b13d64e8b8	k64		0.116		☑
mw95e328a0- _be5b- _4260_b6e4- _d85c4c4aae9e	k65		0.050		☑
mw7be1d52f- _926f- _47e0_964b- _d3303c8453b1	n1		0.050		☑

6 Initialassignments

This is an overview of 17 initialassignments.

6.1 Initialassignment `TF`

Notes TF_ss - default value taken from –>

Derived unit contains undeclared units

Math $\frac{\text{mw09b305e5\_8e0c\_4d34\_a367\_72e681d24550}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.2 Initialassignment `VII`

Notes Value from Hocking Mann - 1*10^-8, so value taken as it is.

Derived unit contains undeclared units

Math $\dfrac{\text{mw3c8d8702\_954e\_4beb\_9094\_8fae9207cfb4}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.3 Initialassignment `VIIa`

Notes Value taken as it is from Hocking Mann0.1 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mw10579ad2\_4018\_4dc2\_bd2d\_cbc2b46014d2}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.4 Initialassignment `X`

Notes Value taken as it is from Hocking MannX -> 160 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mw2555880e\_202e\_42c6\_bcb5\_c565dd6748d7}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.5 Initialassignment `IX`

Notes Value Taken as it is from Hocking MannX -> 90 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mwed93f2e8\_0fdb\_4c44\_bb8f\_aeef60171b0a}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.6 Initialassignment `II`

Notes Value taken as it is from Hocking MannII -> 1400 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mwf402f97a\_30c4\_457f\_9ef4\_1be774a61358}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.7 Initialassignment `VIII`

Notes Value taken as it is from Hocking MannVIII -> 0.7 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mwa8eaa9b8\_8166\_49f0\_b98a\_ee69239b6f37}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.8 Initialassignment `V`

Notes Value Taken as it is from Hocking MannV -> 20 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mw6657e10d\_433c\_402e\_af1d\_edde69570dc7}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.9 Initialassignment `TFPI`

Notes Value taken as it is from Hocking MannTFPI -> 2.5 nM

Derived unit contains undeclared units

Math $\frac{\text{mwf417c223\_4f28\_436b\_be61\_dc0a6db906e9}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.10 Initialassignment `ATIII`

Notes Value Taken as it from Hocking MannATIII -> 3400 nM

Derived unit contains undeclared units

Math $\frac{\text{mwc7a68e9d\_cc1f\_48bf\_a582\_c06056d082ad}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.11 Initialassignment `Xa`

Notes Xa is 0 in Hocking-Mann and Diamond

Derived unit contains undeclared units

Math $\frac{\text{mw889568f2\_c2e0\_4ea3\_ad4c\_b26b66888184}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.12 Initialassignment `mw469042d3_a94f_4ebe_af1c_1ead580aad2a`

Notes Taken from Diamond et al., as it isXII -> 340 nM

Derived unit contains undeclared units

Math $\frac{\text{mw069bc62a\_eef3\_452c\_9c80\_6ac8e99131f3}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.13 Initialassignment `mw8c2b9a07_22c3_4912_adb1_167a38ea4cb3`

Notes Taken from Diamond et. al., as it isPK -> 450 nM

Derived unit contains undeclared units

Math $\frac{\text{mwf4279c86\_df09\_4b2e\_9fae\_a6b9436be477}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.14 Initialassignment `mwe043d306_ffdd_447b_9826_4df8abbece4d`

Notes From Diamond et al, taken as it isXI -> 31 nM

Derived unit contains undeclared units

Math $\frac{\text{mwd49f57a8\_7e48\_4891\_bb1e\_3e83f28d63a2}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.15 Initialassignment `mwd68cbf38_9266_4dfb_aa00_f817c3421aec`

Notes Taken from Duffull et al., thrombomodulin (Tmod) -> 50 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mw21356d0a\_52a7\_47d9\_a80b\_c83f72f91249}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.16 Initialassignment `mw6a8501d2_9479_41ae_8616_1e8d0e1bbfa9`

Notes Taken from Duffull et al, as it isPC -> 60 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mw61f543e9\_43eb\_442d\_9985\_d08f83a35bcd}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

6.17 Initialassignment `mwd3e1ba39_ab10_4702_addd_fb6a7e184a4b`

Notes Taken from Diamond et al, as it isFbg (in Diamond) -> 9000 nM

Derived unit contains undeclared units

Math $\dfrac{\text{mw69d180ec\_210d\_4add\_b599\_e567c88ee538}}{\text{mwbcd76870\_e02a\_442b\_abdf\_e42cd7086a1f}}$

7 Rule

This is an overview of one rule.

7.1 Rule `mw85e2714d_e6e5_47d5_9ffc_d90573faebe1`

Rule `mw85e2714d_e6e5_47d5_9ffc_d90573faebe1` is an assignment rule for species `mw85e2714d_e6e5_47d5_9ffc_d90573faebe1`:

$$\text{mw85e2714d\_e6e5\_47d5\_9ffc\_d90573faebe1} = [\text{IIa}] + 1.2 \cdot [\text{mIIa}] \tag{1}$$

8 Reactions

This model contains 62 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	R1	R1	$TF + VII \xrightleftharpoons{TF,\ VII,\ TF\_VII,\ TF,\ VII,\ TF\_VII} TF\_VII$	
2	R2	R2	$TF + VIIa \xrightleftharpoons{TF,\ VIIa,\ TF\_VIIa,\ TF,\ VIIa,\ TF\_VIIa} TF\_VIIa$	
3	R3	R3	$TF\_VIIa + VII \xrightarrow{TF\_VIIa,\ VII,\ TF\_VIIa,\ VII} TF\_VIIa + VIIa$	
4	R4	R4	$Xa + VII \xrightarrow{Xa,\ VII,\ Xa,\ VII} Xa + VIIa$	
5	R5	R5	$IIa + VII \xrightarrow{IIa,\ VII,\ IIa,\ VII} IIa + VIIa$	
6	R6	R6	$TF\_VIIa + X \xrightleftharpoons{TF\_VIIa,\ X,\ TF\_VIIa\_X,\ TF\_VIIa,\ X,\ TF\_VIIa\_X} TF\_VIIa\_X$	
7	R6b	R6b	$TF\_VIIa\_X \xrightarrow{TF\_VIIa\_X,\ TF\_VIIa\_X} TF\_VIIa\_Xa$	
8	R7	R7	$TF\_VIIa + Xa \xrightleftharpoons{TF\_VIIa,\ Xa,\ TF\_VIIa\_Xa,\ TF\_VIIa,\ Xa,\ TF\_VIIa\_Xa} TF\_VIIa\_Xa$	
9	R8	R8	$TF\_VIIa + IX \xrightleftharpoons{TF\_VIIa,\ IX,\ TF\_VIIa\_IX,\ TF\_VIIa,\ IX,\ TF\_VIIa\_IX} TF\_VIIa\_IX$	
10	R8b	R8b	$TF\_VIIa\_IX \xrightarrow{TF\_VIIa\_IX,\ TF\_VIIa\_IX} TF\_VIIa + IXa$	
11	R9	R9	$Xa + II \xrightarrow{Xa,\ II,\ Xa,\ II} Xa + IIa + mwbdb849d8\_2b25\_4551\_8de8\_adc8bead2303$	
12	R10	R10	$IIa + VIII \xrightarrow{IIa,\ VIII,\ IIa,\ VIII} IIa + VIIIa$	
13	R11	R11	$IXa + VIIIa \xrightleftharpoons{IXa,\ VIIIa,\ IXa\_VIIIa,\ IXa,\ VIIIa,\ IXa\_VIIIa} IXa\_VIIIa$	

№	Id	Name	Reaction Equation	SBO
14	R12	R12	$\text{IXa\_VIIIa} + \text{X} \xrightleftharpoons{\text{IXa\_VIIIa, X, IXa\_VIIIa\_X, IXa\_VIIIa, X, IXa\_VIIIa\_X}} \text{IXa\_VIIIa\_X}$	
15	R12b	R12b	$\text{IXa\_VIIIa\_X} \xrightarrow{\text{IXa\_VIIIa\_X, IXa\_VIIIa\_X}} \text{IXa\_VIIIa} + \text{Xa}$	
16	R13	R13	$\text{VIIIa} \xrightleftharpoons{\text{VIIIa, VIIIa1\_L, VIIIa2, VIIIa, VIIIa1\_L, VIIIa2}} \text{VIIIa1\_L} + \text{VIIIa2}$	
17	R14	R14	$\text{IXa\_VIIIa\_X} \xrightarrow{\text{IXa\_VIIIa\_X, IXa\_VIIIa\_X}} \text{VIIIa1\_L} + \text{VIIIa2} + \text{X} + \text{IXa}$	
18	R15	R15	$\text{IXa\_VIIIa} \xrightarrow{\text{IXa\_VIIIa, IXa\_VIIIa}} \text{VIIIa1\_L} + \text{VIIIa2} + \text{IXa}$	
19	R16	R16	$\text{IIa} + \text{V} \xrightarrow{\text{IIa, V, IIa, V}} \text{IIa} + \text{Va}$	
20	R17	R17	$\text{Xa} + \text{Va} \xrightleftharpoons{\text{Xa, Va, Xa\_Va, Xa, Va, Xa\_Va}} \text{Xa\_Va}$	
21	R18	R18	$\text{Xa\_Va} + \text{II} \xrightleftharpoons{\text{Xa\_Va, II, Xa\_Va\_II, Xa\_Va, II, Xa\_Va\_II}} \text{Xa\_Va\_II}$	
22	R18b	R18b	$\text{Xa\_Va\_II} \xrightarrow{\text{Xa\_Va\_II, Xa\_Va\_II}} \text{Xa\_Va} + \text{mIIa} + \text{mwbdb849d8\_2b25\_4551\_8de8\_adc8bead2303}$	
23	R19	R19	$\text{mIIa} + \text{Xa\_Va} \xrightarrow{\text{mIIa, Xa\_Va, mIIa, Xa\_Va}} \text{IIa} + \text{Xa\_Va}$	
24	R20	R20	$\text{Xa} + \text{TFPI} \xrightleftharpoons{\text{Xa, TFPI, Xa\_TFPI, Xa, TFPI, Xa\_TFPI}} \text{Xa\_TFPI}$	
25	R21	R21	$\text{TF\_VIIa\_Xa} + \text{TFPI} \xrightleftharpoons{\text{TF\_VIIa\_Xa, TFPI, TF\_VIIa\_Xa\_TFPI, TF\_VIIa\_Xa, TFPI, TF\_VII...}}$	
26	R22	R22	$\text{TF\_VIIa} + \text{Xa\_TFPI} \xrightarrow{\text{TF\_VIIa, Xa\_TFPI, TF\_VIIa, Xa\_TFPI}} \text{TF\_VIIa\_Xa\_TFPI}$	
27	R23	R23	$\text{Xa} + \text{ATIII} \xrightarrow{\text{Xa, ATIII, Xa, ATIII}} \text{Xa\_ATIII}$	
28	R24	R24	$\text{mIIa} + \text{ATIII} \xrightarrow{\text{mIIa, ATIII, mIIa, ATIII}} \text{mIIa\_ATIII}$	
29	R25	R25	$\text{IXa} + \text{ATIII} \xrightarrow{\text{IXa, ATIII, IXa, ATIII}} \text{IXa\_ATIII}$	

№	Id	Name	Reaction Equation	SBO
30	R26	R26	IIa + ATIII $\xrightarrow{\text{IIa, ATIII, IIa, ATIII}}$ IIa_ATIII	
31	R27	R27	TF_VIIa + ATIII $\xrightarrow{\text{TF\_VIIa, ATIII, TF\_VIIa, ATIII}}$ TF_VIIa_ATIII	
32	mw356a0437-_4d35-_42d9_a964-_d205845dd3a0	R28	mw4e2cf0b0_bd70_45a4_9e60_eba82fa5c3e4 + mw469042d3_a94f_4ebe_af1c_1ead580aad2a $\xrightarrow{\text{mw4e2cf0b0\_bd70\_45a4\_9e60\_eba82fa5c}}$ mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	
33	mw2ad76883-_679b-_4cfa_a390-_ed12c2cb488a	R31	mw6c404de5_5b24_48d6_a0c4_5491e07b1f72 + mw8c2b9a07_22c3_4912_adb1_167a38ea4cb3 $\xrightleftharpoons{\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07}}$	
34	mw7625dc03-_2283-_4c41_8d88-_c03bbd995622	R31b	mw819d0d09_05ba_4674_85ba_5c9439fb77f4 $\xrightarrow{\text{mw819d0d09\_05ba\_4674\_85ba\_5c9439f}}$ mw2be3652b_79af_4228_9d1c_9d65c7d0c70f	
35	mwb7173277-_b0a8-_4585_8e75-_4188d464a440	R32	mw469042d3_a94f_4ebe_af1c_1ead580aad2a + mw2be3652b_79af_4228_9d1c_9d65c7d0c70f $\xrightleftharpoons{\text{mw469042d3\_a94f\_4ebe\_af1c\_1ead580a}}$	
36	mwa9bc550c-_e44b-_4a55_9d10-_c274a9c710a8	R32b	mw6a63ae22_6bb4_4dcf_992f_9287439dd556 $\xrightarrow{\text{mw6a63ae22\_6bb4\_4dcf\_992f\_9287439d}}$ mw2be3652b_79af_4228_9d1c_9d65c7d0c70f	
37	mwc0c930a7-_ee46-_48b9_bc37-_297a29d337ed	R37	mw6c404de5_5b24_48d6_a0c4_5491e07b1f72 + ATIII $\xrightarrow{\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72, ATIII, mw6c404de5\_5b24\_48d6\_a}}$	

№	Id	Name	Reaction Equation	SBO
38	mwd29fbe1e-_de98-_4c2f_8d81-_8ce87f0a245d	R39	mw6c404de5_5b24_48d6_a0c4_5491e07b1f72 + mwe043d306_ffdd_447b_9826_4df8abbece4d $\xrightleftharpoons{\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b}}$	
39	mw733749dd-_73df-_4e8d_86b3-_eabffb03d79e	R39b	mwe51f72d2_84fb_4b43_b900_521410fdf99c $\xrightleftharpoons{\text{mwe51f72d2\_84fb\_4b43\_b900\_521410fd}}$ mw6591152c_8b5a_4c9b_b095_956988a01ba0	
40	mwf959d54b-_b8f2-_4cf9_995a-_bea2a3d1735d	R41	mw6591152c_8b5a_4c9b_b095_956988a01ba0 + ATIII $\xrightleftharpoons{\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0, ATIII, mw6591152c\_8b5a\_4c9b\_}}$	
41	mw27430243-_7541-_45f2_a970-_b53e97eb90b5	R45	mw6591152c_8b5a_4c9b_b095_956988a01ba0 + IX $\xrightleftharpoons{\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0, IX, mwe70b2c96\_44b9\_48eb\_967a\_}}$	
42	mwc9055518-_a470-_4fa9_9ebe-_473dc2a371af	R45b	mwe70b2c96_44b9_48eb_967a_7eb850a916a6 $\xrightleftharpoons{\text{mwe70b2c96\_44b9\_48eb\_967a\_7eb850a}}$ IXa	
43	mwfe3aa9b2-_3507-_4bda_b66a-_d1b9ecf9b691	R46	IXa+X $\xrightleftharpoons{\text{IXa, X, mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a91b, IXa, X, mw64e9cef3\_5}}$	

№	Id	Name	Reaction Equation	SBO
44	mwf5ec17b4-_374b-_4670_83e5-_47135df80cb9	R46b	mw64e9cef3_5dd3_43f3_ad04_58e8fc07a91b $\xrightarrow{\text{mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a}}$ Xa	
45	mwea194c8b-_e1a0-_4a6e_a4d5-_f55b2f784d87	R49	VIIa+X $\xrightleftharpoons{\text{VIIa, X, mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359, VIIa, X, mw6d041b}}$	
46	mwd58c2ecb-_6ff8-_4b9b_8c31-_a7711b5217d5	R49b	mw6d041b25_87db_4394_9b8b_7ac61e01f359 $\xrightarrow{\text{mw6d041b25\_87db\_4394\_9b8b\_7ac61e}}$ Xa	
47	mwa9e8a350-_94c6-_49e9_aba0-_e23644ed770b	R50	IIa+mwd68cbf38_9266_4dfb_aa00_f817c3421aec $\xrightleftharpoons{\text{IIa, mwd68cbf38\_9266\_4dfb\_aa00\_f}}$	
48	mw533077fb-_883c-_475c_8a43-_ab003a69478c	R51	mwa6be116e_72f1_439e_bca6_eb61f79cc68e + mw6a8501d2_9479_41ae_8616_1e8d0e1bbfa9 $\xrightleftharpoons{\text{mwa6be116e\_72f1\_439e\_bca6\_eb61f79c}}$	
49	mw3a695e19-_d2d0-_4083_af5a-_1e8dd673dd32	R052	mw3cec90c2_500e_4f30_b6be_325ef5194755 $\xrightarrow{\text{mw3cec90c2\_500e\_4f30\_b6be\_325ef519}}$ mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	

№	Id	Name	Reaction Equation	SBO
50	mw95b41c99-_0a48-_4f12_8367-_f5b176c613e5	R301	$\text{IIa}+\text{mwd3e1ba39\_ab10\_4702\_addd\_fb6a7e184a4b} \xrightleftharpoons{\qquad} \text{mwfa9d903a\_b5e5\_4a38\_a649\_dfe4719577aa}$	IIa, mwd3e1ba39_ab10_4702_addd,
51	mw13213f35-_d931-_4cec_a202-_9760e9a3e4b1	R053	$\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f} + \text{Va} \xrightleftharpoons{\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f, Va, mw2e632a32\_3823\_4933\_95cb\_1}}$	
52	mw42194b65-_07a6-_43c3_a810-_2d2c1b4fad6b	R055	$\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f} + \text{VIIIa} \xrightleftharpoons{\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f, VIIIa, mw8bdbd17d\_f542\_4b8c\_8}}$	
53	mwe33e10f1-_9ee4-_4167_94cf-_81ed3aafb1af	R054	$\text{mw2e632a32\_3823\_4933\_95cb\_19567cbcc66a} \xrightleftharpoons{\text{mw2e632a32\_3823\_4933\_95cb\_19567cb}} \text{mw18e5caa7\_26eb\_4521\_b217\_da75bb3193ad}$	
54	mwa14cc09f-_d815-_4499_9299-_642478acc115	R056	$\text{mw8bdbd17d\_f542\_4b8c\_88c6\_a82eaf997a43} \xrightleftharpoons{\text{mw8bdbd17d\_f542\_4b8c\_88c6\_a82eaf99}} \text{mwf5c3f9df\_7ccf\_4ca7\_b241\_471a66720da8}$	
55	mw33aec61d-_aae4-_41f1_8f35-_2e2e4bb56597	R057	$\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f} + \text{IXa\_VIIIa} \xrightleftharpoons{\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f, IXa\_VIIIa, mwa4fcfa0c\_6944}}$	

№	Id	Name	Reaction Equation	SBO
56	mwc0b0317d-_2b0e-_490d_bfd5-_8719b2ead1ec	R058	mwa4fcfa0c_6944_42fc_8c74_7865f13953c8 $\xrightarrow{\text{mwa4fcfa0c\_6944\_42fc\_8c74\_7865f13953}}$ IXa + mwf5c3f9df_7ccf_4ca7_b241_471a66720da8	
57	mw5619c52c-_ce60-_4357_8d45-_2c512348ecc2	R059	mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f + IXa_VIIIa_X $\xrightleftharpoons{\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f, IXa\_VIIIa\_X, mwe0bb059}}$	
58	mw415d69bc-_061f-_4d57_905d-_58fca6bc6463	R060	mwe0bb059d_deaa_45fa_b7dc_ec1c4409c4ca $\xrightarrow{\text{mwe0bb059d\_deaa\_45fa\_b7dc\_ec1c4409}}$ IXa + X + mwf5c3f9df_7ccf_4ca7_b241_471a66720da8	
59	mw4c020206-_4593-_4480_b410-_d33a9df3298a	R47	Xa + VIII $\xrightleftharpoons{\text{Xa, VIII, mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b95a820, Xa, VIII, mw7a1594}}$	
60	mwf122913a-_9b0b-_4492_8cb6-_2dd00c3f6162	R47b	mw7a1594c9_f04f_478c_9f5f_ccbe0b95a820 $\xrightarrow{\text{mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b95a}}$ VIIIa	
61	mw2b7d93e1-_fc1b-_4fa0_a03b-_4d2b2259d14f		mwbdb849d8_2b25_4551_8de8_adc8bead2303 $\xrightarrow{\text{mwbdb849d8\_2b25\_4551\_8de8\_adc8bea}}$	

№	Id	Name	Reaction Equation	SBO
62	`mw0ca8823e-` `_ed5a-` `_443a_935b-` `_db3cfb4c01e2`	N1	mw6d041b25_87db_4394_9b8b_7ac61e01f359 + mw6591152c_8b5a_4c9b_b095_956988a01ba0 $\xrightarrow{\text{mw6d041b25\_87db\_4394\_9b8b\_7ac61e}}$ Xa+mw6591152c_8b5a_4c9b_b095_956988a01ba0	

8.1 Reaction `R1`

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

Name R1

Notes Hockin - Mann, Blood Coagulation Kinetics

Reaction equation

$$TF + VII \xrightleftharpoons{TF, VII, TF\_VII, TF, VII, TF\_VII} TF\_VII \qquad (2)$$

Reactants

Table 6: Properties of each reactant.

Id	Name	SBO
TF	TF	
VII	VII	

Modifiers

Table 7: Properties of each modifier.

Id	Name	SBO
TF	TF	
VII	VII	
TF_VII	TF_VII	
TF	TF	
VII	VII	
TF_VII	TF_VII	

Product

Table 8: Properties of each product.

Id	Name	SBO
TF_VII	TF_VII	

Kinetic Law

Derived unit contains undeclared units

$$v_1 = \text{k2} \cdot [\text{TF}] \cdot [\text{VII}] - \text{k1} \cdot [\text{TF\_VII}] \tag{3}$$

8.2 Reaction R2

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

Name R2

Notes Hockin - Mann, Blood Coagulation KineticsReaction 2, k4 and k3 value taken as it is

Reaction equation

$$\text{TF} + \text{VIIa} \xrightleftharpoons{\text{TF, VIIa, TF\_VIIa, TF, VIIa, TF\_VIIa}} \text{TF\_VIIa} \tag{4}$$
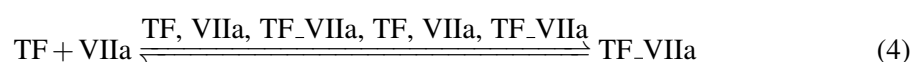
Reactants

Table 9: Properties of each reactant.

Id	Name	SBO
TF	TF	
VIIa	VIIa	

Modifiers

Table 10: Properties of each modifier.

Id	Name	SBO
TF	TF	
VIIa	VIIa	
TF_VIIa	TF_VIIa	
TF	TF	
VIIa	VIIa	
TF_VIIa	TF_VIIa	

Product

Table 11: Properties of each product.

Id	Name	SBO
TF_VIIa	TF_VIIa	

Kinetic Law

Derived unit contains undeclared units

$$v_2 = k4 \cdot [\text{TF}] \cdot [\text{VIIa}] - k3 \cdot [\text{TF\_VIIa}] \tag{5}$$

8.3 Reaction R3

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

Name R3

Notes Hockin - Mann, Blood Coagulation KineticsReaction 3, k5 value taken as it is

Reaction equation

$$\text{TF\_VIIa} + \text{VII} \xrightarrow{\text{TF\_VIIa, VII, TF\_VIIa, VII}} \text{TF\_VIIa} + \text{VIIa} \tag{6}$$
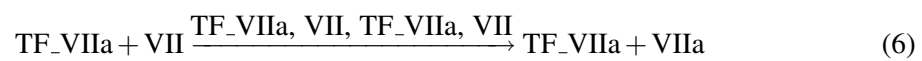
Reactants

Table 12: Properties of each reactant.

Id	Name	SBO
TF_VIIa	TF_VIIa	
VII	VII	

Modifiers

Table 13: Properties of each modifier.

Id	Name	SBO
TF_VIIa	TF_VIIa	
VII	VII	
TF_VIIa	TF_VIIa	
VII	VII	

Products

Produced by SBML2LATEX

Table 14: Properties of each product.

Id	Name	SBO
TF_VIIa	TF_VIIa	
VIIa	VIIa	

Kinetic Law

Derived unit contains undeclared units

$$v_3 = \text{k5} \cdot [\text{TF\_VIIa}] \cdot [\text{VII}] \tag{7}$$

8.4 Reaction R4

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

Name R4

Notes Hockin - Mann, Blood Coagulation KineticsReaction 4, k6 value taken as it is

Reaction equation

$$\text{Xa} + \text{VII} \xrightarrow{\text{Xa, VII, Xa, VII}} \text{Xa} + \text{VIIa} \tag{8}$$

Reactants

Table 15: Properties of each reactant.

Id	Name	SBO
Xa	Xa	
VII	VII	

Modifiers

Table 16: Properties of each modifier.

Id	Name	SBO
Xa	Xa	
VII	VII	
Xa	Xa	
VII	VII	

Products

Table 17: Properties of each product.

Id	Name	SBO
Xa	Xa	
VIIa	VIIa	

Kinetic Law

Derived unit contains undeclared units

$$v_4 = \text{k6} \cdot [\text{Xa}] \cdot [\text{VII}] \tag{9}$$

8.5 Reaction R5

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

Name R5

Notes Hockin - Mann, Blood Coagulation KineticsReaction 5, k7 value taken as it is

Reaction equation

$$\text{IIa} + \text{VII} \xrightarrow{\text{IIa, VII, IIa, VII}} \text{IIa} + \text{VIIa} \tag{10}$$

Reactants

Table 18: Properties of each reactant.

Id	Name	SBO
IIa	IIa	
VII	VII	

Modifiers

Table 19: Properties of each modifier.

Id	Name	SBO
IIa	IIa	
VII	VII	

Id	Name	SBO
IIa	IIa	
VII	VII	

Products

Table 20: Properties of each product.

Id	Name	SBO
IIa	IIa	
VIIa	VIIa	

Kinetic Law

Derived unit contains undeclared units

$$v_5 = k7 \cdot [\text{IIa}] \cdot [\text{VII}] \tag{11}$$

8.6 Reaction R6

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

Name R6

Notes Hockin - Mann, Blood Coagulation KineticsReaction 6, k10 and k9 and k8 value taken as it is

Reaction equation

$$\text{TF\_VIIa} + \text{X} \xrightleftharpoons{\text{TF\_VIIa, X, TF\_VIIa\_X, TF\_VIIa, X, TF\_VIIa\_X}} \text{TF\_VIIa\_X} \tag{12}$$

Reactants

Table 21: Properties of each reactant.

Id	Name	SBO
TF_VIIa	TF_VIIa	
X	X	

Modifiers

Table 22: Properties of each modifier.

Id	Name	SBO
TF_VIIa	TF_VIIa	
X	X	
TF_VIIa_X	TF_VIIa_X	
TF_VIIa	TF_VIIa	
X	X	
TF_VIIa_X	TF_VIIa_X	

Product

Table 23: Properties of each product.

Id	Name	SBO
TF_VIIa_X	TF_VIIa_X	

Kinetic Law

Derived unit contains undeclared units

$$v_6 = k9 \cdot [\text{TF\_VIIa}] \cdot [\text{X}] - k8 \cdot [\text{TF\_VIIa\_X}] \tag{13}$$

8.7 Reaction R6b

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

Name R6b

Notes Hockin - Mann, Blood Coagulation KineticsReaction 6b, k10 value taken as it is

Reaction equation

$$\text{TF\_VIIa\_X} \xrightarrow{\text{TF\_VIIa\_X, TF\_VIIa\_X}} \text{TF\_VIIa\_Xa} \tag{14}$$
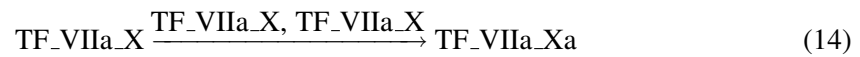
Reactant

Table 24: Properties of each reactant.

Id	Name	SBO
TF_VIIa_X	TF_VIIa_X	

Modifiers

Table 25: Properties of each modifier.

Id	Name	SBO
TF_VIIa_X	TF_VIIa_X	
TF_VIIa_X	TF_VIIa_X	

Product

Table 26: Properties of each product.

Id	Name	SBO
TF_VIIa_Xa	TF_VIIa_Xa	

Kinetic Law

Derived unit contains undeclared units

$$v_7 = \text{k10} \cdot [\text{TF\_VIIa\_X}] \tag{15}$$

8.8 Reaction R7

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

Name R7

Notes Hockin - Mann, Blood Coagulation KineticsReaction 7, k12 and k11 - value taken as it is

Reaction equation

$$\text{TF\_VIIa} + \text{Xa} \xrightleftharpoons{\text{TF\_VIIa, Xa, TF\_VIIa\_Xa, TF\_VIIa, Xa, TF\_VIIa\_Xa}} \text{TF\_VIIa\_Xa} \tag{16}$$

Reactants

Table 27: Properties of each reactant.

Id	Name	SBO
TF_VIIa	TF_VIIa	
Xa	Xa	

Modifiers

Table 28: Properties of each modifier.

Id	Name	SBO
TF_VIIa	TF_VIIa	
Xa	Xa	
TF_VIIa_Xa	TF_VIIa_Xa	
TF_VIIa	TF_VIIa	
Xa	Xa	
TF_VIIa_Xa	TF_VIIa_Xa	

Product

Table 29: Properties of each product.

Id	Name	SBO
TF_VIIa_Xa	TF_VIIa_Xa	

Kinetic Law

Derived unit contains undeclared units

$$v_8 = \text{k12} \cdot [\text{TF\_VIIa}] \cdot [\text{Xa}] - \text{k11} \cdot [\text{TF\_VIIa\_Xa}] \tag{17}$$

8.9 Reaction R8

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

Name R8

Notes Hockin - Mann, Blood Coagulation KineticsReaction 8, k14 and k13 value taken as it is

Reaction equation

$$\text{TF\_VIIa} + \text{IX} \xrightleftharpoons{\text{TF\_VIIa, IX, TF\_VIIa\_IX, TF\_VIIa, IX, TF\_VIIa\_IX}} \text{TF\_VIIa\_IX} \tag{18}$$

Reactants

Table 30: Properties of each reactant.

Id	Name	SBO
TF_VIIa	TF_VIIa	
IX	IX	

Modifiers

Table 31: Properties of each modifier.

Id	Name	SBO
TF_VIIa	TF_VIIa	
IX	IX	
TF_VIIa_IX	TF_VIIa_IX	
TF_VIIa	TF_VIIa	
IX	IX	
TF_VIIa_IX	TF_VIIa_IX	

Product

Table 32: Properties of each product.

Id	Name	SBO
TF_VIIa_IX	TF_VIIa_IX	

Kinetic Law

Derived unit contains undeclared units

$$v_9 = \text{k14} \cdot [\text{TF\_VIIa}] \cdot [\text{IX}] - \text{k13} \cdot [\text{TF\_VIIa\_IX}] \tag{19}$$

8.10 Reaction R8b

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

Name R8b

Notes Hockin - Mann, Blood Coagulation KineticsReaction 8b, k15 value taken as it is

Reaction equation

$$\text{TF\_VIIa\_IX} \xrightarrow{\text{TF\_VIIa\_IX, TF\_VIIa\_IX}} \text{TF\_VIIa} + \text{IXa} \tag{20}$$
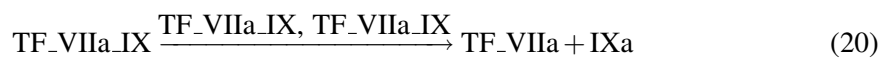
Reactant

Table 33: Properties of each reactant.

Id	Name	SBO
TF_VIIa_IX	TF_VIIa_IX	

Modifiers

Table 34: Properties of each modifier.

Id	Name	SBO
TF_VIIa_IX	TF_VIIa_IX	
TF_VIIa_IX	TF_VIIa_IX	

Products

Table 35: Properties of each product.

Id	Name	SBO
TF_VIIa	TF_VIIa	
IXa	IXa	

Kinetic Law

Derived unit contains undeclared units

$$v_{10} = \text{k15} \cdot [\text{TF\_VIIa\_IX}] \tag{21}$$

8.11 Reaction R9

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

Name R9

Notes Hockin - Mann, Blood Coagulation KineticsReaction 9, k16 value taken as it is

Reaction equation

$$\text{Xa} + \text{II} \xrightarrow{\text{Xa, II, Xa, II}} \text{Xa} + \text{IIa} + \text{mwbdb849d8\_2b25\_4551\_8de8\_adc8bead2303} \tag{22}$$

Reactants

Table 36: Properties of each reactant.

Id	Name	SBO
Xa	Xa	
II	II	

Modifiers

Table 37: Properties of each modifier.

Id	Name	SBO
Xa	Xa	
II	II	
Xa	Xa	
II	II	

Products

Table 38: Properties of each product.

Id	Name	SBO
Xa	Xa	
IIa	IIa	
mwbdb849d8_2b25_4551_8de8_adc8bead2303	F12	

Kinetic Law

Derived unit contains undeclared units

$$v_{11} = \text{k16} \cdot [\text{Xa}] \cdot [\text{II}] \tag{23}$$

8.12 Reaction R10

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

Name R10

Notes Hockin - Mann, Blood Coagulation KineticsReaction 10, k17 value taken as it is

Reaction equation

$$\text{IIa} + \text{VIII} \xrightarrow{\text{IIa, VIII, IIa, VIII}} \text{IIa} + \text{VIIIa} \tag{24}$$
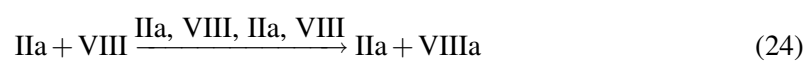
Reactants

Table 39: Properties of each reactant.

Id	Name	SBO
IIa	IIa	
VIII	VIII	

Modifiers

Table 40: Properties of each modifier.

Id	Name	SBO
IIa	IIa	
VIII	VIII	
IIa	IIa	
VIII	VIII	

Products

Table 41: Properties of each product.

Id	Name	SBO
IIa	IIa	
VIIIa	VIIIa	

Kinetic Law

Derived unit contains undeclared units

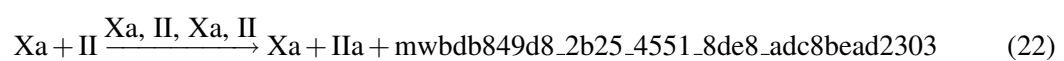$$v_{12} = \text{k17} \cdot [\text{IIa}] \cdot [\text{VIII}] \tag{25}$$

8.13 Reaction R11

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

Name R11

Notes Hockin - Mann, Blood Coagulation KineticsReaction 11, k19 and k18 value taken as it is

Reaction equation

$$IXa + VIIIa \xrightleftharpoons{\text{IXa, VIIIa, IXa\_VIIIa, IXa, VIIIa, IXa\_VIIIa}} IXa\_VIIIa \qquad (26)$$
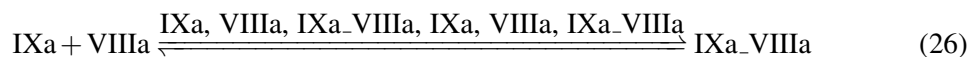
Reactants

Table 42: Properties of each reactant.

Id	Name	SBO
IXa	IXa	
VIIIa	VIIIa	

Modifiers

Table 43: Properties of each modifier.

Id	Name	SBO
IXa	IXa	
VIIIa	VIIIa	
IXa_VIIIa	IXa_VIIIa	
IXa	IXa	
VIIIa	VIIIa	
IXa_VIIIa	IXa_VIIIa	

Product

Table 44: Properties of each product.

Id	Name	SBO
IXa_VIIIa	IXa_VIIIa	

Kinetic Law

Derived unit contains undeclared units

$$v_{13} = k19 \cdot [IXa] \cdot [VIIIa] - k18 \cdot [IXa\_VIIIa] \qquad (27)$$

8.14 Reaction R12

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

Name R12

Notes Hockin - Mann, Blood Coagulation KineticsReaction 12, k21 and k20 value taken as it is

Reaction equation

$$\text{IXa\_VIIIa} + \text{X} \xrightleftharpoons{\text{IXa\_VIIIa, X, IXa\_VIIIa\_X, IXa\_VIIIa, X, IXa\_VIIIa\_X}} \text{IXa\_VIIIa\_X} \quad (28)$$

Reactants

Table 45: Properties of each reactant.

Id	Name	SBO
IXa_VIIIa	IXa_VIIIa	
X	X	

Modifiers

Table 46: Properties of each modifier.

Id	Name	SBO
IXa_VIIIa	IXa_VIIIa	
X	X	
IXa_VIIIa_X	IXa_VIIIa_X	
IXa_VIIIa	IXa_VIIIa	
X	X	
IXa_VIIIa_X	IXa_VIIIa_X	

Product

Table 47: Properties of each product.

Id	Name	SBO
IXa_VIIIa_X	IXa_VIIIa_X	

Kinetic Law

Derived unit contains undeclared units

$$v_{14} = \text{k21} \cdot [\text{IXa\_VIIIa}] \cdot [\text{X}] - \text{k20} \cdot [\text{IXa\_VIIIa\_X}] \quad (29)$$

8.15 Reaction R12b

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

Name R12b

Notes Hockin - Mann, Blood Coagulation KineticsReaction 12b, k22 value taken as it is

Reaction equation

$$\text{IXa\_VIIIa\_X} \xrightarrow{\text{IXa\_VIIIa\_X, IXa\_VIIIa\_X}} \text{IXa\_VIIIa} + \text{Xa} \qquad (30)$$
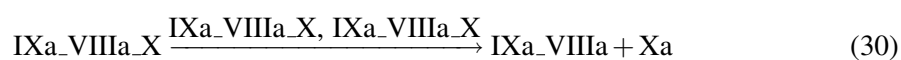
Reactant

Table 48: Properties of each reactant.

Id	Name	SBO
IXa_VIIIa_X	IXa_VIIIa_X	

Modifiers

Table 49: Properties of each modifier.

Id	Name	SBO
IXa_VIIIa_X	IXa_VIIIa_X	
IXa_VIIIa_X	IXa_VIIIa_X	

Products

Table 50: Properties of each product.

Id	Name	SBO
IXa_VIIIa	IXa_VIIIa	
Xa	Xa	

Kinetic Law

Derived unit contains undeclared units

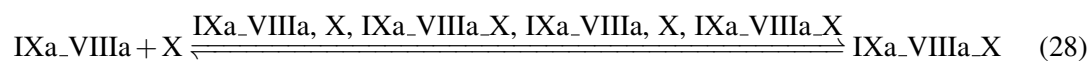$$v_{15} = \text{k22} \cdot [\text{IXa\_VIIIa\_X}] \qquad (31)$$

8.16 Reaction R13

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

Name R13

Notes Hockin - Mann, Blood Coagulation KineticsReaction 13, k24 and k23 value taken as it is

Reaction equation

$$\text{VIIIa} \underset{}{\overset{\text{VIIIa, VIIIa1\_L, VIIIa2, VIIIa, VIIIa1\_L, VIIIa2}}{\rightleftharpoons}} \text{VIIIa1\_L} + \text{VIIIa2} \qquad (32)$$

Reactant

Table 51: Properties of each reactant.

Id	Name	SBO
VIIIa	VIIIa	

Modifiers

Table 52: Properties of each modifier.

Id	Name	SBO
VIIIa	VIIIa	
VIIIa1_L	VIIIa1_L	
VIIIa2	VIIIa2	
VIIIa	VIIIa	
VIIIa1_L	VIIIa1_L	
VIIIa2	VIIIa2	

Products

Table 53: Properties of each product.

Id	Name	SBO
VIIIa1_L	VIIIa1_L	
VIIIa2	VIIIa2	

Kinetic Law

Derived unit contains undeclared units

$$v_{16} = \text{k24} \cdot [\text{VIIIa}] - \text{k23} \cdot [\text{VIIIa1\_L}] \cdot [\text{VIIIa2}] \tag{33}$$

8.17 Reaction R14

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

Name R14

Notes Hockin - Mann, Blood Coagulation KineticsReaction 14, k25 value taken as it is

Reaction equation

$$\text{IXa\_VIIIa\_X} \xrightarrow{\text{IXa\_VIIIa\_X, IXa\_VIIIa\_X}} \text{VIIIa1\_L} + \text{VIIIa2} + \text{X} + \text{IXa} \tag{34}$$

Reactant

Table 54: Properties of each reactant.

Id	Name	SBO
IXa_VIIIa_X	IXa_VIIIa_X	

Modifiers

Table 55: Properties of each modifier.

Id	Name	SBO
IXa_VIIIa_X	IXa_VIIIa_X	
IXa_VIIIa_X	IXa_VIIIa_X	

Products

Table 56: Properties of each product.

Id	Name	SBO
VIIIa1_L	VIIIa1_L	
VIIIa2	VIIIa2	
X	X	

Id	Name	SBO
IXa	IXa	

Kinetic Law

Derived unit contains undeclared units

$$v_{17} = \text{k25} \cdot [\text{IXa\_VIIIa\_X}] \tag{35}$$

8.18 Reaction R15

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

Name R15

Notes Hockin - Mann, Blood Coagulation KineticsReaction 15, k25_1 is same as k25 - value taken as it is

Reaction equation

$$\text{IXa\_VIIIa} \xrightarrow{\text{IXa\_VIIIa, IXa\_VIIIa}} \text{VIIIa1\_L} + \text{VIIIa2} + \text{IXa} \tag{36}$$

Reactant

Table 57: Properties of each reactant.

Id	Name	SBO
IXa_VIIIa	IXa_VIIIa	

Modifiers

Table 58: Properties of each modifier.

Id	Name	SBO
IXa_VIIIa	IXa_VIIIa	
IXa_VIIIa	IXa_VIIIa	

Products

Table 59: Properties of each product.

Id	Name	SBO
VIIIa1_L	VIIIa1_L	
VIIIa2	VIIIa2	
IXa	IXa	

Kinetic Law

Derived unit contains undeclared units

$$v_{18} = \mathrm{k26} \cdot [\mathrm{IXa\_VIIIa}] \tag{37}$$
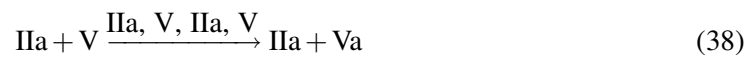
8.19 Reaction R16

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

Name R16

Notes Hockin - Mann, Blood Coagulation KineticsReaction 16, k26 value taken as it is

Reaction equation

$$\mathrm{IIa} + \mathrm{V} \xrightarrow{\mathrm{IIa, V, IIa, V}} \mathrm{IIa} + \mathrm{Va} \tag{38}$$

Reactants

Table 60: Properties of each reactant.

Id	Name	SBO
IIa	IIa	
V	V	

Modifiers

Table 61: Properties of each modifier.

Id	Name	SBO
IIa	IIa	
V	V	
IIa	IIa	
V	V	

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Id	Name	SBO

Products

Table 62: Properties of each product.

Id	Name	SBO
IIa	IIa	
Va	Va	

Kinetic Law

Derived unit contains undeclared units

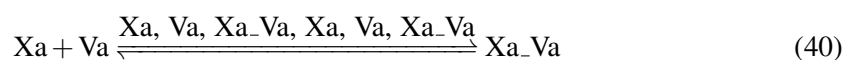$$v_{19} = \text{k27} \cdot [\text{IIa}] \cdot [\text{V}] \tag{39}$$

8.20 Reaction R17

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

Name R17

Notes Hockin - Mann, Blood Coagulation KineticsReaction 17, k28 value taken as it is

Reaction equation

$$\text{Xa} + \text{Va} \xrightleftharpoons{\text{Xa, Va, Xa\_Va, Xa, Va, Xa\_Va}} \text{Xa\_Va} \tag{40}$$

Reactants

Table 63: Properties of each reactant.

Id	Name	SBO
Xa	Xa	
Va	Va	

Modifiers

Table 64: Properties of each modifier.

Id	Name	SBO
Xa	Xa	
Va	Va	
Xa_Va	Xa_Va	
Xa	Xa	
Va	Va	
Xa_Va	Xa_Va	

Product

Table 65: Properties of each product.

Id	Name	SBO
Xa_Va	Xa_Va	

Kinetic Law

Derived unit contains undeclared units

$$v_{20} = \text{mw8482ca53\_fca1\_4841\_ac2f\_2469a76a758e} \cdot [\text{Xa}] \cdot [\text{Va}] \\ - \text{mw1511789f\_5e7b\_43bf\_b162\_d930b027a867} \cdot [\text{Xa\_Va}] \tag{41}$$
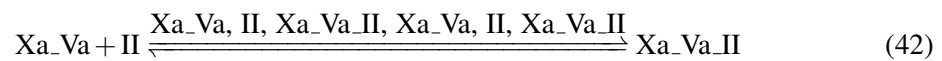
8.21 Reaction R18

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

Name R18

Notes Hockin - Mann, Blood Coagulation KineticsReaction 18, k30 value taken as it is

Reaction equation

$$\text{Xa\_Va} + \text{II} \xrightleftharpoons{\text{Xa\_Va, II, Xa\_Va\_II, Xa\_Va, II, Xa\_Va\_II}} \text{Xa\_Va\_II} \tag{42}$$

Reactants

Table 66: Properties of each reactant.

Id	Name	SBO
Xa_Va	Xa_Va	
II	II	

Modifiers

Table 67: Properties of each modifier.

Id	Name	SBO
Xa_Va	Xa_Va	
II	II	
Xa_Va_II	Xa_Va_II	
Xa_Va	Xa_Va	
II	II	
Xa_Va_II	Xa_Va_II	

Product

Table 68: Properties of each product.

Id	Name	SBO
Xa_Va_II	Xa_Va_II	

Kinetic Law

Derived unit contains undeclared units

$$v_{21} = \text{k30} \cdot [\text{Xa\_Va}] \cdot [\text{II}] - \text{k29} \cdot [\text{Xa\_Va\_II}] \tag{43}$$
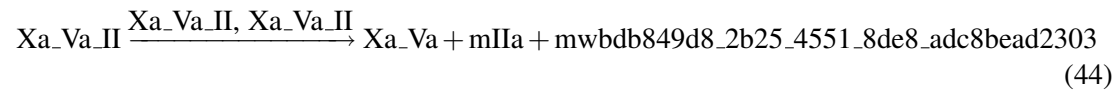
8.22 Reaction `R18b`

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

Name R18b

Notes Hockin - Mann, Blood Coagulation KineticsReaction 18b, k31 value taken as it is

Reaction equation

$$\text{Xa\_Va\_II} \xrightarrow{\text{Xa\_Va\_II, Xa\_Va\_II}} \text{Xa\_Va} + \text{mIIa} + \text{mwbdb849d8\_2b25\_4551\_8de8\_adc8bead2303} \tag{44}$$

Reactant

Table 69: Properties of each reactant.

Id	Name	SBO
Xa_Va_II	Xa_Va_II	

Modifiers

Table 70: Properties of each modifier.

Id	Name	SBO
Xa_Va_II	Xa_Va_II	
Xa_Va_II	Xa_Va_II	

Products

Table 71: Properties of each product.

Id	Name	SBO
Xa_Va	Xa_Va	
mIIa	mIIa	
mwbdb849d8_2b25_4551_8de8_adc8bead2303	F12	

Kinetic Law

Derived unit contains undeclared units

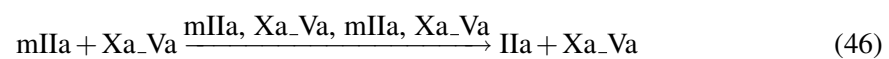$$v_{22} = k31 \cdot [\text{Xa\_Va\_II}] \tag{45}$$

8.23 Reaction R19

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

Name R19

Notes Hockin - Mann, Blood Coagulation KineticsReaction 19, k32 value taken as it is

Reaction equation

$$\text{mIIa} + \text{Xa\_Va} \xrightarrow{\text{mIIa, Xa\_Va, mIIa, Xa\_Va}} \text{IIa} + \text{Xa\_Va} \tag{46}$$

Reactants

Table 72: Properties of each reactant.

Id	Name	SBO
mIIa	mIIa	
Xa_Va	Xa_Va	

Modifiers

Table 73: Properties of each modifier.

Id	Name	SBO
mIIa	mIIa	
Xa_Va	Xa_Va	
mIIa	mIIa	
Xa_Va	Xa_Va	

Products

Table 74: Properties of each product.

Id	Name	SBO
IIa	IIa	
Xa_Va	Xa_Va	

Kinetic Law

Derived unit contains undeclared units

$$v_{23} = \text{k32} \cdot [\text{mIIa}] \cdot [\text{Xa\_Va}] \tag{47}$$

8.24 Reaction R20

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

Name R20

Notes Hockin - Mann, Blood Coagulation KineticsReaction 20, k34 and k33 value taken as it is

Reaction equation

$$\text{Xa} + \text{TFPI} \xrightleftharpoons{\text{Xa, TFPI, Xa\_TFPI, Xa, TFPI, Xa\_TFPI}} \text{Xa\_TFPI} \tag{48}$$

Reactants

Table 75: Properties of each reactant.

Id	Name	SBO
Xa	Xa	
TFPI	TFPI	

Modifiers

Table 76: Properties of each modifier.

Id	Name	SBO
Xa	Xa	
TFPI	TFPI	
Xa_TFPI	Xa_TFPI	
Xa	Xa	
TFPI	TFPI	
Xa_TFPI	Xa_TFPI	

Product

Table 77: Properties of each product.

Id	Name	SBO
Xa_TFPI	Xa_TFPI	

Kinetic Law

Derived unit contains undeclared units

$$v_{24} = \text{k34} \cdot [\text{Xa}] \cdot [\text{TFPI}] - \text{k33} \cdot [\text{Xa\_TFPI}] \tag{49}$$

8.25 Reaction R21

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

Name R21

Notes Hockin - Mann, Blood Coagulation KineticsReaction 21, k36 and k35 value taken as it is

Reaction equation

$$\text{TF\_VIIa\_Xa} + \text{TFPI} \xrightleftharpoons{\text{TF\_VIIa\_Xa, TFPI, TF\_VIIa\_Xa\_TFPI, TF\_VIIa\_Xa, TFPI, TF\_VIIa\_Xa\_TFPI}} \text{TF\_VIIa\_Xa\_TFPI}$$

(50)

Reactants

Table 78: Properties of each reactant.

Id	Name	SBO
TF_VIIa_Xa	TF_VIIa_Xa	
TFPI	TFPI	

Modifiers

Table 79: Properties of each modifier.

Id	Name	SBO
TF_VIIa_Xa	TF_VIIa_Xa	
TFPI	TFPI	
TF_VIIa_Xa_TFPI	TF_VIIa_Xa_TFPI	
TF_VIIa_Xa	TF_VIIa_Xa	
TFPI	TFPI	
TF_VIIa_Xa_TFPI	TF_VIIa_Xa_TFPI	

Product

Table 80: Properties of each product.

Id	Name	SBO
TF_VIIa_Xa_TFPI	TF_VIIa_Xa_TFPI	

Kinetic Law

Derived unit contains undeclared units

$$v_{25} = \text{k36} \cdot [\text{TF\_VIIa\_Xa}] \cdot [\text{TFPI}] - \text{k35} \cdot [\text{TF\_VIIa\_Xa\_TFPI}]$$

(51)

8.26 Reaction R22

This is an irreversible reaction of two reactants forming one product influenced by four modifiers.

Name R22

Notes Hockin - Mann, Blood Coagulation KineticsReaction 22, k36 and k35 value taken as it is

Reaction equation

$$\text{TF\_VIIa} + \text{Xa\_TFPI} \xrightarrow{\text{TF\_VIIa, Xa\_TFPI, TF\_VIIa, Xa\_TFPI}} \text{TF\_VIIa\_Xa\_TFPI} \qquad (52)$$

Reactants

Table 81: Properties of each reactant.

Id	Name	SBO
TF_VIIa	TF_VIIa	
Xa_TFPI	Xa_TFPI	

Modifiers

Table 82: Properties of each modifier.

Id	Name	SBO
TF_VIIa	TF_VIIa	
Xa_TFPI	Xa_TFPI	
TF_VIIa	TF_VIIa	
Xa_TFPI	Xa_TFPI	

Product

Table 83: Properties of each product.

Id	Name	SBO
TF_VIIa_Xa_TFPI	TF_VIIa_Xa_TFPI	

Kinetic Law

Derived unit contains undeclared units

$$v_{26} = \text{k37} \cdot [\text{TF\_VIIa}] \cdot [\text{Xa\_TFPI}] \qquad (53)$$

8.27 Reaction R23

This is an irreversible reaction of two reactants forming one product influenced by four modifiers.

Name R23

Notes Hockin - Mann, Blood Coagulation KineticsReaction 23, k38 value taken as it is

Reaction equation

$$\text{Xa} + \text{ATIII} \xrightarrow{\text{Xa, ATIII, Xa, ATIII}} \text{Xa\_ATIII} \tag{54}$$
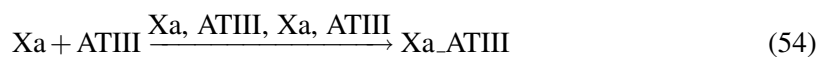
Reactants

Table 84: Properties of each reactant.

Id	Name	SBO
Xa	Xa	
ATIII	ATIII	

Modifiers

Table 85: Properties of each modifier.

Id	Name	SBO
Xa	Xa	
ATIII	ATIII	
Xa	Xa	
ATIII	ATIII	

Product

Table 86: Properties of each product.

Id	Name	SBO
Xa_ATIII	Xa_ATIII	

Kinetic Law

Derived unit contains undeclared units

$$v_{27} = \text{k38} \cdot [\text{Xa}] \cdot [\text{ATIII}] \tag{55}$$

8.28 Reaction R24

This is an irreversible reaction of two reactants forming one product influenced by four modifiers.

Name R24

Notes Hockin - Mann, Blood Coagulation KineticsReaction 24, k39 value taken as it is

Reaction equation

$$\text{mIIa} + \text{ATIII} \xrightarrow{\text{mIIa, ATIII, mIIa, ATIII}} \text{mIIa\_ATIII} \tag{56}$$
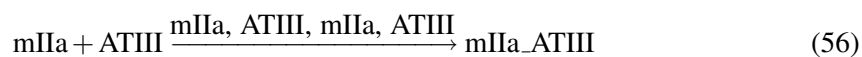
Reactants

Table 87: Properties of each reactant.

Id	Name	SBO
mIIa	mIIa	
ATIII	ATIII	

Modifiers

Table 88: Properties of each modifier.

Id	Name	SBO
mIIa	mIIa	
ATIII	ATIII	
mIIa	mIIa	
ATIII	ATIII	

Product

Table 89: Properties of each product.

Id	Name	SBO
mIIa_ATIII	mIIa_ATIII	

Kinetic Law

Derived unit contains undeclared units

$$v_{28} = \text{k39} \cdot [\text{mIIa}] \cdot [\text{ATIII}] \tag{57}$$

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8.29 Reaction R25

This is an irreversible reaction of two reactants forming one product influenced by four modifiers.

Name R25

Notes Hockin - Mann, Blood Coagulation KineticsReaction 25, k40 value taken as it is

Reaction equation

$$\text{IXa} + \text{ATIII} \xrightarrow{\text{IXa, ATIII, IXa, ATIII}} \text{IXa\_ATIII} \tag{58}$$
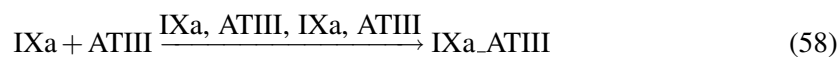
Reactants

Table 90: Properties of each reactant.

Id	Name	SBO
IXa	IXa	
ATIII	ATIII	

Modifiers

Table 91: Properties of each modifier.

Id	Name	SBO
IXa	IXa	
ATIII	ATIII	
IXa	IXa	
ATIII	ATIII	

Product

Table 92: Properties of each product.

Id	Name	SBO
IXa_ATIII	IXa_ATIII	

Kinetic Law

Derived unit contains undeclared units

$$v_{29} = \text{k40} \cdot [\text{IXa}] \cdot [\text{ATIII}] \tag{59}$$

8.30 Reaction R26

This is an irreversible reaction of two reactants forming one product influenced by four modifiers.

Name R26

Notes Hockin - Mann, Blood Coagulation KineticsReaction 26, k41 value taken as it is

Reaction equation

$$\text{IIa} + \text{ATIII} \xrightarrow{\text{IIa, ATIII, IIa, ATIII}} \text{IIa\_ATIII} \tag{60}$$
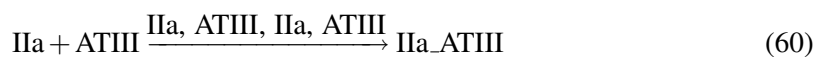
Reactants

Table 93: Properties of each reactant.

Id	Name	SBO
IIa	IIa	
ATIII	ATIII	

Modifiers

Table 94: Properties of each modifier.

Id	Name	SBO
IIa	IIa	
ATIII	ATIII	
IIa	IIa	
ATIII	ATIII	

Product

Table 95: Properties of each product.

Id	Name	SBO
IIa_ATIII	IIa_ATIII	

Kinetic Law

Derived unit contains undeclared units

$$v_{30} = \text{k41} \cdot [\text{IIa}] \cdot [\text{ATIII}] \tag{61}$$

8.31 Reaction R27

This is an irreversible reaction of two reactants forming one product influenced by four modifiers.

Name R27

Notes Hockin - Mann, Blood Coagulation KineticsReaction 27, k42 value taken as it is

Reaction equation

$$\text{TF\_VIIa} + \text{ATIII} \xrightarrow{\text{TF\_VIIa, ATIII, TF\_VIIa, ATIII}} \text{TF\_VIIa\_ATIII} \tag{62}$$

Reactants

Table 96: Properties of each reactant.

Id	Name	SBO
TF_VIIa	TF_VIIa	
ATIII	ATIII	

Modifiers

Table 97: Properties of each modifier.

Id	Name	SBO
TF_VIIa	TF_VIIa	
ATIII	ATIII	
TF_VIIa	TF_VIIa	
ATIII	ATIII	

Product

Table 98: Properties of each product.

Id	Name	SBO
TF_VIIa_ATIII	TF_VIIa_ATIII	

Kinetic Law

Derived unit contains undeclared units

$$v_{31} = \text{k42} \cdot [\text{TF\_VIIa}] \cdot [\text{ATIII}] \tag{63}$$

8.32 Reaction mw356a0437_4d35_42d9_a964_d205845dd3a0

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

Name R28

Notes Butenas S and Mann KG 2004 paper - CA is contact activator

Reaction equation

$$
\text{mw4e2cf0b0\_bd70\_45a4\_9e60\_eba82fa5c3e4} + \text{mw469042d3\_a94f\_4ebe\_af1c\_1ead580aad2a} \xrightarrow{\text{mw4e2cf0b0\_bd70\_45}}
$$

(64)

Reactants

Table 99: Properties of each reactant.

Id	Name	SBO
mw4e2cf0b0_bd70_45a4_9e60_eba82fa5c3e4	CA	
mw469042d3_a94f_4ebe_af1c_1ead580aad2a	XII	

Modifiers

Table 100: Properties of each modifier.

Id	Name	SBO
mw4e2cf0b0_bd70_45a4_9e60_eba82fa5c3e4	CA	
mw469042d3_a94f_4ebe_af1c_1ead580aad2a	XII	
mw4e2cf0b0_bd70_45a4_9e60_eba82fa5c3e4	CA	
mw469042d3_a94f_4ebe_af1c_1ead580aad2a	XII	

Products

Table 101: Properties of each product.

Id	Name	SBO
mw4e2cf0b0_bd70_45a4_9e60_eba82fa5c3e4	CA	
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	

Kinetic Law

Derived unit contains undeclared units

$$v_{32} = \text{mwe5422617\_5481\_47c8\_bf98\_d6e3f1e96384} \\ \cdot [\text{mw4e2cf0b0\_bd70\_45a4\_9e60\_eba82fa5c3e4}] \\ \cdot [\text{mw469042d3\_a94f\_4ebe\_af1c\_1ead580aad2a}] \tag{65}$$

8.33 Reaction `mw2ad76883_679b_4cfa_a390_ed12c2cb488a`

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

Name R31

Notes Diamond - Systems Biology of Coagulation InitiationReaction 31, k1 and k-1, value taken as it is

Reaction equation

$$\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72} + \text{mw8c2b9a07\_22c3\_4912\_adb1\_167a38ea4cb3} \xrightleftharpoons{\text{mw6c404de5\_5b24\_}} \tag{66}$$

Reactants

Table 102: Properties of each reactant.

Id	Name	SBO
`mw6c404de5_5b24_48d6_a0c4_5491e07b1f72`	XIIa	
`mw8c2b9a07_22c3_4912_adb1_167a38ea4cb3`	PK	

Modifiers

Table 103: Properties of each modifier.

Id	Name	SBO
`mw6c404de5_5b24_48d6_a0c4_5491e07b1f72`	XIIa	
`mw8c2b9a07_22c3_4912_adb1_167a38ea4cb3`	PK	
`mw819d0d09_05ba_4674_85ba_5c9439fb77f4`	XIIa_PK	
`mw6c404de5_5b24_48d6_a0c4_5491e07b1f72`	XIIa	
`mw8c2b9a07_22c3_4912_adb1_167a38ea4cb3`	PK	
`mw819d0d09_05ba_4674_85ba_5c9439fb77f4`	XIIa_PK	

Product

Table 104: Properties of each product.

Id	Name	SBO
mw819d0d09_05ba_4674_85ba_5c9439fb77f4	XIIa_PK	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{33} = \ & \text{mw3ab61faa\_95e4\_40a9\_93de\_5c51755957c4} \\
& \cdot [\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72}] \\
& \cdot [\text{mw8c2b9a07\_22c3\_4912\_adb1\_167a38ea4cb3}] \\
& - \text{mw862c3fea\_05a0\_4d3d\_ba5c\_9727bbb67907} \\
& \cdot [\text{mw819d0d09\_05ba\_4674\_85ba\_5c9439fb77f4}]
\end{aligned}
\tag{67}
$$

8.34 Reaction mw7625dc03_2283_4c41_8d88_c03bbd995622

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

Name R31b

Notes Diamond - Systems Biology of Coagulation InitiationReaction 31, kcat value taken as it is

Reaction equation

$$
\text{mw819d0d09\_05ba\_4674\_85ba\_5c9439fb77f4} \xrightarrow{\text{mw819d0d09\_05ba\_4674\_85ba\_5c9439fb77f4, mw819d0d09\_05ba\_4}} \tag{68}
$$

Reactant

Table 105: Properties of each reactant.

Id	Name	SBO
mw819d0d09_05ba_4674_85ba_5c9439fb77f4	XIIa_PK	

Modifiers

Table 106: Properties of each modifier.

Id	Name	SBO
mw819d0d09_05ba_4674_85ba_5c9439fb77f4	XIIa_PK	
mw819d0d09_05ba_4674_85ba_5c9439fb77f4	XIIa_PK	

Products

Table 107: Properties of each product.

Id	Name	SBO
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
mw2be3652b_79af_4228_9d1c_9d65c7d0c70f	K	

Kinetic Law

Derived unit contains undeclared units

$$v_{34} = \text{mw107e9839\_b4a4\_46c8\_9102\_da7d857fd655} \cdot [\text{mw819d0d09\_05ba\_4674\_85ba\_5c9439fb77f4}] \tag{69}$$

8.35 Reaction mwb7173277_b0a8_4585_8e75_4188d464a440

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

Name R32

Notes Diamond - Systems Biology of Coagulation InitiationReaction 32, k1 and k-1, value taken as it is

Reaction equation

$$\text{mw469042d3\_a94f\_4ebe\_af1c\_1ead580aad2a} + \text{mw2be3652b\_79af\_4228\_9d1c\_9d65c7d0c70f} \xrightleftharpoons{\text{mw469042d3\_a94f\_4e}} \tag{70}$$

Reactants

Table 108: Properties of each reactant.

Id	Name	SBO
mw469042d3_a94f_4ebe_af1c_1ead580aad2a	XII	
mw2be3652b_79af_4228_9d1c_9d65c7d0c70f	K	

Modifiers

Table 109: Properties of each modifier.

Id	Name	SBO
mw469042d3_a94f_4ebe_af1c_1ead580aad2a	XII	
mw2be3652b_79af_4228_9d1c_9d65c7d0c70f	K	
mw6a63ae22_6bb4_4dcf_992f_9287439dd556	XII_K	
mw469042d3_a94f_4ebe_af1c_1ead580aad2a	XII	
mw2be3652b_79af_4228_9d1c_9d65c7d0c70f	K	
mw6a63ae22_6bb4_4dcf_992f_9287439dd556	XII_K	

Product

Table 110: Properties of each product.

Id	Name	SBO
mw6a63ae22_6bb4_4dcf_992f_9287439dd556	XII_K	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{35} = {} & \text{mweb1be1ac\_0c60\_4849\_b306\_071c8f9370c0} \\
& \cdot [\text{mw469042d3\_a94f\_4ebe\_af1c\_1ead580aad2a}] \\
& \cdot [\text{mw2be3652b\_79af\_4228\_9d1c\_9d65c7d0c70f}] \\
& - \text{mw94d2be4e\_839e\_4154\_a6f0\_f0d6b61e50a9} \\
& \cdot [\text{mw6a63ae22\_6bb4\_4dcf\_992f\_9287439dd556}]
\end{aligned}
\tag{71}
$$

8.36 Reaction `mwa9bc550c_e44b_4a55_9d10_c274a9c710a8`

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

Name R32b

Notes Diamond - Systems Biology of Coagulation InitiationReaction 32, kcat, value taken as it is

Reaction equation

$$
\text{mw6a63ae22\_6bb4\_4dcf\_992f\_9287439dd556} \xrightarrow{\text{mw6a63ae22\_6bb4\_4dcf\_992f\_9287439dd556, mw6a63ae22\_6bb4\_4d}}
\tag{72}
$$

Reactant

Table 111: Properties of each reactant.

Id	Name	SBO
mw6a63ae22_6bb4_4dcf_992f_9287439dd556	XII_K	

Modifiers

Table 112: Properties of each modifier.

Id	Name	SBO
mw6a63ae22_6bb4_4dcf_992f_9287439dd556	XII_K	
mw6a63ae22_6bb4_4dcf_992f_9287439dd556	XII_K	

Products

Table 113: Properties of each product.

Id	Name	SBO
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
mw2be3652b_79af_4228_9d1c_9d65c7d0c70f	K	

Kinetic Law

Derived unit contains undeclared units

$$v_{36} = \text{mw6f439ade\_bb02\_4671\_8e45\_8beaa312b3d2} \\ \cdot [\text{mw6a63ae22\_6bb4\_4dcf\_992f\_9287439dd556}] \tag{73}$$

8.37 Reaction mwc0c930a7_ee46_48b9_bc37_297a29d337ed

This is an irreversible reaction of two reactants forming one product influenced by four modifiers.

Name R37

Notes Diamond - Systems Biology of Coagulation InitiationReaction 37, k1, value taken as it is

Reaction equation

$$\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72} + \text{ATIII} \xrightarrow{\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72, ATIII, mw6c4}}$$

$$(74)$$
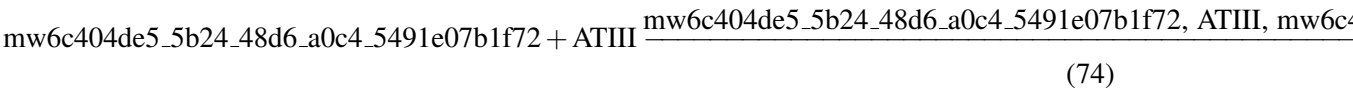
Reactants

Table 114: Properties of each reactant.

Id	Name	SBO
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
ATIII	ATIII	

Modifiers

Table 115: Properties of each modifier.

Id	Name	SBO
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
ATIII	ATIII	
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
ATIII	ATIII	

Product

Table 116: Properties of each product.

Id	Name	SBO
mwcefd1303_4967_4502_af6d_e75c88c4d548	XIIa_ATIII	

Kinetic Law

Derived unit contains undeclared units

$$v_{37} = \text{mwf677450c\_a4e3\_41df\_be5a\_9c8928ac27f4}$$
$$\cdot \, [\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72}] \cdot [\text{ATIII}] \qquad (75)$$

8.38 Reaction `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d`

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

Name R39

Notes Diamond - Systems Biology of Coagulation InitiationReaction 39, k1 and k-1, value taken as it is

Reaction equation

$$\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72} + \text{mwe043d306\_ffdd\_447b\_9826\_4df8abbece4d} \xrightleftharpoons{\text{mw6c404de5\_5b24\_4}}$$

(76)
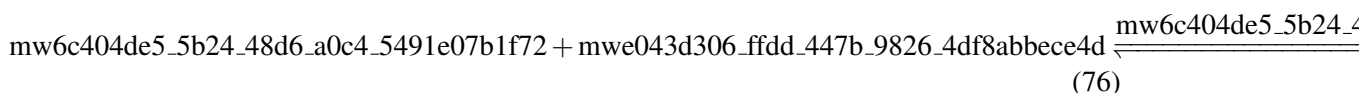
Reactants

Table 117: Properties of each reactant.

Id	Name	SBO
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
mwe043d306_ffdd_447b_9826_4df8abbece4d	XI	

Modifiers

Table 118: Properties of each modifier.

Id	Name	SBO
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
mwe043d306_ffdd_447b_9826_4df8abbece4d	XI	
mwe51f72d2_84fb_4b43_b900_521410fdf99c	XIIa_XI	
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
mwe043d306_ffdd_447b_9826_4df8abbece4d	XI	
mwe51f72d2_84fb_4b43_b900_521410fdf99c	XIIa_XI	

Product

Table 119: Properties of each product.

Id	Name	SBO
mwe51f72d2_84fb_4b43_b900_521410fdf99c	XIIa_XI	

Kinetic Law

Derived unit contains undeclared units

$$v_{38} = \text{mw7ff84021\_4836\_4a63\_84fc\_4389e5f74f81}$$
$$\cdot [\text{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72}]$$
$$\cdot [\text{mwe043d306\_ffdd\_447b\_9826\_4df8abbece4d}] \tag{77}$$
$$- \text{mw204ea0fc\_f851\_4d50\_9b82\_bc66e34ac7dc}$$
$$\cdot [\text{mwe51f72d2\_84fb\_4b43\_b900\_521410fdf99c}]$$

8.39 Reaction `mw733749dd_73df_4e8d_86b3_eabffb03d79e`

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

Name R39b

Notes Diamond - Systems Biology of Coagulation InitiationReaction 39, kcat

Reaction equation

$$\text{mwe51f72d2\_84fb\_4b43\_b900\_521410fdf99c} \xrightarrow{\text{mwe51f72d2\_84fb\_4b43\_b900\_521410fdf99c, mwe51f72d2\_84fb\_4b4}} \tag{78}$$

Reactant

Table 120: Properties of each reactant.

Id	Name	SBO
mwe51f72d2_84fb_4b43_b900_521410fdf99c	XIIa_XI	

Modifiers

Table 121: Properties of each modifier.

Id	Name	SBO
mwe51f72d2_84fb_4b43_b900_521410fdf99c	XIIa_XI	
mwe51f72d2_84fb_4b43_b900_521410fdf99c	XIIa_XI	

Products

Table 122: Properties of each product.

Id	Name	SBO
mw6c404de5_5b24_48d6_a0c4_5491e07b1f72	XIIa	
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	

Id	Name	SBO

Kinetic Law

Derived unit contains undeclared units

$$v_{39} = \text{mw95ac212b\_a197\_49d6\_8c76\_bc6154a4cf5e} \cdot [\text{mwe51f72d2\_84fb\_4b43\_b900\_521410fdf99c}] \tag{79}$$

8.40 Reaction `mwf959d54b_b8f2_4cf9_995a_bea2a3d1735d`

This is an irreversible reaction of two reactants forming one product influenced by four modifiers.

Name R41

Notes Diamond - Systems Biology of Coagulation InitiationReaction 41, k1 value taken as it is

Reaction equation

$$\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0} + \text{ATIII} \xrightarrow{\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0, ATIII, mw65}} \tag{80}$$

Reactants

Table 123: Properties of each reactant.

Id	Name	SBO
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	
ATIII	ATIII	

Modifiers

Table 124: Properties of each modifier.

Id	Name	SBO
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	
ATIII	ATIII	
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	
ATIII	ATIII	

Product

Table 125: Properties of each product.

Id	Name	SBO
mw72ca05d8_25b0_4765_ba03_a6a0eb846aa0	XIa_ATIII	

Kinetic Law

Derived unit contains undeclared units

$$v_{40} = \text{mweacc6c48\_8e8c\_481b\_92ce\_0cb9ccb3be00} \\ \cdot [\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0}] \cdot [\text{ATIII}]$$

(81)

8.41 Reaction mw27430243_7541_45f2_a970_b53e97eb90b5

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

Name R45

Notes Diamond - Systems Biology of Coagulation InitiationReaction 45,k1 and k-1, value taken as it is

Reaction equation

$$\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0} + \text{IX} \xrightleftharpoons{\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0, IX, mwe70b2c9}}$$

(82)

Reactants

Table 126: Properties of each reactant.

Id	Name	SBO
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	
IX	IX	

Modifiers

Table 127: Properties of each modifier.

Id	Name	SBO
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	

Id	Name	SBO
IX	IX	
mwe70b2c96_44b9_48eb_967a_7eb850a916a6	XIa_IX	
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	
IX	IX	
mwe70b2c96_44b9_48eb_967a_7eb850a916a6	XIa_IX	

Product

Table 128: Properties of each product.

Id	Name	SBO
mwe70b2c96_44b9_48eb_967a_7eb850a916a6	XIa_IX	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{41} = \ & \text{mwc0cb654e\_d95f\_4d4b\_8dc2\_3a21afd35a19} \\
& \cdot [\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0}] \\
& \cdot [\text{IX}] - \text{mwb01ef86f\_18d8\_45e7\_a452\_31878dcb3d49} \\
& \cdot [\text{mwe70b2c96\_44b9\_48eb\_967a\_7eb850a916a6}]
\end{aligned}
\tag{83}
$$

8.42 Reaction `mwc9055518_a470_4fa9_9ebe_473dc2a371af`

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

Name R45b

Notes Diamond - Systems Biology of Coagulation InitiationReaction 45, kcat value taken as it is

Reaction equation

$$
\text{mwe70b2c96\_44b9\_48eb\_967a\_7eb850a916a6} \xrightarrow{\text{mwe70b2c96\_44b9\_48eb\_967a\_7eb850a916a6, mwe70b2c96\_44b9\_4}}
\tag{84}
$$

Reactant

Table 129: Properties of each reactant.

Id	Name	SBO
mwe70b2c96_44b9_48eb_967a_7eb850a916a6	XIa_IX	

Modifiers

Table 130: Properties of each modifier.

Id	Name	SBO
mwe70b2c96_44b9_48eb_967a_7eb850a916a6	XIa_IX	
mwe70b2c96_44b9_48eb_967a_7eb850a916a6	XIa_IX	

Products

Table 131: Properties of each product.

Id	Name	SBO
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	
IXa	IXa	

Kinetic Law

Derived unit contains undeclared units

$$v_{42} = \text{mw7300dcac\_9389\_4201\_88c7\_7effa7fdb0f3} \\ \cdot [\text{mwe70b2c96\_44b9\_48eb\_967a\_7eb850a916a6}] \tag{85}$$

8.43 Reaction mwfe3aa9b2_3507_4bda_b66a_d1b9ecf9b691

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

Name R46

Notes Diamond - Systems Biology of Coagulation InitiationReaction 46,k1 and k-1, value taken as it is

Reaction equation

$$\text{IXa} + \text{X} \xrightleftharpoons{\text{IXa, X, mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a91b, IXa, X, mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a91b}}$$

$$\tag{86}$$
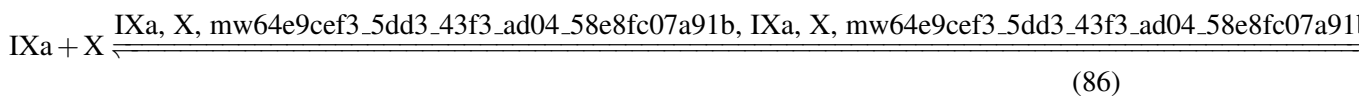
Reactants

Table 132: Properties of each reactant.

Id	Name	SBO
IXa	IXa	
X	X	

Modifiers

Table 133: Properties of each modifier.

Id	Name	SBO
IXa	IXa	
X	X	
mw64e9cef3_5dd3_43f3_ad04_58e8fc07a91b	IXa_X	
IXa	IXa	
X	X	
mw64e9cef3_5dd3_43f3_ad04_58e8fc07a91b	IXa_X	

Product

Table 134: Properties of each product.

Id	Name	SBO
mw64e9cef3_5dd3_43f3_ad04_58e8fc07a91b	IXa_X	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{43} = {} & \mathrm{mw44adf04a\_f1e2\_4ca9\_9615\_5a9f4d3bbea8} \cdot [\mathrm{IXa}] \\
& \cdot [\mathrm{X}] - \mathrm{mwc189e7ea\_7518\_4a4f\_be0f\_03f2d073b29e} \\
& \cdot [\mathrm{mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a91b}]
\end{aligned}
\tag{87}
$$

8.44 Reaction `mwf5ec17b4_374b_4670_83e5_47135df80cb9`

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

Name R46b

Notes Diamond - Systems Biology of Coagulation InitiationReaction 46, kcat value taken as it is

Reaction equation

$$\text{mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a91b} \xrightarrow{\text{mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a91b, mw64e9cef3\_5dd3\_43f3}}$$

$$\tag{88}$$

Reactant

Table 135: Properties of each reactant.

Id	Name	SBO
mw64e9cef3_5dd3_43f3_ad04_58e8fc07a91b	IXa_X	

Modifiers

Table 136: Properties of each modifier.

Id	Name	SBO
mw64e9cef3_5dd3_43f3_ad04_58e8fc07a91b	IXa_X	
mw64e9cef3_5dd3_43f3_ad04_58e8fc07a91b	IXa_X	

Products

Table 137: Properties of each product.

Id	Name	SBO
IXa	IXa	
Xa	Xa	

Kinetic Law

Derived unit contains undeclared units

$$v_{44} = \text{mwaec203ce\_06d5\_4003\_bfdb\_7244d3d77255}$$
$$\cdot \, [\text{mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a91b}] \tag{89}$$

8.45 Reaction `mwea194c8b_e1a0_4a6e_a4d5_f55b2f784d87`

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

Name R49

Notes Diamond - Systems Biology of Coagulation InitiationReaction 49,k1 and k-1, value taken as it is

Reaction equation

$$\text{VIIa} + \text{X} \xrightleftharpoons{\text{VIIa, X, mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359, VIIa, X, mw6d041b25\_87db\_4394\_9b8b\_7ac61e0}}$$

(90)
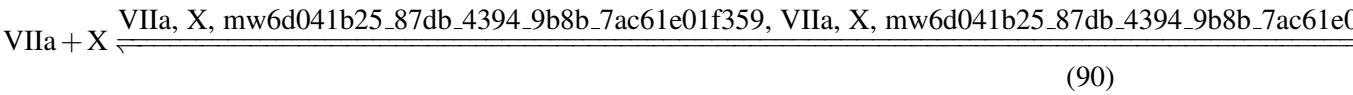
Reactants

Table 138: Properties of each reactant.

Id	Name	SBO
VIIa	VIIa	
X	X	

Modifiers

Table 139: Properties of each modifier.

Id	Name	SBO
VIIa	VIIa	
X	X	
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	
VIIa	VIIa	
X	X	
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	

Product

Table 140: Properties of each product.

Id	Name	SBO
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	

Kinetic Law

Derived unit contains undeclared units

$$\begin{aligned}
v_{45} = \; & \text{mw05b4111c\_4463\_4be0\_aa1e\_5a8f50c7bf67} \cdot [\text{VIIa}] \\
& \cdot [\text{X}] - \text{mw7b89687a\_3110\_4d5f\_a9ec\_7ca8761f0d41} \\
& \cdot [\text{mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359}]
\end{aligned}$$

(91)

8.46 Reaction `mwd58c2ecb_6ff8_4b9b_8c31_a7711b5217d5`

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

Name R49b

Notes Diamond - Systems Biology of Coagulation InitiationReaction 49, kcat value taken as it is

Reaction equation

$$mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359 \xrightarrow{mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359, \ mw6d041b25\_87db\_4}$$

$$(92)$$

Reactant

Table 141: Properties of each reactant.

Id	Name	SBO
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	

Modifiers

Table 142: Properties of each modifier.

Id	Name	SBO
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	

Products

Table 143: Properties of each product.

Id	Name	SBO
VIIa	VIIa	
Xa	Xa	

Kinetic Law

Derived unit contains undeclared units

$$v_{46} = mw61fdd721\_9193\_442c\_bc9e\_f1058c4720e7$$
$$\cdot \, [mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359] \tag{93}$$

8.47 Reaction `mwa9e8a350_94c6_49e9_aba0_e23644ed770b`

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

Name R50

Notes Referencehttp://www.ncbi.nlm.nih.gov/pmc/articles/PMC52171/pdf/pnas01065-0397.pdfKd of the reaction is 7nM

Reaction equation

$$IIa + mwd68cbf38\_9266\_4dfb\_aa00\_f817c3421aec \xrightleftharpoons{\text{IIa, mwd68cbf38\_9266\_4dfb\_aa00\_f817c3421aec, mwa6be116e\_}} \tag{94}$$
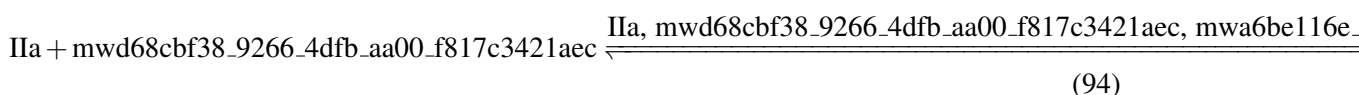
Reactants

Table 144: Properties of each reactant.

Id	Name	SBO
IIa	IIa	
mwd68cbf38_9266_4dfb_aa00_f817c3421aec	Tmod	

Modifiers

Table 145: Properties of each modifier.

Id	Name	SBO
IIa	IIa	
mwd68cbf38_9266_4dfb_aa00_f817c3421aec	Tmod	
mwa6be116e_72f1_439e_bca6_eb61f79cc68e	IIa_Tmod	
IIa	IIa	
mwd68cbf38_9266_4dfb_aa00_f817c3421aec	Tmod	
mwa6be116e_72f1_439e_bca6_eb61f79cc68e	IIa_Tmod	

Product

Table 146: Properties of each product.

Id	Name	SBO
mwa6be116e_72f1_439e_bca6_eb61f79cc68e	IIa_Tmod	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{47} = \ & mw9bcd5c0b\_3384\_4d5e\_92ce\_70b13d64e8b8 \cdot [IIa] \\
& \cdot [mwd68cbf38\_9266\_4dfb\_aa00\_f817c3421aec] \\
& - mw95e328a0\_be5b\_4260\_b6e4\_d85c4c4aae9e \\
& \cdot [mwa6be116e\_72f1\_439e\_bca6\_eb61f79cc68e]
\end{aligned}
\tag{95}
$$

8.48 Reaction mw533077fb_883c_475c_8a43_ab003a69478c

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

Name R51

Notes Referencehttp://www.pnas.org/content/103/4/879.fullKm = 7.7 microMKcat = 19.8 (nM.min)ˆ-1 nMˆ-1

Reaction equation

$$
mwa6be116e\_72f1\_439e\_bca6\_eb61f79cc68e + mw6a8501d2\_9479\_41ae\_8616\_1e8d0e1bbfa9 \xrightleftharpoons{\hspace{1cm}} mwa6be116e\_72f1\_43
\tag{96}
$$
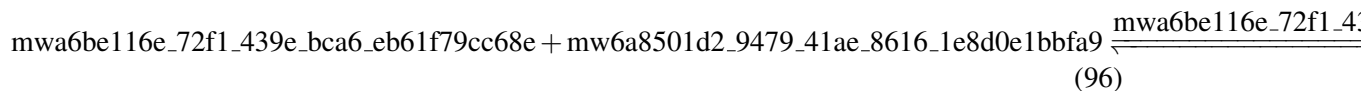
Reactants

Table 147: Properties of each reactant.

Id	Name	SBO
mwa6be116e_72f1_439e_bca6_eb61f79cc68e	IIa_Tmod	
mw6a8501d2_9479_41ae_8616_1e8d0e1bbfa9	PC	

Modifiers

Table 148: Properties of each modifier.

Id	Name	SBO
mwa6be116e_72f1_439e_bca6_eb61f79cc68e	IIa_Tmod	

Id	Name	SBO
mw6a8501d2_9479_41ae_8616_1e8d0e1bbfa9	PC	
mw3cec90c2_500e_4f30_b6be_325ef5194755	IIa_Tmod_PC	
mwa6be116e_72f1_439e_bca6_eb61f79cc68e	IIa_Tmod	
mw6a8501d2_9479_41ae_8616_1e8d0e1bbfa9	PC	
mw3cec90c2_500e_4f30_b6be_325ef5194755	IIa_Tmod_PC	

Product

Table 149: Properties of each product.

Id	Name	SBO
mw3cec90c2_500e_4f30_b6be_325ef5194755	IIa_Tmod_PC	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{48} = \ & \text{mwaf2c7981\_908c\_4f4c\_898e\_2491a9f04e17} \\
& \cdot [\text{mwa6be116e\_72f1\_439e\_bca6\_eb61f79cc68e}] \\
& \cdot [\text{mw6a8501d2\_9479\_41ae\_8616\_1e8d0e1bbfa9}] \\
& - \text{mw1ddc2a05\_bc78\_4434\_a2d9\_d06701483346} \\
& \cdot [\text{mw3cec90c2\_500e\_4f30\_b6be\_325ef5194755}]
\end{aligned}
\tag{97}
$$

8.49 Reaction mw3a695e19_d2d0_4083_af5a_1e8dd673dd32

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

Name R052

Notes Referencehttp://www.pnas.org/content/103/4/879.fullKm = 7.7 microMKcat = 19.8 (nM.min)ˆ-1 nMˆ-1

Reaction equation

$$
\text{mw3cec90c2\_500e\_4f30\_b6be\_325ef5194755} \xrightarrow{\text{mw3cec90c2\_500e\_4f30\_b6be\_325ef5194755, mw3cec90c2\_500e\_4f3}}
\tag{98}
$$

Reactant

Table 150: Properties of each reactant.

Id	Name	SBO
mw3cec90c2_500e_4f30_b6be_325ef5194755	IIa_Tmod_PC	

Modifiers

Table 151: Properties of each modifier.

Id	Name	SBO
mw3cec90c2_500e_4f30_b6be_325ef5194755	IIa_Tmod_PC	
mw3cec90c2_500e_4f30_b6be_325ef5194755	IIa_Tmod_PC	

Products

Table 152: Properties of each product.

Id	Name	SBO
mwa6be116e_72f1_439e_bca6_eb61f79cc68e	IIa_Tmod	
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	

Kinetic Law

Derived unit contains undeclared units

$$v_{49} = \text{mw4fc81076\_be53\_4fc3\_9ade\_3587e8d60355} \\ \cdot \, [\text{mw3cec90c2\_500e\_4f30\_b6be\_325ef5194755}] \tag{99}$$

8.50 Reaction mw95b41c99_0a48_4f12_8367_f5b176c613e5

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

Name R301

Notes Referencehttp://www.sciencedirect.com/science/article/pii/S0049384800004059Km = 7.2 uM = 7200 nMKcat = 5040 min^-1 = 84 s^-1

Reaction equation

$$\text{IIa} + \text{mwd3e1ba39\_ab10\_4702\_addd\_fb6a7e184a4b} \xrightarrow{\text{IIa, mwd3e1ba39\_ab10\_4702\_addd\_fb6a7e184a4b, IIa, mwd3e1}} \tag{100}$$
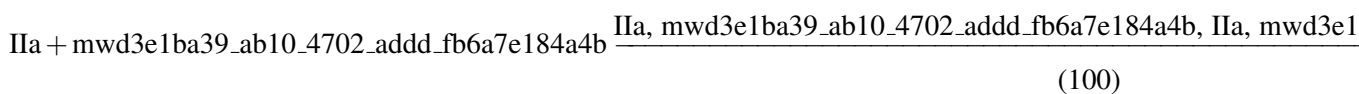
Reactants

Table 153: Properties of each reactant.

Id	Name	SBO
IIa	IIa	
mwd3e1ba39_ab10_4702_addd_fb6a7e184a4b	Fg	

Modifiers

Table 154: Properties of each modifier.

Id	Name	SBO
IIa	IIa	
mwd3e1ba39_ab10_4702_addd_fb6a7e184a4b	Fg	
IIa	IIa	
mwd3e1ba39_ab10_4702_addd_fb6a7e184a4b	Fg	

Products

Table 155: Properties of each product.

Id	Name	SBO
IIa	IIa	
mwfa9d903a_b5e5_4a38_a649_dfe4719577aa	F	

Kinetic Law

Derived unit contains undeclared units

$$v_{50} \tag{101}$$
$$= \frac{\text{mw3b48c5e7\_774a\_4dc4\_917f\_8f8cff8d9c4b} \cdot [\text{IIa}] \cdot [\text{mwd3e1ba39\_ab10\_4702\_addd\_fb6a7e184a4b}]}{\text{mwa4cc6bbe\_c310\_445f\_bba7\_a94868342831} + [\text{mwd3e1ba39\_ab10\_4702\_addd\_fb6a7e184a4b}]}$$

8.51 Reaction mw13213f35_d931_4cec_a202_9760e9a3e4b1

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

Name R053

Notes Referencehttp://www.jbc.org/content/256/21/11128.full.pdf+htmlKd = 1.4 * 10^-8 M

Reaction equation

$$\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f} + \text{Va} \xrightleftharpoons{\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f, Va, mw2e632a32\_}}$$

(102)

Reactants

Table 156: Properties of each reactant.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
Va	Va	

Modifiers

Table 157: Properties of each modifier.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
Va	Va	
mw2e632a32_3823_4933_95cb_19567cbcc66a	APC_Va	
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
Va	Va	
mw2e632a32_3823_4933_95cb_19567cbcc66a	APC_Va	

Product

Table 158: Properties of each product.

Id	Name	SBO
mw2e632a32_3823_4933_95cb_19567cbcc66a	APC_Va	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{51} = {} & \text{mwd6b996b1\_d7fe\_42de\_b17e\_b2482109c54d} \\
& \cdot [\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f}] \cdot [\text{Va}] \\
& - \text{mwc5dc3645\_536d\_4bb4\_88c7\_4aeac4f5a241} \\
& \cdot [\text{mw2e632a32\_3823\_4933\_95cb\_19567cbcc66a}]
\end{aligned}
$$

(103)

8.52 Reaction mw42194b65_07a6_43c3_a810_2d2c1b4fad6b

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

Name R055

Notes Assume the same binding charactersitics as Va binding (Reaction 51 in v9)

Reaction equation

$$\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f} + \text{VIIIa} \xrightleftharpoons{\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f, VIIIa, mw8bdb}}$$

(104)
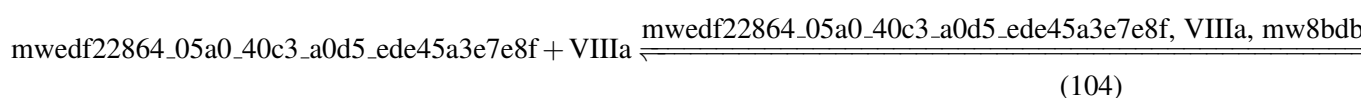
Reactants

Table 159: Properties of each reactant.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
VIIIa	VIIIa	

Modifiers

Table 160: Properties of each modifier.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
VIIIa	VIIIa	
mw8bdbd17d_f542_4b8c_88c6_a82eaf997a43	APC_VIIIa	
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
VIIIa	VIIIa	
mw8bdbd17d_f542_4b8c_88c6_a82eaf997a43	APC_VIIIa	

Product

Table 161: Properties of each product.

Id	Name	SBO
mw8bdbd17d_f542_4b8c_88c6_a82eaf997a43	APC_VIIIa	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{52} = \ & \text{mwc85f8d37\_7f39\_41b2\_8ea4\_00b5adad2eac} \\
& \cdot [\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f}] \\
& \cdot [\text{VIIIa}] - \text{mw807b9a99\_fb16\_421f\_b724\_69f29f3fcfb2} \\
& \cdot [\text{mw8bdbd17d\_f542\_4b8c\_88c6\_a82eaf997a43}]
\end{aligned}
\tag{105}
$$

8.53 Reaction `mwe33e10f1_9ee4_4167_94cf_81ed3aafb1af`

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

Name R054

Notes Referencehttp://www.jbc.org/content/263/29/14884.longkcat = 23.7 min^-1 = 0.395 s^-1

Reaction equation

$$
\text{mw2e632a32\_3823\_4933\_95cb\_19567cbcc66a} \; \frac{\text{mw2e632a32\_3823\_4933\_95cb\_19567cbcc66a, mw2e632a32\_3823\_4}}{}
\tag{106}
$$

Reactant

Table 162: Properties of each reactant.

Id	Name	SBO
mw2e632a32_3823_4933_95cb_19567cbcc66a	APC_Va	

Modifiers

Table 163: Properties of each modifier.

Id	Name	SBO
mw2e632a32_3823_4933_95cb_19567cbcc66a	APC_Va	
mw2e632a32_3823_4933_95cb_19567cbcc66a	APC_Va	

Products

Table 164: Properties of each product.

Id	Name	SBO
`mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f`	APC	
`mw18e5caa7_26eb_4521_b217_da75bb3193ad`	Va_deg	

Kinetic Law

Derived unit contains undeclared units

$$v_{53} = \text{mw234b484f\_d2d5\_4ae8\_a077\_217c600588d8} \\ \cdot \left[\text{mw2e632a32\_3823\_4933\_95cb\_19567cbcc66a} \right] \tag{107}$$

8.54 Reaction `mwa14cc09f_d815_4499_9299_642478acc115`

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

Name R056

Notes Referencehttp://bloodjournal.hematologylibrary.org/content/95/5/1714.longkcat = 3 * 1.2 = 3.6 min^-1

Reaction equation

$$\text{mw8bdbd17d\_f542\_4b8c\_88c6\_a82eaf997a43} \xrightarrow{\text{mw8bdbd17d\_f542\_4b8c\_88c6\_a82eaf997a43, mw8bdbd17d\_f542\_4b}} \tag{108}$$

Reactant

Table 165: Properties of each reactant.

Id	Name	SBO
`mw8bdbd17d_f542_4b8c_88c6_a82eaf997a43`	APC_VIIIa	

Modifiers

Table 166: Properties of each modifier.

Id	Name	SBO
`mw8bdbd17d_f542_4b8c_88c6_a82eaf997a43`	APC_VIIIa	
`mw8bdbd17d_f542_4b8c_88c6_a82eaf997a43`	APC_VIIIa	

Products

Table 167: Properties of each product.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
mwf5c3f9df_7ccf_4ca7_b241_471a66720da8	VIIIa_deg	

Kinetic Law

Derived unit contains undeclared units

$$v_{54} = \text{mwa2636601\_825e\_4846\_aa2d\_c35bd242ec99} \\ \cdot [\text{mw8bdbd17d\_f542\_4b8c\_88c6\_a82eaf997a43}]$$

(109)

8.55 Reaction mw33aec61d_aae4_41f1_8f35_2e2e4bb56597

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

Name R057

Notes Assume same binding characteristics as Reaction no. 52 (VIIIa binding to APC - which has been assume to be same as Reaction 51, Va binding to APC)

Reaction equation

$$\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f} + \text{IXa\_VIIIa} \xrightleftharpoons{\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f, IXa\_VIIIa,}}$$

(110)
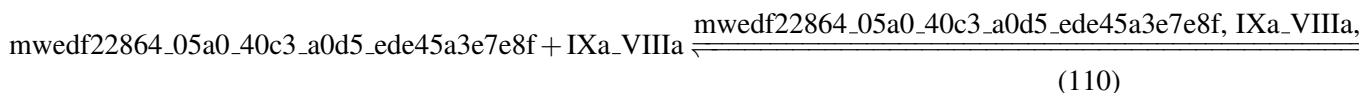
Reactants

Table 168: Properties of each reactant.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
IXa_VIIIa	IXa_VIIIa	

Modifiers

Table 169: Properties of each modifier.

Id	Name	SBO
mwedf22864␣05a0␣40c3␣a0d5␣ede45a3e7e8f	APC	
IXa␣VIIIa	IXa␣VIIIa	
mwa4fcfa0c␣6944␣42fc␣8c74␣7865f13953c8	APC␣IXa␣VIIIa	
mwedf22864␣05a0␣40c3␣a0d5␣ede45a3e7e8f	APC	
IXa␣VIIIa	IXa␣VIIIa	
mwa4fcfa0c␣6944␣42fc␣8c74␣7865f13953c8	APC␣IXa␣VIIIa	

Product

Table 170: Properties of each product.

Id	Name	SBO
mwa4fcfa0c␣6944␣42fc␣8c74␣7865f13953c8	APC␣IXa␣VIIIa	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{55} = \ & \text{mw70d2f292\_be41\_4999\_99cb\_9c146808db85} \\
& \cdot [\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f}] \\
& \cdot [\text{IXa\_VIIIa}] - \text{mw0e80d629\_98c1\_44a6\_bd57\_3a4027c87b4c} \\
& \cdot [\text{mwa4fcfa0c\_6944\_42fc\_8c74\_7865f13953c8}]
\end{aligned} \tag{111}
$$

8.56 Reaction mwc0b0317d␣2b0e␣490d␣bfd5␣8719b2ead1ec

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

Name R058

Notes Referencehttp://bloodjournal.hematologylibrary.org/content/95/5/1714.longkcat = 1.2 min^-1 = 0.02 s^-1

Reaction equation

$$
\text{mwa4fcfa0c\_6944\_42fc\_8c74\_7865f13953c8} \xrightarrow{\text{mwa4fcfa0c\_6944\_42fc\_8c74\_7865f13953c8, mwa4fcfa0c\_6944\_42fc\_8}} \tag{112}
$$

Reactant

Table 171: Properties of each reactant.

Id	Name	SBO
mwa4fcfa0c_6944_42fc_8c74_7865f13953c8	APC_IXa_VIIIa	

Modifiers

Table 172: Properties of each modifier.

Id	Name	SBO
mwa4fcfa0c_6944_42fc_8c74_7865f13953c8	APC_IXa_VIIIa	
mwa4fcfa0c_6944_42fc_8c74_7865f13953c8	APC_IXa_VIIIa	

Products

Table 173: Properties of each product.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
IXa	IXa	
mwf5c3f9df_7ccf_4ca7_b241_471a66720da8	VIIIa_deg	

Kinetic Law

Derived unit contains undeclared units

$v_{56} = \text{mw7aeacec0\_be36\_49bf\_8548\_7a3e2b5fe3cb} \cdot [\text{mwa4fcfa0c\_6944\_42fc\_8c74\_7865f13953c8}]$

8.57 Reaction mw5619c52c_ce60_4357_8d45_2c512348ecc2

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

Name R059

Notes Assume same binding charactersitics as Reaction 55.

Reaction equation

$$\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f} + \text{IXa\_VIIIa\_X} \xrightleftharpoons{\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f, IXa\_VII}}$$

(114)
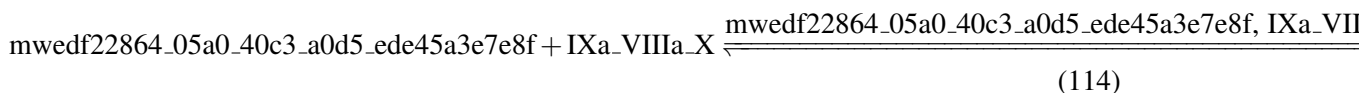
Reactants

Table 174: Properties of each reactant.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f IXa_VIIIa_X	APC IXa_VIIIa_X	

Modifiers

Table 175: Properties of each modifier.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f IXa_VIIIa_X	APC IXa_VIIIa_X	
mwe0bb059d_deaa_45fa_b7dc_ec1c4409c4ca	APC_IXa_VIIIa_X	
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f IXa_VIIIa_X	APC IXa_VIIIa_X	
mwe0bb059d_deaa_45fa_b7dc_ec1c4409c4ca	APC_IXa_VIIIa_X	

Product

Table 176: Properties of each product.

Id	Name	SBO
mwe0bb059d_deaa_45fa_b7dc_ec1c4409c4ca	APC_IXa_VIIIa_X	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{57} = \ & \text{mwb63aa5ed\_b6d8\_4241\_9987\_54828945aea3} \\
& \cdot [\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f}] \\
& \cdot [\text{IXa\_VIIIa\_X}] - \text{mw4d2fe532\_2ccd\_42c4\_9b4b\_759022a87484} \\
& \cdot [\text{mwe0bb059d\_deaa\_45fa\_b7dc\_ec1c4409c4ca}]
\end{aligned}
\tag{115}
$$

8.58 Reaction mw415d69bc_061f_4d57_905d_58fca6bc6463

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

Name R060

Notes Assume same reaction kinetics as Reaction 56.kcat = 0.02 s^-1

Reaction equation

$$\text{mwe0bb059d\_deaa\_45fa\_b7dc\_ec1c4409c4ca} \xrightarrow{\text{mwe0bb059d\_deaa\_45fa\_b7dc\_ec1c4409c4ca, mwe0bb059d\_deaa\_45f}}$$

(116)
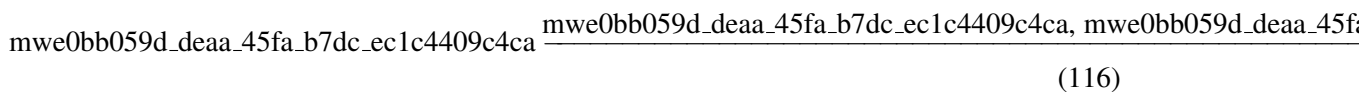
Reactant

Table 177: Properties of each reactant.

Id	Name	SBO
mwe0bb059d_deaa_45fa_b7dc_ec1c4409c4ca	APC_IXa_VIIIa_X	

Modifiers

Table 178: Properties of each modifier.

Id	Name	SBO
mwe0bb059d_deaa_45fa_b7dc_ec1c4409c4ca	APC_IXa_VIIIa_X	
mwe0bb059d_deaa_45fa_b7dc_ec1c4409c4ca	APC_IXa_VIIIa_X	

Products

Table 179: Properties of each product.

Id	Name	SBO
mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f	APC	
IXa	IXa	
X	X	
mwf5c3f9df_7ccf_4ca7_b241_471a66720da8	VIIIa_deg	

Kinetic Law

Derived unit contains undeclared units

$$v_{58} = \text{mw6b555ed1\_194e\_4fa4\_9688\_8105aa7c60c0}$$
$$\cdot \; [\text{mwe0bb059d\_deaa\_45fa\_b7dc\_ec1c4409c4ca}]$$

(117)

8.59 Reaction mw4c020206_4593_4480_b410_d33a9df3298a

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

Name R47

Notes Diamond - Systems Biology of Coagulation InitiationReaction 47,k1 and k-1, value taken as it is

Reaction equation

$$\mathrm{Xa + VIII} \xrightleftharpoons{\text{Xa, VIII, mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b95a820, Xa, VIII, mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b95}}$$

(118)
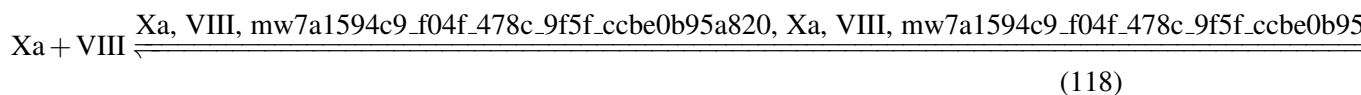
Reactants

Table 180: Properties of each reactant.

Id	Name	SBO
Xa	Xa	
VIII	VIII	

Modifiers

Table 181: Properties of each modifier.

Id	Name	SBO
Xa	Xa	
VIII	VIII	
mw7a1594c9_f04f_478c_9f5f_ccbe0b95a820	Xa_VIII	
Xa	Xa	
VIII	VIII	
mw7a1594c9_f04f_478c_9f5f_ccbe0b95a820	Xa_VIII	

Product

Table 182: Properties of each product.

Id	Name	SBO
mw7a1594c9_f04f_478c_9f5f_ccbe0b95a820	Xa_VIII	

Kinetic Law

Derived unit contains undeclared units

$$v_{59} = \text{mwaa306898\_0d0f\_4748\_b48a\_fcd56bdc0b16} \cdot [\text{Xa}]$$
$$\cdot [\text{VIII}] - \text{mwec1b7289\_5544\_4c2b\_b9f6\_bf6524cabda5} \qquad (119)$$
$$\cdot [\text{mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b95a820}]$$

8.60 Reaction `mwf122913a_9b0b_4492_8cb6_2dd00c3f6162`

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

Name R47b

Notes Diamond - Systems Biology of Coagulation InitiationReaction 47, kcat value taken as it is

Reaction equation

$$\text{mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b95a820} \xrightarrow{\text{mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b95a820, mw7a1594c9\_f04f\_478c\_}}$$

$$(120)$$

Reactant

Table 183: Properties of each reactant.

Id	Name	SBO
mw7a1594c9_f04f_478c_9f5f_ccbe0b95a820	Xa_VIII	

Modifiers

Table 184: Properties of each modifier.

Id	Name	SBO
mw7a1594c9_f04f_478c_9f5f_ccbe0b95a820	Xa_VIII	
mw7a1594c9_f04f_478c_9f5f_ccbe0b95a820	Xa_VIII	

Products

Table 185: Properties of each product.

Id	Name	SBO
Xa	Xa	
VIIIa	VIIIa	

Produced by SBML2LATEX

Kinetic Law

Derived unit contains undeclared units

$$v_{60} = \text{mw6843129b\_7601\_452f\_be5d\_977f7203bfb5} \cdot [\text{mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b921820}] \quad (121)$$

8.61 Reaction `mw2b7d93e1_fc1b_4fa0_a03b_4d2b2259d14f`

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

Notes Assume F1+2 half-life of 2-4 hours based on clinical trialsk = log(2)/(2 * 3600) = 9.627E-05This value should be variable.

Reaction equation

$$\text{mwbdb849d8\_2b25\_4551\_8de8\_adc8bead2303} \xrightarrow{\text{mwbdb849d8\_2b25\_4551\_8de8\_adc8bead2303, mwbdb849d8\_2b25\_}} \quad (122)$$

Reactant

Table 186: Properties of each reactant.

Id	Name	SBO
`mwbdb849d8_2b25_4551_8de8_adc8bead2303`	F12	

Modifiers

Table 187: Properties of each modifier.

Id	Name	SBO
`mwbdb849d8_2b25_4551_8de8_adc8bead2303`	F12	
`mwbdb849d8_2b25_4551_8de8_adc8bead2303`	F12	

Product

Table 188: Properties of each product.

Id	Name	SBO
`mw931f65a6_3967_4ac2_9904_ba791b216fc2`	F12_deg	

Kinetic Law

Derived unit contains undeclared units

$$v_{61} = \text{mwea0d7c35\_f4d2\_4205\_8c59\_11ac05134dde} \\ \cdot [\text{mwbdb849d8\_2b25\_4551\_8de8\_adc8bead2303}] \tag{123}$$

8.62 Reaction `mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2`

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

Name N1

Reaction equation

$$\text{mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359} + \text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0} \xrightarrow{\text{mw6d041b25\_87db}} \tag{124}$$

Reactants

Table 189: Properties of each reactant.

Id	Name	SBO
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	

Modifiers

Table 190: Properties of each modifier.

Id	Name	SBO
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	
mw6d041b25_87db_4394_9b8b_7ac61e01f359	VIIa_X	
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	

Products

Table 191: Properties of each product.

Id	Name	SBO
VIIa	VIIa	
Xa	Xa	
mw6591152c_8b5a_4c9b_b095_956988a01ba0	XIa	

Kinetic Law

Derived unit contains undeclared units

$$
\begin{aligned}
v_{62} = \ & \mathrm{mw7be1d52f\_926f\_47e0\_964b\_d3303c8453b1} \\
& \cdot [\mathrm{mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359}] \\
& \cdot [\mathrm{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0}]
\end{aligned}
\tag{125}
$$

9 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.

9.1 Species TF

Name TF

Notes

Initial amount 0.0050 mol

Initial assignment TF

This species takes part in six reactions (as a reactant in R1, R2 and as a modifier in R1, R1, R2, R2).

$$
\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{TF} = -\,v_1 - v_2
\tag{126}
$$

9.2 Species `TF_VII`

Name TF_VII

Notes

Initial amount 0 mol

This species takes part in three reactions (as a product in R1 and as a modifier in R1, R1).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{TF\_VII} = v_1 \tag{127}$$

9.3 Species `VII`

Name VII

Notes

Initial amount 10 mol

Initial assignment `VII`

This species takes part in twelve reactions (as a reactant in R1, R3, R4, R5 and as a modifier in R1, R1, R3, R3, R4, R4, R5, R5).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{VII} = -v_1 - v_3 - v_4 - v_5 \tag{128}$$

9.4 Species `TF_VIIa`

Name TF_VIIa

Notes

Initial amount 0 mol

This species takes part in 23 reactions (as a reactant in R3, R6, R7, R8, R22, R27 and as a product in R2, R3, R8b and as a modifier in R2, R2, R3, R3, R6, R6, R7, R7, R8, R8, R22, R22, R27, R27).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{TF\_VIIa} = v_2 + v_3 + v_{10} - v_3 - v_6 - v_8 - v_9 - v_{26} - v_{31} \tag{129}$$

9.5 Species `VIIa`

Name VIIa

Notes

Initial amount 0 mol

Initial assignment `VIIa`

This species takes part in eleven reactions (as a reactant in R2, `mwea194c8b_e1a0_4a6e_a4d5-_f55b2f784d87` and as a product in R3, R4, R5, `mwd58c2ecb_6ff8_4b9b_8c31_a7711b5217d5`, `mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2` and as a modifier in R2, R2, `mwea194c8b-_e1a0_4a6e_a4d5_f55b2f784d87`, `mwea194c8b_e1a0_4a6e_a4d5_f55b2f784d87`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{VIIa} = v_3 + v_4 + v_5 + v_{46} + v_{62} - v_2 - v_{45} \tag{130}$$

9.6 Species `Xa`

Name Xa

Notes

Initial amount 0 mol

Initial assignment `Xa`

This species takes part in 28 reactions (as a reactant in R4, R7, R9, R17, R20, R23, `mw4c020206-_4593_4480_b410_d33a9df3298a` and as a product in R4, R9, R12b, `mwf5ec17b4_374b_4670-_83e5_47135df80cb9`, `mwd58c2ecb_6ff8_4b9b_8c31_a7711b5217d5`, `mwf122913a_9b0b_4492-_8cb6_2dd00c3f6162`, `mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2` and as a modifier in R4, R4, R7, R7, R9, R9, R17, R17, R20, R20, R23, R23, `mw4c020206_4593_4480_b410_d33a9df3298a`, `mw4c020206_4593_4480_b410_d33a9df3298a`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{Xa} = v_4 + v_{11} + v_{15} + v_{44} + v_{46} + v_{60} + v_{62}$$
$$- v_4 - v_8 - v_{11} - v_{20} - v_{24} - v_{27} - v_{59} \tag{131}$$

9.7 Species `IIa`

Name IIa

Notes

Initial amount 0 mol

This species takes part in 24 reactions (as a reactant in R5, R10, R16, R26, mwa9e8a350_94c6-_49e9_aba0_e23644ed770b, mw95b41c99_0a48_4f12_8367_f5b176c613e5 and as a product in R5, R9, R10, R16, R19, mw95b41c99_0a48_4f12_8367_f5b176c613e5 and as a modifier in R5, R5, R10, R10, R16, R16, R26, R26, mwa9e8a350_94c6_49e9_aba0_e23644ed770b, mwa9e8a350_94c6_49e9_aba0_e23644ed770b, mw95b41c99_0a48_4f12_8367_f5b176c613e5, mw95b41c99_0a48_4f12_8367_f5b176c613e5).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{IIa} = v_5 + v_{11} + v_{12} + v_{19} + v_{23} + v_{50} - v_5 - v_{12} - v_{19} - v_{30} - v_{47} - v_{50} \quad (132)$$

9.8 Species TF_VIIa_X

Name TF_VIIa_X

Notes

Initial amount 0 mol

This species takes part in six reactions (as a reactant in R6b and as a product in R6 and as a modifier in R6, R6, R6b, R6b).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{TF\_VIIa\_X} = v_6 - v_7 \quad (133)$$

9.9 Species X

Name X

Notes

Initial amount 160 mol

Initial assignment X

This species takes part in 14 reactions (as a reactant in R6, R12, mwfe3aa9b2_3507_4bda_b66a-_d1b9ecf9b691, mwea194c8b_e1a0_4a6e_a4d5_f55b2f784d87 and as a product in R14, mw415d69bc-_061f_4d57_905d_58fca6bc6463 and as a modifier in R6, R6, R12, R12, mwfe3aa9b2_3507-_4bda_b66a_d1b9ecf9b691, mwfe3aa9b2_3507_4bda_b66a_d1b9ecf9b691, mwea194c8b_e1a0-_4a6e_a4d5_f55b2f784d87, mwea194c8b_e1a0_4a6e_a4d5_f55b2f784d87).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{X} = v_{17} + v_{58} - v_6 - v_{14} - v_{43} - v_{45} \quad (134)$$

Produced by SBML2LATEX

9.10 Species `TF_VIIa_Xa`

Name TF_VIIa_Xa

Notes

Initial amount 0 mol

This species takes part in seven reactions (as a reactant in R21 and as a product in R6b, R7 and as a modifier in R7, R7, R21, R21).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{TF\_VIIa\_Xa} = v_7 + v_8 - v_{25} \tag{135}$$

9.11 Species `IX`

Name IX

Notes

Initial amount 90 mol

Initial assignment `IX`

This species takes part in six reactions (as a reactant in R8, mw27430243_7541_45f2_a970-_b53e97eb90b5 and as a modifier in R8, R8, mw27430243_7541_45f2_a970_b53e97eb90b5, mw27430243_7541_45f2_a970_b53e97eb90b5).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{IX} = - v_9 - v_{41} \tag{136}$$

9.12 Species `TF_VIIa_IX`

Name TF_VIIa_IX

Notes

Initial amount 0 mol

This species takes part in six reactions (as a reactant in R8b and as a product in R8 and as a modifier in R8, R8, R8b, R8b).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{TF\_VIIa\_IX} = v_9 - v_{10} \tag{137}$$

9.13 Species `IXa`

Name IXa

Notes

Initial amount 0 mol

This species takes part in 16 reactions (as a reactant in R11, R25, `mwfe3aa9b2_3507_4bda-_b66a_d1b9ecf9b691` and as a product in R8b, R14, R15, `mwc9055518_a470_4fa9_9ebe-_473dc2a371af`, `mwf5ec17b4_374b_4670_83e5_47135df80cb9`, `mwc0b0317d_2b0e_490d_bfd5-_8719b2ead1ec`, `mw415d69bc_061f_4d57_905d_58fca6bc6463` and as a modifier in R11, R11, R25, R25, `mwfe3aa9b2_3507_4bda_b66a_d1b9ecf9b691`, `mwfe3aa9b2_3507_4bda_b66a_d1b9ecf9b691`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{IXa} = v_{10} + v_{17} + v_{18} + v_{42} + v_{44} + v_{56} + v_{58} - v_{13} - v_{29} - v_{43} \quad (138)$$

9.14 Species `II`

Name II

Notes

Initial amount 1400 mol

Initial assignment `II`

This species takes part in six reactions (as a reactant in R9, R18 and as a modifier in R9, R9, R18, R18).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{II} = - v_{11} - v_{21} \quad (139)$$

9.15 Species `VIII`

Name VIII

Notes

Initial amount 0.7 mol

Initial assignment `VIII`

This species takes part in six reactions (as a reactant in R10, `mw4c020206_4593_4480_b410-_d33a9df3298a` and as a modifier in R10, R10, `mw4c020206_4593_4480_b410_d33a9df3298a`, `mw4c020206_4593_4480_b410_d33a9df3298a`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{VIII} = - v_{12} - v_{59} \quad (140)$$

9.16 Species `VIIIa`

Name VIIIa

Notes

Initial amount 0 mol

This species takes part in eleven reactions (as a reactant in R11, R13, `mw42194b65_07a6_43c3-_a810_2d2c1b4fad6b` and as a product in R10, `mwf122913a_9b0b_4492_8cb6_2dd00c3f6162` and as a modifier in R11, R11, R13, R13, `mw42194b65_07a6_43c3_a810_2d2c1b4fad6b`, `mw42194b65-_07a6_43c3_a810_2d2c1b4fad6b`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{VIIIa} = v_{12} + v_{60} - v_{13} - v_{16} - v_{52} \tag{141}$$

9.17 Species `IXa_VIIIa`

Name IXa_VIIIa

Notes

Initial amount 0 mol

This species takes part in 13 reactions (as a reactant in R12, R15, `mw33aec61d_aae4_41f1-_8f35_2e2e4bb56597` and as a product in R11, R12b and as a modifier in R11, R11, R12, R12, R15, R15, `mw33aec61d_aae4_41f1_8f35_2e2e4bb56597`, `mw33aec61d_aae4_41f1_8f35_2e2e4bb56597`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{IXa\_VIIIa} = v_{13} + v_{15} - v_{14} - v_{18} - v_{55} \tag{142}$$

9.18 Species `IXa_VIIIa_X`

Name IXa_VIIIa_X

Notes

Initial amount 0 mol

This species takes part in twelve reactions (as a reactant in R12b, R14, `mw5619c52c_ce60-_4357_8d45_2c512348ecc2` and as a product in R12 and as a modifier in R12, R12, R12b, R12b, R14, R14, `mw5619c52c_ce60_4357_8d45_2c512348ecc2`, `mw5619c52c_ce60_4357-_8d45_2c512348ecc2`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{IXa\_VIIIa\_X} = v_{14} - v_{15} - v_{17} - v_{57} \tag{143}$$

9.19 Species `VIIIa1_L`

Name VIIIa1_L

Notes

Initial amount 0 mol

This species takes part in five reactions (as a product in R13, R14, R15 and as a modifier in R13, R13).

$$\frac{d}{dt}\text{VIIIa1\_L} = v_{16} + v_{17} + v_{18} \tag{144}$$

9.20 Species `VIIIa2`

Name VIIIa2

Notes

Initial amount 0 mol

This species takes part in five reactions (as a product in R13, R14, R15 and as a modifier in R13, R13).

$$\frac{d}{dt}\text{VIIIa2} = v_{16} + v_{17} + v_{18} \tag{145}$$

9.21 Species `V`

Name V

Notes

Initial amount 20 mol

Initial assignment V

This species takes part in three reactions (as a reactant in R16 and as a modifier in R16, R16).

$$\frac{d}{dt}\text{V} = -v_{19} \tag{146}$$

9.22 Species `Va`

Name Va

Notes

Initial amount 0 mol

This species takes part in seven reactions (as a reactant in R17, `mw13213f35_d931_4cec_a202-_9760e9a3e4b1` and as a product in R16 and as a modifier in R17, R17, `mw13213f35_d931-_4cec_a202_9760e9a3e4b1`, `mw13213f35_d931_4cec_a202_9760e9a3e4b1`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{Va} = v_{19} - v_{20} - v_{51} \tag{147}$$

9.23 Species `Xa_Va`

Name Xa_Va

Notes

Initial amount 0 mol

This species takes part in eleven reactions (as a reactant in R18, R19 and as a product in R17, R18b, R19 and as a modifier in R17, R17, R18, R18, R19, R19).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{Xa\_Va} = v_{20} + v_{22} + v_{23} - v_{21} - v_{23} \tag{148}$$

9.24 Species `Xa_Va_II`

Name Xa_Va_II

Notes

Initial amount 0 mol

This species takes part in six reactions (as a reactant in R18b and as a product in R18 and as a modifier in R18, R18, R18b, R18b).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{Xa\_Va\_II} = v_{21} - v_{22} \tag{149}$$

9.25 Species `mIIa`

Name mIIa

Notes

Initial amount 0 mol

This species takes part in seven reactions (as a reactant in R19, R24 and as a product in R18b and as a modifier in R19, R19, R24, R24).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mIIa} = v_{22} - v_{23} - v_{28} \tag{150}$$

9.26 Species `TFPI`

Name TFPI

Notes

Initial amount 2.5 mol

Initial assignment `TFPI`

This species takes part in six reactions (as a reactant in R20, R21 and as a modifier in R20, R20, R21, R21).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{TFPI} = - v_{24} - v_{25} \tag{151}$$

9.27 Species `Xa_TFPI`

Name Xa_TFPI

Notes

Initial amount 0 mol

This species takes part in six reactions (as a reactant in R22 and as a product in R20 and as a modifier in R20, R20, R22, R22).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{Xa\_TFPI} = v_{24} - v_{26} \tag{152}$$

9.28 Species `TF_VIIa_Xa_TFPI`

Name TF_VIIa_Xa_TFPI

Notes

Initial amount 0 mol

This species takes part in four reactions (as a product in R21, R22 and as a modifier in R21, R21).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{TF\_VIIa\_Xa\_TFPI} = v_{25} + v_{26} \tag{153}$$

9.29 Species `ATIII`

Name ATIII

Notes

Initial amount 3400 mol

Initial assignment `ATIII`

This species takes part in 21 reactions (as a reactant in R23, R24, R25, R26, R27, `mwc0c930a7-`
`_ee46_48b9_bc37_297a29d337ed`, `mwf959d54b_b8f2_4cf9_995a_bea2a3d1735d` and as a mod-
ifier in R23, R23, R24, R24, R25, R25, R26, R26, R27, R27, `mwc0c930a7_ee46_48b9_bc37-`
`_297a29d337ed`, `mwc0c930a7_ee46_48b9_bc37_297a29d337ed`, `mwf959d54b_b8f2_4cf9_995a-`
`_bea2a3d1735d`, `mwf959d54b_b8f2_4cf9_995a_bea2a3d1735d`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{ATIII} = -\ v_{27}\ -\ v_{28}\ -\ v_{29}\ -\ v_{30}\ -\ v_{31}\ -\ v_{37}\ -\ v_{40} \tag{154}$$

9.30 Species `Xa_ATIII`

Name Xa_ATIII

Notes

Initial amount 0 mol

This species takes part in one reaction (as a product in R23).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{Xa\_ATIII} =\ v_{27} \tag{155}$$

9.31 Species `mIIa_ATIII`

Name mIIa_ATIII

Notes

Initial amount 0 mol

This species takes part in one reaction (as a product in R24).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mIIa\_ATIII} =\ v_{28} \tag{156}$$

9.32 Species `IXa_ATIII`

Name IXa_ATIII

Notes

Initial amount 0 mol

This species takes part in one reaction (as a product in R25).

$$\frac{d}{dt}\text{IXa\_ATIII} = v_{29} \tag{157}$$

9.33 Species `IIa_ATIII`

Name IIa_ATIII

Notes

Initial amount 0 mol

This species takes part in one reaction (as a product in R26).

$$\frac{d}{dt}\text{IIa\_ATIII} = v_{30} \tag{158}$$

9.34 Species `TF_VIIa_ATIII`

Name TF_VIIa_ATIII

Notes

Initial amount 0 mol

This species takes part in one reaction (as a product in R27).

$$\frac{d}{dt}\text{TF\_VIIa\_ATIII} = v_{31} \tag{159}$$

9.35 Species `mw4e2cf0b0_bd70_45a4_9e60_eba82fa5c3e4`

Name CA

Initial amount 0 mol

This species takes part in four reactions (as a reactant in `mw356a0437_4d35_42d9_a964_d205845dd3a0` and as a product in `mw356a0437_4d35_42d9_a964_d205845dd3a0` and as a modifier in `mw356a0437-_4d35_42d9_a964_d205845dd3a0`, `mw356a0437_4d35_42d9_a964_d205845dd3a0`).

$$\frac{d}{dt}\text{mw4e2cf0b0\_bd70\_45a4\_9e60\_eba82fa5c3e4} = v_{32} - v_{32} \tag{160}$$

9.36 Species `mw469042d3_a94f_4ebe_af1c_1ead580aad2a`

Name XII

Initial amount 340 mol

Initial assignment `mw469042d3_a94f_4ebe_af1c_1ead580aad2a`

This species takes part in six reactions (as a reactant in `mw356a0437_4d35_42d9_a964_d205845dd3a0`, `mwb7173277_b0a8_4585_8e75_4188d464a440` and as a modifier in `mw356a0437_4d35_42d9_a964_d205845dd3a0`, `mw356a0437_4d35_42d9_a964_d205845dd3a0`, `mwb7173277_b0a8_4585_8e75_4188d464a440`, `mwb7173277_b0a8_4585_8e75_4188d464a440`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw469042d3\_a94f\_4ebe\_af1c\_1ead580aad2a} = - v_{32} - v_{35} \qquad (161)$$

9.37 Species `mw6c404de5_5b24_48d6_a0c4_5491e07b1f72`

Name XIIa

Initial amount 0 mol

This species takes part in 13 reactions (as a reactant in `mw2ad76883_679b_4cfa_a390_ed12c2cb488a`, `mwc0c930a7_ee46_48b9_bc37_297a29d337ed`, `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d` and as a product in `mw356a0437_4d35_42d9_a964_d205845dd3a0`, `mw7625dc03_2283_4c41_8d88_c03bbd995622`, `mwa9bc550c_e44b_4a55_9d10_c274a9c710a8`, `mw733749dd_73df_4e8d_86b3_eabffb03d79e` and as a modifier in `mw2ad76883_679b_4cfa_a390_ed12c2cb488a`, `mw2ad76883_679b_4cfa_a390_ed12c2cb488a`, `mwc0c930a7_ee46_48b9_bc37_297a29d337ed`, `mwc0c930a7_ee46_48b9_bc37_297a29d337ed`, `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d`, `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d`).

$$\begin{aligned}\frac{\mathrm{d}}{\mathrm{d}t}&\mathrm{mw6c404de5\_5b24\_48d6\_a0c4\_5491e07b1f72}\\ &= v_{32} + v_{34} + v_{36} + v_{39} - v_{33} - v_{37} - v_{38}\end{aligned} \qquad (162)$$

9.38 Species `mw8c2b9a07_22c3_4912_adb1_167a38ea4cb3`

Name PK

Initial amount 450 mol

Initial assignment `mw8c2b9a07_22c3_4912_adb1_167a38ea4cb3`

This species takes part in three reactions (as a reactant in `mw2ad76883_679b_4cfa_a390_ed12c2cb488a` and as a modifier in `mw2ad76883_679b_4cfa_a390_ed12c2cb488a`, `mw2ad76883_679b_4cfa_a390_ed12c2cb488a`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\mathrm{mw8c2b9a07\_22c3\_4912\_adb1\_167a38ea4cb3} = - v_{33} \qquad (163)$$

9.39 Species mw819d0d09_05ba_4674_85ba_5c9439fb77f4

Name XIIa_PK

Initial amount 0 mol

This species takes part in six reactions (as a reactant in mw7625dc03_2283_4c41_8d88_c03bbd995622 and as a product in mw2ad76883_679b_4cfa_a390_ed12c2cb488a and as a modifier in mw2ad76883-_679b_4cfa_a390_ed12c2cb488a, mw2ad76883_679b_4cfa_a390_ed12c2cb488a, mw7625dc03-_2283_4c41_8d88_c03bbd995622, mw7625dc03_2283_4c41_8d88_c03bbd995622).

$$\frac{d}{dt}\text{mw819d0d09\_05ba\_4674\_85ba\_5c9439fb77f4} = v_{33} - v_{34} \qquad (164)$$

9.40 Species mw2be3652b_79af_4228_9d1c_9d65c7d0c70f

Name K

Initial amount 0 mol

This species takes part in five reactions (as a reactant in mwb7173277_b0a8_4585_8e75_4188d464a440 and as a product in mw7625dc03_2283_4c41_8d88_c03bbd995622, mwa9bc550c_e44b_4a55-_9d10_c274a9c710a8 and as a modifier in mwb7173277_b0a8_4585_8e75_4188d464a440, mwb7173277_b0a8_4585_8e75_4188d464a440).

$$\frac{d}{dt}\text{mw2be3652b\_79af\_4228\_9d1c\_9d65c7d0c70f} = v_{34} + v_{36} - v_{35} \qquad (165)$$

9.41 Species mw6a63ae22_6bb4_4dcf_992f_9287439dd556

Name XII_K

Initial amount 0 mol

This species takes part in six reactions (as a reactant in mwa9bc550c_e44b_4a55_9d10_c274a9c710a8 and as a product in mwb7173277_b0a8_4585_8e75_4188d464a440 and as a modifier in mwb7173277-_b0a8_4585_8e75_4188d464a440, mwb7173277_b0a8_4585_8e75_4188d464a440, mwa9bc550c-_e44b_4a55_9d10_c274a9c710a8, mwa9bc550c_e44b_4a55_9d10_c274a9c710a8).

$$\frac{d}{dt}\text{mw6a63ae22\_6bb4\_4dcf\_992f\_9287439dd556} = v_{35} - v_{36} \qquad (166)$$

9.42 Species mwcefd1303_4967_4502_af6d_e75c88c4d548

Name XIIa_ATIII

Initial amount 0 mol

This species takes part in one reaction (as a product in mwc0c930a7_ee46_48b9_bc37_297a29d337ed).

$$\frac{d}{dt}\text{mwcefd1303\_4967\_4502\_af6d\_e75c88c4d548} = v_{37} \qquad (167)$$

9.43 Species `mwe043d306_ffdd_447b_9826_4df8abbece4d`

Name XI

Initial amount 31 mol

Initial assignment `mwe043d306_ffdd_447b_9826_4df8abbece4d`

This species takes part in three reactions (as a reactant in `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d` and as a modifier in `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d`, `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d`).

$$\frac{d}{dt}\text{mwe043d306\_ffdd\_447b\_9826\_4df8abbece4d} = -\ v_{38} \qquad (168)$$

9.44 Species `mw6591152c_8b5a_4c9b_b095_956988a01ba0`

Name XIa

Initial amount 0 mol

This species takes part in twelve reactions (as a reactant in `mwf959d54b_b8f2_4cf9_995a_bea2a3d1735d`, `mw27430243_7541_45f2_a970_b53e97eb90b5`, `mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2` and as a product in `mw733749dd_73df_4e8d_86b3_eabffb03d79e`, `mwc9055518_a470_4fa9_9ebe_473dc2a371af`, `mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2` and as a modifier in `mwf959d54b_b8f2_4cf9_995a_bea2a3d1735d`, `mwf959d54b_b8f2_4cf9_995a_bea2a3d1735d`, `mw27430243_7541_45f2_a970_b53e97eb90b5`, `mw27430243_7541_45f2_a970_b53e97eb90b5`, `mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2`, `mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2`).

$$\frac{d}{dt}\text{mw6591152c\_8b5a\_4c9b\_b095\_956988a01ba0} = v_{39} + v_{42} + v_{62} - v_{40} - v_{41} - v_{62}$$

$$(169)$$

9.45 Species `mwe51f72d2_84fb_4b43_b900_521410fdf99c`

Name XIIa_XI

Initial amount 0 mol

This species takes part in six reactions (as a reactant in `mw733749dd_73df_4e8d_86b3_eabffb03d79e` and as a product in `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d` and as a modifier in `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d`, `mwd29fbe1e_de98_4c2f_8d81_8ce87f0a245d`, `mw733749dd_73df_4e8d_86b3_eabffb03d79e`, `mw733749dd_73df_4e8d_86b3_eabffb03d79e`).

$$\frac{d}{dt}\text{mwe51f72d2\_84fb\_4b43\_b900\_521410fdf99c} = v_{38} - v_{39} \qquad (170)$$

9.46 Species `mw72ca05d8_25b0_4765_ba03_a6a0eb846aa0`

Name XIa_ATIII

Initial amount 0 mol

This species takes part in one reaction (as a product in `mwf959d54b_b8f2_4cf9_995a_bea2a3d1735d`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw72ca05d8\_25b0\_4765\_ba03\_a6a0eb846aa0} = \boxed{v_{40}} \tag{171}$$

9.47 Species `mwe70b2c96_44b9_48eb_967a_7eb850a916a6`

Name XIa_IX

Initial amount 0 mol

This species takes part in six reactions (as a reactant in `mwc9055518_a470_4fa9_9ebe_473dc2a371af` and as a product in `mw27430243_7541_45f2_a970_b53e97eb90b5` and as a modifier in `mw27430243-_7541_45f2_a970_b53e97eb90b5`, `mw27430243_7541_45f2_a970_b53e97eb90b5`, `mwc9055518-_a470_4fa9_9ebe_473dc2a371af`, `mwc9055518_a470_4fa9_9ebe_473dc2a371af`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwe70b2c96\_44b9\_48eb\_967a\_7eb850a916a6} = \boxed{v_{41}} - \boxed{v_{42}} \tag{172}$$

9.48 Species `mw64e9cef3_5dd3_43f3_ad04_58e8fc07a91b`

Name IXa_X

Initial amount 0 mol

This species takes part in six reactions (as a reactant in `mwf5ec17b4_374b_4670_83e5_47135df80cb9` and as a product in `mwfe3aa9b2_3507_4bda_b66a_d1b9ecf9b691` and as a modifier in `mwfe3aa9b2-_3507_4bda_b66a_d1b9ecf9b691`, `mwfe3aa9b2_3507_4bda_b66a_d1b9ecf9b691`, `mwf5ec17b4-_374b_4670_83e5_47135df80cb9`, `mwf5ec17b4_374b_4670_83e5_47135df80cb9`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw64e9cef3\_5dd3\_43f3\_ad04\_58e8fc07a91b} = \boxed{v_{43}} - \boxed{v_{44}} \tag{173}$$

9.49 Species `mw6d041b25_87db_4394_9b8b_7ac61e01f359`

Name VIIa_X

Initial amount 0 mol

This species takes part in nine reactions (as a reactant in `mwd58c2ecb_6ff8_4b9b_8c31_a7711b5217d5`, `mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2` and as a product in `mwea194c8b_e1a0_4a6e-_a4d5_f55b2f784d87` and as a modifier in `mwea194c8b_e1a0_4a6e_a4d5_f55b2f784d87`, `mwea194c8b_e1a0_4a6e_a4d5_f55b2f784d87`, `mwd58c2ecb_6ff8_4b9b_8c31_a7711b5217d5`,

mwd58c2ecb_6ff8_4b9b_8c31_a7711b5217d5, mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2,
mw0ca8823e_ed5a_443a_935b_db3cfb4c01e2).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw6d041b25\_87db\_4394\_9b8b\_7ac61e01f359} = v_{45} - v_{46} - v_{62} \qquad (174)$$

9.50 Species mw85e2714d_e6e5_47d5_9ffc_d90573faebe1

Name IIa_12mIIa

Initial amount 0 mol

Involved in rule mw85e2714d_e6e5_47d5_9ffc_d90573faebe1

One rule which determines this species' quantity.

9.51 Species mwd68cbf38_9266_4dfb_aa00_f817c3421aec

Name Tmod

Initial amount 50 mol

Initial assignment mwd68cbf38_9266_4dfb_aa00_f817c3421aec

This species takes part in three reactions (as a reactant in mwa9e8a350_94c6_49e9_aba0-_e23644ed770b and as a modifier in mwa9e8a350_94c6_49e9_aba0_e23644ed770b, mwa9e8a350-_94c6_49e9_aba0_e23644ed770b).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwd68cbf38\_9266\_4dfb\_aa00\_f817c3421aec} = - v_{47} \qquad (175)$$

9.52 Species mwa6be116e_72f1_439e_bca6_eb61f79cc68e

Name IIa_Tmod

Initial amount 0 mol

This species takes part in seven reactions (as a reactant in mw533077fb_883c_475c_8a43-_ab003a69478c and as a product in mwa9e8a350_94c6_49e9_aba0_e23644ed770b, mw3a695e19-_d2d0_4083_af5a_1e8dd673dd32 and as a modifier in mwa9e8a350_94c6_49e9_aba0_e23644ed770b, mwa9e8a350_94c6_49e9_aba0_e23644ed770b, mw533077fb_883c_475c_8a43_ab003a69478c, mw533077fb_883c_475c_8a43_ab003a69478c).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwa6be116e\_72f1\_439e\_bca6\_eb61f79cc68e} = v_{47} + v_{49} - v_{48} \qquad (176)$$

9.53 Species mw6a8501d2_9479_41ae_8616_1e8d0e1bbfa9

Name PC

Initial amount 60 mol

Initial assignment mw6a8501d2_9479_41ae_8616_1e8d0e1bbfa9

This species takes part in three reactions (as a reactant in mw533077fb_883c_475c_8a43-_ab003a69478c and as a modifier in mw533077fb_883c_475c_8a43_ab003a69478c, mw533077fb-_883c_475c_8a43_ab003a69478c).

$$\frac{d}{dt}\text{mw6a8501d2\_9479\_41ae\_8616\_1e8d0e1bbfa9} = -v_{48} \tag{177}$$

9.54 Species mw3cec90c2_500e_4f30_b6be_325ef5194755

Name IIa_Tmod_PC

Initial amount 0 mol

This species takes part in six reactions (as a reactant in mw3a695e19_d2d0_4083_af5a_1e8dd673dd32 and as a product in mw533077fb_883c_475c_8a43_ab003a69478c and as a modifier in mw533077fb-_883c_475c_8a43_ab003a69478c, mw533077fb_883c_475c_8a43_ab003a69478c, mw3a695e19-_d2d0_4083_af5a_1e8dd673dd32, mw3a695e19_d2d0_4083_af5a_1e8dd673dd32).

$$\frac{d}{dt}\text{mw3cec90c2\_500e\_4f30\_b6be\_325ef5194755} = v_{48} - v_{49} \tag{178}$$

9.55 Species mwedf22864_05a0_40c3_a0d5_ede45a3e7e8f

Name APC

Initial amount 0 mol

This species takes part in 17 reactions (as a reactant in mw13213f35_d931_4cec_a202_9760e9a3e4b1, mw42194b65_07a6_43c3_a810_2d2c1b4fad6b, mw33aec61d_aae4_41f1_8f35_2e2e4bb56597, mw5619c52c_ce60_4357_8d45_2c512348ecc2 and as a product in mw3a695e19_d2d0_4083-_af5a_1e8dd673dd32, mwe33e10f1_9ee4_4167_94cf_81ed3aafb1af, mwa14cc09f_d815_4499-_9299_642478acc115, mwc0b0317d_2b0e_490d_bfd5_8719b2ead1ec, mw415d69bc_061f_4d57-_905d_58fca6bc6463 and as a modifier in mw13213f35_d931_4cec_a202_9760e9a3e4b1, mw13213f35_d931_4cec_a202_9760e9a3e4b1, mw42194b65_07a6_43c3_a810_2d2c1b4fad6b, mw42194b65_07a6_43c3_a810_2d2c1b4fad6b, mw33aec61d_aae4_41f1_8f35_2e2e4bb56597, mw33aec61d_aae4_41f1_8f35_2e2e4bb56597, mw5619c52c_ce60_4357_8d45_2c512348ecc2, mw5619c52c_ce60_4357_8d45_2c512348ecc2).

$$\frac{d}{dt}\text{mwedf22864\_05a0\_40c3\_a0d5\_ede45a3e7e8f}$$
$$= v_{49} + v_{53} + v_{54} + v_{56} + v_{58} - v_{51} - v_{52} - v_{55} - v_{57} \tag{179}$$

9.56 Species `mwd3e1ba39_ab10_4702_addd_fb6a7e184a4b`

Name Fg

Initial amount 9000 mol

Initial assignment `mwd3e1ba39_ab10_4702_addd_fb6a7e184a4b`

This species takes part in three reactions (as a reactant in `mw95b41c99_0a48_4f12_8367-_f5b176c613e5` and as a modifier in `mw95b41c99_0a48_4f12_8367_f5b176c613e5`, `mw95b41c99-_0a48_4f12_8367_f5b176c613e5`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwd3e1ba39\_ab10\_4702\_addd\_fb6a7e184a4b} = -v_{50} \tag{180}$$

9.57 Species `mwfa9d903a_b5e5_4a38_a649_dfe4719577aa`

Name F

Initial amount 0 mol

This species takes part in one reaction (as a product in `mw95b41c99_0a48_4f12_8367_f5b176c613e5`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwfa9d903a\_b5e5\_4a38\_a649\_dfe4719577aa} = v_{50} \tag{181}$$

9.58 Species `mw2e632a32_3823_4933_95cb_19567cbcc66a`

Name APC_Va

Initial amount 0 mol

This species takes part in six reactions (as a reactant in `mwe33e10f1_9ee4_4167_94cf_81ed3aafb1af` and as a product in `mw13213f35_d931_4cec_a202_9760e9a3e4b1` and as a modifier in `mw13213f35-_d931_4cec_a202_9760e9a3e4b1`, `mw13213f35_d931_4cec_a202_9760e9a3e4b1`, `mwe33e10f1-_9ee4_4167_94cf_81ed3aafb1af`, `mwe33e10f1_9ee4_4167_94cf_81ed3aafb1af`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw2e632a32\_3823\_4933\_95cb\_19567cbcc66a} = v_{51} - v_{53} \tag{182}$$

9.59 Species `mw8bdbd17d_f542_4b8c_88c6_a82eaf997a43`

Name APC_VIIIa

Initial amount 0 mol

This species takes part in six reactions (as a reactant in `mwa14cc09f_d815_4499_9299_642478acc115` and as a product in `mw42194b65_07a6_43c3_a810_2d2c1b4fad6b` and as a modifier in `mw42194b65-_07a6_43c3_a810_2d2c1b4fad6b`, `mw42194b65_07a6_43c3_a810_2d2c1b4fad6b`, `mwa14cc09f-_d815_4499_9299_642478acc115`, `mwa14cc09f_d815_4499_9299_642478acc115`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw8bdbd17d\_f542\_4b8c\_88c6\_a82eaf997a43} = v_{52} - v_{54} \tag{183}$$

9.60 Species `mw18e5caa7_26eb_4521_b217_da75bb3193ad`

Name Va_deg

Initial amount 0 mol

This species takes part in one reaction (as a product in `mwe33e10f1_9ee4_4167_94cf_81ed3aafb1af`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw18e5caa7\_26eb\_4521\_b217\_da75bb3193ad} = v_{53} \qquad (184)$$

9.61 Species `mwf5c3f9df_7ccf_4ca7_b241_471a66720da8`

Name VIIIa_deg

Initial amount 0 mol

This species takes part in three reactions (as a product in `mwa14cc09f_d815_4499_9299_642478acc115`, `mwc0b0317d_2b0e_490d_bfd5_8719b2ead1ec`, `mw415d69bc_061f_4d57_905d_58fca6bc6463`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwf5c3f9df\_7ccf\_4ca7\_b241\_471a66720da8} = v_{54} + v_{56} + v_{58} \qquad (185)$$

9.62 Species `mwa4fcfa0c_6944_42fc_8c74_7865f13953c8`

Name APC_IXa_VIIIa

Initial amount 0 mol

This species takes part in six reactions (as a reactant in `mwc0b0317d_2b0e_490d_bfd5_8719b2ead1ec` and as a product in `mw33aec61d_aae4_41f1_8f35_2e2e4bb56597` and as a modifier in `mw33aec61d_aae4_41f1_8f35_2e2e4bb56597`, `mw33aec61d_aae4_41f1_8f35_2e2e4bb56597`, `mwc0b0317d_2b0e_490d_bfd5_8719b2ead1ec`, `mwc0b0317d_2b0e_490d_bfd5_8719b2ead1ec`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwa4fcfa0c\_6944\_42fc\_8c74\_7865f13953c8} = v_{55} - v_{56} \qquad (186)$$

9.63 Species `mwe0bb059d_deaa_45fa_b7dc_ec1c4409c4ca`

Name APC_IXa_VIIIa_X

Initial amount 0 mol

This species takes part in six reactions (as a reactant in `mw415d69bc_061f_4d57_905d_58fca6bc6463` and as a product in `mw5619c52c_ce60_4357_8d45_2c512348ecc2` and as a modifier in `mw5619c52c_ce60_4357_8d45_2c512348ecc2`, `mw5619c52c_ce60_4357_8d45_2c512348ecc2`, `mw415d69bc_061f_4d57_905d_58fca6bc6463`, `mw415d69bc_061f_4d57_905d_58fca6bc6463`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwe0bb059d\_deaa\_45fa\_b7dc\_ec1c4409c4ca} = v_{57} - v_{58} \qquad (187)$$

9.64 Species `mw7a1594c9_f04f_478c_9f5f_ccbe0b95a820`

Name Xa_VIII

Initial amount 0 mol

This species takes part in six reactions (as a reactant in `mwf122913a_9b0b_4492_8cb6_2dd00c3f6162` and as a product in `mw4c020206_4593_4480_b410_d33a9df3298a` and as a modifier in `mw4c020206-_4593_4480_b410_d33a9df3298a`, `mw4c020206_4593_4480_b410_d33a9df3298a`, `mwf122913a-_9b0b_4492_8cb6_2dd00c3f6162`, `mwf122913a_9b0b_4492_8cb6_2dd00c3f6162`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw7a1594c9\_f04f\_478c\_9f5f\_ccbe0b95a820} = v_{59} - v_{60} \tag{188}$$

9.65 Species `mwbdb849d8_2b25_4551_8de8_adc8bead2303`

Name F12

Initial amount 0 mol

This species takes part in five reactions (as a reactant in `mw2b7d93e1_fc1b_4fa0_a03b_4d2b2259d14f` and as a product in `R9`, `R18b` and as a modifier in `mw2b7d93e1_fc1b_4fa0_a03b_4d2b2259d14f`, `mw2b7d93e1_fc1b_4fa0_a03b_4d2b2259d14f`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mwbdb849d8\_2b25\_4551\_8de8\_adc8bead2303} = v_{11} + v_{22} - v_{61} \tag{189}$$

9.66 Species `mw931f65a6_3967_4ac2_9904_ba791b216fc2`

Name F12_deg

Initial amount 0 mol

This species takes part in one reaction (as a product in `mw2b7d93e1_fc1b_4fa0_a03b_4d2b2259d14f`).

$$\frac{\mathrm{d}}{\mathrm{d}t}\text{mw931f65a6\_3967\_4ac2\_9904\_ba791b216fc2} = v_{61} \tag{190}$$