

SBML Model Report

Model name: “Bungay2006_Plasma”



May 6, 2016

1 General Overview

This is a document in SBML Level 2 Version 1 format. This model was created by the following three authors: Nick Juty¹, Vijayalakshmi Chelliah² and Michael Schubert³ at May twelveth 2011 at 12:58 a. m. and last time modified at May 28th 2014 at 1:15 p. m. Table 1 provides an overview of the quantities of all components of this model.

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

Element	Quantity	Element	Quantity
compartment types	0	compartments	1
species types	0	species	78
events	0	constraints	0
reactions	69	function definitions	0
global parameters	113	unit definitions	1
rules	0	initial assignments	0

Model Notes

This model is from the article:

Modelling thrombin generation in human ovarian follicular fluid

Bungay Sharene D., Gentry Patricia A., Gentry Rodney D. Bulletin of Mathematical Biology Volume 68, Issue 8, 12 July 2006, Pages 2283-302 [16838084](#),

Abstract:

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A mathematical model is constructed to study thrombin production in human ovarian follicular fluid. The model results show that the amount of thrombin that can be produced in ovarian follicular fluid is much lower than that in blood plasma, failing to reach the level required for fibrin formation, and thereby supporting the hypothesis that in follicular fluid thrombin functions to initiate cellular activities via intracellular signalling receptors. It is also concluded that the absence of the amplification pathway to thrombin production in follicular fluid is a major factor in restricting the amount of thrombin that can be produced. Titration of the initial concentrations of the various reactants in the model lead to predictions for the amount of tissue factor and phospholipid that is required to maintain thrombin production in the follicle, as well as to the conclusion that tissue factor pathway inhibitor has little effect on the time that thrombin generation is sustained. Numerical experiments to determine the effect of factor V, which is at a much reduced level in follicular fluid compared to plasma, and thrombomodulin, illustrate the importance for further experimental work to determine values for several parameters that have yet to be reported in the literature.

2 Unit Definitions

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

2.1 Unit `substance`

Name nano mole

Definition nmol

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.

Definition m²

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
compartment	Cell		3	1	litre	<input checked="" type="checkbox"/>	

3.1 Compartment `compartment`

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

Name Cell

4 Species

This model contains 78 species. Section 7 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 Condi- tion
II_f	II_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
II_l	II_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
mIIa_f	mIIa_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
mIIa_l	mIIa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
V_f	V_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
V_l	V_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
Va_f	Va_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
Va_l	Va_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
VII_f	VII_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
VII_l	VII_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
VIIa_f	VIIa_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
VIIa_l	VIIa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
VIII_f	VIII_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
VIII_l	VIII_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
VIIIa_f	VIIIa_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
VIIIa_l	VIIIa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
IX_f	IX_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
IX_l	IX_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
IXa_f	IXa_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
IXa_l	IXa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
X_f	X_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square
X_l	X_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	\square	\square

Id	Name	Compartment	Derived Unit	Constant	Boundary Condi- tion
Xa_f	Xa_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
Xa_l	Xa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
APC_f	APC_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
APC_l	APC_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
PS_f	PS_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
PS_l	PS_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
VIIIai_f	VIIIai_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
VIIIai_l	VIIIai_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
Vai_f	Vai_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
Vai_l	Vai_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
PC_f	PC_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
PC_l	PC_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TF_l	TF_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TF_VIIa_l	TF_VIIa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TF_VII_l	TF_VII_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TF_VIIa_IX_l	TF_VIIa_IX_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TF_VIIa_IXa_l	TF_VIIa_IXa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TF_VIIa_X_l	TF_VIIa_X_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TF_VIIa_Xa_l	TF_VIIa_Xa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TF_VII_Xa_l	TF_VII_Xa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
IXa_VIIIa_l	IXa_VIIIa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
Xa_Va_l	Xa_Va_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
IXa_VIIIa_X_l	IXa_VIIIa_X_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
V_Xa_l	V_Xa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
VIII_Xa_l	VIII_Xa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
IIa_f	IIa_f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
V_IIa_l	V_IIa_l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>

Id	Name	Compartment	Derived Unit	Constant	Boundary Condi- tion
VIII.IIa.l	VIII.IIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
Xa.Va.II.l	Xa.Va.II.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
Xa.Va.mIIa.l	Xa.Va.mIIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
XI.f	XI.f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
XI.IIa.l	XI.IIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
XIa.l	XIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
APC_PS.l	APC_PS.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
APC_PS.VIIIa.l	APC_PS.VIIIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TFPI.f	TFPI.f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
AT.f	AT.f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
IIa.AT.f	IIa.AT.f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TFPI.Xa.l	TFPI.Xa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TFPI.Xa.TF.VIIa.l	TFPI.Xa.TF.VIIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
APC_PS.Va.l	APC_PS.Va.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
IXa.AT.f	IXa.AT.f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
Xa.AT.f	Xa.AT.f	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
VII.Xa.l	VII.Xa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
V.mIIa.l	V.mIIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
VIII.mIIa.l	VIII.mIIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
TM.l	TM.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
IIa.TM.l	IIa.TM.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
IIa.TM_PC.l	IIa.TM_PC.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
mIIa.AT.l	mIIa.AT.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
XIa.IX.l	XIa.IX.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
LIPID	LIPID	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
alpha2M.l	alpha2M.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
alpha2M.IIa.l	alpha2M.IIa.l	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>

Id	Name	Compartment	Derived Unit	Constant	Boundary Condi- tion
alpha2M_Xa_1	alpha2M_Xa_1	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
AT_XIa_1	AT_XIa_1	compartment	$\text{nmol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>

5 Parameters

This model contains 113 global parameters.

Table 4: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
konII			0.004		<input checked="" type="checkbox"/>
nva			100.000		<input checked="" type="checkbox"/>
koffIII			1.000		<input checked="" type="checkbox"/>
konmIIa			0.050		<input checked="" type="checkbox"/>
koffmIIa			0.475		<input checked="" type="checkbox"/>
konV			0.050		<input checked="" type="checkbox"/>
koffV			0.145		<input checked="" type="checkbox"/>
konVa			0.057		<input checked="" type="checkbox"/>
koffVa			0.170		<input checked="" type="checkbox"/>
konVII			0.050		<input checked="" type="checkbox"/>
koffVII			0.660		<input checked="" type="checkbox"/>
konVIIa			0.050		<input checked="" type="checkbox"/>
koffVIIa			0.227		<input checked="" type="checkbox"/>
konVIII			0.050		<input checked="" type="checkbox"/>
koffVIII			0.100		<input checked="" type="checkbox"/>
konVIIIa			0.050		<input checked="" type="checkbox"/>
koffVIIIa			0.335		<input checked="" type="checkbox"/>
konIX			0.050		<input checked="" type="checkbox"/>
koffIX			0.115		<input checked="" type="checkbox"/>
konIXa			0.050		<input checked="" type="checkbox"/>
koffIXa			0.115		<input checked="" type="checkbox"/>
konX			0.010		<input checked="" type="checkbox"/>
koffX			1.900		<input checked="" type="checkbox"/>
konXa			0.029		<input checked="" type="checkbox"/>
koffXa			3.300		<input checked="" type="checkbox"/>
konAPC			0.050		<input checked="" type="checkbox"/>
koffAPC			3.500		<input checked="" type="checkbox"/>
konPS			0.050		<input checked="" type="checkbox"/>
koffPS			0.200		<input checked="" type="checkbox"/>
konVIIIai			0.050		<input checked="" type="checkbox"/>
koffVIIIai			0.335		<input checked="" type="checkbox"/>
konVai			0.057		<input checked="" type="checkbox"/>
koffVai			0.170		<input checked="" type="checkbox"/>
konPC			0.050		<input checked="" type="checkbox"/>
koffPC			11.500		<input checked="" type="checkbox"/>
k1			0.500		<input checked="" type="checkbox"/>
k2			0.005		<input checked="" type="checkbox"/>

Id	Name	SBO	Value	Unit	Constant
k3			0.005		<input checked="" type="checkbox"/>
k4			0.005		<input checked="" type="checkbox"/>
k5			0.010		<input checked="" type="checkbox"/>
k6			2.090		<input checked="" type="checkbox"/>
k7			0.340		<input checked="" type="checkbox"/>
k8			0.100		<input checked="" type="checkbox"/>
k9			32.500		<input checked="" type="checkbox"/>
k10			1.500		<input checked="" type="checkbox"/>
k11			0.050		<input checked="" type="checkbox"/>
k12			44.800		<input checked="" type="checkbox"/>
k13			15.200		<input checked="" type="checkbox"/>
k14			0.100		<input checked="" type="checkbox"/>
k15			0.200		<input checked="" type="checkbox"/>
k16			1.000		<input checked="" type="checkbox"/>
k17			1.000		<input checked="" type="checkbox"/>
k18			0.100		<input checked="" type="checkbox"/>
k19			10.700		<input checked="" type="checkbox"/>
k20			8.300		<input checked="" type="checkbox"/>
k21			0.100		<input checked="" type="checkbox"/>
k22			1.000		<input checked="" type="checkbox"/>
k23			0.043		<input checked="" type="checkbox"/>
k24			0.100		<input checked="" type="checkbox"/>
k25			2.100		<input checked="" type="checkbox"/>
k26			0.023		<input checked="" type="checkbox"/>
k27			0.100		<input checked="" type="checkbox"/>
k28			6.940		<input checked="" type="checkbox"/>
k29			0.230		<input checked="" type="checkbox"/>
k30			0.100		<input checked="" type="checkbox"/>
k31			13.800		<input checked="" type="checkbox"/>
k32			0.900		<input checked="" type="checkbox"/>
k33			0.100		<input checked="" type="checkbox"/>
k34			100.000		<input checked="" type="checkbox"/>
k35			0.100		<input checked="" type="checkbox"/>
k36			66.000		<input checked="" type="checkbox"/>
k37			13.000		<input checked="" type="checkbox"/>
k38			15.000		<input checked="" type="checkbox"/>
k39			0.050		<input checked="" type="checkbox"/>
k40			44.800		<input checked="" type="checkbox"/>
k41			15.200		<input checked="" type="checkbox"/>
k42			0.100		<input checked="" type="checkbox"/>
k43			10.000		<input checked="" type="checkbox"/>
k44			1.430		<input checked="" type="checkbox"/>

Id	Name	SBO	Value	Unit	Constant
k45			0.100		<input checked="" type="checkbox"/>
k46			1.600		<input checked="" type="checkbox"/>
k47			0.400		<input checked="" type="checkbox"/>
k48			0.100		<input checked="" type="checkbox"/>
k49			1.600		<input checked="" type="checkbox"/>
k50			0.400		<input checked="" type="checkbox"/>
k51			0.016		<input checked="" type="checkbox"/>
k52			$3.3 \cdot 10^{-4}$		<input checked="" type="checkbox"/>
k53			0.010		<input checked="" type="checkbox"/>
k54			0.001		<input checked="" type="checkbox"/>
k55			$4.9 \cdot 10^{-7}$		<input checked="" type="checkbox"/>
k56			$2.3 \cdot 10^{-6}$		<input checked="" type="checkbox"/>
k57			$6.83 \cdot 10^{-6}$		<input checked="" type="checkbox"/>
k58			0.100		<input checked="" type="checkbox"/>
k59			6.940		<input checked="" type="checkbox"/>
k60			1.035		<input checked="" type="checkbox"/>
k61			0.100		<input checked="" type="checkbox"/>
k62			13.800		<input checked="" type="checkbox"/>
k63			0.900		<input checked="" type="checkbox"/>
k64			1.000		<input checked="" type="checkbox"/>
k65			0.500		<input checked="" type="checkbox"/>
k66			0.100		<input checked="" type="checkbox"/>
k67			6.400		<input checked="" type="checkbox"/>
k68			3.600		<input checked="" type="checkbox"/>
k69			$6.83 \cdot 10^{-6}$		<input checked="" type="checkbox"/>
k70			0.100		<input checked="" type="checkbox"/>
k71			0.500		<input checked="" type="checkbox"/>
k72			0.010		<input checked="" type="checkbox"/>
k73			1.417		<input checked="" type="checkbox"/>
k74			0.183		<input checked="" type="checkbox"/>
k75			1.000		<input checked="" type="checkbox"/>
k76			$2.3 \cdot 10^{-6}$		<input checked="" type="checkbox"/>
k77			$2.5 \cdot 10^{-6}$		<input checked="" type="checkbox"/>
k78			$1.4 \cdot 10^{-6}$		<input checked="" type="checkbox"/>

6 Reactions

This model contains 69 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

Nº	Id	Name	Reaction Equation	SBO
1	LB1	Factor II lipid binding	$\text{II}_f + 100 \text{ LIPID} \longrightarrow \text{II}_l$	
2	LB2	Factor mIIa lipid binding	$\text{mIIa}_f + 100 \text{ LIPID} \longrightarrow \text{mIIa}_l$	
3	LB3	Factor V lipid binding	$\text{V}_f + 100 \text{ LIPID} \longrightarrow \text{V}_l$	
4	LB4	Factor Va lipid binding	$\text{Va}_f + 100 \text{ LIPID} \longrightarrow \text{Va}_l$	
5	LB5	Factor VII lipid binding	$\text{VII}_f + 100 \text{ LIPID} \longrightarrow \text{VII}_l$	
6	LB6	Factor VIIa lipid binding	$\text{VIIa}_f + 100 \text{ LIPID} \longrightarrow \text{VIIa}_l$	
7	LB7	Factor VIII lipid binding	$\text{VIII}_f + 100 \text{ LIPID} \longrightarrow \text{VIII}_l$	
8	LB8	Factor VIIIa lipid binding	$\text{VIIIa}_f + 100 \text{ LIPID} \longrightarrow \text{VIIIa}_l$	
9	LB9	Factor IX lipid binding	$\text{IX}_f + 100 \text{ LIPID} \longrightarrow \text{IX}_l$	
10	LB10	Factor IXa lipid binding	$\text{IXa}_f + 100 \text{ LIPID} \longrightarrow \text{IXa}_l$	
11	LB11	Factor X lipid binding	$\text{X}_f + 100 \text{ LIPID} \longrightarrow \text{X}_l$	
12	LB12	Factor Xa lipid binding	$\text{Xa}_f + 100 \text{ LIPID} \longrightarrow \text{Xa}_l$	
13	LB13	APC lipid binding	$\text{APC}_f + 100 \text{ LIPID} \longrightarrow \text{APC}_l$	
14	LB14	PS lipid binding	$\text{PS}_f + 100 \text{ LIPID} \longrightarrow \text{PS}_l$	
15	LB15	Factor VIIIai lipid binding	$\text{VIIIai}_f + 100 \text{ LIPID} \longrightarrow \text{VIIIai}_l$	
16	LB16	Factor Vai lipid binding	$\text{Vai}_f + 100 \text{ LIPID} \longrightarrow \text{Vai}_l$	
17	LB17	PC lipid binding	$\text{PC}_f + 100 \text{ LIPID} \longrightarrow \text{PC}_l$	
18	R1	TF_VIIa binding	$\text{VIIa}_l + \text{TF}_l \longrightarrow \text{TF_VIIa}_l$	
19	R2	TF_VII binding	$\text{VII}_l + \text{TF}_l \longrightarrow \text{TF_VII}_l$	
20	R3	IX_TF_VIIa binding	$\text{IX}_l + \text{TF_VIIa}_l \longrightarrow \text{TF_VIIa_IX}_l$	
21	R3b	Factor IX activation	$\text{TF_VIIa_IX}_l \longrightarrow \text{TF_VIIa}_l + \text{IXa}_l$	
22	R4	X_TF_VIIa complex formation	$\text{X}_l + \text{TF_VIIa}_l \longrightarrow \text{TF_VIIa_X}_l$	
23	R4b	Factor X activation	$\text{TF_VIIa_X}_l \longrightarrow \text{TF_VIIa_Xa}_l$	

Nº	Id	Name	Reaction Equation	SBO
24	R4c	Factor Xa release	$\text{TF_VIIa_Xa.l} \longrightarrow \text{Xa.l} + \text{TF_VIIa.l}$	
25	R5	Xa_TF_VII binding	$\text{Xa.l} + \text{TF_VII.l} \longrightarrow \text{TF_VII_Xa.l}$	
26	R5b	TF_VII activation	$\text{TF_VII_Xa.l} \longrightarrow \text{Xa.l} + \text{TF_VIIa.l}$	
27	R6	VIIIa_IXa binding	$\text{VIIIa.l} + \text{IXa.l} \longrightarrow \text{IXa_VIIIa.l}$	
28	R7	Va_Xa binding	$\text{Va.l} + \text{Xa.l} \longrightarrow \text{Xa_Va.l}$	
29	R8	X_IXa_VIIIa complex formation	$\text{X.l} + \text{IXa_VIIIa.l} \longrightarrow \text{IXa_VIIIa_X.l}$	
30	R8b	Factor X activation	$\text{IXa_VIIIa_X.l} \longrightarrow \text{Xa.l} + \text{IXa_VIIIa.l}$	
31	R9	V_Xa binding	$\text{Xa.l} + \text{V.l} \longrightarrow \text{V_Xa.l}$	
32	R9b	Factor V activation	$\text{V_Xa.l} \longrightarrow \text{Xa.l} + \text{Va.l}$	
33	R10	Xa_VIII binding	$\text{Xa.l} + \text{VIII.l} \longrightarrow \text{VIII_Xa.l}$	
34	R10b	Factor VIII activation	$\text{VIII_Xa.l} \longrightarrow \text{Xa.l} + \text{VIIIa.l}$	
35	R11		$\text{IIa.f} + \text{V.l} \longrightarrow \text{V_IIa.l}$	
36	R11b		$\text{V_IIa.l} \longrightarrow \text{IIa.f} + \text{Va.l}$	
37	R12		$\text{IIa.f} + \text{VIII.l} \longrightarrow \text{VIII_IIa.l}$	
38	R12b		$\text{VIII_IIa.l} \longrightarrow \text{IIa.f} + \text{VIIIa.l}$	
39	R13		$\text{II.l} + \text{Xa_Va.l} \longrightarrow \text{Xa_Va_II.l}$	
40	R14		$\text{mIIa.l} + \text{Xa_Va.l} \longrightarrow \text{Xa_Va_mIIa.l}$	
41	R15		$\text{Xa_Va_II.l} \longrightarrow \text{Xa_Va_mIIa.l}$	
42	R15b		$\text{Xa_Va_mIIa.l} \longrightarrow \text{IIa.f} + \text{Xa_Va.l} + 100 \text{ LIPID}$	
43	R16		$\text{Xa.l} + \text{VII.l} \longrightarrow \text{VII_Xa.l}$	
44	R16b		$\text{VII_Xa.l} \longrightarrow \text{Xa.l} + \text{VIIa.l}$	
45	R17		$\text{IIa.f} + \text{XI.f} \longrightarrow \text{XI_IIa.l}$	
46	R17b		$\text{XI_IIa.l} \longrightarrow \text{IIa.f} + \text{XIa.l}$	
47	R18		$\text{VIIIa.l} + \text{APC_PS.l} \longrightarrow \text{APC_PS_VIIIa.l}$	
48	R18b		$\text{APC_PS_VIIIa.l} \longrightarrow \text{VIIIai.l} + \text{APC_PS.l}$	
49	R19		$\text{Va.l} + \text{APC_PS.l} \longrightarrow \text{APC_PS_Va.l}$	
50	R19b		$\text{APC_PS_Va.l} \longrightarrow \text{Vai.l} + \text{APC_PS.l}$	
51	R20		$\text{Xa.f} + \text{TFPI.f} \longrightarrow \text{TFPI_Xa.l}$	
52	R21		$\text{TF_VIIa.l} + \text{TFPI_Xa.l} \longrightarrow \text{TFPI_Xa_TF_VIIa.l}$	

Nº	Id	Name	Reaction Equation	SBO
53	R22		$AT_f + IXa_f \longrightarrow IXa_AT_f$	
54	R23		$AT_f + Xa_f \longrightarrow Xa_AT_f$	
55	R24		$AT_f + IIa_f \longrightarrow IIa_AT_f$	
56	R25		$mIIa_l + V_l \longrightarrow V_mIIa_l$	
57	R25b		$V_mIIa_l \longrightarrow mIIa_l + Va_l$	
58	R26		$mIIa_l + VIII_l \longrightarrow VIII_mIIa_l$	
59	R26b		$VIII_mIIa_l \longrightarrow mIIa_l + VIIIa_l$	
60	R27		$TM_l + IIa_f \longrightarrow IIa_TM_l$	
61	R28		$PC_l + IIa_TM_l \longrightarrow IIa_TM_PC_l$	
62	R28b		$IIa_TM_PC_l \longrightarrow APC_l + IIa_TM_l$	
63	R29		$AT_f + mIIa_f \longrightarrow mIIa_AT_l$	
64	R30		$PS_l + APC_l \longrightarrow APC_PS_l$	
65	R31		$IX_l + XIa_l \longrightarrow XIa_IX_l$	
66	R31b		$XIa_IX_l \longrightarrow IXa_l + XIa_l$	
67	R32	R32	$AT_f + XIa_l \longrightarrow AT_XIa_l$	
68	R33	R33	$\alpha 2M_l + IIa_f \longrightarrow \alpha 2M_IIa_l$	
69	R34	R34	$\alpha 2M_l + Xa_f \longrightarrow \alpha 2M_Xa_l$	

6.1 Reaction LB1

This is an irreversible reaction of two reactants forming one product.

Name Factor II lipid binding

Reaction equation



Reactants

Table 6: Properties of each reactant.

Id	Name	SBO
II_f	II_f	
LIPID	LIPID	

Product

Table 7: Properties of each product.

Id	Name	SBO
II_l	II_l	

Kinetic Law

Derived unit contains undeclared units

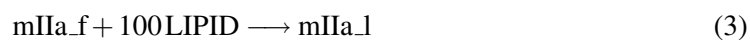
$$v_1 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konII} \cdot [\text{II}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffII} \cdot [\text{II}_l] \right) \quad (2)$$

6.2 Reaction LB2

This is an irreversible reaction of two reactants forming one product.

Name Factor mIIa lipid binding

Reaction equation



Reactants

Table 8: Properties of each reactant.

Id	Name	SBO
mIIa_f	mIIa_f	
LIPID	LIPID	

Product

Table 9: Properties of each product.

Id	Name	SBO
mIIa_l	mIIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_2 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konmIIa} \cdot [\text{mIIa}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffmIIa} \cdot [\text{mIIa}_l] \right) \quad (4)$$

6.3 Reaction LB3

This is an irreversible reaction of two reactants forming one product.

Name Factor V lipid binding

Reaction equation



Reactants

Table 10: Properties of each reactant.

Id	Name	SBO
V_f	V_f	
LIPID	LIPID	

Product

Table 11: Properties of each product.

Id	Name	SBO
V_l	V_l	

Kinetic Law

Derived unit contains undeclared units

$$v_3 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konV} \cdot [\text{V}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffV} \cdot [\text{V}_l] \right) \quad (6)$$

6.4 Reaction LB4

This is an irreversible reaction of two reactants forming one product.

Name Factor Va lipid binding

Reaction equation



Reactants

Table 12: Properties of each reactant.

Id	Name	SBO
Va_f	Va_f	
LIPID	LIPID	

Product

Table 13: Properties of each product.

Id	Name	SBO
Va_l	Va_l	

Kinetic Law

Derived unit contains undeclared units

$$v_4 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konVa} \cdot [\text{Va}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffVa} \cdot [\text{Va}_l] \right) \quad (8)$$

6.5 Reaction LB5

This is an irreversible reaction of two reactants forming one product.

Name Factor VII lipid binding

Reaction equation



Reactants

Table 14: Properties of each reactant.

Id	Name	SBO
VII_f	VII_f	
LIPID	LIPID	

Product

Table 15: Properties of each product.

Id	Name	SBO
VII_l	VII_l	

Kinetic Law

Derived unit contains undeclared units

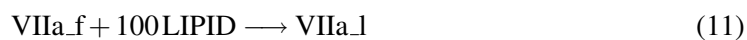
$$v_5 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konVII} \cdot [\text{VII}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffVII} \cdot [\text{VII}_l] \right) \quad (10)$$

6.6 Reaction LB6

This is an irreversible reaction of two reactants forming one product.

Name Factor VIIa lipid binding

Reaction equation



Reactants

Table 16: Properties of each reactant.

Id	Name	SBO
VIIa_f	VIIa_f	
LIPID	LIPID	

Product

Table 17: Properties of each product.

Id	Name	SBO
VIIa_l	VIIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_6 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konVIIa} \cdot [\text{VIIa}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffVIIa} \cdot [\text{VIIa}_l] \right) \quad (12)$$

6.7 Reaction LB7

This is an irreversible reaction of two reactants forming one product.

Name Factor VIII lipid binding

Reaction equation



Reactants

Table 18: Properties of each reactant.

Id	Name	SBO
VIII_f	VIII_f	
LIPID	LIPID	

Product

Table 19: Properties of each product.

Id	Name	SBO
VIII_l	VIII_l	

Kinetic Law

Derived unit contains undeclared units

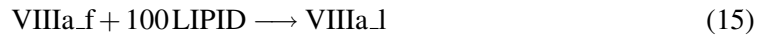
$$v_7 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konVIII} \cdot [\text{VIII}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffVIII} \cdot [\text{VIII}_l] \right) \quad (14)$$

6.8 Reaction LB8

This is an irreversible reaction of two reactants forming one product.

Name Factor VIIIa lipid binding

Reaction equation



Reactants

Table 20: Properties of each reactant.

Id	Name	SBO
VIIIa_f	VIIIa_f	
LIPID	LIPID	

Product

Table 21: Properties of each product.

Id	Name	SBO
VIIIa_l	VIIIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_8 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konVIIIa} \cdot [\text{VIIIa}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffVIIIa} \cdot [\text{VIIIa}_l] \right) \quad (16)$$

6.9 Reaction LB9

This is an irreversible reaction of two reactants forming one product.

Name Factor IX lipid binding

Reaction equation



Reactants

Table 22: Properties of each reactant.

Id	Name	SBO
IX_f	IX_f	
LIPID	LIPID	

Product

Table 23: Properties of each product.

Id	Name	SBO
IX_l	IX_l	

Kinetic Law

Derived unit contains undeclared units

$$v_9 = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konIX} \cdot [\text{IX_f}] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffIX} \cdot [\text{IX_l}] \right) \quad (18)$$

6.10 Reaction LB10

This is an irreversible reaction of two reactants forming one product.

Name Factor IXa lipid binding

Reaction equation



Reactants

Table 24: Properties of each reactant.

Id	Name	SBO
IXa_f	IXa_f	
LIPID	LIPID	

Product

Table 25: Properties of each product.

Id	Name	SBO
IXa_l	IXa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{10} = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konIXa} \cdot [\text{IXa}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffIXa} \cdot [\text{IXa}_l] \right) \quad (20)$$

6.11 Reaction LB11

This is an irreversible reaction of two reactants forming one product.

Name Factor X lipid binding

Reaction equation



Reactants

Table 26: Properties of each reactant.

Id	Name	SBO
X_f	X_f	
LIPID	LIPID	

Product

Table 27: Properties of each product.

Id	Name	SBO
X_l	X_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{11} = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konX} \cdot [\text{X}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffX} \cdot [\text{X}_l] \right) \quad (22)$$

6.12 Reaction LB12

This is an irreversible reaction of two reactants forming one product.

Name Factor Xa lipid binding

Reaction equation



Reactants

Table 28: Properties of each reactant.

Id	Name	SBO
Xa_f	Xa_f	
LIPID	LIPID	

Product

Table 29: Properties of each product.

Id	Name	SBO
Xa_l	Xa_l	

Kinetic Law

Derived unit contains undeclared units

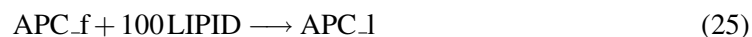
$$v_{12} = \frac{\text{konXa} \cdot [\text{Xa}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffXa} \cdot [\text{Xa}_l] \quad (24)$$

6.13 Reaction LB13

This is an irreversible reaction of two reactants forming one product.

Name APC lipid binding

Reaction equation



Reactants

Table 30: Properties of each reactant.

Id	Name	SBO
APC_f	APC_f	
LIPID	LIPID	

Product

Table 31: Properties of each product.

Id	Name	SBO
APC_l	APC_l	

Kinetic Law

Derived unit contains undeclared units

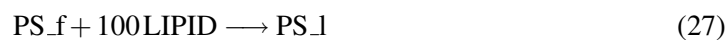
$$v_{13} = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konAPC} \cdot [\text{APC_f}] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffAPC} \cdot [\text{APC_l}] \right) \quad (26)$$

6.14 Reaction LB14

This is an irreversible reaction of two reactants forming one product.

Name PS lipid binding

Reaction equation



Reactants

Table 32: Properties of each reactant.

Id	Name	SBO
PS_f	PS_f	
LIPID	LIPID	

Product

Table 33: Properties of each product.

Id	Name	SBO
PS_l	PS_l	

Kinetic Law

Derived unit contains undeclared units

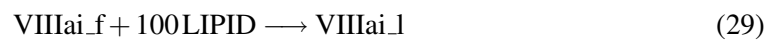
$$v_{14} = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konPS} \cdot [\text{PS}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffPS} \cdot [\text{PS}_l] \right) \quad (28)$$

6.15 Reaction LB15

This is an irreversible reaction of two reactants forming one product.

Name Factor VIIIai lipid binding

Reaction equation



Reactants

Table 34: Properties of each reactant.

Id	Name	SBO
VIIIai_f	VIIIai_f	
LIPID	LIPID	

Product

Table 35: Properties of each product.

Id	Name	SBO
VIIIai_l	VIIIai_l	

Kinetic Law**Derived unit** contains undeclared units

$$v_{15} = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konVIIIai} \cdot [\text{VIIIai}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffVIIIai} \cdot [\text{VIIIai}_l] \right) \quad (30)$$

6.16 Reaction LB16

This is an irreversible reaction of two reactants forming one product.

Name Factor Vai lipid binding**Reaction equation****Reactants**

Table 36: Properties of each reactant.

Id	Name	SBO
Vai_f	Vai_f	
LIPID	LIPID	

Product

Table 37: Properties of each product.

Id	Name	SBO
Vai_l	Vai_l	

Kinetic Law**Derived unit** contains undeclared units

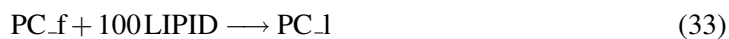
$$v_{16} = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konVai} \cdot [\text{Vai}_f] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffVai} \cdot [\text{Vai}_l] \right) \quad (32)$$

6.17 Reaction LB17

This is an irreversible reaction of two reactants forming one product.

Name PC lipid binding

Reaction equation



Reactants

Table 38: Properties of each reactant.

Id	Name	SBO
PC_f	PC_f	
LIPID	LIPID	

Product

Table 39: Properties of each product.

Id	Name	SBO
PC_l	PC_l	

Kinetic Law

Derived unit contains undeclared units

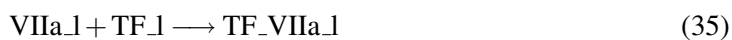
$$v_{17} = \text{vol}(\text{compartment}) \cdot \left(\frac{\text{konPC} \cdot [\text{PC_f}] \cdot [\text{LIPID}]}{\text{nva}} - \text{koffPC} \cdot [\text{PC_l}] \right) \quad (34)$$

6.18 Reaction R1

This is an irreversible reaction of two reactants forming one product.

Name TF_VIIa binding

Reaction equation



Reactants

Table 40: Properties of each reactant.

Id	Name	SBO
VIIa_1	VIIa_1	
TF_1	TF_1	

Product

Table 41: Properties of each product.

Id	Name	SBO
TF_VIIa_1	TF_VIIa_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{18} = \text{vol}(\text{compartment}) \cdot (k_1 \cdot [\text{TF}_1] \cdot [\text{VIIa}_1] - k_2 \cdot [\text{TF_VIIa}_1]) \quad (36)$$

6.19 Reaction R2

This is an irreversible reaction of two reactants forming one product.

Name TF_VII binding

Reaction equation



Reactants

Table 42: Properties of each reactant.

Id	Name	SBO
VII_1	VII_1	
TF_1	TF_1	

Product

Table 43: Properties of each product.

Id	Name	SBO
TF_VII_1	TF_VII_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{19} = \text{vol}(\text{compartment}) \cdot (k_3 \cdot [\text{TF}_1] \cdot [\text{VII}_1] - k_4 \cdot [\text{TF_VII}_1]) \quad (38)$$

6.20 Reaction R3

This is an irreversible reaction of two reactants forming one product.

Name IX_TF_VIIa binding

Reaction equation



Reactants

Table 44: Properties of each reactant.

Id	Name	SBO
IX_1	IX_1	
TF_VIIa_1	TF_VIIa_1	

Product

Table 45: Properties of each product.

Id	Name	SBO
TF_VIIa_IX_1	TF_VIIa_IX_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{20} = \text{vol}(\text{compartment}) \cdot (k_5 \cdot [\text{TF_VIIa}_1] \cdot [\text{IX}_1] - k_6 \cdot [\text{TF_VIIa_IX}_1]) \quad (40)$$

6.21 Reaction R3b

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

Name Factor IX activation

Reaction equation



Reactant

Table 46: Properties of each reactant.

Id	Name	SBO
TF_VIIa_IX_1	TF_VIIa_IX_1	

Products

Table 47: Properties of each product.

Id	Name	SBO
TF_VIIa_1	TF_VIIa_1	
IXa_1	IXa_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{21} = \text{vol}(\text{compartment}) \cdot k_7 \cdot [\text{TF_VIIa_IX_1}] \quad (42)$$

6.22 Reaction R4

This is an irreversible reaction of two reactants forming one product.

Name X_TF_VIIa complex formation

Reaction equation



Reactants

Table 48: Properties of each reactant.

Id	Name	SBO
X_1	X_1	
TF_VIIa_1	TF_VIIa_1	

Product

Table 49: Properties of each product.

Id	Name	SBO
TF_VIIa_X_1	TF_VIIa_X_1	

Kinetic Law

Derived unit contains undeclared units

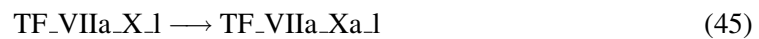
$$v_{22} = \text{vol}(\text{compartment}) \cdot (k_8 \cdot [\text{TF_VIIa_1}] \cdot [\text{X_1}] - k_9 \cdot [\text{TF_VIIa_X_1}]) \quad (44)$$

6.23 Reaction R4b

This is an irreversible reaction of one reactant forming one product.

Name Factor X activation

Reaction equation



Reactant

Table 50: Properties of each reactant.

Id	Name	SBO
TF_VIIa_X_1	TF_VIIa_X_1	

Product

Table 51: Properties of each product.

Id	Name	SBO
TF_VIIa_Xa_1	TF_VIIa_Xa_1	

Id	Name	SBO
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Kinetic Law

Derived unit contains undeclared units

$$v_{23} = \text{vol}(\text{compartment}) \cdot k_{10} \cdot [\text{TF_VIIa_Xa_1}] \quad (46)$$

6.24 Reaction R4c

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

Name Factor Xa release

Reaction equation



Reactant

Table 52: Properties of each reactant.

Id	Name	SBO
TF_VIIa_Xa_1	TF_VIIa_Xa_1	

Products

Table 53: Properties of each product.

Id	Name	SBO
Xa_1	Xa_1	
TF_VIIa_1	TF_VIIa_1	

Kinetic Law

Derived unit contains undeclared units

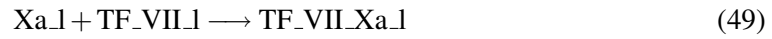
$$v_{24} = \text{vol}(\text{compartment}) \cdot k_{75} \cdot [\text{TF_VIIa_Xa_1}] \quad (48)$$

6.25 Reaction R5

This is an irreversible reaction of two reactants forming one product.

Name Xa-TF_VII binding

Reaction equation



Reactants

Table 54: Properties of each reactant.

Id	Name	SBO
Xa_1	Xa_1	
TF_VII_1	TF_VII_1	

Product

Table 55: Properties of each product.

Id	Name	SBO
TF_VII_Xa_1	TF_VII_Xa_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{25} = \text{vol}(\text{compartment}) \cdot (k_{11} \cdot [\text{TF_VII}_1] \cdot [\text{Xa}_1] - k_{12} \cdot [\text{TF_VII_Xa}_1]) \quad (50)$$

6.26 Reaction R5b

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

Name TF_VII activation

Reaction equation



Reactant

Table 56: Properties of each reactant.

Id	Name	SBO
TF_VII_Xa_1	TF_VII_Xa_1	

Products

Table 57: Properties of each product.

Id	Name	SBO
Xa_1	Xa_1	
TF_VIIa_1	TF_VIIa_1	

Kinetic Law

Derived unit contains undeclared units

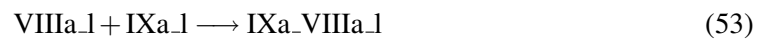
$$v_{26} = \text{vol}(\text{compartment}) \cdot k_{13} \cdot [\text{TF_VII_Xa_1}] \quad (52)$$

6.27 Reaction R6

This is an irreversible reaction of two reactants forming one product.

Name VIIla.IXa binding

Reaction equation



Reactants

Table 58: Properties of each reactant.

Id	Name	SBO
VIIla_1	VIIla_1	
IXa_1	IXa_1	

Product

Table 59: Properties of each product.

Id	Name	SBO
IXa_VIIla_1	IXa_VIIla_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{27} = \text{vol}(\text{compartment}) \cdot (k_{14} \cdot [\text{IXa}_1] \cdot [\text{VIIIa}_1] - k_{15} \cdot [\text{IXa_VIIIa}_1]) \quad (54)$$

6.28 Reaction R7

This is an irreversible reaction of two reactants forming one product.

Name Va_Xa binding

Reaction equation



Reactants

Table 60: Properties of each reactant.

Id	Name	SBO
Va_1	Va_1	
Xa_1	Xa_1	

Product

Table 61: Properties of each product.

Id	Name	SBO
Xa_Va_1	Xa_Va_1	

Kinetic Law

Derived unit contains undeclared units

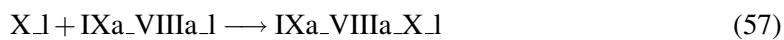
$$v_{28} = \text{vol}(\text{compartment}) \cdot (k_{16} \cdot [\text{Xa}_1] \cdot [\text{Va}_1] - k_{17} \cdot [\text{Xa_Va}_1]) \quad (56)$$

6.29 Reaction R8

This is an irreversible reaction of two reactants forming one product.

Name X_IXa_VIIIa complex formation

Reaction equation



Reactants

Table 62: Properties of each reactant.

Id	Name	SBO
X_1	X_1	
IXa_VIIIa_1	IXa_VIIIa_1	

Product

Table 63: Properties of each product.

Id	Name	SBO
IXa_VIIIa_X_1	IXa_VIIIa_X_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{29} = \text{vol}(\text{compartment}) \cdot (k_{18} \cdot [\text{IXa_VIIIa_1}] \cdot [\text{X_1}] - k_{19} \cdot [\text{IXa_VIIIa_X_1}]) \quad (58)$$

6.30 Reaction R8b

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

Name Factor X activation

Reaction equation



Reactant

Table 64: Properties of each reactant.

Id	Name	SBO
IXa_VIIIa_X_1	IXa_VIIIa_X_1	

Products

Table 65: Properties of each product.

Id	Name	SBO
Xa_1	Xa_1	

Id	Name	SBO
IXa.VIIIa.1	IXa.VIIIa.1	

Kinetic Law

Derived unit contains undeclared units

$$v_{30} = \text{vol}(\text{compartment}) \cdot k_{20} \cdot [\text{IXa.VIIIa.X.1}] \quad (60)$$

6.31 Reaction R9

This is an irreversible reaction of two reactants forming one product.

Name V_Xa binding

Reaction equation



Reactants

Table 66: Properties of each reactant.

Id	Name	SBO
Xa.1	Xa.1	
V.1	V.1	

Product

Table 67: Properties of each product.

Id	Name	SBO
V_Xa.1	V_Xa.1	

Kinetic Law

Derived unit contains undeclared units

$$v_{31} = \text{vol}(\text{compartment}) \cdot (k_{21} \cdot [\text{V.1}] \cdot [\text{Xa.1}] - k_{22} \cdot [\text{V_Xa.1}]) \quad (62)$$

6.32 Reaction R9b

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

Name Factor V activation

Reaction equation



Reactant

Table 68: Properties of each reactant.

Id	Name	SBO
V_Xa_1	V_Xa_1	

Products

Table 69: Properties of each product.

Id	Name	SBO
Xa_1	Xa_1	
Va_1	Va_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{32} = \text{vol}(\text{compartment}) \cdot k_{23} \cdot [V_Xa_1] \quad (64)$$

6.33 Reaction R10

This is an irreversible reaction of two reactants forming one product.

Name Xa_VIII binding

Reaction equation



Reactants

Table 70: Properties of each reactant.

Id	Name	SBO
Xa_1	Xa_1	

Id	Name	SBO
VIII_1	VIII_1	

Product

Table 71: Properties of each product.

Id	Name	SBO
VIII_Xa_1	VIII_Xa_1	

Kinetic Law

Derived unit contains undeclared units

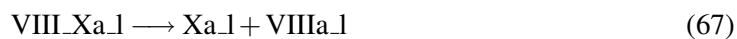
$$v_{33} = k_{24} \cdot [\text{VIII}_1] \cdot [\text{Xa}_1] - k_{25} \cdot [\text{VIII_Xa}_1] \quad (66)$$

6.34 Reaction R10b

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

Name Factor VIII activation

Reaction equation



Reactant

Table 72: Properties of each reactant.

Id	Name	SBO
VIII_Xa_1	VIII_Xa_1	

Products

Table 73: Properties of each product.

Id	Name	SBO
Xa_1	Xa_1	
VIIIa_1	VIIIa_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{34} = \text{vol}(\text{compartment}) \cdot k_{26} \cdot [\text{VIII_Xa_I}] \quad (68)$$

6.35 Reaction R11

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 74: Properties of each reactant.

Id	Name	SBO
IIa_f	IIa_f	
V_I	V_I	

Product

Table 75: Properties of each product.

Id	Name	SBO
V_IIa_I	V_IIa_I	

Kinetic Law

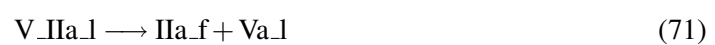
Derived unit contains undeclared units

$$v_{35} = \text{vol}(\text{compartment}) \cdot (k_{27} \cdot [\text{V_I}] \cdot [\text{IIa_f}] - k_{28} \cdot [\text{V_IIa_I}]) \quad (70)$$

6.36 Reaction R11b

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

Reaction equation



Reactant

Table 76: Properties of each reactant.

Id	Name	SBO
V_IIa.1	V_IIa.1	

Products

Table 77: Properties of each product.

Id	Name	SBO
IIa.f	IIa.f	
Va.1	Va.1	

Kinetic Law

Derived unit contains undeclared units

$$v_{36} = \text{vol}(\text{compartment}) \cdot k_{29} \cdot [\text{V_IIa.1}] \quad (72)$$

6.37 Reaction R12

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 78: Properties of each reactant.

Id	Name	SBO
IIa.f	IIa.f	
VIII.1	VIII.1	

Product

Table 79: Properties of each product.

Id	Name	SBO
VIII_IIa_l	VIII_IIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{37} = \text{vol}(\text{compartment}) \cdot (k_{30} \cdot [\text{VIII}_l] \cdot [\text{IIa}_f] - k_{31} \cdot [\text{VIII}_{IIa}_l]) \quad (74)$$

6.38 Reaction R12b

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

Reaction equation



Reactant

Table 80: Properties of each reactant.

Id	Name	SBO
VIII_IIa_l	VIII_IIa_l	

Products

Table 81: Properties of each product.

Id	Name	SBO
IIa_f	IIa_f	
VIIIa_l	VIIIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{38} = \text{vol}(\text{compartment}) \cdot k_{32} \cdot [\text{VIII}_{IIa}_l] \quad (76)$$

6.39 Reaction R13

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 82: Properties of each reactant.

Id	Name	SBO
II_1	II_1	
Xa_Va_1	Xa_Va_1	

Product

Table 83: Properties of each product.

Id	Name	SBO
Xa_Va_II_1	Xa_Va_II_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{39} = \text{vol}(\text{compartment}) \cdot (k_{33} \cdot [\text{Xa_Va}_1] \cdot [\text{II}_1] - k_{34} \cdot [\text{Xa_Va_II}_1]) \quad (78)$$

6.40 Reaction R14

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 84: Properties of each reactant.

Id	Name	SBO
mIIa_1	mIIa_1	
Xa_Va_1	Xa_Va_1	

Product

Table 85: Properties of each product.

Id	Name	SBO
Xa_Va_mIIa_l	Xa_Va_mIIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{40} = \text{vol}(\text{compartment}) \cdot (k_{35} \cdot [\text{Xa_Va_l}] \cdot [\text{mIIa_l}] - k_{36} \cdot [\text{Xa_Va_mIIa_l}]) \quad (80)$$

6.41 Reaction R15

This is an irreversible reaction of one reactant forming one product.

Reaction equation



Reactant

Table 86: Properties of each reactant.

Id	Name	SBO
Xa_Va_II_l	Xa_Va_II_l	

Product

Table 87: Properties of each product.

Id	Name	SBO
Xa_Va_mIIa_l	Xa_Va_mIIa_l	

Kinetic Law

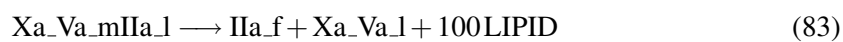
Derived unit contains undeclared units

$$v_{41} = \text{vol}(\text{compartment}) \cdot k_{37} \cdot [\text{Xa_Va_II_l}] \quad (82)$$

6.42 Reaction R15b

This is an irreversible reaction of one reactant forming three products.

Reaction equation



Reactant

Table 88: Properties of each reactant.

Id	Name	SBO
Xa_Va_mIIa_l	Xa_Va_mIIa_l	

Products

Table 89: Properties of each product.

Id	Name	SBO
IIa_f	IIa_f	
Xa_Va_l	Xa_Va_l	
LIPID	LIPID	

Kinetic Law

Derived unit contains undeclared units

$$v_{42} = \text{vol}(\text{compartment}) \cdot k_{38} \cdot [\text{Xa_Va_mIIa_l}] \quad (84)$$

6.43 Reaction R16

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 90: Properties of each reactant.

Id	Name	SBO
Xa_1	Xa_1	
VII_1	VII_1	

Product

Table 91: Properties of each product.

Id	Name	SBO
VII_Xa_1	VII_Xa_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{43} = \text{vol}(\text{compartment}) \cdot (k_{39} \cdot [\text{VII}_1] \cdot [\text{Xa}_1] - k_{40} \cdot [\text{VII_Xa}_1]) \quad (86)$$

6.44 Reaction R16b

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

Reaction equation



Reactant

Table 92: Properties of each reactant.

Id	Name	SBO
VII_Xa_1	VII_Xa_1	

Products

Table 93: Properties of each product.

Id	Name	SBO
Xa_1	Xa_1	
VIIa_1	VIIa_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{44} = \text{vol}(\text{compartment}) \cdot k_{41} \cdot [\text{VII_Xa_I}] \quad (88)$$

6.45 Reaction R17

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 94: Properties of each reactant.

Id	Name	SBO
IIa_f	IIa_f	
XI_f	XI_f	

Product

Table 95: Properties of each product.

Id	Name	SBO
XI_IIa_I	XI_IIa_I	

Kinetic Law

Derived unit contains undeclared units

$$v_{45} = \text{vol}(\text{compartment}) \cdot (k_{42} \cdot [\text{XI_f}] \cdot [\text{IIa_f}] - k_{43} \cdot [\text{XI_IIa_I}]) \quad (90)$$

6.46 Reaction R17b

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

Reaction equation



Reactant

Table 96: Properties of each reactant.

Id	Name	SBO
XI.IIa.1	XI.IIa.1	

Products

Table 97: Properties of each product.

Id	Name	SBO
IIa.f	IIa.f	
XIa.1	XIa.1	

Kinetic Law

Derived unit contains undeclared units

$$v_{46} = \text{vol}(\text{compartment}) \cdot k_{44} \cdot [\text{XI.IIa.1}] \quad (92)$$

6.47 Reaction R18

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 98: Properties of each reactant.

Id	Name	SBO
VIIIa.1	VIIIa.1	
APC_PS.1	APC_PS.1	

Product

Table 99: Properties of each product.

Id	Name	SBO
APC_PS_VIIIa_l	APC_PS_VIIIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{47} = \text{vol}(\text{compartment}) \cdot (k_{45} \cdot [\text{APC_PS_l}] \cdot [\text{VIIIa_l}] - k_{46} \cdot [\text{APC_PS_VIIIa_l}]) \quad (94)$$

6.48 Reaction R18b

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

Reaction equation**Reactant**

Table 100: Properties of each reactant.

Id	Name	SBO
APC_PS_VIIIa_l	APC_PS_VIIIa_l	

Products

Table 101: Properties of each product.

Id	Name	SBO
VIIIai_l	VIIIai_l	
APC_PS_l	APC_PS_l	

Kinetic Law

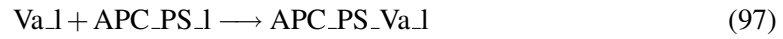
Derived unit contains undeclared units

$$v_{48} = \text{vol}(\text{compartment}) \cdot k_{47} \cdot [\text{APC_PS_VIIIa_l}] \quad (96)$$

6.49 Reaction R19

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 102: Properties of each reactant.

Id	Name	SBO
Va_1	Va_1	
APC_PS_1	APC_PS_1	

Product

Table 103: Properties of each product.

Id	Name	SBO
APC_PS_Va_1	APC_PS_Va_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{49} = \text{vol}(\text{compartment}) \cdot (k_{48} \cdot [\text{APC_PS}_1] \cdot [\text{Va}_1] - k_{49} \cdot [\text{APC_PS_Va}_1]) \quad (98)$$

6.50 Reaction R19b

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

Reaction equation



Reactant

Table 104: Properties of each reactant.

Id	Name	SBO
APC_PS_Va_1	APC_PS_Va_1	

Products

Table 105: Properties of each product.

Id	Name	SBO
Vai_l	Vai_l	
APC_PS_l	APC_PS_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{50} = \text{vol}(\text{compartment}) \cdot k_{50} \cdot [\text{APC_PS_Va_l}] \quad (100)$$

6.51 Reaction R20

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 106: Properties of each reactant.

Id	Name	SBO
Xa_f	Xa_f	
TFPI_f	TFPI_f	

Product

Table 107: Properties of each product.

Id	Name	SBO
TFPI_Xa_l	TFPI_Xa_l	

Kinetic Law

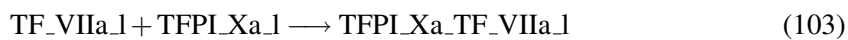
Derived unit contains undeclared units

$$v_{51} = \text{vol}(\text{compartment}) \cdot (k_{51} \cdot [\text{TFPI_f}] \cdot [\text{Xa_f}] - k_{52} \cdot [\text{TFPI_Xa_l}]) \quad (102)$$

6.52 Reaction R21

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 108: Properties of each reactant.

Id	Name	SBO
TF_VIIa.l	TF_VIIa.l	
TFPI_Xa.l	TFPI_Xa.l	

Product

Table 109: Properties of each product.

Id	Name	SBO
TFPI_Xa_TF_VIIa.l	TFPI_Xa_TF_VIIa.l	

Kinetic Law

Derived unit contains undeclared units

$$v_{52} = \text{vol}(\text{compartment}) \cdot (k_{53} \cdot [\text{TFPI_Xa.l}] \cdot [\text{TF_VIIa.l}] - k_{54} \cdot [\text{TFPI_Xa_TF_VIIa.l}]) \quad (104)$$

6.53 Reaction R22

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 110: Properties of each reactant.

Id	Name	SBO
AT.f	AT.f	

Id	Name	SBO
IXa_f	IXa_f	

Product

Table 111: Properties of each product.

Id	Name	SBO
IXa_AT_f	IXa_AT_f	

Kinetic Law

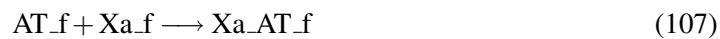
Derived unit contains undeclared units

$$v_{53} = \text{vol}(\text{compartment}) \cdot k_{55} \cdot [\text{IXa}_f] \cdot [\text{AT}_f] \quad (106)$$

6.54 Reaction R23

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 112: Properties of each reactant.

Id	Name	SBO
AT_f	AT_f	
Xa_f	Xa_f	

Product

Table 113: Properties of each product.

Id	Name	SBO
Xa_AT_f	Xa_AT_f	

Kinetic Law

Derived unit contains undeclared units

$$v_{54} = \text{vol}(\text{compartment}) \cdot k_{56} \cdot [\text{Xa}_f] \cdot [\text{AT}_f] \quad (108)$$

6.55 Reaction R24

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 114: Properties of each reactant.

Id	Name	SBO
AT_f	AT_f	
IIa_f	IIa_f	

Product

Table 115: Properties of each product.

Id	Name	SBO
IIa_AT_f	IIa_AT_f	

Kinetic Law

Derived unit contains undeclared units

$$v_{55} = \text{vol}(\text{compartment}) \cdot k_{57} \cdot [\text{IIa}_f] \cdot [\text{AT}_f] \quad (110)$$

6.56 Reaction R25

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 116: Properties of each reactant.

Id	Name	SBO
mIIa.1	mIIa.1	
V.1	V.1	

Product

Table 117: Properties of each product.

Id	Name	SBO
V_mIIa.1	V_mIIa.1	

Kinetic Law

Derived unit contains undeclared units

$$v_{56} = \text{vol}(\text{compartment}) \cdot (k_{58} \cdot [V.1] \cdot [mIIa.1] - k_{59} \cdot [V_mIIa.1]) \quad (112)$$

6.57 Reaction R25b

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

Reaction equation



Reactant

Table 118: Properties of each reactant.

Id	Name	SBO
V_mIIa.1	V_mIIa.1	

Products

Table 119: Properties of each product.

Id	Name	SBO
mIIa_l	mIIa_l	
Va_l	Va_l	

Kinetic Law

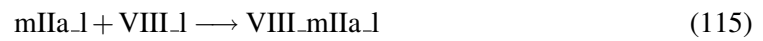
Derived unit contains undeclared units

$$v_{57} = \text{vol}(\text{compartment}) \cdot k_{60} \cdot [V_mIIa_l] \quad (114)$$

6.58 Reaction R26

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 120: Properties of each reactant.

Id	Name	SBO
mIIa_l	mIIa_l	
VIII_l	VIII_l	

Product

Table 121: Properties of each product.

Id	Name	SBO
VIII_mIIa_l	VIII_mIIa_l	

Kinetic Law

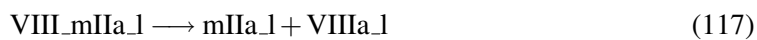
Derived unit contains undeclared units

$$v_{58} = \text{vol}(\text{compartment}) \cdot (k_{61} \cdot [VIII_l] \cdot [mIIa_l] - k_{62} \cdot [VIII_mIIa_l]) \quad (116)$$

6.59 Reaction R26b

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

Reaction equation



Reactant

Table 122: Properties of each reactant.

Id	Name	SBO
VIII_mIIa_1	VIII_mIIa_1	

Products

Table 123: Properties of each product.

Id	Name	SBO
mIIa_1	mIIa_1	
VIIIa_1	VIIIa_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{59} = \text{vol}(\text{compartment}) \cdot k_{63} \cdot [\text{VIII_mIIa_1}] \quad (118)$$

6.60 Reaction R27

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 124: Properties of each reactant.

Id	Name	SBO
TM_1	TM_1	

Id	Name	SBO
IIa_f	IIa_f	

Product

Table 125: Properties of each product.

Id	Name	SBO
IIa_TM_1	IIa_TM_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{60} = \text{vol}(\text{compartment}) \cdot (k_{64} \cdot [\text{IIa}_f] \cdot [\text{TM}_1] - k_{65} \cdot [\text{IIa_TM}_1]) \quad (120)$$

6.61 Reaction R28

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 126: Properties of each reactant.

Id	Name	SBO
PC_1	PC_1	
IIa_TM_1	IIa_TM_1	

Product

Table 127: Properties of each product.

Id	Name	SBO
IIa_TM_PC_1	IIa_TM_PC_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{61} = \text{vol}(\text{compartment}) \cdot (k_{66} \cdot [\text{IIa_TM_I}] \cdot [\text{PC_I}] - k_{67} \cdot [\text{IIa_TM_PC_I}]) \quad (122)$$

6.62 Reaction R28b

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

Reaction equation



Reactant

Table 128: Properties of each reactant.

Id	Name	SBO
IIa_TM_PC_I	IIa_TM_PC_I	

Products

Table 129: Properties of each product.

Id	Name	SBO
APC_I	APC_I	
IIa_TM_I	IIa_TM_I	

Kinetic Law

Derived unit contains undeclared units

$$v_{62} = \text{vol}(\text{compartment}) \cdot k_{68} \cdot [\text{IIa_TM_PC_I}] \quad (124)$$

6.63 Reaction R29

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 130: Properties of each reactant.

Id	Name	SBO
AT_f	AT_f	
mIIa_f	mIIa_f	

Product

Table 131: Properties of each product.

Id	Name	SBO
mIIa_AT_l	mIIa_AT_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{63} = \text{vol}(\text{compartment}) \cdot k_{69} \cdot [\text{mIIa}_f] \cdot [\text{AT}_f] \quad (126)$$

6.64 Reaction R30

This is an irreversible reaction of two reactants forming one product.

Reaction equation



Reactants

Table 132: Properties of each reactant.

Id	Name	SBO
PS_l	PS_l	
APC_l	APC_l	

Product

Table 133: Properties of each product.

Id	Name	SBO
APC_PS_1	APC_PS_1	

Kinetic Law**Derived unit** contains undeclared units

$$v_{64} = \text{vol}(\text{compartment}) \cdot (k70 \cdot [\text{APC}_1] \cdot [\text{PS}_1] - k71 \cdot [\text{APC_PS}_1]) \quad (128)$$

6.65 Reaction R31

This is an irreversible reaction of two reactants forming one product.

Reaction equation**Reactants**

Table 134: Properties of each reactant.

Id	Name	SBO
IX_1	IX_1	
XIa_1	XIa_1	

Product

Table 135: Properties of each product.

Id	Name	SBO
XIa_IX_1	XIa_IX_1	

Kinetic Law**Derived unit** contains undeclared units

$$v_{65} = \text{vol}(\text{compartment}) \cdot (k72 \cdot [\text{XIa}_1] \cdot [\text{IX}_1] - k73 \cdot [\text{XIa_IX}_1]) \quad (130)$$

6.66 Reaction R31b

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

Reaction equation



Reactant

Table 136: Properties of each reactant.

Id	Name	SBO
XIa_IX_1	XIa_IX_1	

Products

Table 137: Properties of each product.

Id	Name	SBO
IXa_1	IXa_1	
XIa_1	XIa_1	

Kinetic Law

Derived unit contains undeclared units

$$v_{66} = \text{vol}(\text{compartment}) \cdot k_{74} \cdot [\text{XIa_IX_1}] \quad (132)$$

6.67 Reaction R32

This is an irreversible reaction of two reactants forming one product.

Name R32

Reaction equation



Reactants

Table 138: Properties of each reactant.

Id	Name	SBO
AT_f	AT_f	
XIa_1	XIa_1	

Product

Table 139: Properties of each product.

Id	Name	SBO
AT_XIa_l	AT_XIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{67} = \text{vol}(\text{compartment}) \cdot k_{76} \cdot [\text{AT}_f] \cdot [\text{XIa}_l] \quad (134)$$

6.68 Reaction R33

This is an irreversible reaction of two reactants forming one product.

Name R33

Reaction equation



Reactants

Table 140: Properties of each reactant.

Id	Name	SBO
alpha2M_l	alpha2M_l	
IIa_f	IIa_f	

Product

Table 141: Properties of each product.

Id	Name	SBO
alpha2M_IIa_l	alpha2M_IIa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{68} = \text{vol}(\text{compartment}) \cdot k_{77} \cdot [\text{alpha2M}_l] \cdot [\text{IIa}_f] \quad (136)$$

6.69 Reaction R34

This is an irreversible reaction of two reactants forming one product.

Name R34

Reaction equation



Reactants

Table 142: Properties of each reactant.

Id	Name	SBO
alpha2M_l	alpha2M_l	
Xa_f	Xa_f	

Product

Table 143: Properties of each product.

Id	Name	SBO
alpha2M_Xa_l	alpha2M_Xa_l	

Kinetic Law

Derived unit contains undeclared units

$$v_{69} = \text{vol}(\text{compartment}) \cdot k_{78} \cdot [\text{alpha2M_l}] \cdot [\text{Xa_f}] \quad (138)$$

7 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.

7.1 Species II_f

Name II_f

Initial concentration 1400 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB1](#)).

$$\frac{d}{dt} \text{II}_f = -v_1 \quad (139)$$

7.2 Species II_l

Name II_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in [R13](#) and as a product in [LB1](#)).

$$\frac{d}{dt} \text{II}_l = v_1 - v_{39} \quad (140)$$

7.3 Species mIIa_f

Name mIIa_f

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in [LB2](#), [R29](#)).

$$\frac{d}{dt} \text{mIIa}_f = -v_2 - v_{63} \quad (141)$$

7.4 Species mIIa_l

Name mIIa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in six reactions (as a reactant in [R14](#), [R25](#), [R26](#) and as a product in [LB2](#), [R25b](#), [R26b](#)).

$$\frac{d}{dt} \text{mIIa}_l = v_2 + v_{57} + v_{59} - v_{40} - v_{56} - v_{58} \quad (142)$$

7.5 Species V_f

Name V_f

Initial concentration 20 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB3](#)).

$$\frac{d}{dt} \text{V}_f = -v_3 \quad (143)$$

7.6 Species V_l

Name V_l

Initial concentration 0 nmol · l⁻¹

This species takes part in four reactions (as a reactant in R9, R11, R25 and as a product in LB3).

$$\frac{d}{dt}V_l = v_3 - v_{31} - v_{35} - v_{56} \quad (144)$$

7.7 Species Va_f

Name Va_f

Initial concentration 0 nmol · l⁻¹

This species takes part in one reaction (as a reactant in LB4).

$$\frac{d}{dt}Va_f = -v_4 \quad (145)$$

7.8 Species Va_l

Name Va_l

Initial concentration 0 nmol · l⁻¹

This species takes part in six reactions (as a reactant in R7, R19 and as a product in LB4, R9b, R11b, R25b).

$$\frac{d}{dt}Va_l = v_4 + v_{32} + v_{36} + v_{57} - v_{28} - v_{49} \quad (146)$$

7.9 Species VII_f

Name VII_f

Initial concentration 10 nmol · l⁻¹

This species takes part in one reaction (as a reactant in LB5).

$$\frac{d}{dt}VII_f = -v_5 \quad (147)$$

7.10 Species VII_l

Name VII_l

Initial concentration 0 nmol · l⁻¹

This species takes part in three reactions (as a reactant in R2, R16 and as a product in LB5).

$$\frac{d}{dt}VII_l = v_5 - v_{19} - v_{43} \quad (148)$$

7.11 Species VIIa_f

Name VIIa_f

Initial concentration 0.1 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB6](#)).

$$\frac{d}{dt} \text{VIIa}_f = -v_6 \quad (149)$$

7.12 Species VIIa_l

Name VIIa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in three reactions (as a reactant in [R1](#) and as a product in [LB6](#), [R16b](#)).

$$\frac{d}{dt} \text{VIIa}_l = v_6 + v_{44} - v_{18} \quad (150)$$

7.13 Species VIII_f

Name VIII_f

Initial concentration 0.7 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB7](#)).

$$\frac{d}{dt} \text{VIII}_f = -v_7 \quad (151)$$

7.14 Species VIII_l

Name VIII_l

Initial concentration 0 nmol · l⁻¹

This species takes part in four reactions (as a reactant in [R10](#), [R12](#), [R26](#) and as a product in [LB7](#)).

$$\frac{d}{dt} \text{VIII}_l = v_7 - v_{33} - v_{37} - v_{58} \quad (152)$$

7.15 Species VIIIa_f

Name VIIIa_f

Initial concentration 0 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB8](#)).

$$\frac{d}{dt} \text{VIIIa}_f = -v_8 \quad (153)$$

7.16 Species [VIIIa_l](#)

Name VIIIa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in six reactions (as a reactant in [R6](#), [R18](#) and as a product in [LB8](#), [R10b](#), [R12b](#), [R26b](#)).

$$\frac{d}{dt} \text{VIIIa}_l = v_8 + v_{34} + v_{38} + v_{59} - v_{27} - v_{47} \quad (154)$$

7.17 Species [IX_f](#)

Name IX_f

Initial concentration 90 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB9](#)).

$$\frac{d}{dt} \text{IX}_f = -v_9 \quad (155)$$

7.18 Species [IX_l](#)

Name IX_l

Initial concentration 0 nmol · l⁻¹

This species takes part in three reactions (as a reactant in [R3](#), [R31](#) and as a product in [LB9](#)).

$$\frac{d}{dt} \text{IX}_l = v_9 - v_{20} - v_{65} \quad (156)$$

7.19 Species [IXa_f](#)

Name IXa_f

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in [LB10](#), [R22](#)).

$$\frac{d}{dt} \text{IXa}_f = -v_{10} - v_{53} \quad (157)$$

7.20 Species IXa_l

Name IXa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in four reactions (as a reactant in R6 and as a product in LB10, R3b, R31b).

$$\frac{d}{dt}IXa_l = v_{10} + v_{21} + v_{66} - v_{27} \quad (158)$$

7.21 Species X_f

Name X_f

Initial concentration 170 nmol · l⁻¹

This species takes part in one reaction (as a reactant in LB11).

$$\frac{d}{dt}X_f = -v_{11} \quad (159)$$

7.22 Species X_l

Name X_l

Initial concentration 0 nmol · l⁻¹

This species takes part in three reactions (as a reactant in R4, R8 and as a product in LB11).

$$\frac{d}{dt}X_l = v_{11} - v_{22} - v_{29} \quad (160)$$

7.23 Species Xa_f

Name Xa_f

Initial concentration 0 nmol · l⁻¹

This species takes part in four reactions (as a reactant in LB12, R20, R23, R34).

$$\frac{d}{dt}Xa_f = -v_{12} - v_{51} - v_{54} - v_{69} \quad (161)$$

7.24 Species Xa_l

Name Xa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in twelve reactions (as a reactant in [R5](#), [R7](#), [R9](#), [R10](#), [R16](#) and as a product in [LB12](#), [R4c](#), [R5b](#), [R8b](#), [R9b](#), [R10b](#), [R16b](#)).

$$\frac{d}{dt}Xa_l = v_{12} + v_{24} + v_{26} + v_{30} + v_{32} + v_{34} + v_{44} - v_{25} - v_{28} - v_{31} - v_{33} - v_{43} \quad (162)$$

7.25 Species APC_f

Name APC_f

Initial concentration 0 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB13](#)).

$$\frac{d}{dt}APC_f = -v_{13} \quad (163)$$

7.26 Species APC_l

Name APC_l

Initial concentration 0 nmol · l⁻¹

This species takes part in three reactions (as a reactant in [R30](#) and as a product in [LB13](#), [R28b](#)).

$$\frac{d}{dt}APC_l = v_{13} + v_{62} - v_{64} \quad (164)$$

7.27 Species PS_f

Name PS_f

Initial concentration 300 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB14](#)).

$$\frac{d}{dt}PS_f = -v_{14} \quad (165)$$

7.28 Species PS_l

Name PS_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R30 and as a product in LB14).

$$\frac{d}{dt} \text{PS}_l = v_{14} - v_{64} \quad (166)$$

7.29 Species VIIIai_f

Name VIIIai_f

Initial concentration 0 nmol · l⁻¹

This species takes part in one reaction (as a reactant in LB15).

$$\frac{d}{dt} \text{VIIIai}_f = -v_{15} \quad (167)$$

7.30 Species VIIIai_l

Name VIIIai_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a product in LB15, R18b).

$$\frac{d}{dt} \text{VIIIai}_l = v_{15} + v_{48} \quad (168)$$

7.31 Species Vai_f

Name Vai_f

Initial concentration 0 nmol · l⁻¹

This species takes part in one reaction (as a reactant in LB16).

$$\frac{d}{dt} \text{Vai}_f = -v_{16} \quad (169)$$

7.32 Species Vai_l

Name Vai_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a product in LB16, R19b).

$$\frac{d}{dt} \text{Vai}_l = v_{16} + v_{50} \quad (170)$$

7.33 Species PC_f

Name PC_f

Initial concentration 60 nmol · l⁻¹

This species takes part in one reaction (as a reactant in [LB17](#)).

$$\frac{d}{dt}PC_f = -v_{17} \quad (171)$$

7.34 Species PC_l

Name PC_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in [R28](#) and as a product in [LB17](#)).

$$\frac{d}{dt}PC_l = v_{17} - v_{61} \quad (172)$$

7.35 Species TF_l

Name TF_l

Initial concentration 0.0050 nmol · l⁻¹

This species takes part in two reactions (as a reactant in [R1](#), [R2](#)).

$$\frac{d}{dt}TF_l = -v_{18} - v_{19} \quad (173)$$

7.36 Species TF_VIIa_l

Name TF_VIIa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in seven reactions (as a reactant in [R3](#), [R4](#), [R21](#) and as a product in [R1](#), [R3b](#), [R4c](#), [R5b](#)).

$$\frac{d}{dt}TF_{VIIa_l} = v_{18} + v_{21} + v_{24} + v_{26} - v_{20} - v_{22} - v_{52} \quad (174)$$

7.37 Species TF_VII_l

Name TF_VII_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in [R5](#) and as a product in [R2](#)).

$$\frac{d}{dt}TF_{VII_l} = v_{19} - v_{25} \quad (175)$$

7.38 Species TF_VIIa_IX.l

Name TF_VIIa_IX.l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R3b and as a product in R3).

$$\frac{d}{dt} \text{TF_VIIa_IX.l} = v_{20} - v_{21} \quad (176)$$

7.39 Species TF_VIIa_IXa.l

Name TF_VIIa_IXa.l

Initial concentration 0 nmol · l⁻¹

This species does not take part in any reactions. Its quantity does hence not change over time:

$$\frac{d}{dt} \text{TF_VIIa_IXa.l} = 0 \quad (177)$$

7.40 Species TF_VIIa_X.l

Name TF_VIIa_X.l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R4b and as a product in R4).

$$\frac{d}{dt} \text{TF_VIIa_X.l} = v_{22} - v_{23} \quad (178)$$

7.41 Species TF_VIIa_Xa.l

Name TF_VIIa_Xa.l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R4c and as a product in R4b).

$$\frac{d}{dt} \text{TF_VIIa_Xa.l} = v_{23} - v_{24} \quad (179)$$

7.42 Species TF_VII_Xa.l

Name TF_VII_Xa.l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R5b and as a product in R5).

$$\frac{d}{dt} \text{TF_VII_Xa.l} = v_{25} - v_{26} \quad (180)$$

7.43 Species IXa_VIIIa_1

Name IXa_VIIIa_1

Initial concentration 0 nmol · l⁻¹

This species takes part in three reactions (as a reactant in R8 and as a product in R6, R8b).

$$\frac{d}{dt} \text{IXa_VIIIa_1} = v_{27} + v_{30} - v_{29} \quad (181)$$

7.44 Species Xa_Va_1

Name Xa_Va_1

Initial concentration 0 nmol · l⁻¹

This species takes part in four reactions (as a reactant in R13, R14 and as a product in R7, R15b).

$$\frac{d}{dt} \text{Xa_Va_1} = v_{28} + v_{42} - v_{39} - v_{40} \quad (182)$$

7.45 Species IXa_VIIIa_X_1

Name IXa_VIIIa_X_1

Initial concentration 0 nmol · l⁻¹

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

$$\frac{d}{dt} \text{IXa_VIIIa_X_1} = v_{29} - v_{30} \quad (183)$$

7.46 Species V_Xa_1

Name V_Xa_1

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R9b and as a product in R9).

$$\frac{d}{dt} \text{V_Xa_1} = v_{31} - v_{32} \quad (184)$$

7.47 Species VIII_Xa_1

Name VIII_Xa_1

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R10b and as a product in R10).

$$\frac{d}{dt} \text{VIII_Xa_1} = v_{33} - v_{34} \quad (185)$$

7.48 Species IIa_f

Name IIa_f

Initial concentration 0 nmol · l⁻¹

This species takes part in ten reactions (as a reactant in R11, R12, R17, R24, R27, R33 and as a product in R11b, R12b, R15b, R17b).

$$\frac{d}{dt} \text{IIa}_f = v_{36} + v_{38} + v_{42} + v_{46} - v_{35} - v_{37} - v_{45} - v_{55} - v_{60} - v_{68} \quad (186)$$

7.49 Species V_IIa_l

Name V_IIa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R11b and as a product in R11).

$$\frac{d}{dt} \text{V}_{\text{IIa}_l} = v_{35} - v_{36} \quad (187)$$

7.50 Species VIII_IIa_l

Name VIII_IIa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R12b and as a product in R12).

$$\frac{d}{dt} \text{VIII}_{\text{IIa}_l} = v_{37} - v_{38} \quad (188)$$

7.51 Species Xa_Va_II_l

Name Xa_Va_II_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R15 and as a product in R13).

$$\frac{d}{dt} \text{Xa}_{\text{Va}_{\text{II}_l}} = v_{39} - v_{41} \quad (189)$$

7.52 Species Xa_Va_mIIa_l

Name Xa_Va_mIIa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in three reactions (as a reactant in R15b and as a product in R14, R15).

$$\frac{d}{dt} \text{Xa}_{\text{Va}_{\text{mIIa}_l}} = v_{40} + v_{41} - v_{42} \quad (190)$$

7.53 Species XI_f

Name XI_f

Initial concentration $30 \text{ nmol} \cdot \text{l}^{-1}$

This species takes part in one reaction (as a reactant in [R17](#)).

$$\frac{d}{dt}XI_f = -v_{45} \quad (191)$$

7.54 Species XI_IIa_1

Name XI_IIa_1

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

This species takes part in two reactions (as a reactant in [R17b](#) and as a product in [R17](#)).

$$\frac{d}{dt}XI_IIa_1 = v_{45} - v_{46} \quad (192)$$

7.55 Species XIa_1

Name XIa_1

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

This species takes part in four reactions (as a reactant in [R31](#), [R32](#) and as a product in [R17b](#), [R31b](#)).

$$\frac{d}{dt}XIa_1 = v_{46} + v_{66} - v_{65} - v_{67} \quad (193)$$

7.56 Species APC_PS_1

Name APC_PS_1

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

This species takes part in five reactions (as a reactant in [R18](#), [R19](#) and as a product in [R18b](#), [R19b](#), [R30](#)).

$$\frac{d}{dt}APC_PS_1 = v_{48} + v_{50} + v_{64} - v_{47} - v_{49} \quad (194)$$

7.57 Species APC_PS_VIIIa_l

Name APC_PS_VIIIa_l

Initial concentration 0 nmol · l⁻¹

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

$$\frac{d}{dt} \text{APC_PS_VIIIa_l} = v_{47} - v_{48} \quad (195)$$

7.58 Species TFPI_f

Name TFPI_f

Initial concentration 2.5 nmol · l⁻¹

This species takes part in one reaction (as a reactant in R20).

$$\frac{d}{dt} \text{TFPI_f} = -v_{51} \quad (196)$$

7.59 Species AT_f

Name AT_f

Initial concentration 3400 nmol · l⁻¹

This species takes part in five reactions (as a reactant in R22, R23, R24, R29, R32).

$$\frac{d}{dt} \text{AT_f} = -v_{53} - v_{54} - v_{55} - v_{63} - v_{67} \quad (197)$$

7.60 Species IIa_AT_f

Name IIa_AT_f

Initial concentration 0 nmol · l⁻¹

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

$$\frac{d}{dt} \text{IIa_AT_f} = v_{55} \quad (198)$$

7.61 Species TFPI_Xa_l

Name TFPI_Xa_l

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R21 and as a product in R20).

$$\frac{d}{dt} \text{TFPI_Xa_l} = v_{51} - v_{52} \quad (199)$$

7.62 Species TFPI_Xa_TF_VIIa.1

Name TFPI_Xa_TF_VIIa.1

Initial concentration 0 nmol · l⁻¹

This species takes part in one reaction (as a product in [R21](#)).

$$\frac{d}{dt} \text{TFPI_Xa_TF_VIIa.1} = v_{52} \quad (200)$$

7.63 Species APC_PS_Va.1

Name APC_PS_Va.1

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in [R19b](#) and as a product in [R19](#)).

$$\frac{d}{dt} \text{APC_PS_Va.1} = v_{49} - v_{50} \quad (201)$$

7.64 Species IXa_AT_f

Name IXa_AT_f

Initial concentration 0 nmol · l⁻¹

This species takes part in one reaction (as a product in [R22](#)).

$$\frac{d}{dt} \text{IXa_AT_f} = v_{53} \quad (202)$$

7.65 Species Xa_AT_f

Name Xa_AT_f

Initial concentration 0 nmol · l⁻¹

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

$$\frac{d}{dt} \text{Xa_AT_f} = v_{54} \quad (203)$$

7.66 Species VII_Xa.1

Name VII_Xa.1

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in [R16b](#) and as a product in [R16](#)).

$$\frac{d}{dt} \text{VII_Xa.1} = v_{43} - v_{44} \quad (204)$$

7.67 Species V_mIIa_1

Name V_mIIa_1

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

This species takes part in two reactions (as a reactant in [R25b](#) and as a product in [R25](#)).

$$\frac{d}{dt}V_mIIa_1 = v_{56} - v_{57} \quad (205)$$

7.68 Species $VIII_mIIa_1$

Name $VIII_mIIa_1$

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

This species takes part in two reactions (as a reactant in [R26b](#) and as a product in [R26](#)).

$$\frac{d}{dt}VIII_mIIa_1 = v_{58} - v_{59} \quad (206)$$

7.69 Species TM_1

Name TM_1

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

This species takes part in one reaction (as a reactant in [R27](#)).

$$\frac{d}{dt}TM_1 = -v_{60} \quad (207)$$

7.70 Species IIa_TM_1

Name IIa_TM_1

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

This species takes part in three reactions (as a reactant in [R28](#) and as a product in [R27](#), [R28b](#)).

$$\frac{d}{dt}IIa_TM_1 = v_{60} + v_{62} - v_{61} \quad (208)$$

7.71 Species $IIa_TM_PC_1$

Name $IIa_TM_PC_1$

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

This species takes part in two reactions (as a reactant in [R28b](#) and as a product in [R28](#)).

$$\frac{d}{dt}IIa_TM_PC_1 = v_{61} - v_{62} \quad (209)$$

7.72 Species mIIa_AT_1

Name mIIa_AT_1

Initial concentration 0 nmol · l⁻¹

This species takes part in one reaction (as a product in R29).

$$\frac{d}{dt} \text{mIIa_AT_1} = v_{63} \quad (210)$$

7.73 Species XIa_IX_1

Name XIa_IX_1

Initial concentration 0 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R31b and as a product in R31).

$$\frac{d}{dt} \text{XIa_IX_1} = v_{65} - v_{66} \quad (211)$$

7.74 Species LIPID

Name LIPID

Initial concentration 170000 nmol · l⁻¹

This species takes part in 18 reactions (as a reactant in LB1, LB2, LB3, LB4, LB5, LB6, LB7, LB8, LB9, LB10, LB11, LB12, LB13, LB14, LB15, LB16, LB17 and as a product in R15b).

$$\begin{aligned} \frac{d}{dt} \text{LIPID} = & 100 v_{42} - 100 v_1 - 100 v_2 - 100 v_3 - 100 v_4 - 100 v_5 \\ & - 100 v_6 - 100 v_7 - 100 v_8 - 100 v_9 - 100 v_{10} - 100 v_{11} \\ & - 100 v_{12} - 100 v_{13} - 100 v_{14} - 100 v_{15} - 100 v_{16} - 100 v_{17} \end{aligned} \quad (212)$$

7.75 Species alpha2M_1

Name alpha2M_1

Initial concentration 2600 nmol · l⁻¹

This species takes part in two reactions (as a reactant in R33, R34).

$$\frac{d}{dt} \text{alpha2M_1} = -v_{68} - v_{69} \quad (213)$$

7.76 Species `alpha2M_Ia.l`

Name `alpha2M_Ia.l`

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

This species takes part in one reaction (as a product in [R33](#)).

$$\frac{d}{dt}\text{alpha2M_Ia.l} = v_{68} \quad (214)$$

7.77 Species `alpha2M_Xa.l`

Name `alpha2M_Xa.l`

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

This species takes part in one reaction (as a product in [R34](#)).

$$\frac{d}{dt}\text{alpha2M_Xa.l} = v_{69} \quad (215)$$

7.78 Species `AT_XIa.l`

Name `AT_XIa.l`

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

This species takes part in one reaction (as a product in [R32](#)).

$$\frac{d}{dt}\text{AT_XIa.l} = v_{67} \quad (216)$$

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