

SBML Model Report

Model identifier: “untitled”



July 2, 2015

1 General Overview

This is a document in SBML Level 2 Version 4 format. Table 1 shows an overview of the quantities of all components of this model.

Table 1: The SBML components in this model.
All components are described in more detail in the following sections.

Element	Quantity	Element	Quantity
compartment types	0	compartments	1
species types	0	species	3
events	0	constraints	0
reactions	0	function definitions	0
global parameters	11	unit definitions	10
rules	4	initial assignments	0

2 Unit Definitions

This is an overview of ten unit definitions.

2.1 Unit substance

Name substance

Definition mol

2.2 Unit volume

Name volume

Definition l

2.3 Unit area

Name area

Definition m²

2.4 Unit length

Name length

Definition m

2.5 Unit time

Name time

Definition s

2.6 Unit nm

Name nm

Definition nm

2.7 Unit mM

Name mM

Definition mmol·l⁻¹

2.8 Unit msec

Name msec

Definition ms

2.9 Unit C_permol

Name C_permol

Definition C·mol⁻¹

2.10 Unit microm3

Name microm3

Definition μm^3

3 Compartment

This model contains one compartment.

Table 2: Properties of all compartments.

Id	Name	SBO	Spatial Dimensions	Size	Unit	Constant	Outside
default			3	1	litre	<input checked="" type="checkbox"/>	

3.1 Compartment default

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

4 Species

This model contains three species. The boundary condition of three of these species is set to `true` so that these species' amount cannot be changed by any reaction. Section ?? 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
Ica_VDCCN	Ica_VDCCN	default	mol	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ica_VDCCL	Ica_VDCCL	default	mol	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ica_nAchR	Ica_nAchR	default	mol	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5 Parameters

This model contains eleven global parameters.

Table 4: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
farraday	farraday		96480.000	C · mol ⁻¹	<input checked="" type="checkbox"/>
Ca_res	Ca_res		10 ⁻⁴	mmol · l ⁻¹	<input checked="" type="checkbox"/>
tauCa	tauCa		0.500	ms	<input checked="" type="checkbox"/>
KfactorN	kfactor		1.000	dimensionless	<input checked="" type="checkbox"/>
volumePre	volumePre		0.100	μm ³	<input checked="" type="checkbox"/>
ConcCaFromVDCCL	ConcCaFromVDCCL		0.000	mmol · l ⁻¹	<input type="checkbox"/>
ConcCaFromVDCCN	ConcCaFromVDCCN		0.000	mmol · l ⁻¹	<input type="checkbox"/>
ConcCaFromnAchR	ConcCaFromnAchR		0.000	mmol · l ⁻¹	<input type="checkbox"/>
KfactorL	kfactorL		1.000	dimensionless	<input checked="" type="checkbox"/>
KfactornAchR	kfactornAchR		1.000	dimensionless	<input checked="" type="checkbox"/>
Conc_Ca_Pre2	Conc_Ca_Pre2		0.000	mmol · l ⁻¹	<input type="checkbox"/>

6 Rules

This is an overview of four rules.

6.1 Rule 1

Rule is an assignment rule for parameter ConcCaFromVDCCN:

$$\text{ConcCaFromVDCCN} = \frac{(-I_{ca_VDCCN}) \cdot 1 \cdot 10^{-12}}{2 \cdot \text{farraday} \cdot \text{KfactorN} \cdot \text{volumePre} \cdot 1 \cdot 10^{-15}} \quad (1)$$

6.2 Rule 2

Rule is an assignment rule for parameter ConcCaFromVDCCL:

$$\text{ConcCaFromVDCCL} = \frac{(-I_{ca_VDCCL}) \cdot 1 \cdot 10^{-12}}{2 \cdot \text{farraday} \cdot \text{KfactorL} \cdot \text{volumePre} \cdot 1 \cdot 10^{-15}} \quad (2)$$

6.3 Rule 3

Rule is an assignment rule for parameter ConcCaFromnAchR:

$$\text{ConcCaFromnAchR} = \frac{(-I_{ca_nAchR}) \cdot 1 \cdot 10^{-12}}{2 \cdot \text{farraday} \cdot \text{KfactornAchR} \cdot \text{volumePre} \cdot 1 \cdot 10^{-15}} \quad (3)$$

6.4 Rule 4

Rule is a rate rule for parameter `Conc_Ca_Pre2`:

$$\begin{aligned} \frac{d}{dt} \text{Conc_Ca_Pre2} = & \text{ConcCaFromVDCCL} + \text{ConcCaFromVDCCN} \\ & + \text{ConcCaFromnAchR} - \frac{\text{Conc_Ca_Pre2} - \text{Ca_res}}{\text{tauCa}} \end{aligned} \quad (4)$$

Derived unit invalid

References

Dräger, A., Planatscher, H., Wouamba, D. M., Schröder, A., Hucka, M., Endler, L., Golebiewski, M., Müller, W., and Zell, A. (2009). `SBML2LATEX`: Conversion of SBML files into human-readable reports. *Bioinformatics*, **25**(11), 1455–1456. [10.1093/bioinformatics/btp170](https://doi.org/10.1093/bioinformatics/btp170).