

SBML Model Report

Model name: “Capuani2015 - Binding of Cbl and Gbr2 to EGFR (Multisite Phosphorylation Model - MPM)”



May 6, 2016

1 General Overview

This is a document in SBML Level 2 Version 4 format. This model was created by the following two authors: Fabrizio Capuani¹ and Alastair Hume² at February tenth 2016 at 2:07 p. m. and last time modified at April 19th 2016 at 9:55 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	33
events	0	constraints	0
reactions	120	function definitions	0
global parameters	32	unit definitions	0
rules	19	initial assignments	0

2 Unit Definitions

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

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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.

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

3.1 Compartment cell

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

Name cell

4 Species

This model contains 33 species. Section 8 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
Cbl	Cbl	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
Grb2	Grb2	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
CG	CG	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
Tyr	Tyr	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
Ub	Ub	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
TyrNorm	TyrNorm	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
UbNorm	UbNorm	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_00UU	EGFR_00UU	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_10UU	EGFR_10UU	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_10CU	EGFR_10CU	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_10LU	EGFR_10LU	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_01UU	EGFR_01UU	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_01UG	EGFR_01UG	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_01UL	EGFR_01UL	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_11UU	EGFR_11UU	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_11CU	EGFR_11CU	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_11LU	EGFR_11LU	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_11UG	EGFR_11UG	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_11UL	EGFR_11UL	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_11CG	EGFR_11CG	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_11CC	EGFR_11CC	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square
EGFR_11LG	EGFR_11LG	cell	$\text{mol} \cdot \text{l}^{-1}$	\square	\square

Id	Name	Compartment	Derived Unit	Constant	Boundary Condi- tion
EGFR_02UU	EGFR_02UU	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_02UG	EGFR_02UG	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_02UL	EGFR_02UL	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_12UU	EGFR_12UU	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_12CU	EGFR_12CU	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_12LU	EGFR_12LU	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_12UG	EGFR_12UG	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_12UL	EGFR_12UL	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_12CG	EGFR_12CG	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_12CC	EGFR_12CC	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>
EGFR_12LG	EGFR_12LG	cell	$\text{mol} \cdot \text{l}^{-1}$	<input type="checkbox"/>	<input type="checkbox"/>

5 Parameters

This model contains 32 global parameters.

Table 4: Properties of each parameter.

Id	Name	SBO	Value	Unit	Constant
K45P	K45P		0.000		<input type="checkbox"/>
KcgP	KcgP		0.000		<input type="checkbox"/>
kptp68	kptp68		0.000		<input type="checkbox"/>
kkin	kkin		0.000		<input type="checkbox"/>
kkin68	kkin68		0.000		<input type="checkbox"/>
kb45	kb45		0.000		<input type="checkbox"/>
ku45M	ku45M		0.000		<input type="checkbox"/>
kb45P	kb45P		0.000		<input type="checkbox"/>
kb68	kb68		0.000		<input type="checkbox"/>
ku68	ku68		0.000		<input type="checkbox"/>
kb68P	kb68P		0.000		<input type="checkbox"/>
ku68M	ku68M		0.000		<input type="checkbox"/>
kbcg	kbcg		0.000		<input type="checkbox"/>
kbcgP	kbcgP		0.000		<input type="checkbox"/>
kucgM	kucgM		0.000		<input type="checkbox"/>
Ltot	Ltot		0.000		<input checked="" type="checkbox"/>
RT	RT		0.833		<input checked="" type="checkbox"/>
CblT	CblT		0.015		<input checked="" type="checkbox"/>
Grb2T	Grb2T		3.320		<input checked="" type="checkbox"/>
kptp	kptp		0.016		<input checked="" type="checkbox"/>
kkinbase	kkinbase		0.076		<input checked="" type="checkbox"/>
nH	nH		1.130		<input checked="" type="checkbox"/>
xT	xT		4.592		<input checked="" type="checkbox"/>
K45	K45		0.201		<input checked="" type="checkbox"/>
Kcg	Kcg		0.006		<input checked="" type="checkbox"/>
ku45	ku45		0.001		<input checked="" type="checkbox"/>
kucg	kucg		0.309		<input checked="" type="checkbox"/>
PYMax	PYMax		2.279		<input checked="" type="checkbox"/>
UbMax	UbMax		0.014		<input checked="" type="checkbox"/>
floc	floc		20000.000		<input checked="" type="checkbox"/>
CblWT	CblWT		0.015		<input checked="" type="checkbox"/>
CblFactor	CblFactor		1.000		<input checked="" type="checkbox"/>

6 Rules

This is an overview of 19 rules.

6.1 Rule `kkin`

Rule `kkin` is an assignment rule for parameter `kkin`:

$$kkin = kkinbase \cdot \frac{Ltot^{nH}}{Ltot^{nH} + xT^{nH}} \quad (1)$$

6.2 Rule `K45P`

Rule `K45P` is an assignment rule for parameter `K45P`:

$$K45P = \frac{K45}{floc} \quad (2)$$

6.3 Rule `KcgP`

Rule `KcgP` is an assignment rule for parameter `KcgP`:

$$KcgP = \frac{Kcg}{floc} \quad (3)$$

6.4 Rule `kkin68`

Rule `kkin68` is an assignment rule for parameter `kkin68`:

$$kkin68 = kkin \quad (4)$$

6.5 Rule `kptp68`

Rule `kptp68` is an assignment rule for parameter `kptp68`:

$$kptp68 = kptp \quad (5)$$

6.6 Rule `kb45`

Rule `kb45` is an assignment rule for parameter `kb45`:

$$kb45 = \frac{ku45}{K45} \quad (6)$$

6.7 Rule `kb68`

Rule `kb68` is an assignment rule for parameter `kb68`:

$$kb68 = kb45 \quad (7)$$

6.8 Rule ku68

Rule ku68 is an assignment rule for parameter ku68 :

$$\text{ku68} = \text{ku45} \quad (8)$$

6.9 Rule kbcg

Rule kbcg is an assignment rule for parameter kbcg :

$$\text{kbcg} = \frac{\text{kucg}}{\text{Kcg}} \quad (9)$$

6.10 Rule ku45M

Rule ku45M is an assignment rule for parameter ku45M :

$$\text{ku45M} = \text{ku45} \quad (10)$$

6.11 Rule kb45P

Rule kb45P is an assignment rule for parameter kb45P :

$$\text{kb45P} = \frac{\text{ku45M}}{\text{K45P}} \quad (11)$$

6.12 Rule kb68P

Rule kb68P is an assignment rule for parameter kb68P :

$$\text{kb68P} = \text{kb45P} \quad (12)$$

6.13 Rule ku68M

Rule ku68M is an assignment rule for parameter ku68M :

$$\text{ku68M} = \text{ku45M} \quad (13)$$

6.14 Rule kucgM

Rule kucgM is an assignment rule for parameter kucgM :

$$\text{kucgM} = \text{kucg} \quad (14)$$

6.15 Rule kbcgP

Rule kbcgP is an assignment rule for parameter kbcgP :

$$\text{kbcgP} = \frac{\text{kucgM}}{\text{KcgP}} \quad (15)$$

6.16 Rule Tyr

Rule Tyr is an assignment rule for species Tyr:

$$\begin{aligned} \text{Tyr} = & [\text{EGFR_10UU}] + [\text{EGFR_10CU}] + [\text{EGFR_10LU}] + 1 \\ & \cdot ([\text{EGFR_01UU}] + [\text{EGFR_01UG}] + [\text{EGFR_01UL}]) + 2 \\ & \cdot ([\text{EGFR_11UU}] + [\text{EGFR_11CU}] + [\text{EGFR_11LU}] + [\text{EGFR_11UG}] + [\text{EGFR_11UL}] \\ & \quad + [\text{EGFR_11CG}] + [\text{EGFR_11CC}] + [\text{EGFR_11LG}]) \\ & + 2 \cdot ([\text{EGFR_02UU}] + [\text{EGFR_02UG}] + [\text{EGFR_02UL}]) + 3 \\ & \cdot ([\text{EGFR_12UU}] + [\text{EGFR_12CU}] + [\text{EGFR_12LU}] + [\text{EGFR_12UG}] + [\text{EGFR_12UL}] \\ & \quad + [\text{EGFR_12CG}] + [\text{EGFR_12CC}] + [\text{EGFR_12LG}]) \end{aligned} \quad (16)$$

6.17 Rule Ub

Rule Ub is an assignment rule for species Ub:

$$\begin{aligned} \text{Ub} = & [\text{EGFR_11CC}] + [\text{EGFR_12CC}] + [\text{EGFR_10CU}] + [\text{EGFR_11CU}] \\ & + [\text{EGFR_12CU}] + [\text{EGFR_10LU}] + [\text{EGFR_11LU}] + [\text{EGFR_12LU}] \\ & + [\text{EGFR_11CG}] + [\text{EGFR_12CG}] + [\text{EGFR_11LG}] + [\text{EGFR_12LG}] \end{aligned} \quad (17)$$

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

6.18 Rule TyrNorm

Rule TyrNorm is an assignment rule for species TyrNorm:

$$\text{TyrNorm} = \frac{[\text{Tyr}]}{\text{PYMax}} \quad (18)$$

6.19 Rule UbNorm

Rule UbNorm is an assignment rule for species UbNorm:

$$\text{UbNorm} = \frac{[\text{Ub}]}{\text{UbMax} \cdot \text{CblFactor}} \quad (19)$$

7 Reactions

This model contains 120 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	r1	EGFR_10UU has site Y1045 dephosphorylated	$\text{EGFR_10UU} \xrightleftharpoons{\text{EGFR_10UU}} \text{EGFR_00UU}$	
2	r2	EGFR_01UU has site Y1068/Y1086 dephosphorylated	$\text{EGFR_01UU} \xrightleftharpoons{\text{EGFR_01UU}} \text{EGFR_00UU}$	
3	r3	EGFR_11UU has site Y1045 dephosphorylated	$\text{EGFR_11UU} \xrightleftharpoons{\text{EGFR_11UU}} \text{EGFR_01UU}$	
4	r4	EGFR_11UU has site Y1068/Y1086 dephosphorylated	$\text{EGFR_11UU} \xrightleftharpoons{\text{EGFR_11UU}} \text{EGFR_10UU}$	
5	r5	EGFR_11CU has site Y1068/Y1086 dephosphorylated	$\text{EGFR_11CU} \xrightleftharpoons{\text{EGFR_11CU}} \text{EGFR_10CU}$	
6	r6	EGFR_11LU has site Y1068/Y1086 dephosphorylated	$\text{EGFR_11LU} \xrightleftharpoons{\text{EGFR_11LU}} \text{EGFR_10LU}$	
7	r7	EGFR_11UG has site Y1045 dephosphorylated	$\text{EGFR_11UG} \xrightleftharpoons{\text{EGFR_11UG}} \text{EGFR_01UG}$	
8	r8	EGFR_11UL has site Y1045 dephosphorylated	$\text{EGFR_11UL} \xrightleftharpoons{\text{EGFR_11UL}} \text{EGFR_01UL}$	
9	r9	EGFR_02UU has site Y1068/Y1086 dephosphorylated	$\text{EGFR_02UU} \xrightleftharpoons{\text{EGFR_02UU}} \text{EGFR_01UU}$	

Nº	Id	Name	Reaction Equation	SBO
10	r10	EGFR_02UG has site Y1068/Y1-86 dephosphorylated	$\text{EGFR_02UG} \xrightleftharpoons{\text{EGFR_02UG}} \text{EGFR_01UG}$	
11	r11	EGFR_02UL has site Y1068/Y1-86 dephosphorylated	$\text{EGFR_02UL} \xrightleftharpoons{\text{EGFR_02UL}} \text{EGFR_01UL}$	
12	r12	EGFR_12UU has site Y1045 dephosphorylated	$\text{EGFR_12UU} \xrightleftharpoons{\text{EGFR_12UU}} \text{EGFR_02UU}$	
13	r13	EGFR_12UU has site Y1068/Y1086 dephosphorylated	$\text{EGFR_12UU} \xrightleftharpoons{\text{EGFR_12UU}} \text{EGFR_11UU}$	
14	r14	EGFR_12CU has site Y1068/Y1086 dephosphorylated	$\text{EGFR_12CU} \xrightleftharpoons{\text{EGFR_12CU}} \text{EGFR_11CU}$	
15	r15	EGFR_12LU has site Y1068/Y1086 dephosphorylated	$\text{EGFR_12LU} \xrightleftharpoons{\text{EGFR_12LU}} \text{EGFR_11LU}$	
16	r16	EGFR_12UG has site Y1045 dephosphorylated	$\text{EGFR_12UG} \xrightleftharpoons{\text{EGFR_12UG}} \text{EGFR_02UG}$	
17	r17	EGFR_12UG has site Y1068/Y1-86 dephosphorylated	$\text{EGFR_12UG} \xrightleftharpoons{\text{EGFR_12UG}} \text{EGFR_11UG}$	
18	r18	EGFR_12UL has site Y1045 dephosphorylated	$\text{EGFR_12UL} \xrightleftharpoons{\text{EGFR_12UL}} \text{EGFR_02UL}$	
19	r19	EGFR_12UL has site Y1068/Y1-86 dephosphorylated	$\text{EGFR_12UL} \xrightleftharpoons{\text{EGFR_12UL}} \text{EGFR_11UL}$	
20	r20	EGFR_12CG has site Y1068/Y1-86 dephosphorylated	$\text{EGFR_12CG} \xrightleftharpoons{\text{EGFR_12CG}} \text{EGFR_11CG}$	
21	r21	EGFR_12CC has site Y1068/Y1-86 dephosphorylated	$\text{EGFR_12CC} \xrightleftharpoons{\text{EGFR_12CC}} \text{EGFR_11CC}$	

Nº	Id	Name	Reaction Equation	SBO
22	r22	EGFR_12LG has site Y1068/Y1-86 dephosphorylated	$\text{EGFR_12LG} \xrightleftharpoons{\text{EGFR_12LG}} \text{EGFR_11LG}$	
23	r23	EGFR_00UU has site Y1045 phosphorylated	$\text{EGFR_00UU} \xrightleftharpoons{\text{EGFR_00UU}} \text{EGFR_10UU}$	
24	r24	EGFR_00UU has site Y1068/Y1086 phosphorylated	$\text{EGFR_00UU} \xrightleftharpoons{\text{EGFR_00UU}} \text{EGFR_01UU}$	
25	r25	EGFR_10UU has site Y1068/Y1086 phosphorylated	$\text{EGFR_10UU} \xrightleftharpoons{\text{EGFR_10UU}} \text{EGFR_11UU}$	
26	r26	EGFR_10CU has site Y1068/Y1086 phosphorylated	$\text{EGFR_10CU} \xrightleftharpoons{\text{EGFR_10CU}} \text{EGFR_11CU}$	
27	r27	EGFR_10LU has site Y1068/Y1086 phosphorylated	$\text{EGFR_10LU} \xrightleftharpoons{\text{EGFR_10LU}} \text{EGFR_11LU}$	
28	r28	EGFR_01UU has site Y1045 phosphorylated	$\text{EGFR_01UU} \xrightleftharpoons{\text{EGFR_01UU}} \text{EGFR_11UU}$	
29	r29	EGFR_01UU has site Y1068/Y1086 phosphorylated	$\text{EGFR_01UU} \xrightleftharpoons{\text{EGFR_01UU}} \text{EGFR_02UU}$	
30	r30	EGFR_01UG has site Y1045 phosphorylated	$\text{EGFR_01UG} \xrightleftharpoons{\text{EGFR_01UG}} \text{EGFR_11UG}$	
31	r31	EGFR_01UG has site Y1068/Y1086 phosphorylated	$\text{EGFR_01UG} \xrightleftharpoons{\text{EGFR_01UG}} \text{EGFR_02UG}$	
32	r32	EGFR_01UL has site Y1045 phosphorylated	$\text{EGFR_01UL} \xrightleftharpoons{\text{EGFR_01UL}} \text{EGFR_11UL}$	
33	r33	EGFR_01UL has site Y1068/Y1086 phosphorylated	$\text{EGFR_01UL} \xrightleftharpoons{\text{EGFR_01UL}} \text{EGFR_02UL}$	
34	r34	EGFR_11UU has site Y1068/Y1086 phosphorylated	$\text{EGFR_11UU} \xrightleftharpoons{\text{EGFR_11UU}} \text{EGFR_12UU}$	

Nº	Id	Name	Reaction Equation	SBO
35	r35	EGFR_11CU has site Y1068/Y1086 phosphorylated	$\text{EGFR_11CU} \xrightleftharpoons{\text{EGFR_11CU}} \text{EGFR_12CU}$	
36	r36	EGFR_11LU has site Y1068/Y1086 phosphorylated	$\text{EGFR_11LU} \xrightleftharpoons{\text{EGFR_11LU}} \text{EGFR_12LU}$	
37	r37	EGFR_11UG has site Y1068/Y1086 phosphorylated	$\text{EGFR_11UG} \xrightleftharpoons{\text{EGFR_11UG}} \text{EGFR_12UG}$	
38	r38	EGFR_11UL has site Y1068/Y1086 phosphorylated	$\text{EGFR_11UL} \xrightleftharpoons{\text{EGFR_11UL}} \text{EGFR_12UL}$	
39	r39	EGFR_11CG has site Y1068/Y1086 phosphorylated	$\text{EGFR_11CG} \xrightleftharpoons{\text{EGFR_11CG}} \text{EGFR_12CG}$	
40	r40	EGFR_11CC has site Y1068/Y1086 phosphorylated	$\text{EGFR_11CC} \xrightleftharpoons{\text{EGFR_11CC}} \text{EGFR_12CC}$	
41	r41	EGFR_11LG has site Y1068/Y1086 phosphorylated	$\text{EGFR_11LG} \xrightleftharpoons{\text{EGFR_11LG}} \text{EGFR_12LG}$	
42	r42	EGFR_02UU has site Y1045 phosphorylated	$\text{EGFR_02UU} \xrightleftharpoons{\text{EGFR_02UU}} \text{EGFR_12UU}$	
43	r43	EGFR_02UG has site Y1045 phosphorylated	$\text{EGFR_02UG} \xrightleftharpoons{\text{EGFR_02UG}} \text{EGFR_12UG}$	
44	r44	EGFR_02UL has site Y1045 phosphorylated	$\text{EGFR_02UL} \xrightleftharpoons{\text{EGFR_02UL}} \text{EGFR_12UL}$	
45	r45	Cbl and Grb2 bind yielding CG	$\text{Cbl} + \text{Grb2} \xrightleftharpoons{\text{Cbl, Grb2}} \text{CG}$	
46	r46	CG dissociates to Cbl and Grb2	$\text{CG} \xrightleftharpoons{\text{CG}} \text{Cbl} + \text{Grb2}$	
47	r47	Cbl and EGFR_10UU bind yielding EGFR_10CU	$\text{Cbl} + \text{EGFR_10UU} \xrightleftharpoons{\text{Cbl, EGFR_10UU}} \text{EGFR_10CU}$	
48	r48	EGFR_10CU dissociates to Cbl and EGFR_10UU	$\text{EGFR_10CU} \xrightleftharpoons{\text{EGFR_10CU}} \text{Cbl} + \text{EGFR_10UU}$	

Nº	Id	Name	Reaction Equation	SBO
49	r49	CG and EGFR_10UU bind yielding EGFR_10LU	$CG + EGFR_10UU \xrightleftharpoons{CG, EGFR_10UU} EGFR_10LU$	
50	r50	EGFR_10LU dissociates to CG and EGFR_10UU	$EGFR_10LU \xrightleftharpoons{EGFR_10LU} CG + EGFR_10UU$	
51	r51	Grb2 and EGFR_10CU bind yielding EGFR_10LU	$Grb2 + EGFR_10CU \xrightleftharpoons{Grb2, EGFR_10CU} EGFR_10LU$	
52	r52	EGFR_10LU dissociates to Grb2 and EGFR_10CU	$EGFR_10LU \xrightleftharpoons{EGFR_10LU} Grb2 + EGFR_10CU$	
53	r53	Grb2 and EGFR_01UU bind yielding EGFR_01UG	$Grb2 + EGFR_01UU \xrightleftharpoons{Grb2, EGFR_01UU} EGFR_01UG$	
54	r54	EGFR_01UG dissociates to Grb2 and EGFR_01UU	$EGFR_01UG \xrightleftharpoons{EGFR_01UG} Grb2 + EGFR_01UU$	
55	r55	CG and EGFR_01UU bind yielding EGFR_01UL	$CG + EGFR_01UU \xrightleftharpoons{CG, EGFR_01UU} EGFR_01UL$	
56	r56	EGFR_01UL dissociates to CG and EGFR_01UU	$EGFR_01UL \xrightleftharpoons{EGFR_01UL} CG + EGFR_01UU$	
57	r57	Cbl and EGFR_01UG bind yielding EGFR_01UL	$Cbl + EGFR_01UG \xrightleftharpoons{Cbl, EGFR_01UG} EGFR_01UL$	
58	r58	EGFR_01UL dissociates to Cbl and EGFR_01UG	$EGFR_01UL \xrightleftharpoons{EGFR_01UL} Cbl + EGFR_01UG$	
59	r59	Cbl and EGFR_11UU bind yielding EGFR_11CU	$Cbl + EGFR_11UU \xrightleftharpoons{Cbl, EGFR_11UU} EGFR_11CU$	

Nº	Id	Name	Reaction Equation	SBO
60	r60	EGFR_11CU dissociates to Cbl and EGFR_11UU	$\text{EGFR_11CU} \xrightleftharpoons{\text{EGFR_11CU}} \text{Cbl} + \text{EGFR_11UU}$	
61	r61	CG and EGFR_11UU bind yielding EGFR_11LU	$\text{CG} + \text{EGFR_11UU} \xrightleftharpoons{\text{CG, EGFR_11UU}} \text{EGFR_11LU}$	
62	r62	EGFR_11LU dissociates to CG and EGFR_11UU	$\text{EGFR_11LU} \xrightleftharpoons{\text{EGFR_11LU}} \text{CG} + \text{EGFR_11UU}$	
63	r63	Grb2 and EGFR_11UU bind yielding EGFR_11UG	$\text{Grb2} + \text{EGFR_11UU} \xrightleftharpoons{\text{Grb2, EGFR_11UU}} \text{EGFR_11UG}$	
64	r64	EGFR_11UG dissociates to Grb2 and EGFR_11UU	$\text{EGFR_11UG} \xrightleftharpoons{\text{EGFR_11UG}} \text{Grb2} + \text{EGFR_11UU}$	
65	r65	CG and EGFR_11UU bind yielding EGFR_11UL	$\text{CG} + \text{EGFR_11UU} \xrightleftharpoons{\text{CG, EGFR_11UU}} \text{EGFR_11UL}$	
66	r66	EGFR_11UL dissociates to CG and EGFR_11UU	$\text{EGFR_11UL} \xrightleftharpoons{\text{EGFR_11UL}} \text{CG} + \text{EGFR_11UU}$	
67	r67	Grb2 and EGFR_11CU bind yielding EGFR_11LU	$\text{Grb2} + \text{EGFR_11CU} \xrightleftharpoons{\text{Grb2, EGFR_11CU}} \text{EGFR_11LU}$	
68	r68	EGFR_11LU dissociates to Grb2 and EGFR_11CU	$\text{EGFR_11LU} \xrightleftharpoons{\text{EGFR_11LU}} \text{Grb2} + \text{EGFR_11CU}$	
69	r69	Grb2 and EGFR_11CU bind yielding EGFR_11CG	$\text{Grb2} + \text{EGFR_11CU} \xrightleftharpoons{\text{Grb2, EGFR_11CU}} \text{EGFR_11CG}$	
70	r70	EGFR_11CG dissociates to Grb2 and EGFR_11CU	$\text{EGFR_11CG} \xrightleftharpoons{\text{EGFR_11CG}} \text{Grb2} + \text{EGFR_11CU}$	

Nº	Id	Name	Reaction Equation	SBO
71	r71	Grb2 and EGFR_11LU bind yielding EGFR_11LG	$\text{Grb2} + \text{EGFR_11LU} \xrightleftharpoons{\text{Grb2, EGFR_11LU}} \text{EGFR_11LG}$	
72	r72	EGFR_11LG dissociates to Grb2 and EGFR_11LU	$\text{EGFR_11LG} \xrightleftharpoons{\text{EGFR_11LG}} \text{Grb2} + \text{EGFR_11LU}$	
73	r73	EGFR_11LU transforms in (singly-bound -> doubly-bound) EGFR_11CC	$\text{EGFR_11LU} \xrightleftharpoons{\text{EGFR_11LU}} \text{EGFR_11CC}$	
74	r74	EGFR_11CC tranforms in (doubly-bound -> singly-bound) EGFR_11LU	$\text{EGFR_11CC} \xrightleftharpoons{\text{EGFR_11CC}} \text{EGFR_11LU}$	
75	r75	Cbl and EGFR_11UG bind yielding EGFR_11CG	$\text{Cbl} + \text{EGFR_11UG} \xrightleftharpoons{\text{Cbl, EGFR_11UG}} \text{EGFR_11CG}$	
76	r76	EGFR_11CG dissociates to Cbl and EGFR_11UG	$\text{EGFR_11CG} \xrightleftharpoons{\text{EGFR_11CG}} \text{Cbl} + \text{EGFR_11UG}$	
77	r77	CG and EGFR_11UG bind yielding EGFR_11LG	$\text{CG} + \text{EGFR_11UG} \xrightleftharpoons{\text{CG, EGFR_11UG}} \text{EGFR_11LG}$	
78	r78	EGFR_11LG dissociates to CG and EGFR_11UG	$\text{EGFR_11LG} \xrightleftharpoons{\text{EGFR_11LG}} \text{CG} + \text{EGFR_11UG}$	
79	r79	Cbl and EGFR_11UG bind yielding EGFR_11UL	$\text{Cbl} + \text{EGFR_11UG} \xrightleftharpoons{\text{Cbl, EGFR_11UG}} \text{EGFR_11UL}$	
80	r80	EGFR_11UL dissociates to Cbl and EGFR_11UG	$\text{EGFR_11UL} \xrightleftharpoons{\text{EGFR_11UL}} \text{Cbl} + \text{EGFR_11UG}$	
81	r81	EGFR_11UL transforms in (singly-bound -> doubly-bound) EGFR_11CC	$\text{EGFR_11UL} \xrightleftharpoons{\text{EGFR_11UL}} \text{EGFR_11CC}$	

Nº	Id	Name	Reaction Equation	SBO
82	r82	EGFR_11CC tranforms in (doubly-bound -> singly-bound) EGFR_11UL	$\text{EGFR_11CC} \xrightleftharpoons{\text{EGFR_11CC}} \text{EGFR_11UL}$	
83	r83	EGFR_11CG transforms in (Cbl bind Grb2 directly) EGFR_11CC	$\text{EGFR_11CG} \xrightleftharpoons{\text{EGFR_11CG}} \text{EGFR_11CC}$	
84	r84	EGFR_11CC tranforms in (Cbl-Grb2 loose direct binding, but stay bound to EGFR) EGFR_11CG	$\text{EGFR_11CC} \xrightleftharpoons{\text{EGFR_11CC}} \text{EGFR_11CG}$	
85	r85	Grb2 and EGFR_11CG bind yielding EGFR_11LG	$\text{Grb2} + \text{EGFR_11CG} \xrightleftharpoons{\text{Grb2, EGFR_11CG}} \text{EGFR_11LG}$	
86	r86	EGFR_11LG dissociates to Grb2 and EGFR_11CG	$\text{EGFR_11LG} \xrightleftharpoons{\text{EGFR_11LG}} \text{Grb2} + \text{EGFR_11CG}$	
87	r87	Grb2 and EGFR_02UU bind yielding EGFR_02UG	$\text{Grb2} + \text{EGFR_02UU} \xrightleftharpoons{\text{Grb2, EGFR_02UU}} \text{EGFR_02UG}$	
88	r88	EGFR_02UG dissociates to Grb2 and EGFR_02UU	$\text{EGFR_02UG} \xrightleftharpoons{\text{EGFR_02UG}} \text{Grb2} + \text{EGFR_02UU}$	
89	r89	CG and EGFR_02UU bind yielding EGFR_02UL	$\text{CG} + \text{EGFR_02UU} \xrightleftharpoons{\text{CG, EGFR_02UU}} \text{EGFR_02UL}$	
90	r90	EGFR_02UL dissociates to CG and EGFR_02UU	$\text{EGFR_02UL} \xrightleftharpoons{\text{EGFR_02UL}} \text{CG} + \text{EGFR_02UU}$	
91	r91	Cbl and EGFR_02UG bind yielding EGFR_02UL	$\text{Cbl} + \text{EGFR_02UG} \xrightleftharpoons{\text{Cbl, EGFR_02UG}} \text{EGFR_02UL}$	
92	r92	EGFR_02UL dissociates to Cbl and EGFR_02UG	$\text{EGFR_02UL} \xrightleftharpoons{\text{EGFR_02UL}} \text{Cbl} + \text{EGFR_02UG}$	

Nº	Id	Name	Reaction Equation	SBO
93	r93	Cbl and EGFR_12UU bind yielding EGFR_12CU	$\text{Cbl} + \text{EGFR_12UU} \xrightleftharpoons{\text{Cbl, EGFR_12UU}} \text{EGFR_12CU}$	
94	r94	EGFR_12CU dissociates to Cbl and EGFR_12UU	$\text{EGFR_12CU} \xrightleftharpoons{\text{EGFR_12CU}} \text{Cbl} + \text{EGFR_12UU}$	
95	r95	CG and EGFR_12UU bind yielding EGFR_12LU	$\text{CG} + \text{EGFR_12UU} \xrightleftharpoons{\text{CG, EGFR_12UU}} \text{EGFR_12LU}$	
96	r96	EGFR_12LU dissociates to CG and EGFR_12UU	$\text{EGFR_12LU} \xrightleftharpoons{\text{EGFR_12LU}} \text{CG} + \text{EGFR_12UU}$	
97	r97	Grb2 and EGFR_12UU bind yielding EGFR_12UG	$\text{Grb2} + \text{EGFR_12UU} \xrightleftharpoons{\text{Grb2, EGFR_12UU}} \text{EGFR_12UG}$	
98	r98	EGFR_12UG dissociates to Grb2 and EGFR_12UU	$\text{EGFR_12UG} \xrightleftharpoons{\text{EGFR_12UG}} \text{Grb2} + \text{EGFR_12UU}$	
99	r99	CG and EGFR_12UU bind yielding EGFR_12UL	$\text{CG} + \text{EGFR_12UU} \xrightleftharpoons{\text{CG, EGFR_12UU}} \text{EGFR_12UL}$	
100	r100	EGFR_12UL dissociates to CG and EGFR_12UU	$\text{EGFR_12UL} \xrightleftharpoons{\text{EGFR_12UL}} \text{CG} + \text{EGFR_12UU}$	
101	r101	Grb2 and EGFR_12CU bind yielding EGFR_12LU	$\text{Grb2} + \text{EGFR_12CU} \xrightleftharpoons{\text{Grb2, EGFR_12CU}} \text{EGFR_12LU}$	
102	r102	EGFR_12LU dissociates to Grb2 and EGFR_12CU	$\text{EGFR_12LU} \xrightleftharpoons{\text{EGFR_12LU}} \text{Grb2} + \text{EGFR_12CU}$	
103	r103	Grb2 and EGFR_12CU bind yielding EGFR_12CG	$\text{Grb2} + \text{EGFR_12CU} \xrightleftharpoons{\text{Grb2, EGFR_12CU}} \text{EGFR_12CG}$	

Nº	Id	Name	Reaction Equation	SBO
104	r104	EGFR_12CG dissociates to Grb2 and EGFR_12CU	$\text{EGFR_12CG} \xrightleftharpoons{\text{EGFR_12CG}} \text{Grb2} + \text{EGFR_12CU}$	
105	r105	Grb2 and EGFR_12LU bind yielding EGFR_12LG	$\text{Grb2} + \text{EGFR_12LU} \xrightleftharpoons{\text{Grb2, EGFR_12LU}} \text{EGFR_12LG}$	
106	r106	EGFR_12LG dissociates to Grb2 and EGFR_12LU	$\text{EGFR_12LG} \xrightleftharpoons{\text{EGFR_12LG}} \text{Grb2} + \text{EGFR_12LU}$	
107	r107	EGFR_12LU transforms in (singly-bound -> doubly-bound) EGFR_12CC	$\text{EGFR_12LU} \xrightleftharpoons{\text{EGFR_12LU}} \text{EGFR_12CC}$	
108	r108	EGFR_12CC transforms in (doubly-bound -> singly-bound) EGFR_12LU	$\text{EGFR_12CC} \xrightleftharpoons{\text{EGFR_12CC}} \text{EGFR_12LU}$	
109	r109	Cbl and EGFR_12UG bind yielding EGFR_12CG	$\text{Cbl} + \text{EGFR_12UG} \xrightleftharpoons{\text{Cbl, EGFR_12UG}} \text{EGFR_12CG}$	
110	r110	EGFR_12CG dissociates to Cbl and EGFR_12UG	$\text{EGFR_12CG} \xrightleftharpoons{\text{EGFR_12CG}} \text{Cbl} + \text{EGFR_12UG}$	
111	r111	CG and EGFR_12UG bind yielding EGFR_12LG	$\text{CG} + \text{EGFR_12UG} \xrightleftharpoons{\text{CG, EGFR_12UG}} \text{EGFR_12LG}$	
112	r112	EGFR_12LG dissociates to CG and EGFR_12UG	$\text{EGFR_12LG} \xrightleftharpoons{\text{EGFR_12LG}} \text{CG} + \text{EGFR_12UG}$	
113	r113	Cbl and EGFR_12UG bind yielding EGFR_12UL	$\text{Cbl} + \text{EGFR_12UG} \xrightleftharpoons{\text{Cbl, EGFR_12UG}} \text{EGFR_12UL}$	
114	r114	EGFR_12UL dissociates to Cbl and EGFR_12UG	$\text{EGFR_12UL} \xrightleftharpoons{\text{EGFR_12UL}} \text{Cbl} + \text{EGFR_12UG}$	

Nº	Id	Name	Reaction Equation	SBO
115	r115	EGFR_12UL transforms in (singly-bound -> doubly-bound) EGFR_12CC	$\text{EGFR_12UL} \xrightleftharpoons{\text{EGFR_12UL}} \text{EGFR_12CC}$	
116	r116	EGFR_12CC tranforms in (doubly-bound -> singly-bound) EGFR_12UL	$\text{EGFR_12CC} \xrightleftharpoons{\text{EGFR_12CC}} \text{EGFR_12UL}$	
117	r117	EGFR_12CG transforms in (Cbl bind Grb2 directly) EGFR_12CC	$\text{EGFR_12CG} \xrightleftharpoons{\text{EGFR_12CG}} \text{EGFR_12CC}$	
118	r118	EGFR_12CC tranforms in (Cbl-Grb2 loose direct binding, but stay bound to EGFR) EGFR_12CG	$\text{EGFR_12CC} \xrightleftharpoons{\text{EGFR_12CC}} \text{EGFR_12CG}$	
119	r119	Grb2 and EGFR_12CG bind yielding EGFR_12LG	$\text{Grb2} + \text{EGFR_12CG} \xrightleftharpoons{\text{Grb2, EGFR_12CG}} \text{EGFR_12LG}$	
120	r120	EGFR_12LG dissociates to Grb2 and EGFR_12CG	$\text{EGFR_12LG} \xrightleftharpoons{\text{EGFR_12LG}} \text{Grb2} + \text{EGFR_12CG}$	

7.1 Reaction r_1

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

Name EGFR_10UU has site Y1045 dephosphorylated

Reaction equation



Reactant

Table 6: Properties of each reactant.

Id	Name	SBO
EGFR_10UU	EGFR_10UU	

Modifier

Table 7: Properties of each modifier.

Id	Name	SBO
EGFR_10UU	EGFR_10UU	

Product

Table 8: Properties of each product.

Id	Name	SBO
EGFR_00UU	EGFR_00UU	

Kinetic Law

Derived unit contains undeclared units

$$v_1 = k_{\text{tp}} \cdot [\text{EGFR_10UU}] \quad (21)$$

7.2 Reaction r_2

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

Name EGFR_01UU has site Y1068/Y1086 dephosphorylated

Reaction equation



Reactant

Table 9: Properties of each reactant.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Modifier

Table 10: Properties of each modifier.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Product

Table 11: Properties of each product.

Id	Name	SBO
EGFR_00UU	EGFR_00UU	

Kinetic Law

Derived unit contains undeclared units

$$v_2 = k_{\text{tp68}} \cdot [\text{EGFR_01UU}] \quad (23)$$

7.3 Reaction r3

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

Name EGFR_11UU has site Y1045 dephosphorylated

Reaction equation



Reactant

Table 12: Properties of each reactant.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Modifier

Table 13: Properties of each modifier.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Product

Table 14: Properties of each product.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Kinetic Law

Derived unit contains undeclared units

$$v_3 = k_{tp} \cdot [\text{EGFR_11UU}] \quad (25)$$

7.4 Reaction r4

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

Name EGFR_11UU has site Y1068/Y1086 dephosphorylated

Reaction equation



Reactant

Table 15: Properties of each reactant.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Modifier

Table 16: Properties of each modifier.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Product

Table 17: Properties of each product.

Id	Name	SBO
EGFR_10UU	EGFR_10UU	

Kinetic Law

Derived unit contains undeclared units

$$v_4 = k_{\text{tp68}} \cdot [\text{EGFR_11UU}] \quad (27)$$

7.5 Reaction r5

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

Name EGFR_11CU has site Y1068/Y1086 dephosphorylated

Reaction equation



Reactant

Table 18: Properties of each reactant.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Modifier

Table 19: Properties of each modifier.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Product

Table 20: Properties of each product.

Id	Name	SBO
EGFR_10CU	EGFR_10CU	

Kinetic Law

Derived unit contains undeclared units

$$v_5 = k_{\text{tp68}} \cdot [\text{EGFR_11CU}] \quad (29)$$

7.6 Reaction r6

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

Name EGFR_11LU has site Y1068/Y1086 dephosphorylated

Reaction equation



Reactant

Table 21: Properties of each reactant.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Modifier

Table 22: Properties of each modifier.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Product

Table 23: Properties of each product.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Kinetic Law

Derived unit contains undeclared units

$$v_6 = k_{tp68} \cdot [\text{EGFR_11LU}] \quad (31)$$

7.7 Reaction r_7

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

Name EGFR_11UG has site Y1045 dephosphorylated

Reaction equation



Reactant

Table 24: Properties of each reactant.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Modifier

Table 25: Properties of each modifier.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Product

Table 26: Properties of each product.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Kinetic Law

Derived unit contains undeclared units

$$v_7 = k_{\text{tp}} \cdot [\text{EGFR_11UG}] \quad (33)$$

7.8 Reaction r8

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

Name EGFR_11UL has site Y1045 dephosphorylated

Reaction equation



Reactant

Table 27: Properties of each reactant.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Modifier

Table 28: Properties of each modifier.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Product

Table 29: Properties of each product.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Kinetic Law

Derived unit contains undeclared units

$$v_8 = k_{\text{tp}} \cdot [\text{EGFR_11UL}] \quad (35)$$

7.9 Reaction r9

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

Name EGFR_02UU has site Y1068/Y1086 dephosphorylated

Reaction equation



Reactant

Table 30: Properties of each reactant.

Id	Name	SBO
EGFR_02UU	EGFR_02UU	

Modifier

Table 31: Properties of each modifier.

Id	Name	SBO
EGFR_02UU	EGFR_02UU	

Product

Table 32: Properties of each product.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Kinetic Law

Derived unit contains undeclared units

$$v_9 = 2 \cdot k_{\text{tp68}} \cdot [\text{EGFR_02UU}] \quad (37)$$

7.10 Reaction r_{10}

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

Name EGFR_02UG has site Y1068/Y1-86 dephosphorylated

Reaction equation



Reactant

Table 33: Properties of each reactant.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Modifier

Table 34: Properties of each modifier.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Product

Table 35: Properties of each product.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{10} = k_{\text{tp68}} \cdot [\text{EGFR_02UG}] \quad (39)$$

7.11 Reaction r_{11}

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

Name EGFR_02UL has site Y1068/Y1-86 dephosphorylated

Reaction equation



Reactant

Table 36: Properties of each reactant.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Modifier

Table 37: Properties of each modifier.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Product

Table 38: Properties of each product.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{11} = k_{\text{tp68}} \cdot [\text{EGFR_02UL}] \quad (41)$$

7.12 Reaction r12

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

Name EGFR_12UU has site Y1045 dephosphorylated

Reaction equation



Reactant

Table 39: Properties of each reactant.

Id	Name	SBO
EGFR_12UU	EGFR_12UU	

Modifier

Table 40: Properties of each modifier.

Id	Name	SBO
EGFR_12UU	EGFR_12UU	

Product

Table 41: Properties of each product.

Id	Name	SBO
EGFR_02UU	EGFR_02UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{12} = k_{\text{tp}} \cdot [\text{EGFR_12UU}] \quad (43)$$

7.13 Reaction r13

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

Name EGFR_12UU has site Y1068/Y1086 dephosphorylated

Reaction equation



Reactant

Table 42: Properties of each reactant.

Id	Name	SBO
EGFR_12UU	EGFR_12UU	

Modifier

Table 43: Properties of each modifier.

Id	Name	SBO
EGFR_12UU	EGFR_12UU	

Product

Table 44: Properties of each product.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{13} = 2 \cdot k_{\text{ptp68}} \cdot [\text{EGFR_12UU}] \quad (45)$$

7.14 Reaction r14

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

Name EGFR_12CU has site Y1068/Y1086 dephosphorylated

Reaction equation



Reactant

Table 45: Properties of each reactant.

Id	Name	SBO
EGFR_12CU	EGFR_12CU	

Modifier

Table 46: Properties of each modifier.

Id	Name	SBO
EGFR_12CU	EGFR_12CU	

Product

Table 47: Properties of each product.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Kinetic Law

Derived unit contains undeclared units

$$v_{14} = 2 \cdot k_{\text{ptp68}} \cdot [\text{EGFR_12CU}] \quad (47)$$

7.15 Reaction r15

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

Name EGFR_12LU has site Y1068/Y1086 dephosphorylated

Reaction equation



Reactant

Table 48: Properties of each reactant.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Modifier

Table 49: Properties of each modifier.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Product

Table 50: Properties of each product.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{15} = 2 \cdot k_{\text{ptp68}} \cdot [\text{EGFR_12LU}] \quad (49)$$

7.16 Reaction r16

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

Name EGFR_12UG has site Y1045 dephosphorylated

Reaction equation



Reactant

Table 51: Properties of each reactant.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Modifier

Table 52: Properties of each modifier.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Product

Table 53: Properties of each product.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{16} = k_{\text{ptp}} \cdot [\text{EGFR_12UG}] \quad (51)$$

7.17 Reaction r17

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

Name EGFR_12UG has site Y1068/Y1-86 dephosphorylated

Reaction equation



Reactant

Table 54: Properties of each reactant.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Modifier

Table 55: Properties of each modifier.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Product

Table 56: Properties of each product.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{17} = k_{\text{tp68}} \cdot [\text{EGFR_12UG}] \quad (53)$$

7.18 Reaction r18

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

Name EGFR_12UL has site Y1045 dephosphorylated

Reaction equation



Reactant

Table 57: Properties of each reactant.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Modifier

Table 58: Properties of each modifier.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Product

Table 59: Properties of each product.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{18} = k_{\text{tp}} \cdot [\text{EGFR_12UL}] \quad (55)$$

7.19 Reaction r19

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

Name EGFR_12UL has site Y1068/Y1-86 dephosphorylated

Reaction equation



Reactant

Table 60: Properties of each reactant.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Modifier

Table 61: Properties of each modifier.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Product

Table 62: Properties of each product.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{19} = k_{\text{tp68}} \cdot [\text{EGFR_12UL}] \quad (57)$$

7.20 Reaction r20

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

Name EGFR_12CG has site Y1068/Y1-86 dephosphorylated

Reaction equation



Reactant

Table 63: Properties of each reactant.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Modifier

Table 64: Properties of each modifier.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Product

Table 65: Properties of each product.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Kinetic Law

Derived unit contains undeclared units

$v_{20} = k_{\text{tp68}} \cdot [\text{EGFR_12CG}]$

(59)

7.21 Reaction r21

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

Name EGFR_12CC has site Y1068/Y1-86 dephosphorylated

Reaction equation



Reactant

Table 66: Properties of each reactant.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Modifier

Table 67: Properties of each modifier.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Product

Table 68: Properties of each product.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{21} = k_{\text{tp68}} \cdot [\text{EGFR_12CC}] \quad (61)$$

7.22 Reaction r22

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

Name EGFR_12LG has site Y1068/Y1-86 dephosphorylated

Reaction equation



Reactant

Table 69: Properties of each reactant.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Modifier

Table 70: Properties of each modifier.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Product

Table 71: Properties of each product.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Kinetic Law

Derived unit contains undeclared units

$$v_{22} = k_{tp68} \cdot [\text{EGFR_12LG}] \quad (63)$$

7.23 Reaction r_{23}

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

Name EGFR_00UU has site Y1045 phosphorylated

Reaction equation



Reactant

Table 72: Properties of each reactant.

Id	Name	SBO
EGFR_00UU	EGFR_00UU	

Modifier

Table 73: Properties of each modifier.

Id	Name	SBO
EGFR_00UU	EGFR_00UU	

Product

Table 74: Properties of each product.

Id	Name	SBO
EGFR_10UU	EGFR_10UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{23} = k_{kin} \cdot [\text{EGFR_00UU}] \quad (65)$$

7.24 Reaction r24

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

Name EGFR_00UU has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 75: Properties of each reactant.

Id	Name	SBO
EGFR_00UU	EGFR_00UU	

Modifier

Table 76: Properties of each modifier.

Id	Name	SBO
EGFR_00UU	EGFR_00UU	

Product

Table 77: Properties of each product.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{24} = 2 \cdot k_{kin68} \cdot [EGFR_00UU] \quad (67)$$

7.25 Reaction r25

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

Name EGFR_10UU has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 78: Properties of each reactant.

Id	Name	SBO
EGFR_10UU	EGFR_10UU	

Modifier

Table 79: Properties of each modifier.

Id	Name	SBO
EGFR_10UU	EGFR_10UU	

Product

Table 80: Properties of each product.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{25} = 2 \cdot k_{kin68} \cdot [EGFR_10UU] \quad (69)$$

7.26 Reaction r26

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

Name EGFR_10CU has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 81: Properties of each reactant.

Id	Name	SBO
EGFR_10CU	EGFR_10CU	

Modifier

Table 82: Properties of each modifier.

Id	Name	SBO
EGFR_10CU	EGFR_10CU	

Product

Table 83: Properties of each product.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Kinetic Law

Derived unit contains undeclared units

$$v_{26} = 2 \cdot k_{kin68} \cdot [EGFR_10CU] \quad (71)$$

7.27 Reaction r27

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

Name EGFR_10LU has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 84: Properties of each reactant.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Modifier

Table 85: Properties of each modifier.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Product

Table 86: Properties of each product.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{27} = 2 \cdot k_{kin68} \cdot [EGFR_10LU] \quad (73)$$

7.28 Reaction r28

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

Name EGFR_01UU has site Y1045 phosphorylated

Reaction equation



Reactant

Table 87: Properties of each reactant.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Modifier

Table 88: Properties of each modifier.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Product

Table 89: Properties of each product.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{28} = k_{\text{kin}} \cdot [\text{EGFR_01UU}] \quad (75)$$

7.29 Reaction r29

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

Name EGFR_01UU has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 90: Properties of each reactant.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Modifier

Table 91: Properties of each modifier.

Id	Name	SBO
EGFR_01UU	EGFR_01UU	

Product

Table 92: Properties of each product.

Id	Name	SBO
EGFR_02UU	EGFR_02UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{29} = k_{\text{kin68}} \cdot [\text{EGFR_01UU}] \quad (77)$$

7.30 Reaction r30

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

Name EGFR_01UG has site Y1045 phosphorylated

Reaction equation



Reactant

Table 93: Properties of each reactant.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Modifier

Table 94: Properties of each modifier.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Product

Table 95: Properties of each product.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{30} = k_{\text{kin}} \cdot [\text{EGFR_01UG}] \quad (79)$$

7.31 Reaction r31

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

Name EGFR_01UG has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 96: Properties of each reactant.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Modifier

Table 97: Properties of each modifier.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Product

Table 98: Properties of each product.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{31} = k_{kin68} \cdot [EGFR_01UG] \quad (81)$$

7.32 Reaction r32

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

Name EGFR_01UL has site Y1045 phosphorylated

Reaction equation



Reactant

Table 99: Properties of each reactant.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Modifier

Table 100: Properties of each modifier.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Product

Table 101: Properties of each product.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{32} = k_{kin} \cdot [\text{EGFR_01UL}] \quad (83)$$

7.33 Reaction r33

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

Name EGFR_01UL has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 102: Properties of each reactant.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Modifier

Table 103: Properties of each modifier.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Product

Table 104: Properties of each product.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{33} = k_{kin68} \cdot [EGFR_01UL] \quad (85)$$

7.34 Reaction r34

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

Name EGFR_11UU has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 105: Properties of each reactant.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Modifier

Table 106: Properties of each modifier.

Id	Name	SBO
EGFR_11UU	EGFR_11UU	

Product

Table 107: Properties of each product.

Id	Name	SBO
EGFR_12UU	EGFR_12UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{34} = k_{kin68} \cdot [EGFR_11UU] \quad (87)$$

7.35 Reaction r35

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

Name EGFR_11CU has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 108: Properties of each reactant.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Modifier

Table 109: Properties of each modifier.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Product

Table 110: Properties of each product.

Id	Name	SBO
EGFR_12CU	EGFR_12CU	

Kinetic Law

Derived unit contains undeclared units

$$v_{35} = k_{kin68} \cdot [EGFR_11CU] \quad (89)$$

7.36 Reaction r36

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

Name EGFR_11LU has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 111: Properties of each reactant.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Modifier

Table 112: Properties of each modifier.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Product

Table 113: Properties of each product.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{36} = k_{kin68} \cdot [EGFR_11LU] \quad (91)$$

7.37 Reaction r37

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

Name EGFR_11UG has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 114: Properties of each reactant.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Modifier

Table 115: Properties of each modifier.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Product

Table 116: Properties of each product.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{37} = k_{\text{kin68}} \cdot [\text{EGFR_11UG}] \quad (93)$$

7.38 Reaction r38

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

Name EGFR_11UL has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 117: Properties of each reactant.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Modifier

Table 118: Properties of each modifier.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Product

Table 119: Properties of each product.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Kinetic Law

Derived unit contains undeclared units

$v_{38} = k_{kin68} \cdot [\text{EGFR_11UL}]$

(95)

7.39 Reaction r39

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

Name EGFR_11CG has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 120: Properties of each reactant.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Modifier

Table 121: Properties of each modifier.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Product

Table 122: Properties of each product.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{39} = k_{kin68} \cdot [EGFR_11CG] \quad (97)$$

7.40 Reaction r40

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

Name EGFR_11CC has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 123: Properties of each reactant.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Modifier

Table 124: Properties of each modifier.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Product

Table 125: Properties of each product.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{40} = k_{kin68} \cdot [EGFR_11CC] \quad (99)$$

7.41 Reaction r41

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

Name EGFR_11LG has site Y1068/Y1086 phosphorylated

Reaction equation



Reactant

Table 126: Properties of each reactant.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Modifier

Table 127: Properties of each modifier.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Product

Table 128: Properties of each product.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Kinetic Law

Derived unit contains undeclared units

$$v_{41} = k_{kin68} \cdot [EGFR_11LG] \quad (101)$$

7.42 Reaction r42

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

Name EGFR_02UU has site Y1045 phosphorylated

Reaction equation



Reactant

Table 129: Properties of each reactant.

Id	Name	SBO
EGFR_02UU	EGFR_02UU	

Modifier

Table 130: Properties of each modifier.

Id	Name	SBO
EGFR_02UU	EGFR_02UU	

Product

Table 131: Properties of each product.

Id	Name	SBO
EGFR_12UU	EGFR_12UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{42} = k_{\text{kin}} \cdot [\text{EGFR_02UU}] \quad (103)$$

7.43 Reaction r43

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

Name EGFR_02UG has site Y1045 phosphorylated

Reaction equation



Reactant

Table 132: Properties of each reactant.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Modifier

Table 133: Properties of each modifier.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Product

Table 134: Properties of each product.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{43} = k_{kin} \cdot [\text{EGFR_02UG}] \quad (105)$$

7.44 Reaction *r44*

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

Name EGFR_02UL has site Y1045 phosphorylated

Reaction equation



Reactant

Table 135: Properties of each reactant.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Modifier

Table 136: Properties of each modifier.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Product

Table 137: Properties of each product.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{44} = k_{\text{kin}} \cdot [\text{EGFR_02UL}] \quad (107)$$

7.45 Reaction r45

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

Name Cbl and Grb2 bind yielding CG

Reaction equation



Reactants

Table 138: Properties of each reactant.

Id	Name	SBO
Cb1	Cbl	
Grb2	Grb2	

Modifiers

Table 139: Properties of each modifier.

Id	Name	SBO
Cb1	Cbl	
Grb2	Grb2	

Product

Table 140: Properties of each product.

Id	Name	SBO
CG	CG	

Kinetic Law

Derived unit contains undeclared units

$$v_{45} = kbcg \cdot [Cbl] \cdot [Grb2] \quad (109)$$

7.46 Reaction r46

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

Name CG dissociates to Cbl and Grb2

Reaction equation



Reactant

Table 141: Properties of each reactant.

Id	Name	SBO
CG	CG	

Modifier

Table 142: Properties of each modifier.

Id	Name	SBO
CG	CG	

Products

Table 143: Properties of each product.

Id	Name	SBO
Cbl	Cbl	
Grb2	Grb2	

Kinetic Law

Derived unit contains undeclared units

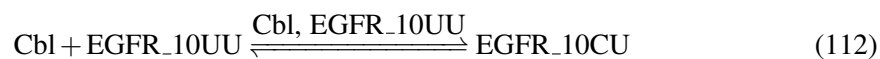
$$v_{46} = kucg \cdot [CG] \quad (111)$$

7.47 Reaction r47

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

Name Cbl and EGFR_10UU bind yielding EGFR_10CU

Reaction equation



Reactants

Table 144: Properties of each reactant.

Id	Name	SBO
Cbl	Cbl	
EGFR_10UU	EGFR_10UU	

Modifiers

Table 145: Properties of each modifier.

Id	Name	SBO
Cbl	Cbl	
EGFR_10UU	EGFR_10UU	

Product

Table 146: Properties of each product.

Id	Name	SBO
EGFR_10CU	EGFR_10CU	

Kinetic Law

Derived unit contains undeclared units

$$v_{47} = k_{b45} \cdot [\text{Cbl}] \cdot [\text{EGFR_10UU}] \quad (113)$$

7.48 Reaction r48

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

Name EGFR_10CU dissociates to Cbl and EGFR_10UU

Reaction equation



Reactant

Table 147: Properties of each reactant.

Id	Name	SBO
EGFR_10CU	EGFR_10CU	

Modifier

Table 148: Properties of each modifier.

Id	Name	SBO
EGFR_10CU	EGFR_10CU	

Products

Table 149: Properties of each product.

Id	Name	SBO
Cbl	Cbl	
EGFR_10UU	EGFR_10UU	

Kinetic Law

Derived unit contains undeclared units

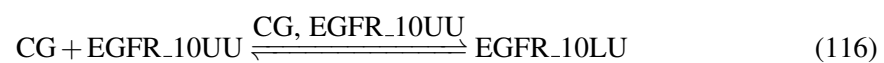
$$v_{48} = k_{u45} \cdot [\text{EGFR_10CU}] \quad (115)$$

7.49 Reaction r49

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

Name CG and EGFR_10UU bind yielding EGFR_10LU

Reaction equation



Reactants

Table 150: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_10UU	EGFR_10UU	

Modifiers

Table 151: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_10UU	EGFR_10UU	

Product

Table 152: Properties of each product.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{49} = kb_{45} \cdot [CG] \cdot [EGFR_10UU] \quad (117)$$

7.50 Reaction r50

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

Name EGFR_10LU dissociates to CG and EGFR_10UU

Reaction equation



Reactant

Table 153: Properties of each reactant.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Modifier

Table 154: Properties of each modifier.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Products

Table 155: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_10UU	EGFR_10UU	

Kinetic Law

Derived unit contains undeclared units

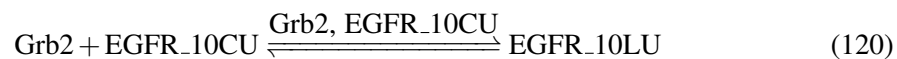
$$v_{50} = k_{u45} \cdot [\text{EGFR_10LU}] \quad (119)$$

7.51 Reaction r51

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

Name Grb2 and EGFR_10CU bind yielding EGFR_10LU

Reaction equation



Reactants

Table 156: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_10CU	EGFR_10CU	

Modifiers

Table 157: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_10CU	EGFR_10CU	

Product

Table 158: Properties of each product.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{51} = k_{bcg} \cdot [\text{Grb2}] \cdot [\text{EGFR_10CU}] \quad (121)$$

7.52 Reaction r52

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

Name EGFR_10LU dissociates to Grb2 and EGFR_10CU

Reaction equation



Reactant

Table 159: Properties of each reactant.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Modifier

Table 160: Properties of each modifier.

Id	Name	SBO
EGFR_10LU	EGFR_10LU	

Products

Table 161: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_10CU	EGFR_10CU	

Kinetic Law

Derived unit contains undeclared units

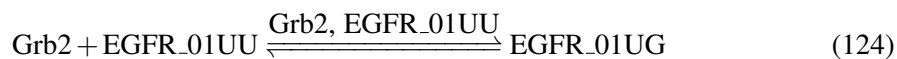
$$v_{52} = k_{ucg} \cdot [\text{EGFR_10LU}] \quad (123)$$

7.53 Reaction r53

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

Name Grb2 and EGFR_01UU bind yielding EGFR_01UG

Reaction equation



Reactants

Table 162: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_01UU	EGFR_01UU	

Modifiers

Table 163: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_01UU	EGFR_01UU	

Product

Table 164: Properties of each product.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Kinetic Law

Derived unit contains undeclared units

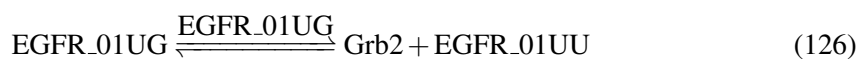
$$v_{53} = kb68 \cdot [Grb2] \cdot [EGFR_01UU] \quad (125)$$

7.54 Reaction r54

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

Name EGFR_01UG dissociates to Grb2 and EGFR_01UU

Reaction equation



Reactant

Table 165: Properties of each reactant.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Modifier

Table 166: Properties of each modifier.

Id	Name	SBO
EGFR_01UG	EGFR_01UG	

Products

Table 167: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_01UU	EGFR_01UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{54} = k_{u68} \cdot [\text{EGFR_01UG}] \quad (127)$$

7.55 Reaction r55

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

Name CG and EGFR_01UU bind yielding EGFR_01UL

Reaction equation



Reactants

Table 168: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_01UU	EGFR_01UU	

Modifiers

Table 169: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_01UU	EGFR_01UU	

Product

Table 170: Properties of each product.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{55} = kb68 \cdot [CG] \cdot [EGFR_01UU] \quad (129)$$

7.56 Reaction r56

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

Name EGFR_01UL dissociates to CG and EGFR_01UU

Reaction equation



Reactant

Table 171: Properties of each reactant.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Modifier

Table 172: Properties of each modifier.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Products

Table 173: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_01UU	EGFR_01UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{56} = k_{u68} \cdot [\text{EGFR_01UL}] \quad (131)$$

7.57 Reaction r57

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

Name Cbl and EGFR_01UG bind yielding EGFR_01UL

Reaction equation



Reactants

Table 174: Properties of each reactant.

Id	Name	SBO
Cbl	Cbl	
EGFR_01UG	EGFR_01UG	

Modifiers

Table 175: Properties of each modifier.

Id	Name	SBO
Cbl	Cbl	
EGFR_01UG	EGFR_01UG	

Product

Table 176: Properties of each product.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{57} = k_{bcg} \cdot [Cbl] \cdot [EGFR_01UG] \quad (133)$$

7.58 Reaction r58

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

Name EGFR_01UL dissociates to Cbl and EGFR_01UG

Reaction equation



Reactant

Table 177: Properties of each reactant.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Modifier

Table 178: Properties of each modifier.

Id	Name	SBO
EGFR_01UL	EGFR_01UL	

Products

Table 179: Properties of each product.

Id	Name	SBO
Cbl	Cbl	
EGFR_01UG	EGFR_01UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{58} = k_{ucg} \cdot [\text{EGFR_01UL}] \quad (135)$$

7.59 Reaction r59

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

Name Cbl and EGFR_11UU bind yielding EGFR_11CU

Reaction equation



Reactants

Table 180: Properties of each reactant.

Id	Name	SBO
Cbl	Cbl	
EGFR_11UU	EGFR_11UU	

Modifiers

Table 181: Properties of each modifier.

Id	Name	SBO
Cbl	Cbl	
EGFR_11UU	EGFR_11UU	

Product

Table 182: Properties of each product.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Kinetic Law

Derived unit contains undeclared units

$$v_{59} = kb45 \cdot [Cbl] \cdot [EGFR_11UU] \quad (137)$$

7.60 Reaction r60

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

Name EGFR_11CU dissociates to Cbl and EGFR_11UU

Reaction equation



Reactant

Table 183: Properties of each reactant.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Modifier

Table 184: Properties of each modifier.

Id	Name	SBO
EGFR_11CU	EGFR_11CU	

Products

Table 185: Properties of each product.

Id	Name	SBO
Cbl	Cbl	
EGFR_11UU	EGFR_11UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{60} = k_{u45} \cdot [\text{EGFR_11CU}] \quad (139)$$

7.61 Reaction r61

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

Name CG and EGFR_11UU bind yielding EGFR_11LU

Reaction equation



Reactants

Table 186: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_11UU	EGFR_11UU	

Modifiers

Table 187: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_11UU	EGFR_11UU	

Product

Table 188: Properties of each product.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{61} = kb45 \cdot [CG] \cdot [EGFR_11UU] \quad (141)$$

7.62 Reaction r62

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

Name EGFR_11LU dissociates to CG and EGFR_11UU

Reaction equation



Reactant

Table 189: Properties of each reactant.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Modifier

Table 190: Properties of each modifier.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Products

Table 191: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_11UU	EGFR_11UU	

Kinetic Law

Derived unit contains undeclared units

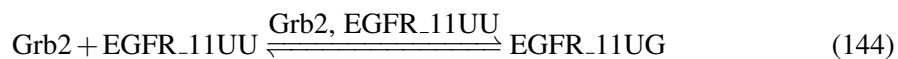
$$v_{62} = k_{u45} \cdot [\text{EGFR_11LU}] \quad (143)$$

7.63 Reaction r63

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

Name Grb2 and EGFR_11UU bind yielding EGFR_11UG

Reaction equation



Reactants

Table 192: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_11UU	EGFR_11UU	

Modifiers

Table 193: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_11UU	EGFR_11UU	

Product

Table 194: Properties of each product.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Kinetic Law

Derived unit contains undeclared units

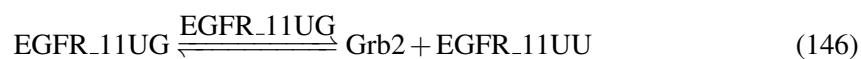
$$v_{63} = kb68 \cdot [Grb2] \cdot [EGFR_11UU] \quad (145)$$

7.64 Reaction r64

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

Name EGFR_11UG dissociates to Grb2 and EGFR_11UU

Reaction equation



Reactant

Table 195: Properties of each reactant.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Modifier

Table 196: Properties of each modifier.

Id	Name	SBO
EGFR_11UG	EGFR_11UG	

Products

Table 197: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_11UU	EGFR_11UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{64} = k_{u68} \cdot [\text{EGFR_11UG}] \quad (147)$$

7.65 Reaction r65

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

Name CG and EGFR_11UU bind yielding EGFR_11UL

Reaction equation



Reactants

Table 198: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_11UU	EGFR_11UU	

Modifiers

Table 199: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_11UU	EGFR_11UU	

Product

Table 200: Properties of each product.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{65} = kb68 \cdot [CG] \cdot [EGFR_11UU] \quad (149)$$

7.66 Reaction r66

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

Name EGFR_11UL dissociates to CG and EGFR_11UU

Reaction equation



Reactant

Table 201: Properties of each reactant.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Modifier

Table 202: Properties of each modifier.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Products

Table 203: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_11UU	EGFR_11UU	

Kinetic Law

Derived unit contains undeclared units

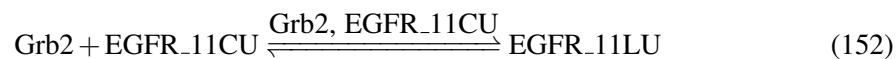
$$v_{66} = k_{u68} \cdot [\text{EGFR_11UL}] \quad (151)$$

7.67 Reaction r67

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

Name Grb2 and EGFR_11CU bind yielding EGFR_11LU

Reaction equation



Reactants

Table 204: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_11CU	EGFR_11CU	

Modifiers

Table 205: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_11CU	EGFR_11CU	

Product

Table 206: Properties of each product.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{67} = k_{bcg} \cdot [\text{Grb2}] \cdot [\text{EGFR_11CU}] \quad (153)$$

7.68 Reaction r68

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

Name EGFR_11LU dissociates to Grb2 and EGFR_11CU

Reaction equation



Reactant

Table 207: Properties of each reactant.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Modifier

Table 208: Properties of each modifier.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Products

Table 209: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_11CU	EGFR_11CU	

Kinetic Law

Derived unit contains undeclared units

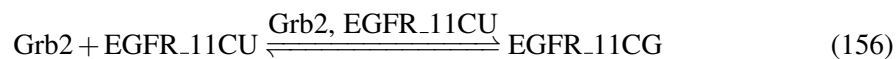
$$v_{68} = k_{ucg} \cdot [\text{EGFR_11LU}] \quad (155)$$

7.69 Reaction r69

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

Name Grb2 and EGFR_11CU bind yielding EGFR_11CG

Reaction equation



Reactants

Table 210: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_11CU	EGFR_11CU	

Modifiers

Table 211: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_11CU	EGFR_11CU	

Product

Table 212: Properties of each product.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Kinetic Law

Derived unit contains undeclared units

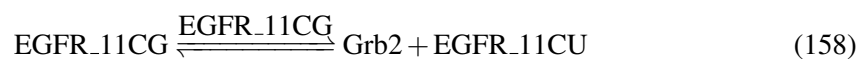
$$v_{69} = kb_{68} \cdot [Grb2] \cdot [EGFR_11CU] \quad (157)$$

7.70 Reaction r70

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

Name EGFR_11CG dissociates to Grb2 and EGFR_11CU

Reaction equation



Reactant

Table 213: Properties of each reactant.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Modifier

Table 214: Properties of each modifier.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Products

Table 215: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_11CU	EGFR_11CU	

Kinetic Law

Derived unit contains undeclared units

$$v_{70} = k_{u68} \cdot [\text{EGFR_11CG}] \quad (159)$$

7.71 Reaction r71

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

Name Grb2 and EGFR_11LU bind yielding EGFR_11LG

Reaction equation



Reactants

Table 216: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_11LU	EGFR_11LU	

Modifiers

Table 217: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_11LU	EGFR_11LU	

Product

Table 218: Properties of each product.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Kinetic Law

Derived unit contains undeclared units

$$v_{71} = kb68 \cdot [Grb2] \cdot [EGFR_11LU] \quad (161)$$

7.72 Reaction r72

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

Name EGFR_11LG dissociates to Grb2 and EGFR_11LU

Reaction equation



Reactant

Table 219: Properties of each reactant.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Modifier

Table 220: Properties of each modifier.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Products

Table 221: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_11LU	EGFR_11LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{72} = k_{u68} \cdot [\text{EGFR_11LG}] \quad (163)$$

7.73 Reaction r73

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

Name EGFR_11LU transforms in (singly-bound -> doubly-bound) EGFR_11CC

Reaction equation



Reactant

Table 222: Properties of each reactant.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Modifier

Table 223: Properties of each modifier.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Product

Table 224: Properties of each product.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{73} = kb68P \cdot [EGFR_11LU] \quad (165)$$

7.74 Reaction r_{74}

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

Name EGFR_11CC tranforms in (doubly-bound -> singly-bound) EGFR_11LU

Reaction equation



Reactant

Table 225: Properties of each reactant.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Modifier

Table 226: Properties of each modifier.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Product

Table 227: Properties of each product.

Id	Name	SBO
EGFR_11LU	EGFR_11LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{74} = ku_{68M} \cdot [EGFR_11CC] \quad (167)$$

7.75 Reaction r_{75}

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

Name Cbl and EGFR_11UG bind yielding EGFR_11CG

Reaction equation



Reactants

Table 228: Properties of each reactant.

Id	Name	SBO
Cbl	Cbl	
EGFR_11UG	EGFR_11UG	

Modifiers

Table 229: Properties of each modifier.

Id	Name	SBO
Cbl	Cbl	
EGFR_11UG	EGFR_11UG	

Product

Table 230: Properties of each product.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Kinetic Law

Derived unit contains undeclared units

$$v_{75} = kb45 \cdot [Cbl] \cdot [EGFR_11UG] \quad (169)$$

7.76 Reaction r76

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

Name EGFR_11CG dissociates to Cbl and EGFR_11UG

Reaction equation



Reactant

Table 231: Properties of each reactant.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Modifier

Table 232: Properties of each modifier.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Products

Table 233: Properties of each product.

Id	Name	SBO
Cb1	Cb1	
EGFR_11UG	EGFR_11UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{76} = k_{u45} \cdot [\text{EGFR_11CG}] \quad (171)$$

7.77 Reaction *r77*

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

Name CG and EGFR_11UG bind yielding EGFR_11LG

Reaction equation



Reactants

Table 234: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_11UG	EGFR_11UG	

Modifiers

Table 235: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_11UG	EGFR_11UG	

Product

Table 236: Properties of each product.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Kinetic Law

Derived unit contains undeclared units

$$v_{77} = k_{b45} \cdot [\text{CG}] \cdot [\text{EGFR_11UG}] \quad (173)$$

7.78 Reaction r78

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

Name EGFR_11LG dissociates to CG and EGFR_11UG

Reaction equation



Reactant

Table 237: Properties of each reactant.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Modifier

Table 238: Properties of each modifier.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Products

Table 239: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_11UG	EGFR_11UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{78} = ku_{45} \cdot [EGFR_11LG] \quad (175)$$

7.79 Reaction r79

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

Name Cbl and EGFR_11UG bind yielding EGFR_11UL

Reaction equation



Reactants

Table 240: Properties of each reactant.

Id	Name	SBO
Cbl	Cbl	
EGFR_11UG	EGFR_11UG	

Modifiers

Table 241: Properties of each modifier.

Id	Name	SBO
Cbl	Cbl	
EGFR_11UG	EGFR_11UG	

Product

Table 242: Properties of each product.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{79} = kbcg \cdot [Cbl] \cdot [EGFR_11UG] \quad (177)$$

7.80 Reaction r80

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

Name EGFR_11UL dissociates to Cbl and EGFR_11UG

Reaction equation



Reactant

Table 243: Properties of each reactant.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Modifier

Table 244: Properties of each modifier.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Products

Table 245: Properties of each product.

Id	Name	SBO
Cb1	Cb1	
EGFR_11UG	EGFR_11UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{80} = k_{ucg} \cdot [\text{EGFR_11UL}] \quad (179)$$

7.81 Reaction r81

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

Name EGFR_11UL transforms in (singly-bound -> doubly-bound) EGFR_11CC

Reaction equation



Reactant

Table 246: Properties of each reactant.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Modifier

Table 247: Properties of each modifier.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Product

Table 248: Properties of each product.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{81} = kb45P \cdot [EGFR_11UL] \quad (181)$$

7.82 Reaction r82

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

Name EGFR_11CC tranforms in (doubly-bound -> singly-bound) EGFR_11UL

Reaction equation



Reactant

Table 249: Properties of each reactant.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Modifier

Table 250: Properties of each modifier.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Product

Table 251: Properties of each product.

Id	Name	SBO
EGFR_11UL	EGFR_11UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{82} = k_{u45M} \cdot [\text{EGFR_11CC}] \quad (183)$$

7.83 Reaction r83

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

Name EGFR_11CG transforms in (Cbl bind Grb2 directly) EGFR_11CC

Reaction equation



Reactant

Table 252: Properties of each reactant.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Modifier

Table 253: Properties of each modifier.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Product

Table 254: Properties of each product.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{83} = kbcgP \cdot [EGFR_11CG] \quad (185)$$

7.84 Reaction r84

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

Name EGFR_11CC tranforms in (Cbl-Grb2 loose direct binding, but stay bound to EGFR)
EGFR_11CG

Reaction equation



Reactant

Table 255: Properties of each reactant.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Modifier

Table 256: Properties of each modifier.

Id	Name	SBO
EGFR_11CC	EGFR_11CC	

Product

Table 257: Properties of each product.

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Kinetic Law

Derived unit contains undeclared units

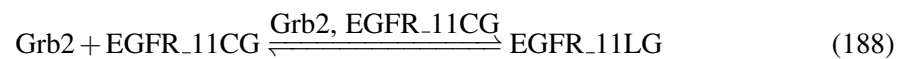
$$v_{84} = k_{ucg} M \cdot [EGFR_11CC] \quad (187)$$

7.85 Reaction r85

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

Name Grb2 and EGFR_11CG bind yielding EGFR_11LG

Reaction equation



Reactants

Table 258: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_11CG	EGFR_11CG	

Modifiers

Table 259: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_11CG	EGFR_11CG	

Product

Table 260: Properties of each product.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Kinetic Law

Derived unit contains undeclared units

$$v_{85} = k_{bcg} \cdot [\text{Grb2}] \cdot [\text{EGFR_11CG}] \quad (189)$$

7.86 Reaction r86

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

Name EGFR_11LG dissociates to Grb2 and EGFR_11CG

Reaction equation



Reactant

Table 261: Properties of each reactant.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Modifier

Table 262: Properties of each modifier.

Id	Name	SBO
EGFR_11LG	EGFR_11LG	

Products

Table 263: Properties of each product.

Id	Name	SBO
Grb2	Grb2	

Id	Name	SBO
EGFR_11CG	EGFR_11CG	

Kinetic Law

Derived unit contains undeclared units

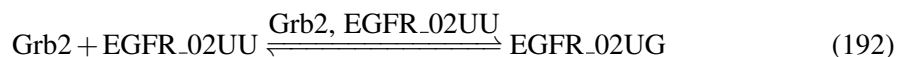
$$v_{86} = kucg \cdot [EGFR_{11LG}] \quad (191)$$

7.87 Reaction r87

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

Name Grb2 and EGFR_02UU bind yielding EGFR_02UG

Reaction equation



Reactants

Table 264: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_02UU	EGFR_02UU	

Modifiers

Table 265: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_02UU	EGFR_02UU	

Product

Table 266: Properties of each product.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Kinetic Law

Derived unit contains undeclared units

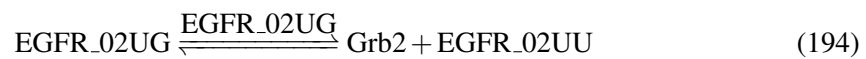
$$v_{87} = 2 \cdot kb68 \cdot [Grb2] \cdot [EGFR_02UU] \quad (193)$$

7.88 Reaction r88

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

Name EGFR_02UG dissociates to Grb2 and EGFR_02UU

Reaction equation



Reactant

Table 267: Properties of each reactant.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Modifier

Table 268: Properties of each modifier.

Id	Name	SBO
EGFR_02UG	EGFR_02UG	

Products

Table 269: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_02UU	EGFR_02UU	

Kinetic Law

Derived unit contains undeclared units

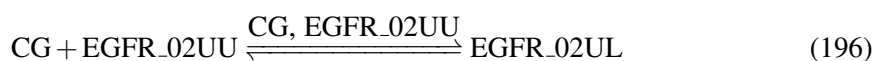
$$v_{88} = k_{u68} \cdot [\text{EGFR_02UG}] \quad (195)$$

7.89 Reaction r89

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

Name CG and EGFR_02UU bind yielding EGFR_02UL

Reaction equation



Reactants

Table 270: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_02UU	EGFR_02UU	

Modifiers

Table 271: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_02UU	EGFR_02UU	

Product

Table 272: Properties of each product.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{89} = 2 \cdot k_{b68} \cdot [\text{CG}] \cdot [\text{EGFR_02UU}] \quad (197)$$

7.90 Reaction r90

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

Name EGFR_02UL dissociates to CG and EGFR_02UU

Reaction equation



Reactant

Table 273: Properties of each reactant.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Modifier

Table 274: Properties of each modifier.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Products

Table 275: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_02UU	EGFR_02UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{90} = \text{ku68} \cdot [\text{EGFR_02UL}] \quad (199)$$

7.91 Reaction r91

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

Name Cbl and EGFR_02UG bind yielding EGFR_02UL

Reaction equation



Reactants

Table 276: Properties of each reactant.

Id	Name	SBO
Cbl	Cbl	
EGFR_02UG	EGFR_02UG	

Modifiers

Table 277: Properties of each modifier.

Id	Name	SBO
Cbl	Cbl	
EGFR_02UG	EGFR_02UG	

Product

Table 278: Properties of each product.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{91} = k_{bcg} \cdot [\text{Cbl}] \cdot [\text{EGFR_02UG}] \quad (201)$$

7.92 Reaction r92

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

Name EGFR_02UL dissociates to Cbl and EGFR_02UG

Reaction equation



Reactant

Table 279: Properties of each reactant.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Modifier

Table 280: Properties of each modifier.

Id	Name	SBO
EGFR_02UL	EGFR_02UL	

Products

Table 281: Properties of each product.

Id	Name	SBO
Cbl	Cbl	
EGFR_02UG	EGFR_02UG	

Kinetic Law

Derived unit contains undeclared units

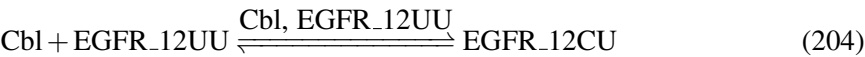
$$v_{92} = kucg \cdot [EGFR_02UL] \tag{203}$$

7.93 Reaction r93

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

Name Cbl and EGFR_12UU bind yielding EGFR_12CU

Reaction equation



Reactants

Table 282: Properties of each reactant.

Id	Name	SBO
Cb1	Cbl	
EGFR_12UU	EGFR_12UU	

Modifiers

Table 283: Properties of each modifier.

Id	Name	SBO
Cb1	Cbl	
EGFR_12UU	EGFR_12UU	

Product

Table 284: Properties of each product.

Id	Name	SBO
EGFR_12CU	EGFR_12CU	

Kinetic Law

Derived unit contains undeclared units

$$v_{93} = kb45 \cdot [Cb1] \cdot [EGFR_12UU] \quad (205)$$

7.94 Reaction r94

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

Name EGFR_12CU dissociates to Cbl and EGFR_12UU

Reaction equation



Reactant

Table 285: Properties of each reactant.

Id	Name	SBO
EGFR_12CU	EGFR_12CU	

Modifier

Table 286: Properties of each modifier.

Id	Name	SBO
EGFR_12CU	EGFR_12CU	

Products

Table 287: Properties of each product.

Id	Name	SBO
Cbl	Cbl	
EGFR_12UU	EGFR_12UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{94} = k_{u45} \cdot [\text{EGFR_12CU}] \quad (207)$$

7.95 Reaction r95

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

Name CG and EGFR_12UU bind yielding EGFR_12LU

Reaction equation



Reactants

Table 288: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_12UU	EGFR_12UU	

Modifiers

Table 289: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_12UU	EGFR_12UU	

Product

Table 290: Properties of each product.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{95} = kb45 \cdot [CG] \cdot [EGFR_12UU] \quad (209)$$

7.96 Reaction r96

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

Name EGFR_12LU dissociates to CG and EGFR_12UU

Reaction equation



Reactant

Table 291: Properties of each reactant.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Modifier

Table 292: Properties of each modifier.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Products

Table 293: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_12UU	EGFR_12UU	

Kinetic Law

Derived unit contains undeclared units

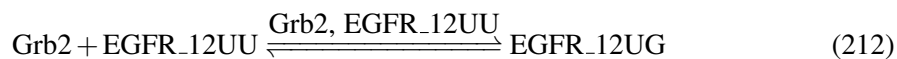
$$v_{96} = k_{u45} \cdot [\text{EGFR_12LU}] \quad (211)$$

7.97 Reaction r97

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

Name Grb2 and EGFR_12UU bind yielding EGFR_12UG

Reaction equation



Reactants

Table 294: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_12UU	EGFR_12UU	

Modifiers

Table 295: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_12UU	EGFR_12UU	

Product

Table 296: Properties of each product.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Kinetic Law

Derived unit contains undeclared units

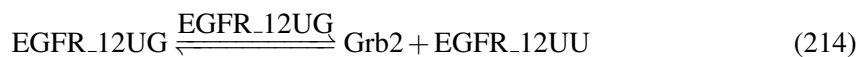
$$v_{97} = 2 \cdot kb68 \cdot [Grb2] \cdot [EGFR_12UU] \quad (213)$$

7.98 Reaction r98

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

Name EGFR_12UG dissociates to Grb2 and EGFR_12UU

Reaction equation



Reactant

Table 297: Properties of each reactant.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Modifier

Table 298: Properties of each modifier.

Id	Name	SBO
EGFR_12UG	EGFR_12UG	

Products

Table 299: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_12UU	EGFR_12UU	

Kinetic Law

Derived unit contains undeclared units

$$v_{98} = k_{u68} \cdot [\text{EGFR_12UG}] \quad (215)$$

7.99 Reaction r99

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

Name CG and EGFR_12UU bind yielding EGFR_12UL

Reaction equation



Reactants

Table 300: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_12UU	EGFR_12UU	

Modifiers

Table 301: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_12UU	EGFR_12UU	

Product

Table 302: Properties of each product.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{99} = 2 \cdot kb68 \cdot [CG] \cdot [EGFR_12UU] \quad (217)$$

7.100 Reaction r100

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

Name EGFR_12UL dissociates to CG and EGFR_12UU

Reaction equation



Reactant

Table 303: Properties of each reactant.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Modifier

Table 304: Properties of each modifier.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Products

Table 305: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_12UU	EGFR_12UU	

Kinetic Law

Derived unit contains undeclared units

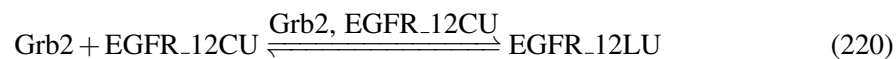
$$v_{100} = ku68 \cdot [EGFR_12UL] \quad (219)$$

7.101 Reaction r101

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

Name Grb2 and EGFR_12CU bind yielding EGFR_12LU

Reaction equation



Reactants

Table 306: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_12CU	EGFR_12CU	

Modifiers

Table 307: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_12CU	EGFR_12CU	

Product

Table 308: Properties of each product.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{101} = k_{bcg} \cdot [\text{Grb2}] \cdot [\text{EGFR_12CU}] \quad (221)$$

7.102 Reaction r102

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

Name EGFR_12LU dissociates to Grb2 and EGFR_12CU

Reaction equation



Reactant

Table 309: Properties of each reactant.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Modifier

Table 310: Properties of each modifier.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Products

Table 311: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_12CU	EGFR_12CU	

Kinetic Law

Derived unit contains undeclared units

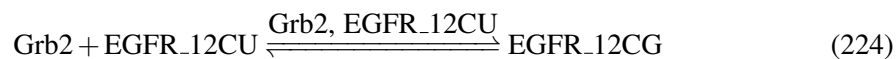
$$v_{102} = kucg \cdot [EGFR_12LU] \quad (223)$$

7.103 Reaction r103

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

Name Grb2 and EGFR_12CU bind yielding EGFR_12CG

Reaction equation



Reactants

Table 312: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_12CU	EGFR_12CU	

Modifiers

Table 313: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_12CU	EGFR_12CU	

Product

Table 314: Properties of each product.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Kinetic Law

Derived unit contains undeclared units

$$v_{103} = 2 \cdot kb68 \cdot [Grb2] \cdot [EGFR_12CU] \quad (225)$$

7.104 Reaction r104

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

Name EGFR_12CG dissociates to Grb2 and EGFR_12CU

Reaction equation



Reactant

Table 315: Properties of each reactant.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Modifier

Table 316: Properties of each modifier.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Products

Table 317: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_12CU	EGFR_12CU	

Kinetic Law

Derived unit contains undeclared units

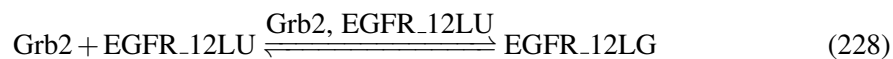
$$v_{104} = ku68 \cdot [EGFR_12CG] \quad (227)$$

7.105 Reaction r105

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

Name Grb2 and EGFR_12LU bind yielding EGFR_12LG

Reaction equation



Reactants

Table 318: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_12LU	EGFR_12LU	

Modifiers

Table 319: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_12LU	EGFR_12LU	

Product

Table 320: Properties of each product.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Kinetic Law

Derived unit contains undeclared units

$$v_{105} = 2 \cdot kb68 \cdot [Grb2] \cdot [EGFR_12LU] \quad (229)$$

7.106 Reaction r106

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

Name EGFR_12LG dissociates to Grb2 and EGFR_12LU

Reaction equation



Reactant

Table 321: Properties of each reactant.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Modifier

Table 322: Properties of each modifier.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Products

Table 323: Properties of each product.

Id	Name	SBO
Grb2	Grb2	
EGFR_12LU	EGFR_12LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{106} = k_{u68} \cdot [\text{EGFR_12LG}] \quad (231)$$

7.107 Reaction r107

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

Name EGFR_12LU transforms in (singly-bound -> doubly-bound) EGFR_12CC

Reaction equation



Reactant

Table 324: Properties of each reactant.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Modifier

Table 325: Properties of each modifier.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Product

Table 326: Properties of each product.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{107} = 2 \cdot kb68P \cdot [EGFR_12LU] \quad (233)$$

7.108 Reaction r108

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

Name EGFR_12CC tranforms in (doubly-bound -> singly-bound) EGFR_12LU

Reaction equation



Reactant

Table 327: Properties of each reactant.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Modifier

Table 328: Properties of each modifier.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Product

Table 329: Properties of each product.

Id	Name	SBO
EGFR_12LU	EGFR_12LU	

Kinetic Law

Derived unit contains undeclared units

$$v_{108} = k_{u68M} \cdot [\text{EGFR_12CC}] \quad (235)$$

7.109 Reaction r109

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

Name Cbl and EGFR_12UG bind yielding EGFR_12CG

Reaction equation



Reactants

Table 330: Properties of each reactant.

Id	Name	SBO
Cbl	Cbl	
EGFR_12UG	EGFR_12UG	

Modifiers

Table 331: Properties of each modifier.

Id	Name	SBO
Cbl	Cbl	
EGFR_12UG	EGFR_12UG	

Product

Table 332: Properties of each product.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Kinetic Law

Derived unit contains undeclared units

$$v_{109} = kb45 \cdot [Cbl] \cdot [EGFR_12UG] \quad (237)$$

7.110 Reaction r110

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

Name EGFR_12CG dissociates to Cbl and EGFR_12UG

Reaction equation



Reactant

Table 333: Properties of each reactant.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Modifier

Table 334: Properties of each modifier.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Products

Table 335: Properties of each product.

Id	Name	SBO
Cb1	Cb1	
EGFR_12UG	EGFR_12UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{110} = k_{u45} \cdot [\text{EGFR_12CG}] \quad (239)$$

7.111 Reaction r111

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

Name CG and EGFR_12UG bind yielding EGFR_12LG

Reaction equation



Reactants

Table 336: Properties of each reactant.

Id	Name	SBO
CG	CG	
EGFR_12UG	EGFR_12UG	

Modifiers

Table 337: Properties of each modifier.

Id	Name	SBO
CG	CG	
EGFR_12UG	EGFR_12UG	

Product

Table 338: Properties of each product.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Kinetic Law

Derived unit contains undeclared units

$$v_{111} = kb45 \cdot [CG] \cdot [EGFR_12UG] \quad (241)$$

7.112 Reaction r112

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

Name EGFR_12LG dissociates to CG and EGFR_12UG

Reaction equation



Reactant

Table 339: Properties of each reactant.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Modifier

Table 340: Properties of each modifier.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Products

Table 341: Properties of each product.

Id	Name	SBO
CG	CG	
EGFR_12UG	EGFR_12UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{112} = k_{u45} \cdot [\text{EGFR_12LG}] \quad (243)$$

7.113 Reaction r113

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

Name Cbl and EGFR_12UG bind yielding EGFR_12UL

Reaction equation



Reactants

Table 342: Properties of each reactant.

Id	Name	SBO
Cbl	Cbl	
EGFR_12UG	EGFR_12UG	

Modifiers

Table 343: Properties of each modifier.

Id	Name	SBO
Cbl	Cbl	
EGFR_12UG	EGFR_12UG	

Product

Table 344: Properties of each product.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{113} = kbcg \cdot [Cbl] \cdot [EGFR_12UG] \quad (245)$$

7.114 Reaction r114

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

Name EGFR_12UL dissociates to Cbl and EGFR_12UG

Reaction equation



Reactant

Table 345: Properties of each reactant.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Modifier

Table 346: Properties of each modifier.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Products

Table 347: Properties of each product.

Id	Name	SBO
Cb1	Cb1	
EGFR_12UG	EGFR_12UG	

Kinetic Law

Derived unit contains undeclared units

$$v_{114} = kucg \cdot [EGFR_12UL] \quad (247)$$

7.115 Reaction r115

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

Name EGFR_12UL transforms in (singly-bound -> doubly-bound) EGFR_12CC

Reaction equation



Reactant

Table 348: Properties of each reactant.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Modifier

Table 349: Properties of each modifier.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Product

Table 350: Properties of each product.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{115} = kb45P \cdot [EGFR_12UL] \quad (249)$$

7.116 Reaction r116

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

Name EGFR_12CC tranforms in (doubly-bound -> singly-bound) EGFR_12UL

Reaction equation



Reactant

Table 351: Properties of each reactant.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Modifier

Table 352: Properties of each modifier.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Product

Table 353: Properties of each product.

Id	Name	SBO
EGFR_12UL	EGFR_12UL	

Kinetic Law

Derived unit contains undeclared units

$$v_{116} = k_{u45M} \cdot [\text{EGFR_12CC}] \quad (251)$$

7.117 Reaction r117

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

Name EGFR_12CG transforms in (Cbl bind Grb2 directly) EGFR_12CC

Reaction equation



Reactant

Table 354: Properties of each reactant.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Modifier

Table 355: Properties of each modifier.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Product

Table 356: Properties of each product.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Kinetic Law

Derived unit contains undeclared units

$$v_{117} = kbcgP \cdot [EGFR_12CG] \quad (253)$$

7.118 Reaction r118

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

Name EGFR_12CC tranforms in (Cbl-Grb2 loose direct binding, but stay bound to EGFR)
EGFR_12CG

Reaction equation



Reactant

Table 357: Properties of each reactant.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Modifier

Table 358: Properties of each modifier.

Id	Name	SBO
EGFR_12CC	EGFR_12CC	

Product

Table 359: Properties of each product.

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Kinetic Law

Derived unit contains undeclared units

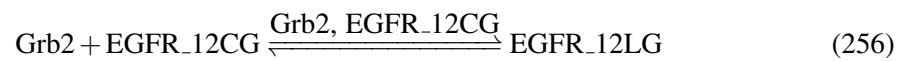
$$v_{118} = kucgM \cdot [EGFR_12CC] \quad (255)$$

7.119 Reaction r119

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

Name Grb2 and EGFR_12CG bind yielding EGFR_12LG

Reaction equation



Reactants

Table 360: Properties of each reactant.

Id	Name	SBO
Grb2	Grb2	
EGFR_12CG	EGFR_12CG	

Modifiers

Table 361: Properties of each modifier.

Id	Name	SBO
Grb2	Grb2	
EGFR_12CG	EGFR_12CG	

Product

Table 362: Properties of each product.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Kinetic Law

Derived unit contains undeclared units

$$v_{119} = kbcg \cdot [\text{Grb2}] \cdot [\text{EGFR_12CG}] \quad (257)$$

7.120 Reaction r120

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

Name EGFR_12LG dissociates to Grb2 and EGFR_12CG

Reaction equation



Reactant

Table 363: Properties of each reactant.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Modifier

Table 364: Properties of each modifier.

Id	Name	SBO
EGFR_12LG	EGFR_12LG	

Products

Table 365: Properties of each product.

Id	Name	SBO
Grb2	Grb2	

Id	Name	SBO
EGFR_12CG	EGFR_12CG	

Kinetic Law

Derived unit contains undeclared units

$$v_{120} = kucg \cdot [EGFR_12LG] \quad (259)$$

8 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.

8.1 Species Cbl

Name Cbl

Initial concentration $2.80975332814237 \cdot 10^{-5} \text{ mol} \cdot \text{l}^{-1}$

This species takes part in 30 reactions (as a reactant in [r45](#), [r47](#), [r57](#), [r59](#), [r75](#), [r79](#), [r91](#), [r93](#), [r109](#), [r113](#) and as a product in [r46](#), [r48](#), [r58](#), [r60](#), [r76](#), [r80](#), [r92](#), [r94](#), [r110](#), [r114](#) and as a modifier in [r45](#), [r47](#), [r57](#), [r59](#), [r75](#), [r79](#), [r91](#), [r93](#), [r109](#), [r113](#)).

$$\begin{aligned} \frac{d}{dt} \text{Cbl} = & v_{46} + v_{48} + v_{58} + v_{60} + v_{76} + v_{80} + v_{92} + v_{94} + v_{110} + v_{114} \\ & - v_{45} - v_{47} - v_{57} - v_{59} - v_{75} - v_{79} - v_{91} - v_{93} - v_{109} - v_{113} \end{aligned} \quad (260)$$

8.2 Species Grb2

Name Grb2

Initial concentration $3.30538809753328 \text{ mol} \cdot \text{l}^{-1}$

This species takes part in 42 reactions (as a reactant in [r45](#), [r51](#), [r53](#), [r63](#), [r67](#), [r69](#), [r71](#), [r85](#), [r87](#), [r97](#), [r101](#), [r103](#), [r105](#), [r119](#) and as a product in [r46](#), [r52](#), [r54](#), [r64](#), [r68](#), [r70](#), [r72](#), [r86](#), [r88](#), [r98](#), [r102](#), [r104](#), [r106](#), [r120](#) and as a modifier in [r45](#), [r51](#), [r53](#), [r63](#), [r67](#), [r69](#), [r71](#), [r85](#), [r87](#), [r97](#), [r101](#), [r103](#), [r105](#), [r119](#)).

$$\begin{aligned} \frac{d}{dt}\text{Grb2} = & v_{46} + v_{52} + v_{54} + v_{64} + v_{68} + v_{70} + v_{72} + v_{86} + v_{88} + v_{98} \\ & + v_{102} + v_{104} + v_{106} + v_{120} - v_{45} - v_{51} - v_{53} - v_{63} - v_{67} \\ & - v_{69} - v_{71} - v_{85} - v_{87} - v_{97} - v_{101} - v_{103} - v_{105} - v_{119} \end{aligned} \quad (261)$$

8.3 Species CG

Name CG

Initial concentration 0.0146119024667186 mol · l⁻¹

This species takes part in 30 reactions (as a reactant in [r46](#), [r49](#), [r55](#), [r61](#), [r65](#), [r77](#), [r89](#), [r95](#), [r99](#), [r111](#) and as a product in [r45](#), [r50](#), [r56](#), [r62](#), [r66](#), [r78](#), [r90](#), [r96](#), [r100](#), [r112](#) and as a modifier in [r46](#), [r49](#), [r55](#), [r61](#), [r65](#), [r77](#), [r89](#), [r95](#), [r99](#), [r111](#)).

$$\begin{aligned} \frac{d}{dt}\text{CG} = & v_{45} + v_{50} + v_{56} + v_{62} + v_{66} + v_{78} + v_{90} + v_{96} + v_{100} + v_{112} \\ & - v_{46} - v_{49} - v_{55} - v_{61} - v_{65} - v_{77} - v_{89} - v_{95} - v_{99} - v_{111} \end{aligned} \quad (262)$$

8.4 Species Tyr

Name Tyr

Involved in rule [Tyr](#)

One rule which determines this species' quantity.

8.5 Species Ub

Name Ub

Involved in rule [Ub](#)

One rule which determines this species' quantity.

8.6 Species TyrNorm

Name TyrNorm

Involved in rule [TyrNorm](#)

One rule which determines this species' quantity.

8.7 Species UbNorm

Name UbNorm

Involved in rule UbNorm

One rule which determines this species' quantity.

8.8 Species EGFR_00UU

Name EGFR_00UU

Initial concentration $0.833 \text{ mol} \cdot \text{l}^{-1}$

This species takes part in six reactions (as a reactant in [r23](#), [r24](#) and as a product in [r1](#), [r2](#) and as a modifier in [r23](#), [r24](#)).

$$\frac{d}{dt}\text{EGFR_00UU} = v_1 + v_2 - v_{23} - v_{24} \quad (263)$$

8.9 Species EGFR_10UU

Name EGFR_10UU

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

This species takes part in twelve reactions (as a reactant in [r1](#), [r25](#), [r47](#), [r49](#) and as a product in [r4](#), [r23](#), [r48](#), [r50](#) and as a modifier in [r1](#), [r25](#), [r47](#), [r49](#)).

$$\frac{d}{dt}\text{EGFR_10UU} = v_4 + v_{23} + v_{48} + v_{50} - v_1 - v_{25} - v_{47} - v_{49} \quad (264)$$

8.10 Species EGFR_10CU

Name EGFR_10CU

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

This species takes part in nine reactions (as a reactant in [r26](#), [r48](#), [r51](#) and as a product in [r5](#), [r47](#), [r52](#) and as a modifier in [r26](#), [r48](#), [r51](#)).

$$\frac{d}{dt}\text{EGFR_10CU} = v_5 + v_{47} + v_{52} - v_{26} - v_{48} - v_{51} \quad (265)$$

8.11 Species EGFR_10LU

Name EGFR_10LU

Initial concentration 0 mol · l⁻¹

This species takes part in nine reactions (as a reactant in [r27](#), [r50](#), [r52](#) and as a product in [r6](#), [r49](#), [r51](#) and as a modifier in [r27](#), [r50](#), [r52](#)).

$$\frac{d}{dt}\text{EGFR_10LU} = v_6 + v_{49} + v_{51} - v_{27} - v_{50} - v_{52} \quad (266)$$

8.12 Species EGFR_01UU

Name EGFR_01UU

Initial concentration 0 mol · l⁻¹

This species takes part in 15 reactions (as a reactant in [r2](#), [r28](#), [r29](#), [r53](#), [r55](#) and as a product in [r3](#), [r9](#), [r24](#), [r54](#), [r56](#) and as a modifier in [r2](#), [r28](#), [r29](#), [r53](#), [r55](#)).

$$\frac{d}{dt}\text{EGFR_01UU} = v_3 + v_9 + v_{24} + v_{54} + v_{56} - v_2 - v_{28} - v_{29} - v_{53} - v_{55} \quad (267)$$

8.13 Species EGFR_01UG

Name EGFR_01UG

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r30](#), [r31](#), [r54](#), [r57](#) and as a product in [r7](#), [r10](#), [r53](#), [r58](#) and as a modifier in [r30](#), [r31](#), [r54](#), [r57](#)).

$$\frac{d}{dt}\text{EGFR_01UG} = v_7 + v_{10} + v_{53} + v_{58} - v_{30} - v_{31} - v_{54} - v_{57} \quad (268)$$

8.14 Species EGFR_01UL

Name EGFR_01UL

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r32](#), [r33](#), [r56](#), [r58](#) and as a product in [r8](#), [r11](#), [r55](#), [r57](#) and as a modifier in [r32](#), [r33](#), [r56](#), [r58](#)).

$$\frac{d}{dt}\text{EGFR_01UL} = v_8 + v_{11} + v_{55} + v_{57} - v_{32} - v_{33} - v_{56} - v_{58} \quad (269)$$

8.15 Species EGFR_11UU

Name EGFR_11UU

Initial concentration 0 mol · l⁻¹

This species takes part in 21 reactions (as a reactant in [r3](#), [r4](#), [r34](#), [r59](#), [r61](#), [r63](#), [r65](#) and as a product in [r13](#), [r25](#), [r28](#), [r60](#), [r62](#), [r64](#), [r66](#) and as a modifier in [r3](#), [r4](#), [r34](#), [r59](#), [r61](#), [r63](#), [r65](#)).

$$\frac{d}{dt}\text{EGFR_11UU} = v_{13} + v_{25} + v_{28} + v_{60} + v_{62} + v_{64} + v_{66} - v_3 - v_4 - v_{34} - v_{59} - v_{61} - v_{63} - v_{65} \quad (270)$$

8.16 Species EGFR_11CU

Name EGFR_11CU

Initial concentration 0 mol · l⁻¹

This species takes part in 15 reactions (as a reactant in [r5](#), [r35](#), [r60](#), [r67](#), [r69](#) and as a product in [r14](#), [r26](#), [r59](#), [r68](#), [r70](#) and as a modifier in [r5](#), [r35](#), [r60](#), [r67](#), [r69](#)).

$$\frac{d}{dt}\text{EGFR_11CU} = v_{14} + v_{26} + v_{59} + v_{68} + v_{70} - v_5 - v_{35} - v_{60} - v_{67} - v_{69} \quad (271)$$

8.17 Species EGFR_11LU

Name EGFR_11LU

Initial concentration 0 mol · l⁻¹

This species takes part in 18 reactions (as a reactant in [r6](#), [r36](#), [r62](#), [r68](#), [r71](#), [r73](#) and as a product in [r15](#), [r27](#), [r61](#), [r67](#), [r72](#), [r74](#) and as a modifier in [r6](#), [r36](#), [r62](#), [r68](#), [r71](#), [r73](#)).

$$\frac{d}{dt}\text{EGFR_11LU} = v_{15} + v_{27} + v_{61} + v_{67} + v_{72} + v_{74} - v_6 - v_{36} - v_{62} - v_{68} - v_{71} - v_{73} \quad (272)$$

8.18 Species EGFR_11UG

Name EGFR_11UG

Initial concentration 0 mol · l⁻¹

This species takes part in 18 reactions (as a reactant in [r7](#), [r37](#), [r64](#), [r75](#), [r77](#), [r79](#) and as a product in [r17](#), [r30](#), [r63](#), [r76](#), [r78](#), [r80](#) and as a modifier in [r7](#), [r37](#), [r64](#), [r75](#), [r77](#), [r79](#)).

$$\frac{d}{dt}\text{EGFR_11UG} = v_{17} + v_{30} + v_{63} + v_{76} + v_{78} + v_{80} - v_7 - v_{37} - v_{64} - v_{75} - v_{77} - v_{79} \quad (273)$$

8.19 Species EGFR_11UL

Name EGFR_11UL

Initial concentration 0 mol · l⁻¹

This species takes part in 15 reactions (as a reactant in [r8](#), [r38](#), [r66](#), [r80](#), [r81](#) and as a product in [r19](#), [r32](#), [r65](#), [r79](#), [r82](#) and as a modifier in [r8](#), [r38](#), [r66](#), [r80](#), [r81](#)).

$$\frac{d}{dt}\text{EGFR_11UL} = v_{19} + v_{32} + v_{65} + v_{79} + v_{82} - v_8 - v_{38} - v_{66} - v_{80} - v_{81} \quad (274)$$

8.20 Species EGFR_11CG

Name EGFR_11CG

Initial concentration 0 mol · l⁻¹

This species takes part in 15 reactions (as a reactant in [r39](#), [r70](#), [r76](#), [r83](#), [r85](#) and as a product in [r20](#), [r69](#), [r75](#), [r84](#), [r86](#) and as a modifier in [r39](#), [r70](#), [r76](#), [r83](#), [r85](#)).

$$\frac{d}{dt}\text{EGFR_11CG} = v_{20} + v_{69} + v_{75} + v_{84} + v_{86} - v_{39} - v_{70} - v_{76} - v_{83} - v_{85} \quad (275)$$

8.21 Species EGFR_11CC

Name EGFR_11CC

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r40](#), [r74](#), [r82](#), [r84](#) and as a product in [r21](#), [r73](#), [r81](#), [r83](#) and as a modifier in [r40](#), [r74](#), [r82](#), [r84](#)).

$$\frac{d}{dt}\text{EGFR_11CC} = v_{21} + v_{73} + v_{81} + v_{83} - v_{40} - v_{74} - v_{82} - v_{84} \quad (276)$$

8.22 Species EGFR_11LG

Name EGFR_11LG

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r41](#), [r72](#), [r78](#), [r86](#) and as a product in [r22](#), [r71](#), [r77](#), [r85](#) and as a modifier in [r41](#), [r72](#), [r78](#), [r86](#)).

$$\frac{d}{dt}\text{EGFR_11LG} = v_{22} + v_{71} + v_{77} + v_{85} - v_{41} - v_{72} - v_{78} - v_{86} \quad (277)$$

8.23 Species EGFR_02UU

Name EGFR_02UU

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r9](#), [r42](#), [r87](#), [r89](#) and as a product in [r12](#), [r29](#), [r88](#), [r90](#) and as a modifier in [r9](#), [r42](#), [r87](#), [r89](#)).

$$\frac{d}{dt}\text{EGFR_02UU} = v_{12} + v_{29} + v_{88} + v_{90} - v_9 - v_{42} - v_{87} - v_{89} \quad (278)$$

8.24 Species EGFR_02UG

Name EGFR_02UG

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r10](#), [r43](#), [r88](#), [r91](#) and as a product in [r16](#), [r31](#), [r87](#), [r92](#) and as a modifier in [r10](#), [r43](#), [r88](#), [r91](#)).

$$\frac{d}{dt}\text{EGFR_02UG} = v_{16} + v_{31} + v_{87} + v_{92} - v_{10} - v_{43} - v_{88} - v_{91} \quad (279)$$

8.25 Species EGFR_02UL

Name EGFR_02UL

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r11](#), [r44](#), [r90](#), [r92](#) and as a product in [r18](#), [r33](#), [r89](#), [r91](#) and as a modifier in [r11](#), [r44](#), [r90](#), [r92](#)).

$$\frac{d}{dt}\text{EGFR_02UL} = v_{18} + v_{33} + v_{89} + v_{91} - v_{11} - v_{44} - v_{90} - v_{92} \quad (280)$$

8.26 Species EGFR_12UU

Name EGFR_12UU

Initial concentration 0 mol · l⁻¹

This species takes part in 18 reactions (as a reactant in [r12](#), [r13](#), [r93](#), [r95](#), [r97](#), [r99](#) and as a product in [r34](#), [r42](#), [r94](#), [r96](#), [r98](#), [r100](#) and as a modifier in [r12](#), [r13](#), [r93](#), [r95](#), [r97](#), [r99](#)).

$$\begin{aligned} \frac{d}{dt}\text{EGFR_12UU} = & v_{34} + v_{42} + v_{94} + v_{96} + v_{98} + v_{100} \\ & - v_{12} - v_{13} - v_{93} - v_{95} - v_{97} - v_{99} \end{aligned} \quad (281)$$

8.27 Species EGFR_12CU

Name EGFR_12CU

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r14](#), [r94](#), [r101](#), [r103](#) and as a product in [r35](#), [r93](#), [r102](#), [r104](#) and as a modifier in [r14](#), [r94](#), [r101](#), [r103](#)).

$$\frac{d}{dt}\text{EGFR_12CU} = v_{35} + v_{93} + v_{102} + v_{104} - v_{14} - v_{94} - v_{101} - v_{103} \quad (282)$$

8.28 Species EGFR_12LU

Name EGFR_12LU

Initial concentration 0 mol · l⁻¹

This species takes part in 15 reactions (as a reactant in [r15](#), [r96](#), [r102](#), [r105](#), [r107](#) and as a product in [r36](#), [r95](#), [r101](#), [r106](#), [r108](#) and as a modifier in [r15](#), [r96](#), [r102](#), [r105](#), [r107](#)).

$$\frac{d}{dt}\text{EGFR_12LU} = v_{36} + v_{95} + v_{101} + v_{106} + v_{108} - v_{15} - v_{96} - v_{102} - v_{105} - v_{107} \quad (283)$$

8.29 Species EGFR_12UG

Name EGFR_12UG

Initial concentration 0 mol · l⁻¹

This species takes part in 18 reactions (as a reactant in [r16](#), [r17](#), [r98](#), [r109](#), [r111](#), [r113](#) and as a product in [r37](#), [r43](#), [r97](#), [r110](#), [r112](#), [r114](#) and as a modifier in [r16](#), [r17](#), [r98](#), [r109](#), [r111](#), [r113](#)).

$$\begin{aligned} \frac{d}{dt}\text{EGFR_12UG} = & v_{37} + v_{43} + v_{97} + v_{110} + v_{112} + v_{114} \\ & - v_{16} - v_{17} - v_{98} - v_{109} - v_{111} - v_{113} \end{aligned} \quad (284)$$

8.30 Species EGFR_12UL

Name EGFR_12UL

Initial concentration 0 mol · l⁻¹

This species takes part in 15 reactions (as a reactant in [r18](#), [r19](#), [r100](#), [r114](#), [r115](#) and as a product in [r38](#), [r44](#), [r99](#), [r113](#), [r116](#) and as a modifier in [r18](#), [r19](#), [r100](#), [r114](#), [r115](#)).

$$\frac{d}{dt}\text{EGFR_12UL} = v_{38} + v_{44} + v_{99} + v_{113} + v_{116} - v_{18} - v_{19} - v_{100} - v_{114} - v_{115} \quad (285)$$

8.31 Species EGFR_12CG

Name EGFR_12CG

Initial concentration 0 mol · l⁻¹

This species takes part in 15 reactions (as a reactant in [r20](#), [r104](#), [r110](#), [r117](#), [r119](#) and as a product in [r39](#), [r103](#), [r109](#), [r118](#), [r120](#) and as a modifier in [r20](#), [r104](#), [r110](#), [r117](#), [r119](#)).

$$\frac{d}{dt}\text{EGFR_12CG} = v_{39} + v_{103} + v_{109} + v_{118} + v_{120} - v_{20} - v_{104} - v_{110} - v_{117} - v_{119} \quad (286)$$

8.32 Species EGFR_12CC

Name EGFR_12CC

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r21](#), [r108](#), [r116](#), [r118](#) and as a product in [r40](#), [r107](#), [r115](#), [r117](#) and as a modifier in [r21](#), [r108](#), [r116](#), [r118](#)).

$$\frac{d}{dt}\text{EGFR_12CC} = v_{40} + v_{107} + v_{115} + v_{117} - v_{21} - v_{108} - v_{116} - v_{118} \quad (287)$$

8.33 Species EGFR_12LG

Name EGFR_12LG

Initial concentration 0 mol · l⁻¹

This species takes part in twelve reactions (as a reactant in [r22](#), [r106](#), [r112](#), [r120](#) and as a product in [r41](#), [r105](#), [r111](#), [r119](#) and as a modifier in [r22](#), [r106](#), [r112](#), [r120](#)).

$$\frac{d}{dt}\text{EGFR_12LG} = v_{41} + v_{105} + v_{111} + v_{119} - v_{22} - v_{106} - v_{112} - v_{120} \quad (288)$$

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