<?xml version="1.0" encoding="UTF-8"?>

<!-- This model was downloaded from BioModels Database -->

<!-- Thu Mar 03 22:08:56 GMT 2011 -->

<!-- http://www.ebi.ac.uk/biomodels/ -->

<sbml xmlns="http://www.sbml.org/sbml/level2/version3" metaid="metaid\_0000001" level="2" version="3">

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 <notes>

 ########## Distributed Biodata and Biomodel Resource Annotations ########################

 ## In this file Ontology Term URN Ontology Term Synonyms

 ## DBBR: Rasi urn:miriam:interpro:IPR001806 Small GTPase superfamily

 ## DBBR: D urn:miriam:interpro:IPR003351 Dishevelled protein

 ## DBBR: N urn:miriam:interpro:IPR008297 Notch

 ## DBBR: ERKa urn:miriam:interpro:IPR008349 ERK1/2 MAP kinase

 ## DBBR: Bp urn:miriam:interpro:IPR013284 Beta-catenin

 ## DBBR: Fgf urn:miriam:interpro:IPR017338 Fibroblast growth factor, 15/19/21

 ## DBBR: MF urn:miriam:interpro:IPR017374 Fringe

 ## DBBR: Bp urn:miriam:kegg.compound:C00562 Phosphoprotein

 ## DBBR: urn:miriam:kegg.pathway:ko04330 Notch signaling pathway

 ## DBBR: Rasa urn:miriam:obo.chebi:CHEBI%3A15996 GTP Guanosine 5'-triphosphate

 ## DBBR: Rasi urn:miriam:obo.chebi:CHEBI%3A17552 GDP Guanosine 5'-diphosphate, Guanosine diphosphate

 ## DBBR: urn:miriam:obo.chebi:CHEBI%3A33699 messenger RNA

 ## DBBR: urn:miriam:obo.go:GO%3A0001756 somitogenesis formation of mesodermal clusters

 ## DBBR: cytosol urn:miriam:obo.go:GO%3A0005829 cytosol

 ## DBBR: urn:miriam:obo.go:GO%3A0006402 mRNA catabolic process mRNA breakdown, mRNA catabolism, mRNA degradation

 ## DBBR: urn:miriam:obo.go:GO%3A0006412 translation protein biosynthesis, protein formation

 ## DBBR: urn:miriam:obo.go:GO%3A0006468 protein phosphorylation protein amino acid phosphorylation

 ## DBBR: urn:miriam:reactome:REACT\_11045.1 Pathway: Signaling by Wnt (Homo sapiens)

 ## DBBR: urn:miriam:reactome:REACT\_11065.1 Pathway: Beta-catenin phosphorylation cascade (Homo sapiens)

 ## DBBR: urn:miriam:reactome:REACT\_1482.4 Pathway: ERK activation (Homo sapiens)

 ## DBBR: urn:miriam:reactome:REACT\_299.2 Pathway: Signaling by Notch (Homo sapiens)

 ## DBBR: urn:miriam:reactome:REACT\_9470.2 Pathway: Signaling by FGFR (Homo sapiens)

 ## DBBR: urn:miriam:taxonomy:32524 Amniota amniotes

 ## DBBR: D urn:miriam:uniprot:O14640 DVL1 Segment polarity protein dishevelled homolog DVL-1 Dishevelled-1, DSH homolog 1

 ## DBBR: Bp urn:miriam:uniprot:P35222 Catenin beta-1 Beta-catenin, CTNNB1, CTNNB

 ## DBBR: N urn:miriam:uniprot:P46531 Notch 1 Neurogenic locus notch homolog protein 1, hN1, Translocation-associated notch protein TAN-1, Notch1, Tan1

 ## DBBR: K urn:miriam:uniprot:P49841 GSK-3 beta Glycogen synthase kinase-3 beta, GSK3B

 ## DBBR: MDusp urn:miriam:uniprot:Q16828 DUSP6 Dual specificity protein phosphatase 6, Dual specificity protein phosphatase PYST1, Mitogen-activated protein kinase phosphatase 3, MKP3, PYST1

 ## DBBR: MF urn:miriam:uniprot:Q8NES3 LFNG Beta-1,3-N-acetylglucosaminyltransferase lunatic fringe, O-fucosylpeptide 3-beta-N-acetylglucosaminyltransferase

 ## DBBR: A urn:miriam:uniprot:Q9Y2T1 AXIN2 Axin-2, Axin-like protein, Axil, Axis inhibition protein 2, Conductin

 <p xmlns="http://www.w3.org/1999/xhtml">This is a model of the coupled Natch, Wnt and FGF modules as described in:

 <br/>

 <b>A. Goldbeter and O. Pourquié</b>,

 <em>Modeling the segmentation clock as a network of coupled oscillations in the Notch, Wnt and FGF signaling pathways.</em> J Theor Biol. 2008 Jun 7;252(3):574-85, pubmed ID:

 <a href="http://www.ncbi.nlm.nih.gov/pubmed/18308339">18308339</a>

 <br/>

To uncouple the modules remove the reaction

 <em>MAx\_trans\_Xa</em> and set

 <em>vsFK=vsF</em>.

 <br/>

The SBML version of the model was converted from the CellML

 <a href="http://www.cellml.org/models/goldbeter\_pourquie\_2008\_version02">version</a> by Catherine Lloyd for the

 <a href="http://www.cellml.org/models"> CellML repository </a>.

</p>

 <p xmlns="http://www.w3.org/1999/xhtml">This model originates from BioModels Database: A Database of Annotated Published Models (http://www.ebi.ac.uk/biomodels/). It is copyright (c) 2005-2010 The BioModels.net Team.<br/>

For more information see the <a href="http://www.ebi.ac.uk/biomodels/legal.html" target="\_blank">terms of use</a>.<br/>

To cite BioModels Database, please use: <a href="http://www.ncbi.nlm.nih.gov/pubmed/20587024" target="\_blank">Li C, Donizelli M, Rodriguez N, Dharuri H, Endler L, Chelliah V, Li L, He E, Henry A, Stefan MI, Snoep JL, Hucka M, Le Novère N, Laibe C (2010) BioModels Database: An enhanced, curated and annotated resource for published quantitative kinetic models. BMC Syst Biol., 4:92.</a>

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 <vCard:Given>Catherine</vCard:Given>

 </vCard:N>

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 <rdf:Description rdf:about="#metaid\_0000109">

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 <rdf:li rdf:resource="urn:miriam:interpro:IPR008349"/>

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 </rdf:Description>

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 </species>

 <species metaid="metaid\_0000110" id="Xa" name="active TF X" compartment="cytosol" initialConcentration="0.1" sboTerm="SBO:0000252">

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 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000110">

 <bqbiol:isVersionOf>

 <rdf:Bag>

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 </rdf:Description>

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 </species>

 <species metaid="metaid\_0000111" id="MDusp" name="Dusp6 mRNA" compartment="cytosol" initialConcentration="0.1" sboTerm="SBO:0000250">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

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 <rdf:li rdf:resource="urn:miriam:uniprot:Q16828"/>

 </rdf:Bag>

 </bqbiol:encodes>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 </species>

 <species metaid="metaid\_0000112" id="Dusp" name="Dusp6 protein" compartment="cytosol" initialConcentration="0.1" sboTerm="SBO:0000252">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

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 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:uniprot:Q16828"/>

 </rdf:Bag>

 </bqbiol:isHomologTo>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 </species>

 <species metaid="metaid\_0000113" id="Rasi" name="inactive Ras" compartment="cytosol" boundaryCondition="true" sboTerm="SBO:0000252">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000113">

 <bqbiol:hasVersion>

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 <rdf:li rdf:resource="urn:miriam:obo.chebi:CHEBI%3A17552"/>

 <rdf:li rdf:resource="urn:miriam:interpro:IPR001806"/>

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 </bqbiol:hasVersion>

 </rdf:Description>

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 <species metaid="metaid\_0000114" id="ERKi" name="inactive ERK" compartment="cytosol" boundaryCondition="true" sboTerm="SBO:0000252">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000114">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:interpro:IPR008349"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

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 <species metaid="metaid\_0000115" id="Xi" name="inactive TF X" compartment="cytosol" boundaryCondition="true" sboTerm="SBO:0000252">

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 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:interpro:IPR006715"/>

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 <annotation>

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 <rdf:Description rdf:about="#metaid\_0000116">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:interpro:IPR001806"/>

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 </bqbiol:isVersionOf>

 </rdf:Description>

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 </species>

 <species metaid="metaid\_0000117" id="ERKt" name="ERK total" compartment="cytosol" initialConcentration="2" sboTerm="SBO:0000252">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000117">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:interpro:IPR008349"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 </species>

 <species metaid="metaid\_0000118" id="Xt" name="X total" compartment="cytosol" initialConcentration="2" sboTerm="SBO:0000252">

 <annotation>

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 <rdf:Description rdf:about="#metaid\_0000118">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:interpro:IPR006715"/>

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 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 </species>

 <species metaid="metaid\_0000119" id="D" name="Dsh protein" compartment="cytosol" initialConcentration="2" sboTerm="SBO:0000252">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000119">

 <bqbiol:isHomologTo>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:uniprot:O14640"/>

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 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:interpro:IPR003351"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

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 </annotation>

 </species>

 <species metaid="metaid\_0000120" id="AK" name="Axin2/Gsk3 destruction complex" compartment="cytosol" boundaryCondition="true" sboTerm="SBO:0000297">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000120">

 <bqbiol:hasPart>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:uniprot:P49841"/>

 <rdf:li rdf:resource="urn:miriam:uniprot:Q9Y2T1"/>

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 </bqbiol:hasPart>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 </species>

 <species metaid="metaid\_0000047" id="Kt" name="Kt" compartment="cytosol" initialConcentration="3" constant="true" sboTerm="SBO:0000252">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000047">

 <bqbiol:isHomologTo>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:uniprot:P49841"/>

 </rdf:Bag>

 </bqbiol:isHomologTo>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 </species>

 <species metaid="metaid\_0000075" id="Fgf" name="Fgf" compartment="cytosol" initialConcentration="1" constant="true" sboTerm="SBO:0000252">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000075">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:interpro:IPR017338"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

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 <parameter metaid="metaid\_0000009" id="KdN" name="KdN" value="1.4" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000010" id="vsN" name="vsN" value="0.23" units="flux" sboTerm="SBO:0000048"/>

 <parameter metaid="metaid\_0000011" id="vdN" name="vdN" value="2.82" units="flux" sboTerm="SBO:0000324"/>

 <parameter metaid="metaid\_0000013" id="KdNa" name="KdNa" value="0.001" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000014" id="VdNa" name="VdNa" value="0.01" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000015" id="kt1" name="kt1" value="0.1" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000016" id="kt2" name="kt2" value="0.1" units="first\_order\_rate\_constant" sboTerm="SBO:0000032"/>

 <parameter metaid="metaid\_0000017" id="KdNan" name="KdNan" value="0.001" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000018" id="VdNan" name="VdNan" value="0.1" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000019" id="KdMF" name="KdMF" value="0.768" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000020" id="KIG1" name="KIG1" value="2.5" units="nanomolar"/>

 <parameter metaid="metaid\_0000021" id="vsFK" name="vsFK" units="flux" constant="false" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000022" id="vsF" name="vsF" value="3" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000023" id="vmF" name="vmF" value="1.92" units="flux" sboTerm="SBO:0000186"/>

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 <parameter metaid="metaid\_0000025" id="KdF" name="KdF" value="0.37" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000026" id="vdF" name="vdF" value="0.39" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000027" id="ksF" name="ksF" value="0.3" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000028" id="kd1" name="kd1" value="0" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000029" id="vsB" name="vsB" value="0.087" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000030" id="kd2" name="kd2" value="7.062" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000031" id="v0" name="v0" value="0.06" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000032" id="vMB" name="vMB" value="1.64" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000033" id="vmd" name="vmd" value="0.8" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000034" id="KaB" name="KaB" value="0.7" units="nanomolar"/>

 <parameter metaid="metaid\_0000035" id="KaXa" name="KaXa" value="0.05" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000036" id="Kmd" name="Kmd" value="0.48" units="nanomolar"/>

 <parameter metaid="metaid\_0000037" id="n" name="n" value="2" units="dimensionless" sboTerm="SBO:0000190"/>

 <parameter metaid="metaid\_0000038" id="m" name="m" value="2" units="dimensionless" sboTerm="SBO:0000190"/>

 <parameter metaid="metaid\_0000039" id="vMXa" name="vMXa" value="0.5" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000040" id="ksAx" name="ksAx" value="0.02" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000041" id="vdAx" name="vdAx" value="0.6" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000042" id="KdAx" name="KdAx" value="0.63" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000048" id="d1" name="d1" value="0.1" units="first\_order\_rate\_constant" sboTerm="SBO:0000338"/>

 <parameter metaid="metaid\_0000049" id="a1" name="a1" value="1.8" units="second\_order\_rate\_constant" sboTerm="SBO:0000023"/>

 <parameter metaid="metaid\_0000050" id="K1" name="K1" value="0.28" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000051" id="K2" name="K2" value="0.03" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000052" id="kt3" name="kt3" value="0.7" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000053" id="kt4" name="kt4" value="1.5" units="first\_order\_rate\_constant" sboTerm="SBO:0000032"/>

 <parameter metaid="metaid\_0000056" id="ksDusp" name="ksDusp" value="0.5" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000057" id="vdDusp" name="vdDusp" value="2" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000058" id="KdDusp" name="KdDusp" value="0.5" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000067" id="kcDusp" name="kcDusp" value="1.35" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000076" id="KaFgf" name="KaFgf" value="0.5" units="nanomolar" sboTerm="SBO:0000191"/>

 <parameter metaid="metaid\_0000077" id="KaRas" name="KaRas" value="0.103" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000078" id="KdRas" name="KdRas" value="0.1" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000079" id="KdErk" name="KdErk" value="0.05" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000080" id="KaErk" name="KaErk" value="0.05" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000081" id="KaX" name="KaX" value="0.05" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000082" id="KIF" name="KIF" value="0.5" units="nanomolar" sboTerm="SBO:0000191"/>

 <parameter metaid="metaid\_0000083" id="KID" name="KID" value="0.5" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000084" id="KdX" name="KdX" value="0.05" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000085" id="KaMDusp" name="KaMDusp" value="0.5" units="nanomolar" sboTerm="SBO:0000191"/>

 <parameter metaid="metaid\_0000086" id="KdMDusp" name="KdMDusp" value="0.5" units="nanomolar" sboTerm="SBO:0000027"/>

 <parameter metaid="metaid\_0000087" id="q" name="q" value="2" units="dimensionless" sboTerm="SBO:0000190"/>

 <parameter metaid="metaid\_0000088" id="r" name="r" value="2" units="dimensionless" sboTerm="SBO:0000191"/>

 <parameter metaid="metaid\_0000089" id="kc" name="kc" value="3.45" units="first\_order\_rate\_constant" sboTerm="SBO:0000022"/>

 <parameter metaid="metaid\_0000090" id="j" name="j" value="2" units="dimensionless" sboTerm="SBO:0000191"/>

 <parameter metaid="metaid\_0000091" id="p" name="p" value="2" units="dimensionless" sboTerm="SBO:0000191"/>

 <parameter metaid="metaid\_0000092" id="epsilon" name="epsilon" value="0.3" units="dimensionless" sboTerm="SBO:0000381"/>

 <parameter metaid="metaid\_0000093" id="theta" name="theta" value="1.5" units="dimensionless" sboTerm="SBO:0000381"/>

 <parameter metaid="metaid\_0000094" id="eta" name="eta" value="0.3" units="dimensionless" sboTerm="SBO:0000381"/>

 <parameter metaid="metaid\_0000136" id="VMsMDusp" name="VMsMDusp" value="0.9" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000137" id="VMdMDusp" name="VMdMDusp" value="0.5" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000138" id="VMK" name="VMK" value="5.08" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000139" id="VMP" name="VMP" value="1" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000140" id="VMaRas" name="VMaRas" value="4.968" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000141" id="VMdRas" name="VMdRas" value="0.41" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000142" id="VMaErk" name="VMaErk" value="3.3" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000143" id="VMaX" name="VMaX" value="1.6" units="flux" sboTerm="SBO:0000186"/>

 <parameter metaid="metaid\_0000144" id="VMdX" name="VMdX" value="0.5" units="flux" sboTerm="SBO:0000186"/>

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 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> vsF </ci>

 <apply>

 <divide/>

 <ci> KIG1 </ci>

 <apply>

 <plus/>

 <ci> KIG1 </ci>

 <ci> K </ci>

 </apply>

 </apply>

 </apply>

 </math>

 </assignmentRule>

 <assignmentRule metaid="metaid\_0000123" variable="AK">

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <minus/>

 <ci> Kt </ci>

 <ci> K </ci>

 </apply>

 </math>

 </assignmentRule>

 <assignmentRule metaid="metaid\_0000128" variable="Rasi">

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <minus/>

 <ci> Rast </ci>

 <ci> Rasa </ci>

 </apply>

 </math>

 </assignmentRule>

 <assignmentRule metaid="metaid\_0000131" variable="ERKi">

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <minus/>

 <ci> ERKt </ci>

 <ci> ERKa </ci>

 </apply>

 </math>

 </assignmentRule>

 <assignmentRule metaid="metaid\_0000134" variable="Xi">

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <minus/>

 <ci> Xt </ci>

 <ci> Xa </ci>

 </apply>

 </math>

 </assignmentRule>

 </listOfRules>

 <listOfReactions>

 <reaction metaid="metaid\_0000155" id="n\_synth" name="Notch\_synthesis" reversible="false">

 <annotation>

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 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0010467"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="N"/>

 </listOfProducts>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> cytosol </ci>

 <ci> epsilon </ci>

 <ci> vsN </ci>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000156" id="N\_degradation" name="N\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

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 <rdf:Description rdf:about="#metaid\_0000156">

 <bqbiol:isVersionOf>

 <rdf:Bag>

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 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

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 <speciesReference species="N"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <ci> vdN </ci>

 <ci> N </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdN </ci>

 <ci> N </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000157" id="N\_activation" name="Notch\_activation" reversible="false" sboTerm="SBO:0000178">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000157">

 <bqbiol:isVersionOf>

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 <rdf:li rdf:resource="urn:miriam:reactome:REACT\_691.2"/>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0007220"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

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 <speciesReference species="N"/>

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 <listOfProducts>

 <speciesReference species="Na"/>

 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="F"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <ci> kc </ci>

 <ci> N </ci>

 <apply>

 <power/>

 <ci> KIF </ci>

 <ci> j </ci>

 </apply>

 </apply>

 <apply>

 <plus/>

 <apply>

 <power/>

 <ci> KIF </ci>

 <ci> j </ci>

 </apply>

 <apply>

 <power/>

 <ci> F </ci>

 <ci> j </ci>

 </apply>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000158" id="Na\_degradation" name="Na\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000158">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0030163"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="Na"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <ci> VdNa </ci>

 <ci> Na </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdNa </ci>

 <ci> Na </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000159" id="Na\_transport" sboTerm="SBO:0000185">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000159">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:reactome:REACT\_2155.3"/>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006913"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="Na"/>

 </listOfReactants>

 <listOfProducts>

 <speciesReference species="Nan"/>

 </listOfProducts>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <apply>

 <minus/>

 <apply>

 <times/>

 <ci> kt1 </ci>

 <ci> Na </ci>

 </apply>

 <apply>

 <times/>

 <ci> kt2 </ci>

 <ci> Nan </ci>

 </apply>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000160" id="Nan\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000160">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0030163"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="Nan"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <ci> VdNan </ci>

 <ci> Nan </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdNan </ci>

 <ci> Nan </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000161" id="MF\_transkription" reversible="false" sboTerm="SBO:0000183">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000161">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0009299"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="MF"/>

 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="Nan"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <ci> vsFK </ci>

 <apply>

 <power/>

 <ci> Nan </ci>

 <ci> p </ci>

 </apply>

 </apply>

 <apply>

 <plus/>

 <apply>

 <power/>

 <ci> KA </ci>

 <ci> p </ci>

 </apply>

 <apply>

 <power/>

 <ci> Nan </ci>

 <ci> p </ci>

 </apply>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000162" id="MF\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000162">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006402"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="MF"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <ci> vmF </ci>

 <ci> MF </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdMF </ci>

 <ci> MF </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000163" id="F\_translation" reversible="false" sboTerm="SBO:0000184">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000163">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006412"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="F"/>

 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="MF"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <ci> ksF </ci>

 <ci> MF </ci>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000164" id="F\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000164">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0030163"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="F"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> epsilon </ci>

 <ci> cytosol </ci>

 <ci> vdF </ci>

 <ci> F </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdF </ci>

 <ci> F </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000165" id="AK\_dissoc" sboTerm="SBO:0000180">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000165">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0043241"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="AK"/>

 </listOfReactants>

 <listOfProducts>

 <speciesReference species="A"/>

 <speciesReference species="K"/>

 </listOfProducts>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <apply>

 <minus/>

 <apply>

 <times/>

 <ci> d1 </ci>

 <ci> AK </ci>

 </apply>

 <apply>

 <times/>

 <ci> a1 </ci>

 <ci> A </ci>

 <ci> K </ci>

 </apply>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000166" id="B\_synth" reversible="false">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000166">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0010467"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="B"/>

 </listOfProducts>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> vsB </ci>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000167" id="B\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000167">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0030163"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="B"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> kd1 </ci>

 <ci> B </ci>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000168" id="B\_phosphorylation" reversible="false" sboTerm="SBO:0000216">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000168">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:reactome:REACT\_11065.1"/>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006468"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="B"/>

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 <listOfProducts>

 <speciesReference species="Bp"/>

 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="AK"/>

 <modifierSpeciesReference species="D"/>

 <modifierSpeciesReference species="Kt"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <apply>

 <divide/>

 <apply>

 <times/>

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> VMK </ci>

 <ci> KID </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KID </ci>

 <ci> D </ci>

 </apply>

 </apply>

 <ci> B </ci>

 </apply>

 <apply>

 <plus/>

 <ci> K1 </ci>

 <ci> B </ci>

 </apply>

 </apply>

 <ci> AK </ci>

 </apply>

 <ci> Kt </ci>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000169" id="BP\_dephosphorylation" reversible="false" sboTerm="SBO:0000330">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000169">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006470"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="Bp"/>

 </listOfReactants>

 <listOfProducts>

 <speciesReference species="B"/>

 </listOfProducts>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> VMP </ci>

 <ci> Bp </ci>

 </apply>

 <apply>

 <plus/>

 <ci> K2 </ci>

 <ci> Bp </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000170" id="B\_shuttling" sboTerm="SBO:0000185">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000170">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006913"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="BN"/>

 </listOfReactants>

 <listOfProducts>

 <speciesReference species="B"/>

 </listOfProducts>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <apply>

 <minus/>

 <apply>

 <times/>

 <ci> kt4 </ci>

 <ci> BN </ci>

 </apply>

 <apply>

 <times/>

 <ci> kt3 </ci>

 <ci> B </ci>

 </apply>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000171" id="Bp\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000171">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:reactome:REACT\_11063.1"/>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0030163"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="Bp"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> kd2 </ci>

 <ci> Bp </ci>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000172" id="MAx\_trans\_basal" reversible="false" sboTerm="SBO:0000183">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

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 <rdf:Bag>

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 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="MAx"/>

 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="BN"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> v0 </ci>

 </apply>

 </math>

 </kineticLaw>

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 <annotation>

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 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0009299"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

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 <speciesReference species="MAx"/>

 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="BN"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> vMB </ci>

 <apply>

 <power/>

 <ci> BN </ci>

 <ci> n </ci>

 </apply>

 </apply>

 <apply>

 <plus/>

 <apply>

 <power/>

 <ci> KaB </ci>

 <ci> n </ci>

 </apply>

 <apply>

 <power/>

 <ci> BN </ci>

 <ci> n </ci>

 </apply>

 </apply>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0100172" id="MAx\_trans\_Xa" reversible="false" sboTerm="SBO:0000183">

 <annotation>

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 <rdf:Bag>

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 </bqbiol:isVersionOf>

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 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="Xa"/>

 </listOfModifiers>

 <kineticLaw>

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 <apply>

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 <ci> theta </ci>

 <ci> cytosol </ci>

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> vMXa </ci>

 <apply>

 <power/>

 <ci> Xa </ci>

 <ci> m </ci>

 </apply>

 </apply>

 <apply>

 <plus/>

 <apply>

 <power/>

 <ci> KaXa </ci>

 <ci> m </ci>

 </apply>

 <apply>

 <power/>

 <ci> Xa </ci>

 <ci> m </ci>

 </apply>

 </apply>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000173" id="MAx\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

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 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006402"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

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 <speciesReference species="MAx"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

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 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> vmd </ci>

 <ci> MAx </ci>

 </apply>

 <apply>

 <plus/>

 <ci> Kmd </ci>

 <ci> MAx </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000174" id="A\_translation" reversible="false" sboTerm="SBO:0000184">

 <annotation>

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 <rdf:Description rdf:about="#metaid\_0000174">

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 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006412"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="A"/>

 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="MAx"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> ksAx </ci>

 <ci> MAx </ci>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000175" id="A\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000175">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0030163"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="A"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

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 <apply>

 <times/>

 <ci> theta </ci>

 <ci> cytosol </ci>

 <ci> vdAx </ci>

 <ci> A </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdAx </ci>

 <ci> A </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000176" id="Ras\_activation" reversible="false">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000176">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:reactome:REACT\_2010.5"/>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0032856"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

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 <speciesReference species="Rasa"/>

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 <listOfModifiers>

 <modifierSpeciesReference species="Rasi"/>

 <modifierSpeciesReference species="Fgf"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

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 <apply>

 <times/>

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> eta </ci>

 <ci> cytosol </ci>

 <ci> VMaRas </ci>

 <apply>

 <power/>

 <ci> Fgf </ci>

 <ci> r </ci>

 </apply>

 </apply>

 <apply>

 <plus/>

 <apply>

 <power/>

 <ci> KaFgf </ci>

 <ci> r </ci>

 </apply>

 <apply>

 <power/>

 <ci> Fgf </ci>

 <ci> r </ci>

 </apply>

 </apply>

 </apply>

 <ci> Rasi </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KaRas </ci>

 <ci> Rasi </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000177" id="Ras\_inactivation" reversible="false">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000177">

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 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0034261"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

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 <speciesReference species="Rasa"/>

 </listOfReactants>

 <kineticLaw>

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 <divide/>

 <apply>

 <times/>

 <ci> eta </ci>

 <ci> cytosol </ci>

 <ci> VMdRas </ci>

 <ci> Rasa </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdRas </ci>

 <ci> Rasa </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000178" id="Erk\_activation" reversible="false">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000178">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:reactome:REACT\_1482.4"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="ERKa"/>

 </listOfProducts>

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 <modifierSpeciesReference species="Rasa"/>

 <modifierSpeciesReference species="Rast"/>

 </listOfModifiers>

 <kineticLaw>

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 <apply>

 <times/>

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> eta </ci>

 <ci> cytosol </ci>

 <ci> VMaErk </ci>

 <ci> Rasa </ci>

 </apply>

 <ci> Rast </ci>

 </apply>

 <ci> ERKi </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KaErk </ci>

 <ci> ERKi </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000179" id="Erk\_inactivation" reversible="false">

 <annotation>

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 <rdf:Description rdf:about="#metaid\_0000179">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:reactome:REACT\_12436.1"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

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 <listOfReactants>

 <speciesReference species="ERKa"/>

 </listOfReactants>

 <listOfModifiers>

 <modifierSpeciesReference species="Dusp"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> eta </ci>

 <ci> cytosol </ci>

 <ci> kcDusp </ci>

 <ci> Dusp </ci>

 <ci> ERKa </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdErk </ci>

 <ci> ERKa </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000180" id="X\_activation" reversible="false">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000180">

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 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0051091"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="Xa"/>

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 <modifierSpeciesReference species="ERKa"/>

 <modifierSpeciesReference species="ERKt"/>

 <modifierSpeciesReference species="Xi"/>

 </listOfModifiers>

 <kineticLaw>

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 <apply>

 <times/>

 <apply>

 <divide/>

 <apply>

 <times/>

 <ci> eta </ci>

 <ci> cytosol </ci>

 <ci> VMaX </ci>

 <ci> ERKa </ci>

 </apply>

 <ci> ERKt </ci>

 </apply>

 <ci> Xi </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KaX </ci>

 <ci> Xi </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000181" id="X\_inactivation" reversible="false">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000181">

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 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0043433"/>

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 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfReactants>

 <speciesReference species="Xa"/>

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 <kineticLaw>

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 <apply>

 <times/>

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 <ci> cytosol </ci>

 <ci> VMdX </ci>

 <ci> Xa </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdX </ci>

 <ci> Xa </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000182" id="MDusp\_transkription" reversible="false" sboTerm="SBO:0000183">

 <annotation>

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 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0009299"/>

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 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="MDusp"/>

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 <listOfModifiers>

 <modifierSpeciesReference species="Xa"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

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 <apply>

 <times/>

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 <ci> cytosol </ci>

 <ci> VMsMDusp </ci>

 <apply>

 <power/>

 <ci> Xa </ci>

 <ci> q </ci>

 </apply>

 </apply>

 <apply>

 <plus/>

 <apply>

 <power/>

 <ci> KaMDusp </ci>

 <ci> q </ci>

 </apply>

 <apply>

 <power/>

 <ci> Xa </ci>

 <ci> q </ci>

 </apply>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000183" id="MDusp\_degradation" reversible="false" sboTerm="SBO:0000179">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000183">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006402"/>

 </rdf:Bag>

 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

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 <speciesReference species="MDusp"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

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 <divide/>

 <apply>

 <times/>

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 <ci> cytosol </ci>

 <ci> VMdMDusp </ci>

 <ci> MDusp </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdMDusp </ci>

 <ci> MDusp </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 <reaction metaid="metaid\_0000184" id="Dusp\_translation" reversible="false" sboTerm="SBO:0000184">

 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000184">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0006412"/>

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 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

 </annotation>

 <listOfProducts>

 <speciesReference species="Dusp"/>

 </listOfProducts>

 <listOfModifiers>

 <modifierSpeciesReference species="MDusp"/>

 </listOfModifiers>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

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 <ci> cytosol </ci>

 <ci> ksDusp </ci>

 <ci> MDusp </ci>

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 <annotation>

 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#" xmlns:bqbiol="http://biomodels.net/biology-qualifiers/" xmlns:bqmodel="http://biomodels.net/model-qualifiers/">

 <rdf:Description rdf:about="#metaid\_0000185">

 <bqbiol:isVersionOf>

 <rdf:Bag>

 <rdf:li rdf:resource="urn:miriam:obo.go:GO%3A0030163"/>

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 </bqbiol:isVersionOf>

 </rdf:Description>

 </rdf:RDF>

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 <listOfReactants>

 <speciesReference species="Dusp"/>

 </listOfReactants>

 <kineticLaw>

 <math xmlns="http://www.w3.org/1998/Math/MathML">

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 <divide/>

 <apply>

 <times/>

 <ci> eta </ci>

 <ci> cytosol </ci>

 <ci> vdDusp </ci>

 <ci> Dusp </ci>

 </apply>

 <apply>

 <plus/>

 <ci> KdDusp </ci>

 <ci> Dusp </ci>

 </apply>

 </apply>

 </math>

 </kineticLaw>

 </reaction>

 </listOfReactions>

</model>

</sbml>