



TERANODE

Presentation at SBGN-1 Workshop

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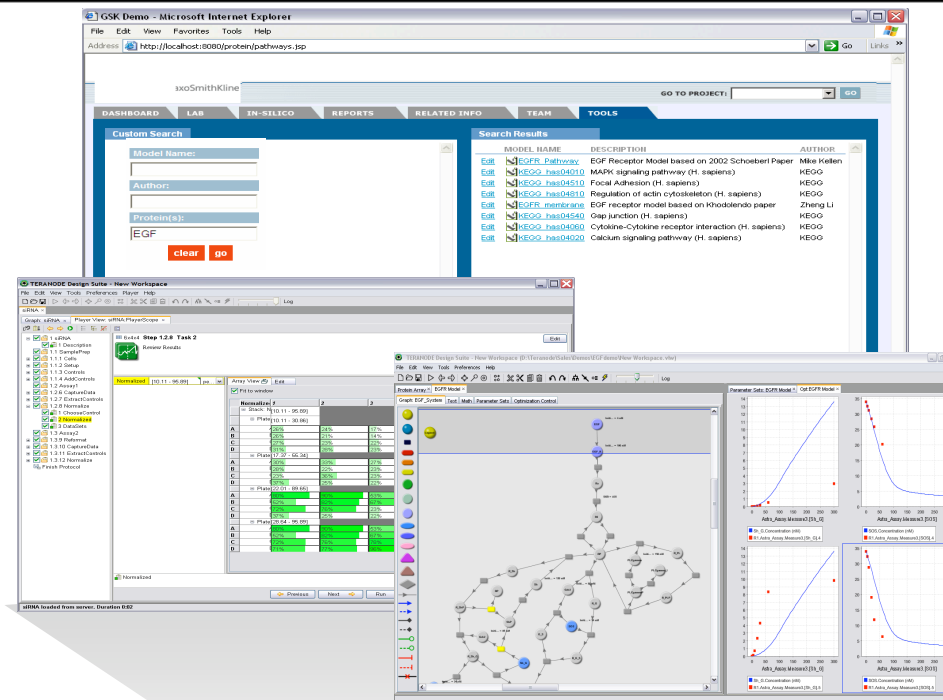
TERANODE®

TERANODE XDA Platform

TERANODE
Web Portal

TERANODE
Design Suite

TERANODE
Model Server



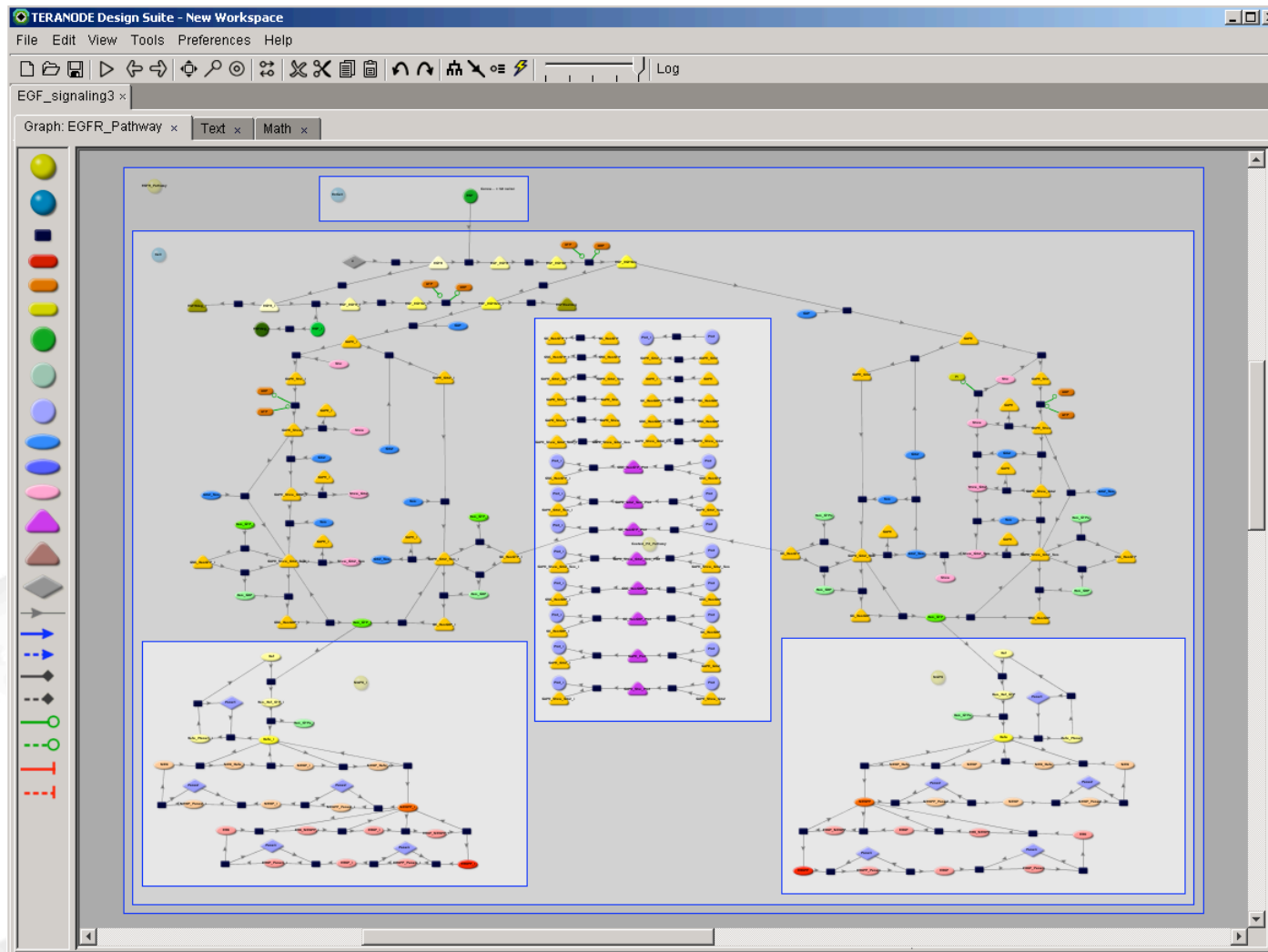
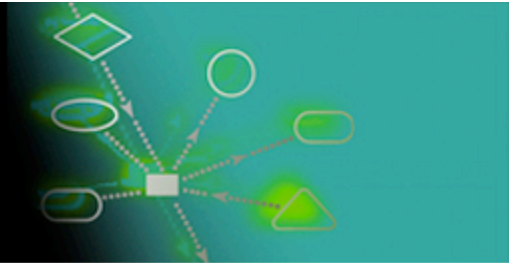
Biochemical
Networks

Experiment Data

3rd-Party Tools &
Repositories

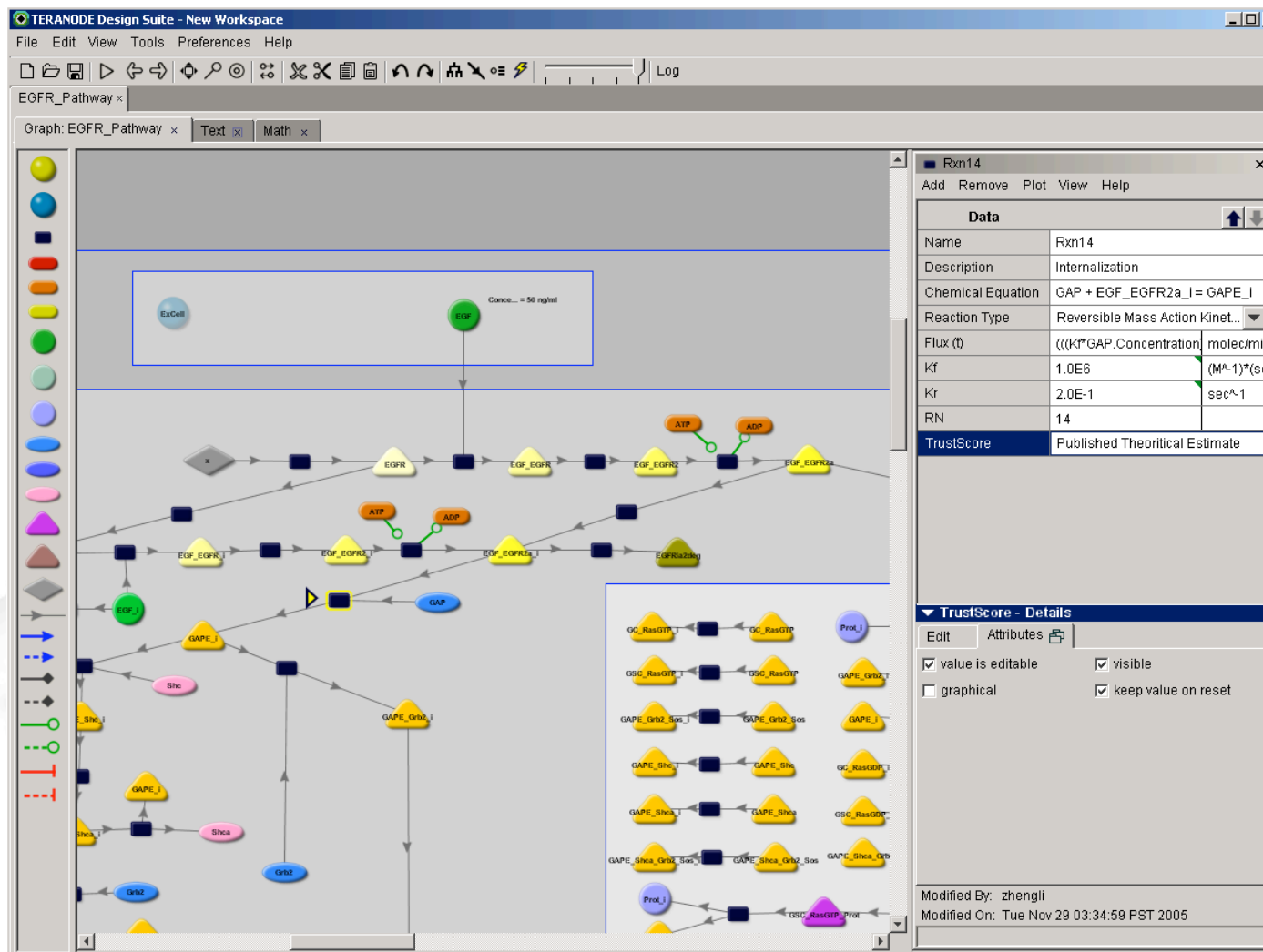
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View the full EGF receptor model



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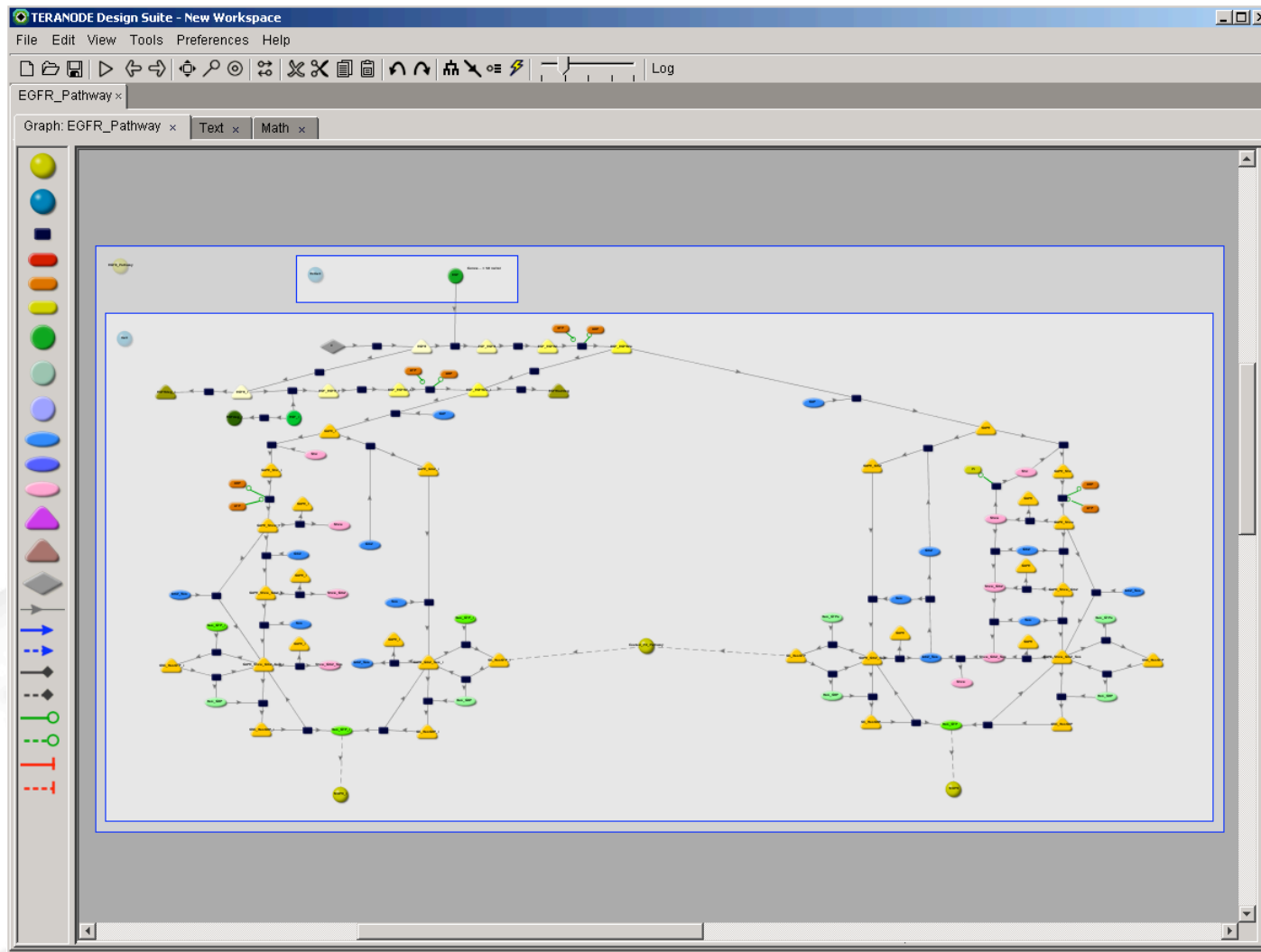
Zoom in on the detail



← Audit Trail

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Collapse and expand the hierarchy



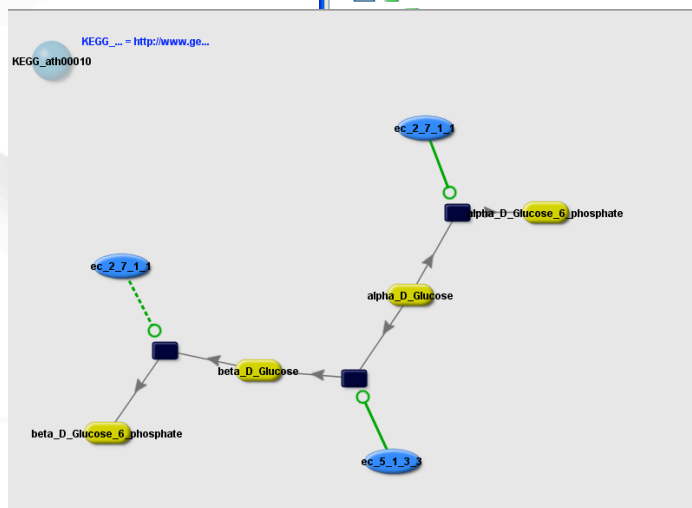
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VLX Graph accessed by MIT's Welkin Browser

The Welkin browser interface displays a graph visualization on the right and a list of predicates and resources on the left. The graph shows a network of nodes (red squares) connected by edges. The left panel lists predicates and resources, including:

- Predicates:
 - ☒ <http://www.w3.org> [655]
 - ☒ <http://www.teranode.com>
 - ☒ [/vlx/2.7](#)
 - ☐ [/param_kf](#) [3]
 - ☐ [/created_on](#) [11]
 - ☐ [/created_by](#) [11]
 - ☒ [/flux](#) [6]
 - ☐ [/name](#) [10]
 - ☐ [/kegg_link](#) [10]
- Resources:
 - ☒ [69\]](#)

Below the graph, statistics are displayed: nodes: 291, edges: 602, drawing: 10 ms, calculation: 0 ms. At the bottom, there are checkboxes for ☒ Nodes, ☒ Edges, ☒ Arrows, ☒ Antialias, and ☒ Background.



VLX Graph

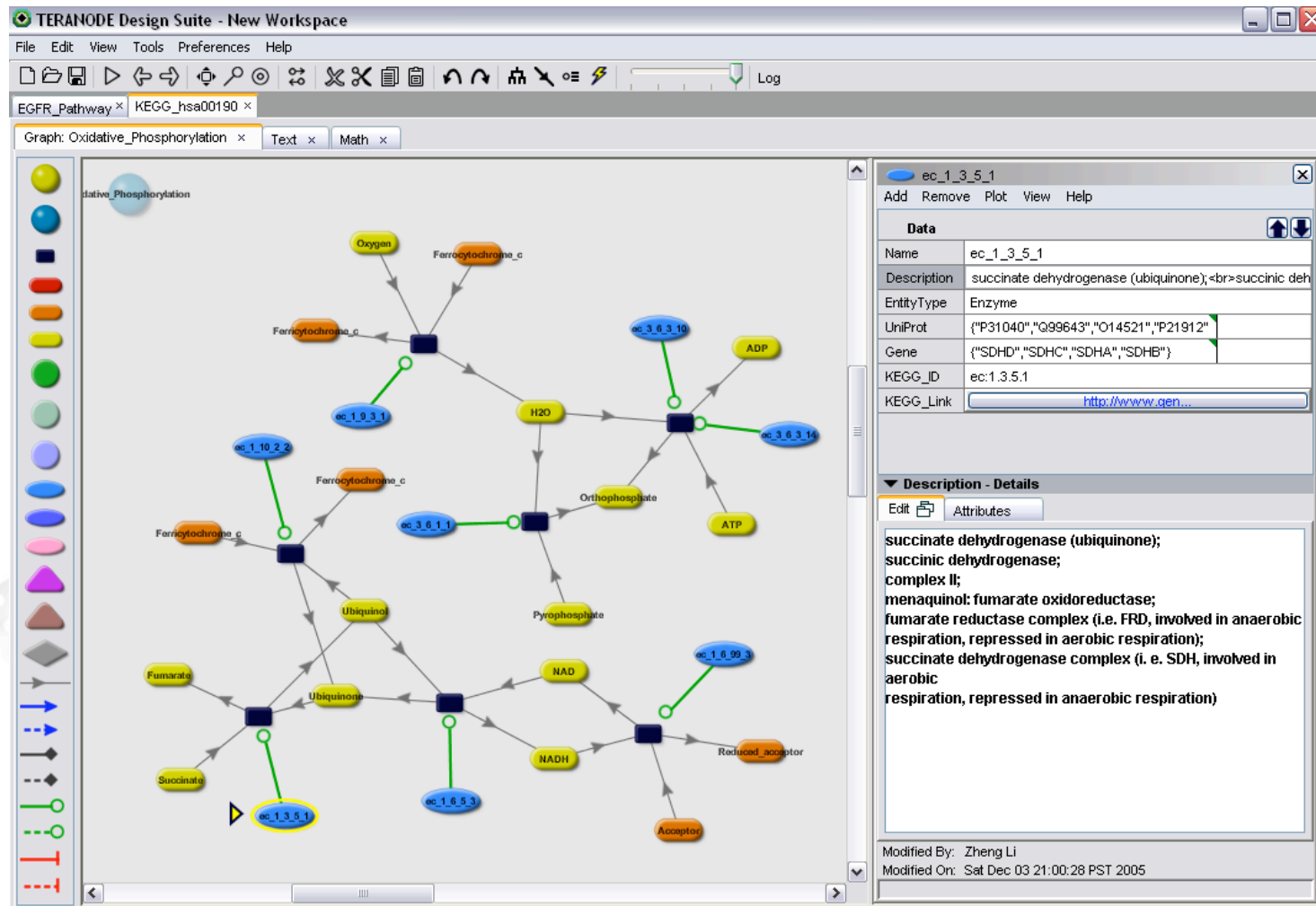
Welkin

A Graphical RDF Browser
Version 1.1
<http://simile.mit.edu/welkin/>

Copyright (c) Massachusetts Institute of Technology

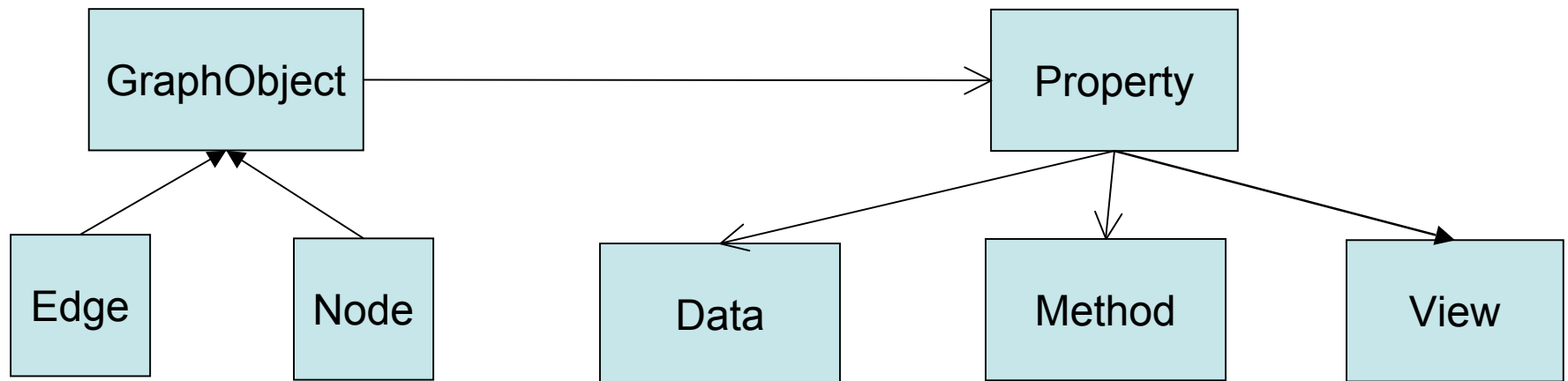
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Load models from KEGG

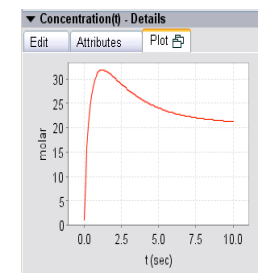
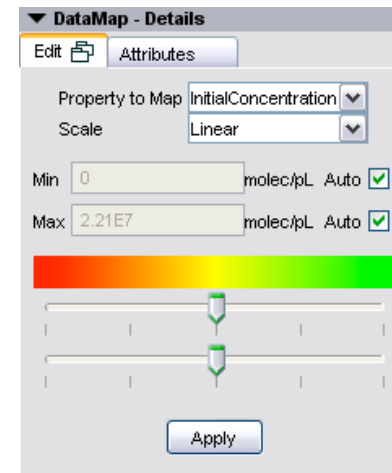


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VLX Object Model and Extensibility



EGF	
Add Remove Plot View Help	
Data	
Name	EGF
Description	Epidermal Growth Factor
EntityType	Protein
Gene	EGF
MolecularWeight	6250 g/mol
Concentration (t)	8 nM
Note	Normal condition



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Example of Customized Visualization: Data Dictionary with BioPAX Ontology

TERANODE Design Suite - New Workspace

File Edit View Tools Preferences Help

Log

biopax-example-ecocyc-glycolysi x

Graph: glycolysis_l.Comp x Text x Math x

glucose_6_phosphate

Add Remove Plot View Help

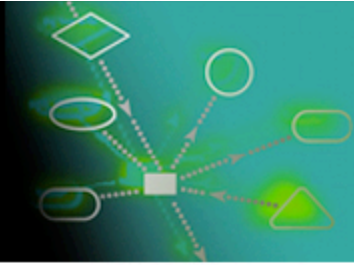
Name	glucose_6_phosphate
BpName	glucose-6-phosphate
CAS	56-73-5
MolecularWeight	260.1369934
SYNONYMS	D-glucose-6-P
Structure	<cm1> <molecule id="GL
Amount (t)	Concentration mol
Concentration (t)	--generated by molar
InitialConcentration	1 molar

Structure - Details

Edit Attributes Structure

Modified By: zhengli
Modified On: unknown

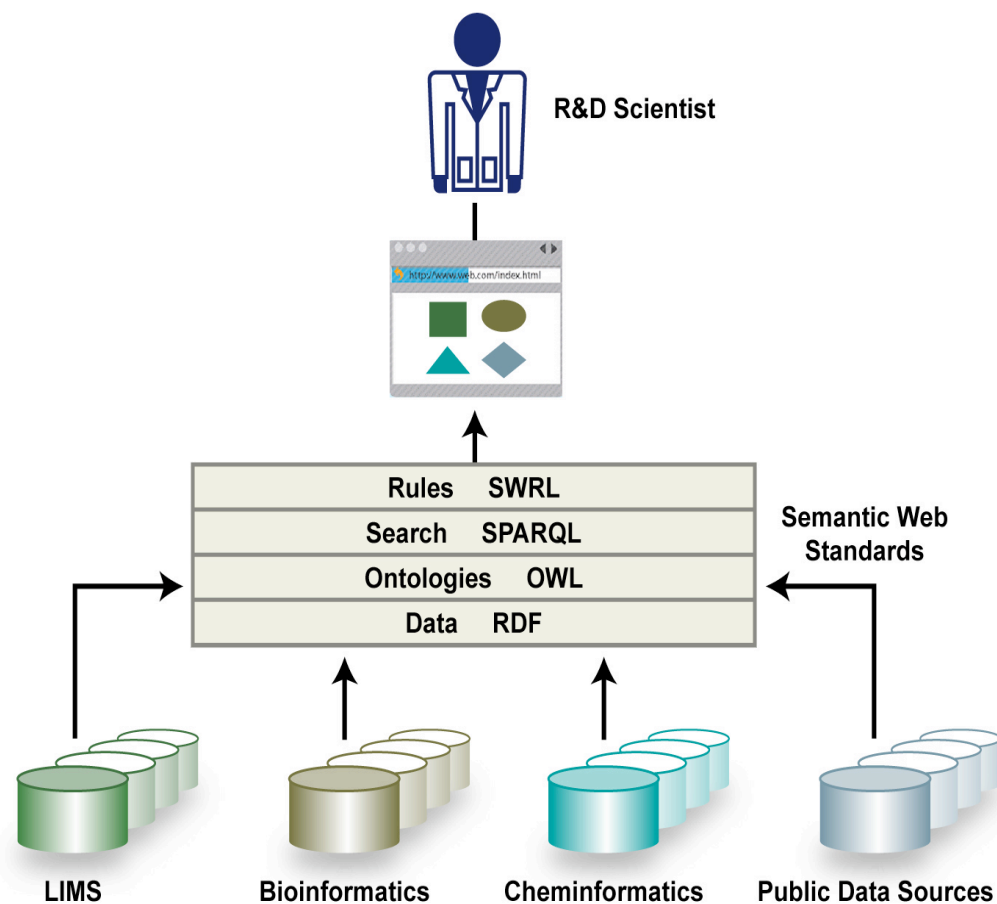
VLX – The Language of XDA



- VLX object model defines key objects and relationships (graph objects and properties)
- Ontologies expressed in VLX add domain-specific semantics
- VLX objects and relationships can generate mathematical expressions
- VLX objects, relationships, ontologies, and mathematics are expressed as RDF triples, the language of the Semantic Web

Teranode XDA Supports the Language of the Semantic Web

TERANODE
XDA



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