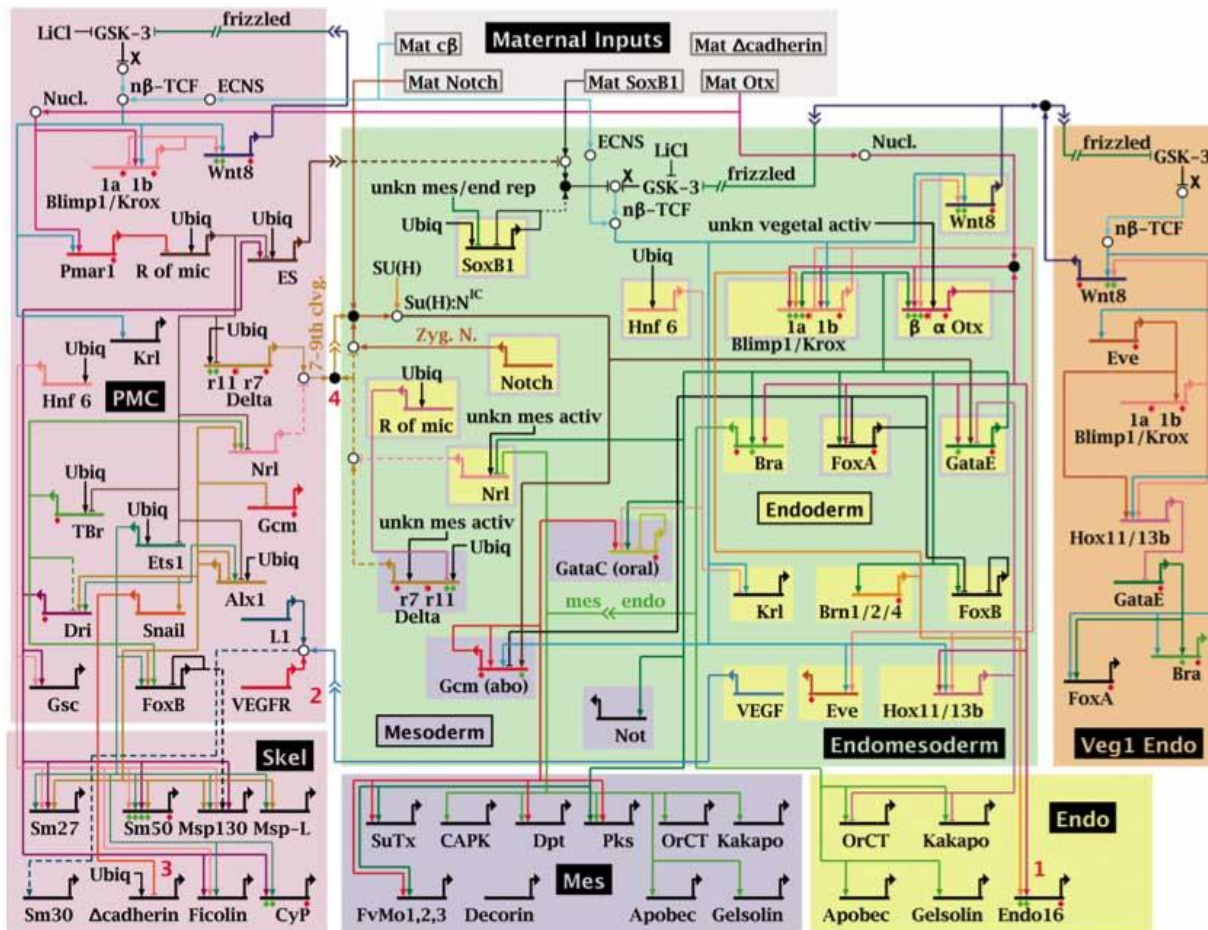









Types of Cellular Networks

Gene Regulatory Networks

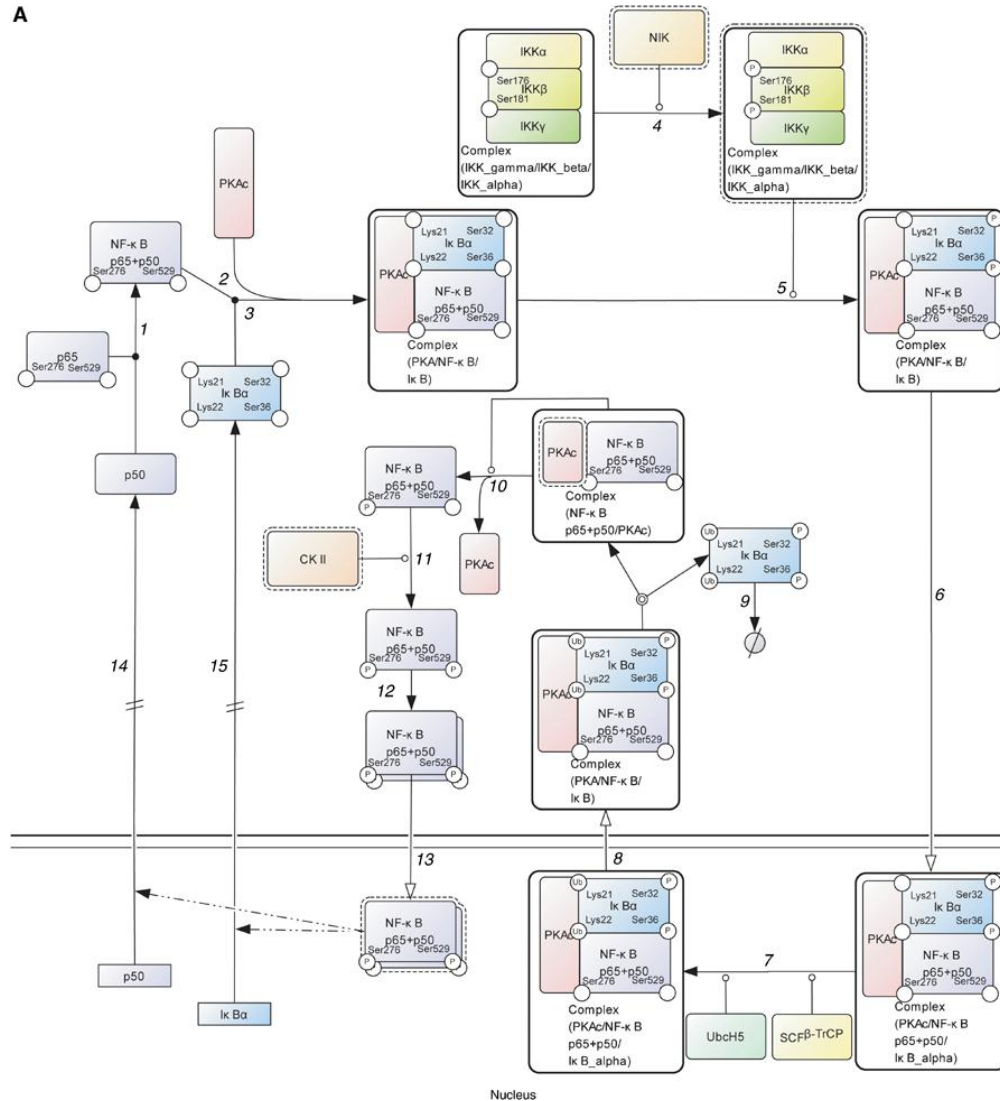


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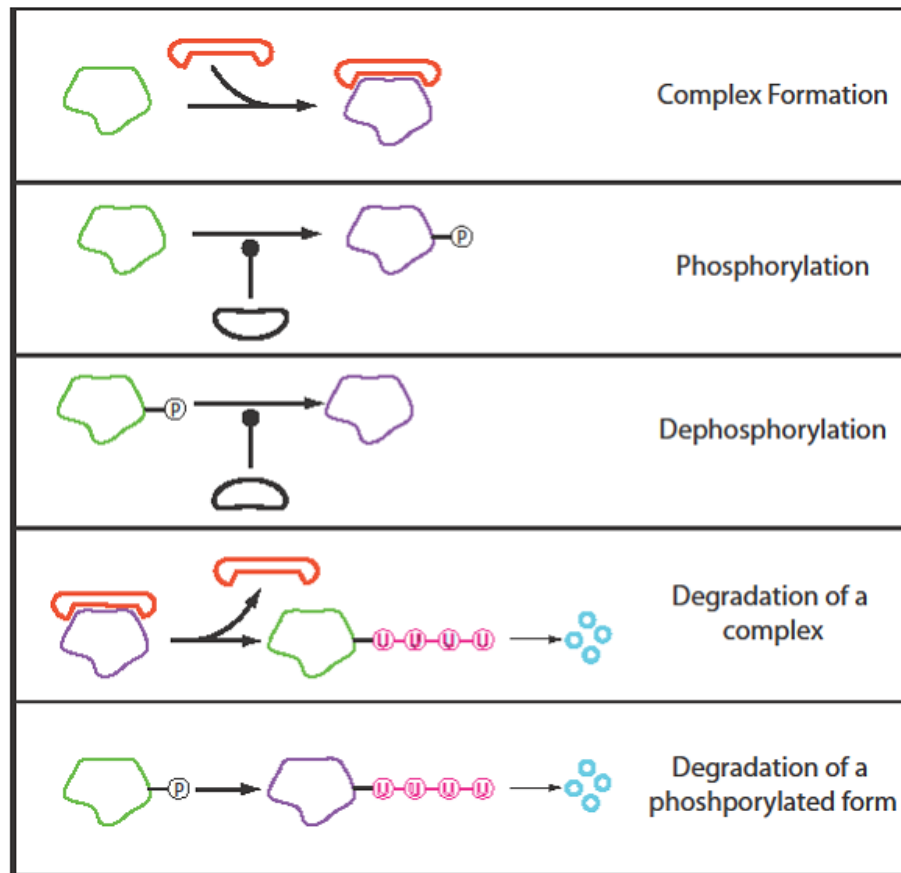
Gene Regulatory Network Basic Operations

	Gene Activation
	Gene Repression
	Multiple Control
	Gene Cascade
	Auto-Regulation
	Regulation by Small Molecule
	Regulation by Phosphorylation

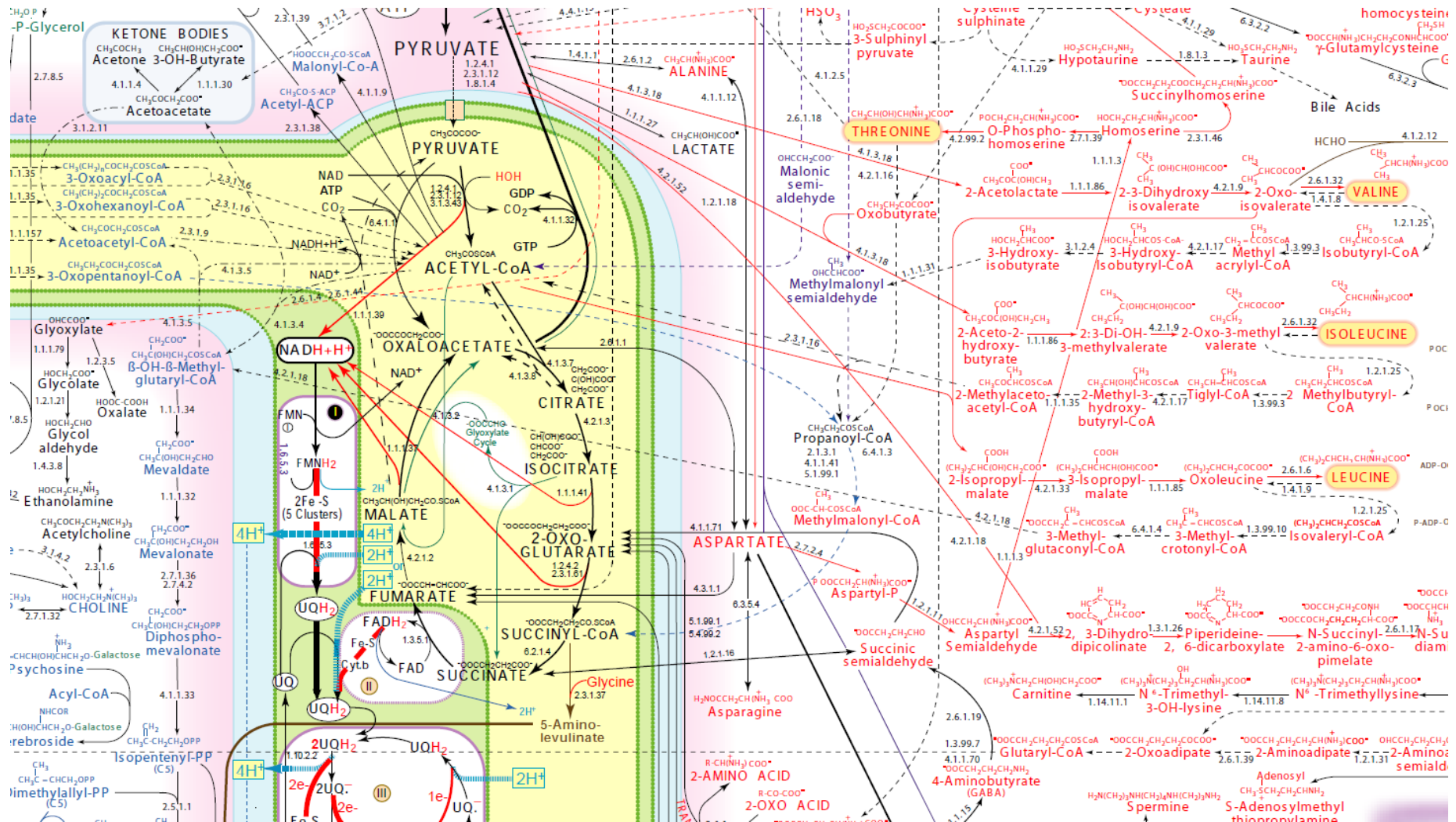
Protein Signaling Networks



Protein Signaling Networks Basic Operations



Metabolic Networks



Some Characteristics

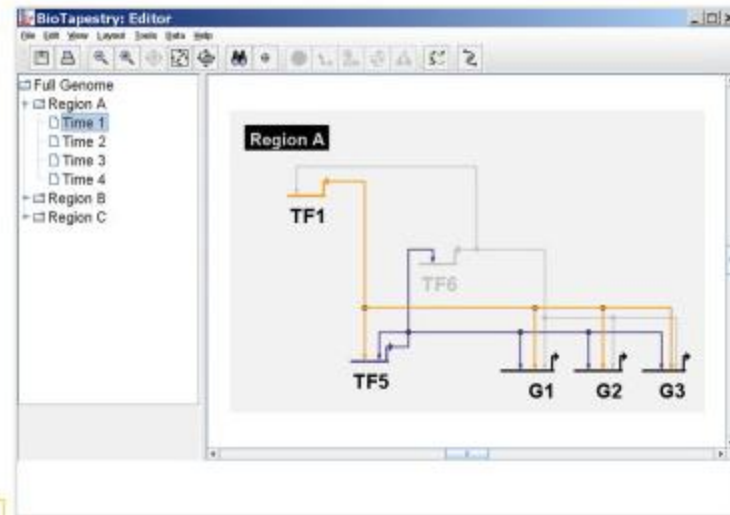
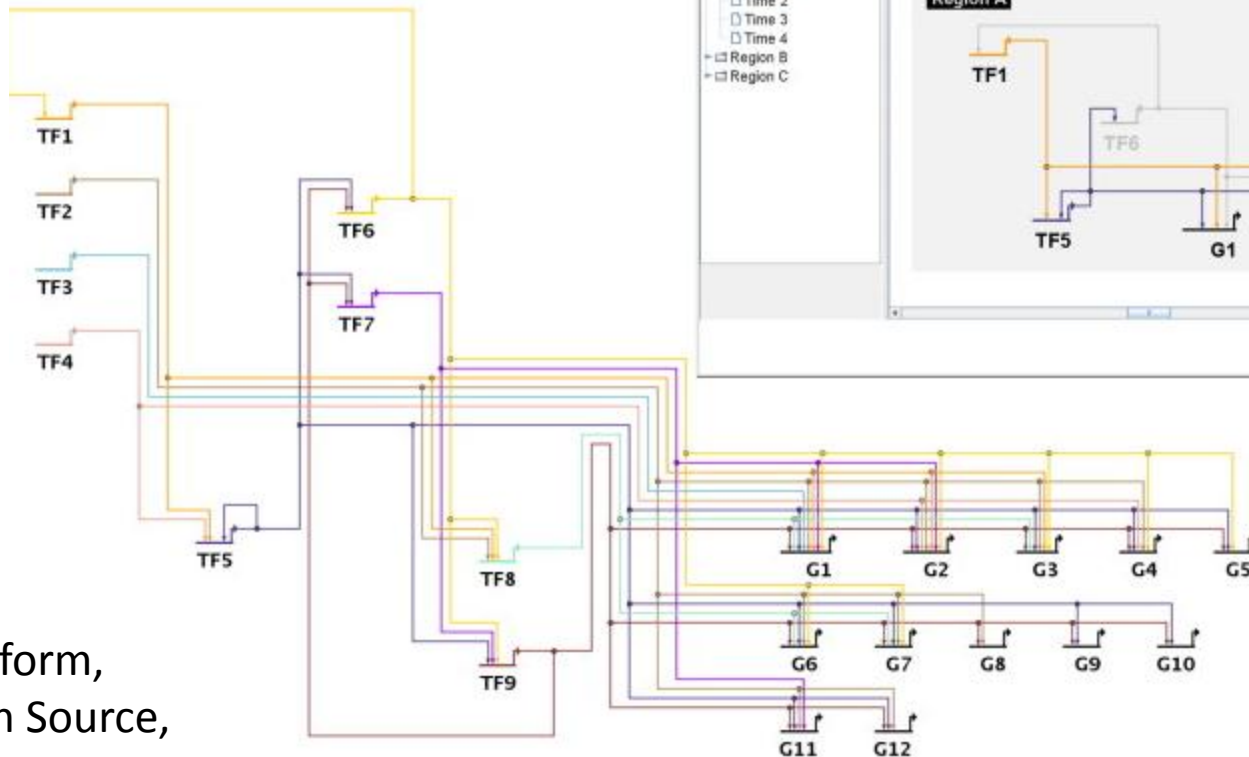
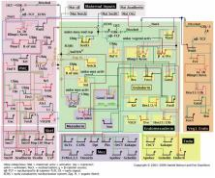
Network	Speed	Purpose	'Technology'
Gene	Slow to medium	Remodeling signaling and metabolic networks	DNA binding to control expression
Protein	Medium to fast	Signal processing	Protein covalent modification and sequestration
Metabolic	Fast	Manufacturing, energy systems	Enzymes, allosteric control

Software for Network Visualization

Does not include ball-stick networks, eg cytoscape

Gene Regulatory Networks

BioTapestry

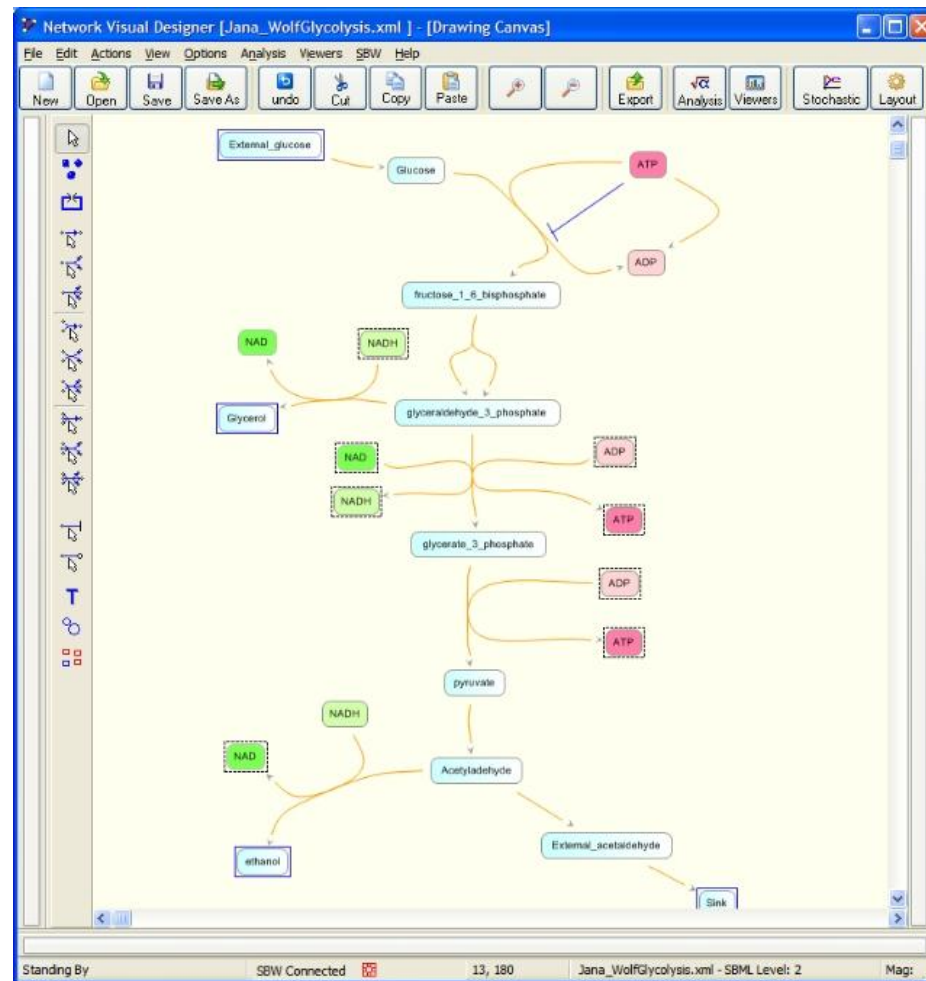


Cross-platform,
Java, Open Source,
SBML?, no simulation

Biotapestry.org

Metabolic and Protein Networks

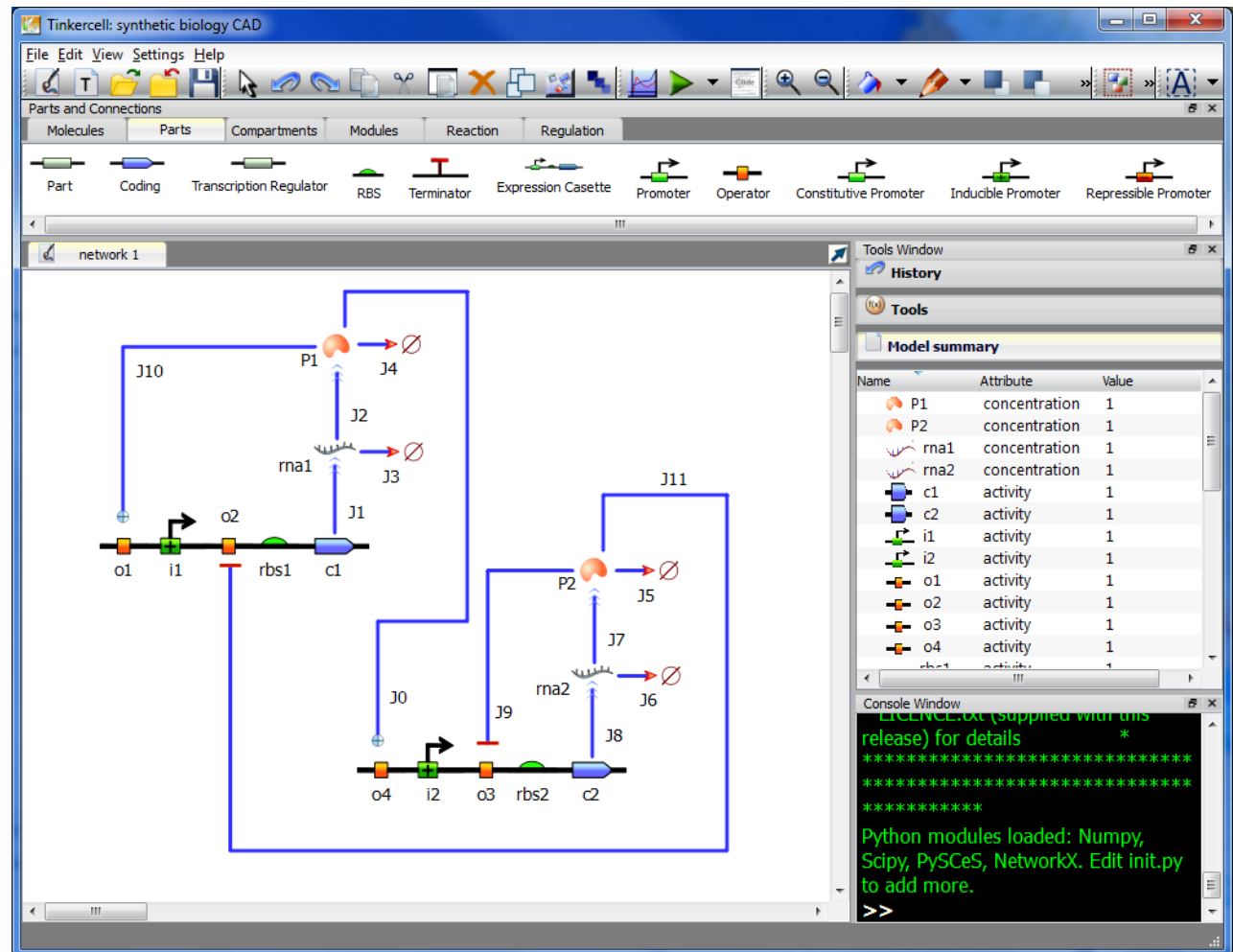
JDesigner



Windows,
Delphi, open source
SBML, Part of SBW

Gene Protein and Metabolic Networks

TinkerCell



Cross-platform,
Open source,
C/C++, Qt, Python,
SBML?

tinkercell.com

Metabolic and Protein Networks CellDesigner

data structure is called `Protein`.

Cross-platform
Works with SBW,
Java, SBML

