Modeling and Visualization tools for Biology

Nadav (Nadi) Bar









Made with Cytoscape



Cytoscape



Cytoscape





PLOS ONE | www.plosone.org

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What is CellDesigner?

- CellDesigner (CD) is a process diagram editor for biochemical networks.
- Supports SBML format.
- SBML lacked layout/rendering support.
 - CD-specific way developed.



CellDesigner model of Yeast M-Phase







- "Heavier" in term of mathematic and programming
- Modular
- Versatile
- Commercial
- Good support
- Toolboxes

Matlab			
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Matlab - simulations

Matlab - Embedded

www.embedded-electronics.blogspot.com

Matlab - simulink

Matlab - simulink

Matlab - simulink

UCSF Chimera

 widely used, highly extensible program for interactive 3-D visualization of macromolecular structures

UCSF Chimera

 Chimera allows properties of molecules such as electrostatic potential to be visualized with coloring

E-CELL

- "grand aim to make precise whole cell simulation at the molecular level possible."
- "Modeling methodologies, formalisms and techniques, including technologies to predict, obtain or estimate parameters such as reaction rates and concentrations of molecules in the cell."
- "Numerical simulation algorithms."
- Modeling methodologies, formalisms and techniques, including technologies to predict, obtain or estimate parameters such as reaction rates and concentrations of molecules in the cell.
- Mathematical analysis methods.

E-CELL

E-CELL

General concept and architecture of the erythrocyte model.

Pathways for de novo GSH synthesis and export system of GSSG.

Summary

- Cytoscape
- CellDesigner
- Matlab
- Chimera
- E-CEII