



*Pathway Tools and BioCyc:
Recent Progress and Future Directions*

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Pathway Tools Recent Developments

- **Two releases per year in Feb and Aug**
- **Major releases: Software, databases, and Web site**
- **Minor releases: Databases and Web site only**



Pathway Tools Recent Developments

SRI International
Bioinformatics

2004

- **Version 8.0**
 - Pathway hole filler
 - Protein features: schema, query, visualization, editing
 - Navigator main menu redesigned



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- **Version 8.5**

- Cellular Overview and Omics Viewer Improved
 - ◆ Users can create combined displays of gene expression, proteomics, metabolomics, and reaction flux measurements on the Omics Viewer
 - ◆ Drawing speed is improved
 - ◆ Metabolic pathways in the Overview are now grouped by pathway class
 - ◆ Zooming of the diagram is supported (desktop version only)
 - ◆ The periplasm and outer membrane have been added to the diagram, as have those proteins present in the periplasm and outer membrane
 - ◆ The layout of the Cellular Overview can be computed completely automatically by PathoLogic in a new PGDB
- Compound stereochemistry supported
- Support for JME chemical editor, molfile import/export

Pathway Tools Recent Developments



- **Version 9.0**

- New genome browser
- More compact pathway diagrams
- Improved operon depictions
- Windows version performs better as a Web server, and is easier to install

Pathway Tools Recent Developments



- **Version 9.5, Sept 2005**
 - New interfaces to Oracle and MySQL
 - Cell Component Ontology (CCO) introduced
 - Overview:
 - ◆ Display omics data on individual pathways
 - ◆ Save omics-viewer displays to files
 - ◆ Magnified views of pathways in Web Overview
 - Comparative genome browser
 - Comparative pathway analysis methods available
 - Cross-species comparison for pathways and reactions
 - Generate Genbank files from a PGDB

Pathway Tools Recent Developments



- **Version 9.5**

- Added Marvin chemical structure editor
- Hyperlinks within comment text
- Reaction merging

- Transport identification parser

- PathoLogic runs under Windows
- PathoLogic handles pseudogenes
- PathoLogic can use other organism PGDBs for pathway prediction

Pathway Tools Recent Developments



- **Version 10.0, March 2006**
 - Added support for Gene Ontology
 - New author crediting system
 - New ptools-local directory
 - New initialization file `ptools-local/ptools-init.dat`
 - Auto-checkpointing of PGDB updates
 - Find-Reaction-By-Substrates extended
 - Compound windows link to regulated enzymes
 - Gene and protein windows show sequence length

Coming in Version 10.5

- **Generate metabolic poster and genome poster**
- **Overview semantic zooming**

- **Spell checker within editing tools**

- **New sequence retrieval dialog**
- **New source of sequence data for hole filler**
- **Hole filler will work under Windows**

- **Compound duplicate checker**
- **Consistency checker available through GUI**

Coming in Version 11.0

- **New advanced query form**
- **Better support for signaling pathways**
- **Metabolite tracing in the Overview**

