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# BioCyc Genome Database Collection



A one-stop shop for genome and metabolic pathway data and powerful bioinformatics tools for exploring

Genetic and metabolic pathway information is playing an increasingly important role in a wide variety of fields, from biotechnology to food production to drug discovery. Furthermore, advances in sequencing and computer technology enable this information to be generated more quickly and in larger amounts than ever before.

Developed by the SRI International® Bioinformatics Research Group and available via the Ovid® platform, BioCyc is an organism-centric collection of databases with genetic, pathway, and other information together with integrated software tools that can be used to browse, search, analyze, and visualize it and user-supplied data. Ideal for education, research, and development, BioCyc accelerates science in genetic and metabolic engineering, synthetic biology, vaccine design, and more.

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## Why BioCyc?

- Organism-centric data on genes, proteins, metabolites, reactions, and pathways, curated from over 130,000 peer-reviewed publications
- Software tools for visualizing, searching, browsing, and analyzing BioCyc and user-supplied data
- For education, research, and development in agriculture, biochemistry, bioinformatics, biology, biotechnology, chemical engineering, drug discovery, food science and processing, genomics, microbiology, and other fields
- Potential users include undergraduate, graduate, and medical-school students to post-doctoral research fellows to seasoned scientists and researchers.
- Encyclopedic data on over 20,000 organisms from all domains of life



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## Key features:

- Over 20,000 organism-centric databases of microbes and eukaryotes. Every database contains the annotated genome of the organism, its metabolic pathways, and information about genes, proteins, metabolites, and reactions. Some databases contain regulatory networks.
- MetaCyc, a database of metabolic pathways, metabolites, reactions, enzymes, genes, and proteins from all domains of life
- Combines encyclopedic data with powerful informatics tools in one resource

## BioCyc at work

- Useful for information finding, transcriptomics and metabolomics data analysis, comparative studies, and quantitative modeling
- Easily incorporate bioinformatics into undergraduate, graduate, and medical-school curricula.
- Used by researchers, scientists, engineers, product developers, faculty, and students in a wide variety of fields
- Examine genomes and genomic pathways in great detail.
- Study how changes in cellular growth impact aging and disease.
- Identify new approaches to disease prevention and drug discovery.

## Databases in the collection

Databases are organized into three tiers, depending on the amount of manual, literature-based curation they have received. All organism databases contain data imported from MetaCyc, BioCyc's database of metabolic pathways and enzymes covering all domains of life.

- **Tier 1 databases have received at least one person-year of curation and often many more.** They include MetaCyc and databases for *Escherichia coli* (EcoCyc), human (HumanCyc), *Arabidopsis thaliana* (AraCyc), and yeast (YeastCyc).
- **Tier 2 databases have received up to one person-year of curation.** They include those for many model and other highly studied organisms such as *Bacillus subtilis*, *Agrobacterium tumefaciens*, *Salmonella enterica*, *Lactobacillus plantarum*, *Helicobacter pylori*, *Mycobacterium tuberculosis*, and *Vibrio cholerae*.
- **Tier 3 databases are entirely computationally generated.**

## Bioinformatics software tools

- One-stop shop of easy-to-use tools
- Decreases the number of packages that users must learn and that an organization must support
- Publication-ready visualizations
- Robust search capabilities
- Analysis tools
- Comparison tools
- SmartTables enabling complex analyses without the need for programming

## BioCyc in Healthcare and Biotechnology

- Genomic and genetic data provide a more comprehensive picture of patient health: enables proactive, not reactive, healthcare.
- Determine how microorganisms interact with their hosts to cause disease.
- Determine what changes in normal cellular growth regulation account for aging, cancer, and other diseases.
- Identify the basic molecular mechanisms that control cellular growth, division, and differentiation.
- Facilitates discovery of new drugs via pathway-based target selection and validation
- Discover how to engineer microbes to produce chemicals of industrial importance.



## Request your FREE trial today!

Contact [sales@ovid.com](mailto:sales@ovid.com) to schedule a free trial of BioCyc, now available via Ovid®.