Web alert

Metabolic engineering

An annotated selection of World Wide Web sites relevant to the topics in *Microbial Biotechnology*

Metabolic engineering working group

<http://www.metabolicengineering.gov/>

The metabolic engineering work group mandate is to provide information on grants, conferences and workshops to people working in the field of metabolic engineering.

Metabolic engineering: Bio-Technical Resources

http://www.biotechresources.com/services_metabolic.html

This commercial web page contains information on several metabolic engineering projects in the form of slides as presented at meetings. As such, it provides useful examples of metabolic engineering for interested practitioners.

Microbial metabolic engineering

<http://www.integratedgenomics.com/engineering.html>

This commercial site provides services related to metabolic reconstruction from genomic data.

Modeling for metabolic engineering

<http://www.bioinfo.de/isb/gcb01/poster/hurlebaus.html>

This web abstract deals with developing metabolic models that would be useful for biological systems engineering.

MetaCyc database

<http://metacyc.org/>

MetaCyc is a database of metabolic pathways containing more than 1400 pathways from more than 1800 organisms.

KEGG pathway database

<http://www.genome.jp/kegg/pathway.html>

The KEGG pathway database consists of a collection of manually-curated metabolic maps with connections to metabolite, enzyme and organismal data. KEGG also contains tools for reconstructing metabolism from genomic data.

University of Minnesota Biocatalysis/Biodegradation Database

<http://umbbd.msi.umn.edu/>

The Biocatalysis/Biodegradation Database contains information on microbial metabolic pathways, principally those involved in biodegradation reactions, for many different bacteria.

Lipase engineering database

<http://www.led.uni-stuttgart.de/>

The lipase engineering database contains information on the structure and reactions catalyzed by diverse lipases. Lipases are important industrial enzymes for chiral resolution. Many important lipases derive from microbes.

The P450 engineering database

<http://www.cyped.uni-stuttgart.de/>

The P450 engineering database deals with cytochrome P450 from diverse sources. Microbial cytochrome P450s have often been chosen for engineering because many are soluble and relatively well studied structurally and functionally.

METLIN metabolite database

<http://metlin.scripps.edu/>

The METLIN database consists of a collection of mass spectral metabolite data. Experimental metabolic engineering experiments are typically coupled to analytical chemical methods for metabolite identification.

Metabolomics database

<http://www.bmrb.wisc.edu/metabolomics/>

This database also deals with metabolite identification, principally using NMR methods to characterize them.

KNAPSAcK

<http://kanaya.aist-nara.ac.jp/KNAPSAcK/Manual/KNAPSAcKManual.html>

This resource is a metabolite-organismal relational database. Fields that can be searched are metabolite names, organism names, molecular weight or molecular formula.

GREP: Generator of reaction equations and pathways

<http://bio200082.bio.tcd.ie/cgi-bin/GREP/index.cgi>

GREP is a tool to examine reported enzyme reaction equations. One goal is to aid in identifying pathways when metabolites are identified but the pathway is yet unknown.

Pathway prediction system

<http://umbbd.msi.umn.edu/predict/>

The pathway prediction system uses metabolic rules to generate plausible metabolic pathways for the degradation of organic compounds that a user chooses to enter. Starting compounds can be entered as SMILES strings or via a chemical drawing software that is part of the tool.

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