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Digital biochemical pathways database

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Abstract

The ExPASy biochemical pathways database provides online access to the biochemical pathways index of Boehringer Mannheim.

Content

The ExPASy biochemical pathways database provides online access to the biochemical pathways index of Boehringer Mannheim. Most researchers in the life sciences are probably familiar with Boehringer's wallcharts of metabolic pathways - huge posters of complex, interconnecting metabolic processes. While these are fun to look at, it is often difficult to find exactly what you are looking for. The biochemical pathways database allows you quickly to determine the location of any metabolite or enzyme in the index.

Navigation

The initial page of the database has a single box for keyword entry. After entering a metabolite or enzyme, a page with the matching entries is presented. For enzymes, the Enzyme Commission (EC) number is given, along with a link to ExPASy's [Enzyme nomenclature database](#). This contains a great deal of additional information, including alternative names, the reaction catalyzed by the enzyme, and links to a number of other databases where additional information can be found. In some cases, both the substrates and products of the reaction have links, so you can learn more about them (chemical composition, three-dimensional structure, and so on.). For metabolites, links are provided to GIF images of the Boehringer wallchart. Links are provided so that you can then follow a pathway from that particular section of the chart to other pathways, and all of the enzymes are linked to the Enzyme nomenclature database so that you can quickly access information about enzymes in the pathway of interest.

Reporter's comments

Timeliness

Last updated 12 February 1999.

Best feature

The website provides a very simple and easy-to-use launch pad for metabolic pathway information. With the increasing use of DNA microarrays and proteomics, researchers are faced with the need quickly to locate information about enzymes that they may never have heard of before.

Worst feature

Although the enzyme information is excellent, the information about the various metabolites is poor. For example, a search for glucose-6-phosphate brings up both glucose-6-phosphate dehydrogenase and glucose-6-phosphate isomerase, but nothing about the sugar itself. Using one of the enzymes above to get to the chart will give the structure of glucose-6-phosphate, but no other information is available.

Wish list

There are several things that would greatly improve the utility of this database. First, some way to highlight on the chart picture the enzyme or metabolite that you searched for would be useful. As it is, you are presented with a scanned image of the chart, and have to hunt for the object of your search. Second, clicking anywhere on the graphic acts as a link and launches a new page. If you do not click on a blue-colored enzyme name, however, the following message appears: 'The part of the map you selected does not correspond to an enzyme. Please try again, clicking on any word of the map printed in blue.' It would be better to have only the enzyme names hot-linked to another page. Finally, the use of scanned pieces of the wall chart to show the data is limiting. As a database system, it would be nice if the diagrams were generated on-the-fly, using modern vector graphics. This would produce higher-quality images, possibly suitable for presentation, with a faster response time.

Related websites

There are a number of enzyme and pathway databases, many of which can be reached from the individual enzyme listings in the biochemical pathways database. They include: WIT - [What is there?](#),

[The Enzymology Database \(EMP\)](#), [BRENDA, the enzyme database](#), and the [KEGG metabolic pathways database](#).

Table of links

[ExPASy biochemical pathways](#)

[Enzyme nomenclature database](#)

[What is there?](#)

[The Enzymology Database](#)

[BRENDA, the enzyme database](#)

[KEGG metabolic pathways](#)

References

1. [ExPASy biochemical pathways](#).