Pathway Analysis in Metabolic Databases via Differential Metabolic Display (DMD)

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Abstract

A number of metabolic databases are available electronically, some with features for querying and visualizing metabolic pathways and regulatory networks. We present a unifying, systematic approach based on PETRI nets for storing, displaying, comparing, searching and simulating such nets from a number of different sources. Information from each source is extracted and compiled into a PETRI net. Such PETRI nets then allow to investigate the (differential) content in metabolic databases, to map and integrate genomic information and functional annotations into such nets, to compare sequence and metabolic databases with respect to their functional annotations, to define, generate and search pathes and pathways in nets. Finally, via so called differential metabolic displays (DMDs) specific differences between systems i.e. different developmental or disease states, or different organisms, can be exhibited. DMDs could be of potential use for target finding and function prediction, especially in the context of the interpretation of expression data.

References

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