

The TRANSPATH Signal Transduction Database

A knowledge base on signal transduction networks

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The huge and ever more rapidly growing amount of signal transduction data demands for a database that stores and organizes this knowledge, providing simple and fast access to the information. The complexity created by the cross-talk between pathways makes it virtually impossible to infer by hand all the consequences that follow after one modifies one part of the network. To this end, computer-aided simulation will have to be used. It can only be successful on the basis of a comprehensive and detailed dataset.

TRANSPATH is an information system on gene-regulatory pathways, and an extension module to the TRANSFAC database [Wingender et al. 2000]. It focuses on pathways involved in the regulation of transcription factors in different species, mainly human, mouse and rat. Elements of the relevant signal transduction pathways are stored together with information about their interaction and references in an object-oriented database. All information is validated with references to the original publications. Also, references to other databases are provided (TRANSFAC, Swissprot, EMBL, PubMed and others).

The database is available over WWW (<http://transpath.gbf.de>). There are also clickable graphic maps of selected pathways. This site also provides an interface to the CSNDB database on signal transduction [Takai-Igarashi and Kaminuma, 1998].

Transpath provides a knowledge base which goes beyond the approach of traditional gene or sequence databases by focusing on the interactions between the stored data items. By building up the signaling network from single interactions instead of using predefined pathways, it becomes possible to explore the pathways in an unbiased way.

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