

Guidelines for Reviewers of Connections Map Overviews and Pathways in the Database of Cell Signaling

Connections Maps Pathways in the Database of Cell Signaling at *Science Signaling*

Connections Maps Pathways are intended to help organize the large and complex body of knowledge currently available on signaling pathways and to make such information more efficiently accessible. At present, the pages are not expected to be comprehensive assemblages of all information on a particular molecule, relation, or pathway. The goal is an expert guide to essential information that provides access to a carefully selected subset of the literature, chosen by the Pathway Authority. It may be too large a task to examine records from each component and relation in the pathway you are reviewing, but your evaluation of a representative set of records should be sufficient to give the Editors and Pathway Authorities a sense of where improvement might be required. The Pathways are freely available, but do require registration at the *Science Signaling* site. If you already have a *Science* Online username or an *Science Signaling* username, please sign in to review the pathway and associated data pages. If you do not, please take a moment to register (<http://www.sciencemag.org/subscriptions/help-register-stke.dtl>). If you do not wish to register, please let us know and we will provide you a guest password to access the information.

A note on the structure of the database. Please take a moment to familiarize yourself with the structure of the Connections Map database. Awareness of just a couple basic principles about the organization of the maps will assure that you always understand the context of the page you are viewing.

Pathways can be either **Canonical** or **Specific**. Canonical pathways and the components of which they are constructed are abstract idealized representations of our basic understanding of signaling mechanisms. Specific pathways and components represent real pathways as they exist in a particular species, tissue, and cell type. A specific pathway comprises specific components and these can be identified by a gene accession number or similar identifier. This information may not be accurate when applied in other situations and is therefore presented in its “specific” context.

There are three types of records stored in the database – Pathway-Dependent Component Information, general or Pathway-Independent Component Information, and Relation Information. Component records hold information on a particular molecule (it may be canonical or specific). When you click on a particular component in a pathway diagram, you are presented **pathway-dependent** information about that component. This is the authority’s opportunity to present information that has to do with function of the molecule *as it occurs in this pathway*. From this page you can choose to navigate to the general or **pathway-independent** information about the component. This information should be *independent* of a particular pathway (given that many components participate in more than one pathway). The third type of record stores information on **Relations** between components. This information is accessed from the maps by clicking on the symbols above the arrows that connect any two components or by selecting a link to relation information from pathway-dependent component information pages. Indicated relations should be supported by citation of at least one reference.

Helpful reviews of Connections Maps Pathways provide assessment of:

Accuracy. Are relevant components present in the pathway and ascribed correct properties? Are the descriptions accurate and understandable to the general reader? Are commonly used synonyms listed?

Currency. Is the information up-to-date? A great advantage of the Connections Map is that Authorities can instantly update information.

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Comprehensiveness. As mentioned, the Connections Map is not intended to provide all information on a given pathway or molecule, but there should be sufficient information to give a reader a useful understanding of how a pathway works or what the roles of a particular component or relation might be.

References. Given that many PubMed searches on terms associated with signal transduction return thousands of citations, a guide to the literature has become a valuable resource. Are the citations representative of the most essential publications in the field? Are key citations presented to support the contention that a particular relation between components is established?

Connections Maps Overviews

The Overview is intended to provide aid in reviewing the pathway and provide the *Science Signaling* reader with an archival representation of a pathway at a particular date. The Overview links the Connections Map database to the *Science Signaling* literature, providing an article that appears on the table of contents for a particular issue of *Science Signaling*. If you would like to see an example of an Overview for the Canonical Wnt Pathway, please visit <http://stke.sciencemag.org/cgi/content/full/sigtrans;2005/271/cm1>. These articles have abstract, full text, and PDF views. The article also includes a "screen capture" of the pathway diagram as figures, which provide an archival snapshot of the data from a particular date.

Comprehensibility. The description of the pathway should orient a novice to the pathway. The aim is for a description of the pathway in terms that would be used to explain the pathway to a new graduate student entering a research lab. Readers should be able to learn from the article what has been firmly established and what are new ideas or hypotheses. The citations for the Overview should be selective and are not intended to be an exhaustive list of citations relevant to the pathway. The text should be well written, well organized, and intelligible to the general reader.

Technical Merit. The facts and logic of the piece should justify the conclusions and accurately reflect the current state of the field.

Bias. The article should correctly cite important discoveries in the field and, although it may focus primarily on work done in one laboratory or by one group of investigators, it should indicate, where appropriate, whether other investigators hold conflicting views.

References. Given that many PubMed searches on signaling pathways return thousands of citations, a guide to the literature has become a valuable resource. Are the citations representative of the most essential publications in the field? Are key citations presented to support the contention that a particular relation between components is established?

Conflict of Interest

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Published by the American Association for the Advancement of Science