Multi-omics Pathway Visualization

Integration of interaction and flux data in PathVisio

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Pathway Visualization and Analysis

PathVisio (pathvisio.org) is an open source pathway visualization and analysis tool. It allows users to not only draw and edit biological pathways, but also to visualize and analyze their data.

Biological pathways provide intuitive frameworks to integrate and co-analyze different kinds of biological data, such as system-wide transcriptomic, proteomic, and metabolomic measurements. We developed a plugin for PathVisio that allows the visualization of experimental or modeled data on the lines in the pathway, i.e. interactions, reactions, etc.

Data on Lines

For some metabolic reactions, we visualized the flux values on the lines, indicated by color and thickness.

The thicker the line, the higher the flux.

Data on Data Nodes

It is possible to visualize multi-omics data simultaneously on the pathway. The metabolites, genes and proteins are colored according to log fold change and p-value of the measurements.

Conclusion

The combined visualization of multi-omics data on pathways allows researchers to get a system wide, graphical overview of different types of biological data in contrast to tables with thousands of numbers. Especially the integration of interaction and reaction data visualization will make modeling results more accessible and interpretable to biologists.

References


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