

User Data

Networks



Up-regulated (+)
Object has user data with positive value



Down-regulated (-)
Object has user data with negative value



Mixed-signal (+/-)
Object has user data with both positive and negative values

Maps



Network Objects

Enzymes

Generic enzyme

KINASE

Generic kinase

Protein kinase

Lipid kinase

PHOSPHATASE

Generic phosphatase
Protein phosphatase
Lipid phosphatase

PHOSPHOLIPASE

Generic phospholipase

PROTEASE

Generic protease

Metalloprotease

GTPase

G-alpha

RAS - superfamily

Generic Classes



Receptor ligand



Transcription factor



Protein



Compound



Predicted metabolite or user's structure



Inorganic ion



Reaction



DNA



RNA



Generic binding protein

Channels/Transporters

Generic channel

Ligand-gated ion channel

Voltage-gated ion channel

Transporter

Receptors

Generic

GPCR

Receptors with kinase activity

Groups of Objects

A complex or a group
Proteins physically connected into a complex or related as a family

Logical association
Proteins linked by logical relations or physical interactions

Custom association
Group of collapsed objects chosen by user



Other Marks

Red circle
The links terminated due to a restriction of the number of steps in network expansion.

Blue circle
The links terminated due to network truncation.

Interactions Between Objects

Effects



Positive / activation



Negative / inhibition



Unspecified

Mechanisms

PHYSICAL INTERACTIONS



Binding
Compound binds the enzyme or receptor



Cleavage
Cleavage of a protein at a specific site yielding distinctive peptide fragments. Proteolytic cleavage can be carried out by both enzymes and compounds



Covalent modifications
Protein activity regulation by covalent binding of a small chemical group to the aminoacids of an active site.



Phosphorylation
Protein activity is altered via addition of a phosphate group



Dephosphorylation
Protein activity is altered via removal of a phosphate group



Transformation
Protein activity regulation by binding & hydrolysis of GTP



Transport
Transport of a protein or a compound between organelles



Catalysis
Catalysis of an enzymatic reaction



Transcription regulation
Physical binding of a transcription factor to target gene's promoter



MicroRNA binding
Regulation of gene expression by binding of microRNA to target mRNA

FUNCTIONAL INTERACTIONS



Influence on expression
Compounds change the expression level of target genes indirectly, for instance by binding to upstream receptors



Competition
Protein activity regulation by competition at the substrate binding site



Unspecified interactions
Mechanism is unknown or/and effect is indirect



Drug-Drug interactions. Pharmacological effect
Drugs change pharmacological effects of other drugs, for instance by competing for drug metabolism enzymes or organic transporters



Drug-Drug interactions. Toxic effect
Drugs change toxic effects of other drugs, for instance by competing for drug metabolism enzymes or organic transporters

LOGICAL RELATIONS



Group relation
Object belongs to a generic group of related objects



Complex subunit
Protein is a subunit of a protein complex



Similarity relation
Chemically similar compounds with chosen Tanimoto similarity score

Links on Networks



Incoming interaction
When the mouse is over object, yellow link indicates direction to object

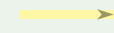


Outgoing interaction
Cyan link indicates direction FROM the object

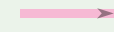
Interactions from custom list (MetaLink™)



Interaction is in the network
Interaction is represented by a thin solid line and is highlighted in blue



Interaction is in the base, but not in network
Interaction is highlighted in yellow



Interaction is in the network
Interaction is highlighted in magenta

Canonical pathways



Canonical pathway
The link is highlighted in a thick cyan or magenta line

Links on Maps



Disrupts in disease



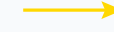
Weakens in disease



Emerges in disease



Enhances in disease



Species specific interactions

Objects on Maps

Localization



Mitochondria



EPR



Golgi



Nucleus



Lysosome



Peroxisome



Cytoplasm



Extracellular

Other Map Objects



Note



Normal process



Pathological process



Normal map



Disease map



Species specific object



Path start



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