Visual comparison of metabolic subnetworks with MetExploreViz

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Context
Metabolic networks allow a global analysis of metabolic shifts. MetExplore\(^1\) allows mapping experimental on any network of its database. Useful to compare data in different conditions.

Objectives
Multiple visualisations of graphs to allow visualizing simultaneously the network in different conditions.

Methods
- Representation of reactions and metabolites
- Drawing based on Physical Analogies
- Animated drawing
- SVG
  - Vector-based
  - XML format
  - Permit to move components using the DOM
- D3.js library\(^2\)
  - Many graphical possibilities: a library for manipulating documents based on data
  - SVG, HTML5 and CSS standards
- Ext JS framework
  - Implement MVC pattern
  - To develop interactive web applications
  - Many graphical widgets

Results
- Increase networks interactions
  - Translating a selection of nodes
  - Unselect on double click
  - Multiple selection
  - Nodes deletion
  - Toolbox to interact with graph
  - See more information
  - Caption for metabolite compartments
  - Duplicate or remove side compounds
- Map discrete or continuous values
- Compare networks
- Available in MetExplore 2.6

Conclusion / Perspectives
- New feature:
  - Improve network interactivity
  - Visual mapping for discrete and continuous values
  - Network comparison
    - Copy
    - Alignment
- Highlight similarities and differences between networks
- Save visualisation session
- Increase visualisation fluidity
- Allow configuring styles
- Apply several levels of visualisation

References: