

Contribution to SBGN contest: best SBGN software support (1)
completeness, exactitude, validation

SBGN-ED 1.1 for Editing, Validating, and Translating of SBGN Maps

Tobias Czauderna¹, Falk Schreiber^{1,2}

¹Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) Gatersleben, Germany

^{1,2}Institute of Computer Sciences, Martin Luther University of Halle-Wittenberg, Germany

SBGN-ED [1] is a tool which allows the creation of SBGN maps from scratch or editing of existing maps, the validation of these maps, the translation of networks from the KEGG database into SBGN, and the export of SBGN maps. The new version of SBGN-ED (SBGN-ED 1.1) provides better usability and a number of new features. As required in this part of the competition, SBGN-ED 1.1

- is *complete* - it supports all types of SBGN maps in their current specifications (as of July 2011),
- is *exact* - it represents all glyphs as required and supports all types of connections (and also renders the maps in a user-friendly manner),
- supports *validation* - the maps can be checked and errors / invalid elements are emphasized graphically.

In addition, SBGN-ED 1.1 now

- is more *user-friendly* - editing of maps has been simplified and validation now includes nearly all rules from the specification,
- is *interoperable* – in addition to the initially supported file and image formats (GML, GraphML, PDF, SVG, PNG, PNG/HTML image maps, JPG) it provides more formats such as SBGN-ML (for im- and export) and Microsoft Powerpoint (for export),
- is *efficient* - it is able to deal with large maps (thousands of elements), the large SBGN-KEGG map (contribution to the SBGN contest 'best SBGN map') has been produced with SBGN-ED 1.1,
- is *extensible* - SBGN-ED can be easily used by add-ons of the underlying Vanted system and therefore SBGN-ED can be used, for example, as graphical front end of databases.

Included in this submission are

- Visual proofs that SBGN-ED 1.1 supports all of SBGN languages (screenshots for all three map types showing supported glyphs (including related GML files), SBGN-ML files for PD maps, and an example of a powerpoint file)
- Visual proofs that SBGN-ED 1.1 uses the languages accurately and is able to catch or correct mistakes made by users (screenshots)

- The tool and tutorial files can be accessed at <http://www.sbgm-ed.org>, example files for all three languages are provided by the tool itself. Please note that SBGM-ED 1.1 requires the new Vanted 2.0.

[1] T. Czauderna, C. Klukas and F. Schreiber: Editing, validating, and translating of SBGM maps. *Bioinformatics*, 26 (18): 2340-2341, 2010.