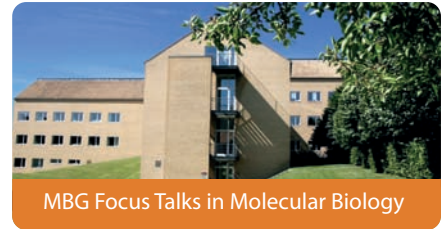


# MBG FOCUS TALK

hosted by Erik Østergaard Jensen



**Monday June 8 at 9:15 - 10:00**

The Conference room, building 3130-303, Gustav Wieds Vej 10c

**Matthias Futschik**

SysBioLab, University of Algarve, Faro, Portugal

## **Integrative network biology, a key to understand the complexity of molecular systems**

Biological systems are organized into miraculously complex, but highly functional networks. How such organization is achieved and how the basic properties of life emerge from such interrelated systems are major questions of the emerging field of integrative network biology. Its driving force has been the rapid generation of various types of genome-wide data sets. Although these data sets have enabled an adequate description of large molecular networks, they also pose major challenges.

Realising the salient need for tools, which allow a broader biomedical research community to perform network-oriented investigations, we have established several web-based portals for easy access and analyses of molecular networks such as the Unified Human Interactome database (UniHI; <http://www.unihi.org>), StemCellNet (<http://stemcellnet.sysbiolab.eu>) and HDNetDB (<http://hdnetdb.sysbiolab.eu>).

Their utility will be illustrated with a study of a focused protein interaction network for Huntington's disease, a lethal progressive neurodegenerative disorder. In this study, we applied a simple, but efficient iterative filtering procedure to identify novel disease modifiers. Subsequent experimental characterization demonstrated that one of identified candidates (CRMP1) can act as potent suppressor of protein misfolding and neurotoxicity in vitro and in vivo.