

Huntington's Disease: From Experimental Results to Interaction Networks, Patho-Pathway Construction and Disease Hypothesis

ID - 155

Kremer Andreas¹, E. Gonzalez Couto¹, S. Gotta¹, F. Heitz¹, L. Magnoni¹, S. Matteoni¹, R. Raggiaschi¹, And G.c. Terstappen¹

¹Siena Biotech S.p.A., Discovery Research, Siena, Italy

Motivation

Protein-protein interaction networks and mechanistic pathway models are excellent tools in the drug discovery process. They can be used to identify and select highly reliable targets for a given disease hypothesis. Combining information from diverse sources, like in house experiments as well as literature, allows further development of interaction networks into detailed descriptions of cellular pathways. Under their interactive form, pathway diagrams can integrate all relevant data regarding a project into one framework by linking the different data sources.

Methods

Siena Biotech is a drug discovery company committed to understanding and treating human neurodegenerative and neuroproliferative diseases, including rare disorders like Huntingtons Disease (HD). We use interaction networks analysis and pathway design tools to support target identification and validation activities. Experimental results (e.g. from differential proteomics experiments) are incorporated in protein interaction networks, analyzed and further developed into biomolecular patho-pathways including literature findings to give rise to an improved understanding of the underlying modulation mechanisms. The pathway diagrams are also used as communication tools, particularly for our interdisciplinary project teams, thus ensuring a common understanding and facilitating critical interrogations about disease hypotheses or mode of actions.

Results

Here we present the experimental results analysis and ongoing construction of a HD patho-pathway and discuss mechanistic disease hypothesis inferred from this internal effort.

Email: akremer@sienabiotech.it