



SYNOPSIS

Chemometrics' Epistemology in Systems Biology

10 years of Systems biology research – current knowledge and future expectations

May 9-11 2011, Skanör-Falsterbo, Öresund, Sweden

Systems biology has now matured and includes advanced modelling of biological systems. The condensation of divergent scientific disciplines (clinicians, biologists, mathematicians, statisticians, physicists, chemists, etc.) has forced us into a new way of working and thinking – Systems biology. This provides further challenges how to create meaningful data, extract information and ultimately gain new knowledge.

Systems biology relies on empirically measured chemical properties and a functional infrastructure with a high reliability. Chemometrics is the science of extracting information from complex systems by data-driven means. The key to success in chemometric multivariate modeling is high quality data management. A collection of data is however not information. Identifying features and patterns in the data leads to information, and only then has the potential to represent knowledge. It only becomes knowledge, however, when one is able to realize and understand the patterns and their implications.

The focus of our conference theme, Chemometrics' Epistemology in Systems biology will be on the scientific process, from data generation to quality of gained knowledge and its presentation to a scientific audience. *Epistemology* means theory of knowledge and addresses the questions: What is knowledge? How is knowledge acquired? What do systems biologists know? How do we know what we know? How knowledge convince fellow scientists? These issues will be given ample time at this EUCHEM conference, which will be limited to maximum 70 participants. Each half day will include two one-hour speeches of the same topic from two speakers representing differing point of views. The suggested format will allow plenty of time for informal discussions and networking. Further, poster presenters will be given the opportunity to give a five minutes oral presentation. This gives an opportunity also for PhD students and young researchers to contribute to the symposium.

Confirmed speakers:

Prof. Jonas Bergqvist, Dep. Analytical Chemistry, Uppsala University, Sweden

Dr. Ina Schuppe-Koistinen, AstraZeneca R&D, Södertälje, Sweden

Dr. Mats Sundgren, AstraZeneca R&D Mölndal, Sweden

Dr. Nicholas Waters, CEO Neurosearch Sweden

Scientific board:

Prof. Mark Stitt, Max Planck Institute of Molecular Plant Physiology, Germany

Prof. Torbjörn Lundstedt, Uppsala University & AcurePharma AB, Sweden

Dr. Mats Sundgren, AstraZeneca R&D Mölndal, Sweden



Chemometrics division – Swedish Chemical Society
<http://www.kemometrisektionen.se>

TOPICS

SESSION 1: Analytical quality and data management

Data quality and data validity
How to describe and communicate data and data quality control
Handling of instruments to data-files.
Raw data transforming and communication,
Omics data, sample selection, traceability and design of experiments (DOE)

SESSION 2: Information from data

Work-flow and Best practice
Data mining and bioinformatics
Student's t-test to Multivariate statistics and Bayesian probabilities
Model interpretation and Visualization e.g. pathway mapping
Quality control and Design of experiments.

SESSION 3: Knowledge management

Knowledge management and validation
Knowledge hyphenation and inter disciplinary communication
Opportunities from normal and revolutionary science
Organisational and epistemological aspects on knowledge management

This conference will be organized through the Chemometrics division at the Swedish Chemical Society and is intended to be a EUCHEM conference.

Intended funding:

- Swedish Research Council
- Swedish National Committee for Chemistry
- Marcus Wallenberg foundation for international scientific collaboration
- Wenner-Gren foundation
- EUCHEM
- MKS Umetrics
- AstraZeneca
- ...

Organization committee:

Johan Trygg (Umeå University, Umeå, Sweden)
Jenny Forshed (Karolinska Institute, Stockholm, Sweden)
Johan Gottfries (Gottfries Medicinal, Gothenburg, Sweden)
Ing-Marie Olsson (Umetrics AB, Malmö, Sweden)

For more and updated information , please visit
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