

SB@NL2014 Systems Biology Symposium

Tackling Complexity through Data Integration

Dates: Monday, 2014 December 15 & Tuesday, 2014 December 16
Venue: Aula, School of Business and Economics, University Maastricht
Tongersestraat 53, 6211LM Maastricht
Website: www.biosb.nl/sbnl2014

Monday, 2014 December 15

09:00 - 09:45 Registration & coffee in 'Ad Fundum' (reception area of School of Business and Economics, UM)

09:45 - 10:00 **Ilja Arts** *SB@NL2014 symposium chair*
Welcome

Session 1: Systems and personalised medicine Chairs: Ruud Boessen, Bert Groen, Ilja Arts

10:00 - 10:40 **Jan van der Greef** *Netherlands Organisation for Applied Scientific Research (TNO), Zeist, NL*
East is East and West is West: and never the twain shall meet?

10:40 - 11:20 **Rudi Balling** *Luxembourg Centre for Systems Biomedicine, Esch-sur-Alzette, LU*
Systems approaches to Parkinson's disease

11:20 - 11:40 **Bram Thijsen** *Netherlands Cancer Institute (NKI), Amsterdam, NL*

Understanding the variability in drug response in a panel of breast cancer cell lines using computational models

11:40 - 12:00 **Zita Soons** *Maastricht University, NL*
The role of urea cycle activity in metabolic transformation of breast cancer

12:00 - 12:15 **Poster flashes** *2.5 min pitch with 1-2 slides*
Chair: Jaap Molenaar

- Mark Davids:** Functional profiling of unfamiliar microbial ecosystems
- Karen van Eunen:** Inborn errors in fatty-acid metabolism make the beta-oxidation hypersensitive to substrate overload
- Wim van den Hof:** A systems biology approach in primary mouse hepatocytes unravels mechanisms of Cyclosporin A-induced hepatotoxicity
- Bastian Horning:** Genomic and functional analysis of *Romboutsia Ilealis* CRIBT reveals adaptation to the small intestine
- Rob ter Horst:** Adaptive value of metabolic responses to gene knockouts in yeast

12:15 - 13:30 Lunch combined with poster session in restaurant (School of Business and Economics, UM)

Session 2: Network biology Chairs: Marijana Radonjic, Natal van Riel

13:30 - 14:10 **Chris Evelo** *Maastricht University, NL*
Climbing the path to math. Step by step through a data maze.

14:10 - 14:50 **Gary Bader** *University of Toronto, CA*
Interpreting cancer and other disease mutations in a network context

14:50 - 15:10 **Susan Coort** *Maastricht University, NL*
A systems biology approach to study transcriptomics data of the diabetic liver

15:10 - 15:30 **Aalt-Jan van Dijk** *Wageningen University & Research Centre (WUR), NL*
Predicting flowering time via data-integration using a combined statistical-mathematical model

15:30 - 16:00 Coffee, tea (group photo invited speakers + committee members)

Session 3: Bioinformatics Chairs: Jaap Heringa, Lodewyk Wessels

16:00 - 16:40 **Lude Franke** *University Medical Centre Groningen, NL*
Identification of downstream effects for many genetic risk factors by reanalysing gene expression data

16:40 - 17:20 **Ioannes Xenarios** *Swiss Institute of Bioinformatics, Lausanne, CH*
Systems biology and network modelling in biological systems: the Vital role of biocuration

17:20 - 17:40 **Michiel Adriaens** *Academic Medical Centre (AMC), Amsterdam, NL*
Uncovering the mechanisms modulating cardiac electrical function using systems genetics approaches in recombinant inbred rat strains

17:40 - 18:00 **Patrick Deelen** *University Medical Center Groningen, NL*
Calling genotypes from public RNA-sequencing data enables identification of genetic variants that affect gene-expression levels

18:00 - 18:15 **iGEM-2014-WUR team** *BananaGuard: Biocontrol of Fusarium oxysporum using Pseudomonas putida*

18:15 - 18:45 Transfer from conference location to Hotel L'Empereur, Stationsstraat 2 (20 min walk; 10 min busride);

18:45 - 19:15 Reception with bubbles & amuse in the lobby of the hotel (and check into your hotel room)

19:15 - 21:00 Symposium dinner in Ballroom of Hotel L'Empereur

21:00 - 21:30 **Hans Westerhoff** *Univ. of Amsterdam & VU Univ., Amsterdam, NL & Univ. of Manchester, UK*
Integrative systems biology: avenues towards precision science, medicine and biotechnology

21:30 - Socialise in the bar of Hotel L'Empereur or other bars in the neighbourhood (drinks at your own expense)

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Tuesday, 2014 December 16

07:00 - 08:00 Breakfast in hotel and transfer to conference location at Tongersestraat 53 (20 min walk)
08:00 - 08:30 Coffee in 'Ad Fundum' (reception area of School of Business and Economics, UM)

Session 4: Integrating data in the life sciences

Chairs: Gert-Jan van Ommen, Roel van Driel

08:30 - 08:50 **Gert-Jan van Ommen** *Biobanking and Biomolecular Research Infrastructure, Leiden, NL*
BBMRI and beyond: the role of biobanks in the integration of high-dimensional data in human biology and health care
08:50 - 09:25 **Peter-Bram 't Hoen** *Leiden University Medical Centre, NL*
Novel insights in the regulation of mRNA transcription, processing and translation through integration of mRNA sequencing data
09:25 - 10:00 **Katy Wolstencroft** *Leiden Institute of Advanced Computer Science, NL*
Making results reusable: the next five years

10:00 - 10:30 Coffee, tea

Session 5: Responsible research and innovation (RRI) in systems biology (ERASysAPP)

Chairs: Anne Boeter, Ilja Arts, Rob Diemel

10:30 - 10:40 **Roel van Driel** *University of Amsterdam, NL*
Towards understanding biological systems: exciting science and societal benefits
10:40 - 11:00 **Tsjalling Swierstra** *Maastricht University, NL*
Responsible research and innovation (RRI): a new challenge to systems biology
11:00 - 11:20 **Laurens Landeweerd** *CSG Centre for Society and the Life Sciences, Radboud University Nijmegen, NL*
Visions from science: translating societal values of systems biology
11:20 - 12:00 **Forum & public discussion** *Moderated by Laurens Landeweerd*
Talk to thy neighbour: Urgencies, to be transmitted to Brussels (through Synenergene) and the Hague; Problems: overstating promises, societal responsibility, distance/proximity to society.
12:00 - 12:15 **Poster flashes** *2.5 min pitch with 1-2 slides*
Chair: Jaap Molenaar

1. **Arnold Kuzniar**: PIQMIe proteomics web server applied to dissect the mechanism of cancer therapy based on interference with DNA repair
2. **Lisanne Rens**: Mechanical cell-ECM interactions amplifies response to substrate stretch and induces cell alignment
3. **Yvonne Rozendaal**: Dynamical modelling of the onset and progression of the metabolic syndrome through longitudinal data integration using ADAPT
4. **Agnieszka Wegrzyn**: The bigger picture - human peroxisomal single-enzyme deficiencies in fatty-acid metabolism studied through genome-scale models
5. **Xiang Zhang**: Discriminating host defense to fungal and bacterial infections by genome-scale metabolic modeling of human PBMCs

12:15 - 13:30 Lunch combined with poster session in restaurant (School of Business and Economics, UM)

Session 6: Systems biology of microbial cells

Chairs: Wilfred Röling, Hans Westerhoff

13:30 - 14:10 **Gerard Muyzer** *University of Amsterdam, NL*
Microbial systems ecology - a systems biology approach to unravel the mysteries of microbial communities
14:10 - 14:50 **Judy Armitage** *Oxford Centre for Integrative Systems Biology (OCISB), University of Oxford, UK*
Bacterial division: ensuring a balanced inheritance
14:50 - 15:10 **Matteo Barberis** *University of Amsterdam, NL*
A systems biology approach to the tuning of cell cycling and chromatin dynamics
15:10 - 15:30 **Rienk Rienksma** *Wageningen University and Research Centre, NL*
Systems biology of intracellular mycobacteria

15:30 - 16:00 Coffee, tea

Session 7: Systems biology of multicellular organisms

Chairs: Roeland Merks, Richard Notebaart

16:00 - 16:40 **Dolf Weijers** *Wageningen University & Research Centre, NL*
Genetic control of growth and pattern formation in the early plant embryo
16:40 - 17:20 **Nadine Peyri ras** *Centre National de la Recherche Scientifique (CNRS), Gif sur Yvette, FR*
Modelling multilevel dynamics in animal embryonic morphogenesis from multiscale imaging data
17:20 - 17:40 **Sonja Boas** *Centrum Wiskunde & Informatica, Amsterdam, NL*
Tip cell overtaking arises spontaneously in computational models of angiogenic sprouting
17:40 - 18:00 **Pernette Verschure** *University of Amsterdam, NL*
Epigenetics makes us tick: functional performance, time-delay, memory, cell-cell variability and
18:00 - 18:10 **Ilja Arts** *SB@NL2014 posterprize committee chair*
Awarding of poster prizes
18:10 - 18:15 **Jaap Heringa** *BioSB director: the BioSB research school goes live*
18:15 - 18:20 **Hans Westerhoff** *SB@NL director: closing the symposium*

18:20 - 19:00 Drinks & bites in 'Ad Fundum' (reception area of School of Business and Economics, UM)