



SystemsX.ch

The Swiss Initiative in Systems Biology

Newsletter #8 March 12th 2007

200 Million Swiss Francs for SystemsX.ch

Zurich. VDM. The Bundesrat (Swiss Government) intends to support SystemsX.ch, the Swiss initiative in Systems Biology with a total of CHF 200 Million. In January 2007 the Message on Education, Research and Innovation was published, in which the strategic and financial planning of the federal expenses for the 4-year period 2008-2011 is proposed to the parliament. SystemsX.ch is part of it.

CHF 100 Million are planned for Glue Projects, Scientific Nodes, Interdisciplinary Projects and Educational Programs, another CHF 100 Mio are reserved for the new Department of Biosystems Science and Engineering (Center of Biosystems) of ETH Zurich. In 2007, the Universities of

Berne, Geneva and Lausanne will join SystemsX.ch as new partners.

The BFI Message will be discussed in the Ständerat (small chamber of Swiss parliament) first, presumably in the June session; the Nationalrat (large chamber) will decide in September or December 2007.

SystemsX was launched on the basis of a cooperation project between ETH Zurich, University of Basel and University of Zurich to boost Systems Biology. In spring 2006 it was decided to continue SystemsX as a nationwide initiative and to call it SystemsX.ch. As a result, EPF Lausanne joined in June 2006.

New SystemsX.ch Administration in Place

Zurich. AK. SystemsX.ch has a new administration. In January 2007, Dani Vonder Mühl started as Managing Director and Andrea Kaufmann as his assistant in the SystemsX.ch office. It is located as before in the main building of ETH Zurich. Former communications manager Thomas Müller rejoins the team as an external science writer.

Daniel Vonder Mühl



The geophysicist has been active in mountain permafrost research since 1987, among others within the National Research Programme 31 (Climate Change and Natural Disasters), an FP4-EU project and an ETH interdisciplinary Mini-Poly project. He is coordinator of the Permafrost Monitoring Switzerland programme PERMOS. From 2000 to 2006, he was Head of Research Management in the Rectorate of the University of Basel.

Andrea Kaufmann



Andrea Kaufmann studied social anthropology, economics and pedagogy at the University of Basel. She attained her MA in summer 2006 with a thesis on mobile phones in Africa. Andrea Kaufmann was employed at the library of the Museum der Kulturen Basel and in the organization team of the National Education and Research Summit of Oct. 20, 2006 at the University of Basel.

Thomas Müller



Thomas Müller, the former communications manager, rejoins SystemsX.ch as an external science writer. He will edit this newsletter, maintain the SystemsX.ch website, and is available for the writing of press releases and other texts. Thomas Müller studied molecular biology at University of Basel and is freelance science writer at Basler Zeitung and other Swiss media.

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Seeking Interdisciplinary Approaches

Zurich. AK. SystemsX.ch is funding nine Interdisciplinary Pilot Projects (IPP) and eight Interdisciplinary PhD Fellowship Projects (IPFP). A wide range of institutions, are represented with no less than 29 proposals submitted in November 2006.

The interdisciplinary effort follows a suggestion of the Scientific Advisory Board which stated that Systems Biology demands a change in approach to research and education. IPPs and IPFPs are the tools of SystemsX.ch intended to support interdisciplinary research and education.

The PhD students will be supervised by two mentors representing at least two disciplines relevant to systems biology (e.g. biology, physics, informatics, chemistry, mathematics, engineering or medical sciences).

Preference was given to the exploration of innovative research questions that require the close interaction of two or more disciplines. One project tries to quantify the robustness of biochemical modules to parametric and structural perturbations. It is planned to present some of the IPPs and IPFPs in future newsletters.

New Scientific Nodes and Glue Projects proposed

Zurich. AK. Following the call for proposals on the SystemsX.ch homepage, seven proposals were submitted by January 15, 2007. The proposals were handed over to the SystemsX.ch research commission

and will be reviewed. Results are to be expected by April 2007. Five proposals ask for new Glue Projects and two for Scientific Nodes. The approved projects will be presented in coming newsletters.

Luke Lee joins Center of Biosystems



Basel. thm. Last October, world-renowned biological engineer Luke Lee joined the Center of Biosystems (Department of Biosystems Science and Engineering) in Basel as senior research group leader. He was appointed

Professor of Systems Nanobiology at ETH Zurich. His major research goal is creating advanced quantitative biomolecular medicine, and medical diagnostics on a biochip for deciphering biological information by inventing new tools in nano- and micrometer dimensions to quantitatively describe processes in biological cells. Other research fields

include quantum nanoplasmonic cellular dynamic imaging, scale single cell analysis, and culture tools for intricate in vivo networks, that give rise to life. Luke Lee comes from University of California in Berkeley where he is still Llyod Distinguished Professor of bioengineering and director of the Biomolecular Nanotechnology Center. Until 1996 Lee was working at industry, followed by an expeditious academic rise.

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More efficient Proteomics

Zurich. thm. It is now possible in proteomics experiments to computationally predict the peptides that will be detected from any protein by a mass spectrometer. This allows the validation of protein identification and the absolute quantification of proteins to be greatly facilitated. The computational tool to predict these so called proteotypic peptides was developed by the groups of SystemsX.ch-Scientist Ruedi Aebersold from the Institute of Molecular Systems Biology of ETH Zurich and Bernhard Kuster from the Company Cellzome AG. In SystemsX.ch, the new method will be applied in the Center for Model Organ-

ism Proteomes that aims to describe the complete proteomes of the model organisms *Drosophila*, *C. elegans* and *Arabidopsis*. The work appeared in the February issue of «nature biotechnology». The authors make their predictors publicly available.

More information:
[ETH Life article by Christoph Meier \(in German\):](#)

Paper in «nature biotechnology»:
Mallick P, Schirle M, Chen SS, Flory MR, Lee H, Martin D, Ranish J, Raught B, Schmitt R, Werner T, Kuster B, Aebersold R.: "Computational prediction of proteotypic peptides for quantitative proteomics." *Nature Biotechnology* 2007 Feb; 25(1):125-131. Epub 2006 Dec 31. DOI: 10.1038/nbt1275

SystemsX.ch participation in BaSysBio

Zurich. thm. SystemsX.ch scientists Jörg Stelling, ETH Computer Science, and Uwe Sauer, Institute of Molecular Systems Biology, head the computational and the technological parts of the first integrated European project on Systems Biology. The project «Bacillus Systems Biology» (BaSysBio) is funded with Euro 12 Million and involves 15 European research organisations and an Australian university.

Head of the project is Philippe Noirot from the French National Institute for Agricultural Research (INRA) in Jouy-en-Josas. The main purpose of the four-year project is to develop systems approaches that enable quantitative understanding of the regulation network of gene transcription in the model bacterium *Bacillus subtilis*.

[ETH-Press release \(in German\)](#)
[INRA Press release \(English\)](#)

Particulars

New in the Partners Meeting



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Another £35 Million for UK Systems Biology

London. thm. The British Biotechnology and Biological Sciences Research Council (BBSRC) is injecting another £35 Million (CHF 88.55 Million) into two Systems Biology initiatives. «At least» £30 Million has been committed to the new Systems Approaches to Biological Research Initiative, which will fund research into «strategically important bioscience problems», says a press release by BBSRC from September 2006. The new project, to be funded in 2007 will build on the £43.6 M investment already made in six university-based Systems Biology centers over the last two years (see [SystemsX-Newsletter Nr. 6](#)).

The total investment of BBSRC into Systems Biology rises therefore to about £85 Million.

The second new initiative, named Exploiting Systems Biology LINK Initiative and worth a total of £5 Million, aims to help UK bio-industries to exploit the expertise in these centres by financing collaborations between academic and industrial researchers. The industrial partners are required to contribute at least 50 percent of full cost to each project. BBSRC is committing £2.5 Million.

[See press release from BBSRC](#)

EMBL Systems Biology Unit launched in Barcelona



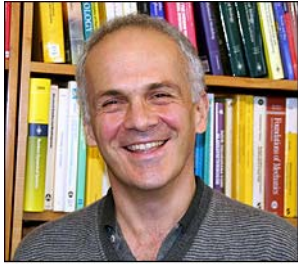
campus of the Barcelona Biomedical

Barcelona. thm. Louis Serrano heads the new joint Research Unit in Systems Biology by the European Molecular Biology Laboratory [EMBL] and the Centre for Genomic Regulation on the

Research Park. The Spanish Ministry for Education and Science will fund the new unit with 12.7 million Euros over the next nine years. Head of the new unit is Luis Serrano, who coordinated the EMBL Structural and Computational Biology Unit in Heidelberg.

[Press release EMBL](#)

Jaroslav Stark leads Centre of Systems Biology



London. thm. Jaroslav Stark from Imperial College London's Department of Mathematics has been appointed as new Director

of the interdisciplinary Centre for Integrative Systems Biology at Imperial College (CISBIC). Professor Stark took up his four-year post at the Biotechnology and Biological Sciences Research Council (BBSRC)-funded centre in January 2007.

CISBIC is one of six such BBSRC centres across the UK, which is bringing mathematicians and computer scientists together with biologists to shed new light on biological problems at the molecular and cellular levels. The CISBIC team wants to look at the fundamental science behind

the initial immune response to infection in cells. A «vital role» (press release) is devoted to mathematicians and computer scientists in understanding the complex way in which large numbers of molecules react and interact when infection occurs.

The Imperial centre's research focuses on microbes that cause disease, such as bacteria and fungi, and the way they interact with their hosts. Its mission resembles the one of the SystemsX-Node « Center of Systems Bacterial Infections (C-SBI)» that aims to model the network of interactions between pathogenic bacteria and various cell types, contributing to the onset of the inflammatory response which orchestrates immunity.

<http://www3.imperial.ac.uk/cisbic>

Upcoming events

- 13-14.03.07: Computational Biology Conference, USGEB Meeting 2007Basel
<http://www.usgeb2007.ch/>
- 16.03.07: Next Generation Proteomic Approaches: Mini-Symposium ETHZ
<http://www.imsb.ethz.ch/proteomics-mini-symposium>
- 16.03.07: Development of a European Research Area: Promoting Collaboration with the European Commission's Joint Research Centre and Switzerland, EAWAG Dübendorf
<http://www.eawag.ch/veranstaltungen/20070316/index>
- 20.03.07: Materials in Switzerland – creating a new platform, CCMX meeting in Fribourg
<http://www.ccmx.ch/sub/events/20-march-2007-first-annual-meeting/index.html>
- 24.-27.06.07: Synthetic Biology 3.0, ETH Zurich
<http://www.syntheticbiology3.ethz.ch/index.htm>
- 12-14.07.07: Building a Better Mouse II at Vanderbilt University
<http://www.vcscb.org/bbm/>

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