

Synthetic Biology 3.0

June 24–26, 2007

ETH Zurich

The Third International Conference of Synthetic Biology SB3.0 was held this year at the ETH in Zurich, Switzerland. From the 24th to 26th of June 2007, we had a great meeting with excellent speakers and workshops for those that are were new in the field of Synthetic Biology. The speaker list amongst others included keynotes from George Church from Harvard University, Nobelist Ham Smith from the J. Craig Venter Research Institute and Tom Knight from MIT.

In addition, we had 25 invited and 19 selected contributions from the interface between life science and engineering. The scientific program was completed by two exciting poster sessions with over 140 posters. The closing of the SB3.0 conference had the Gala Dinner at the 'Uto Kulm' restaurant on the Uetliberg (see picture below) as a highlight.



Uetliberg 'Top of Zurich', Tuesday, 26th of June, 2007

During the three days, topics such as the design of genetic circuits, biological parts, devices, and systems, concepts for design and for fabrication of biological systems, and their applications in chemistry, energy, and materials were addressed. We also explored topics that are essential to the further development of Synthetic Biology, such as Licensing/IP, public perception, risk, and ethics.

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This year's conference included a fruitful panel discussion on 'Synthetic Biology and Ethics' with members such as Laurie Zoloth (Ethics), Nikola Biller-Andorno (Ethics), Jim Thomas (ETC, civil society), Malcolm Dando (Security), Joachim Henkel (Intellectual Property Rights), Victor de Lorenzo (Science) and George Church (Science).

In parallel to and sponsored by the SB3.0 conference, the Swiss 'Forum Genforschung' from the Swiss Academy of Natural Sciences organized a discussion event on Synthetic Biology that was open to the general public. The goal of this event was to find a dialog between Science and Society and to address potential societal issues and fears. This discussion took place at the Semper-Sternwarte in Zurich including the following panel members: Sven Panke (Scientist, ETH Zurich), Viola Vogel (Scientist, ETH Zurich), Marcel Hänggi (Journalist, Wochenzeitung, Zurich), Michael Siegrist (Institute for Environmental Decisions, ETH Zurich) and Andrea Arz de Falco (Swiss Centre for Technology Assessment). For more information, please refer to <http://www.geneticresearch.ch>.

Conference Details

Tutorials for 'newcomers'

- Stefan Hohman, Göteborg University on 'Yeast for Synthetic Biology'
- Diego di Bernardo, TIGEM & Jörg Stelling, ETH Zurich on 'Mathematical Models for SB'
- Nicolas Szita, UCL on 'Introduction to Microfluidics'
- Randy Rettberg, MIT on 'iGEM and the MIT Registry'

For those that are interested in the tutorials, the slides will be soon posted on our webpage (username: sb3_0; password: SynBio).

List of Speakers

Keynote speakers:

- George Church (Harvard University), who has made ground-breaking contributions to whole-genome sequencing and synthesis
- Hamilton O. Smith (Nobel laureate, Synthetic Genomics), scientific director of the Synthetic Biology & Biological Energy Groups at the Venter Institute and Founder, Co-Chief Scientific Officer of Synthetic Genomics, Rockville, MD, and
- Tom Knight from the MIT Computer Science and Artificial Intelligence Lab.

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Invited Speakers:

- Pam Silver, Harvard Medical School
- Ron Weiss, Princeton University
- Luis Serrano, EMBL-CRG Systems Biology Programme, Centre for Genomic Regulation
- Miroslav Radman, Université René Descartes-Paris V
- Peter H. Seeberger, ETH Zurich
- Marvin Cassman, San Francisco, California
- Martin Feinberg, The Ohio State University
- Nicola Biller-Andorno, University of Zurich
- Laurie Zoloth, Northwestern University, Feinberg School of Medicine
- Michele Garfinkel, The J. Craig Venter Institute
- Michael Famulok, University of Bonn
- Greg Stephanopoulos, Massachusetts Institute of Technology
- Viola Vogel, ETH Zurich
- Jason W. Chin, MRC Laboratory of Molecular Biology
- Bill Earnshaw, Wellcome Trust Centre for Cell Biology, University of Edinburgh
- Hiroki Ueda, RIKEN
- Hana el-Samad, University of California, San Francisco
- Clyde Hutchison, The J. Craig Venter Institute
- Antoine Danchin, Génétique des Génomes Bactériens
- Joachim Henkel, Technical University Munich
- Steve Maurer, University of California at Berkeley
- iGEM Ljubljana, Slovenia
- iGEM Imperial, UK
- Joyce Tait, University of Edinburgh
- Roel Bovenberg, Royal DSM Anti-Infectives
- Markus Schmidt, IDC Vienna

Selected Talks:

- Wilfried Weber, ETH Zurich
- Caleb J. Bashor, University of California, San Francisco
- Giovanni Murtas, University of RomaTre
- Georg Seelig, Caltech
- Rene Warren, BC Cancer Agency
- David S Kong, MIT
- Gautam Mukunda, MIT & Scott Mohr, Boston University
- Ralf Wagner, Geneart AG

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- Victor de Lorenzo, CSIC
- Marc Riedel, University of Minnesota
- Jörg Stelling, ETH Zürich
- Randy Rettberg, MIT
- Drew Endy, MIT
- Sibylle Gaisser, Fraunhofer Institute for Systems and Innovation Research
- Volker Döring, Isthmus
- Philippe Marliere, Heurisko
- Justin Gallivan, Emory University
- Winston Timp, MIT
- Jeff Tabor, University of California, San Francisco
- Randy Rettberg, MIT

Please note, for those who could not attend the conference, webcasts of most of the conference talks will soon be available on our webpage: <http://www.syntheticbiology3.ethz.ch>

Poster Prize

The following two participants won a poster prize (2000 US Dollars in DNA synthesis):

- Jan Roelof van der Meer, ETH Lausanne, in 'Synthetic Signalling Pathways for Biosensing'
- BioModularH2 Team (Project leader: Alfonso Jaramillo, Polytechnique Paris)

Another poster prize was awarded for the area of societal aspects of Synthetic Biology:

- Luis Campos 'Engineering Life in the Test Tube: Toward a Prehistory of Synthetic Biology'

Statistics: Composition of the audience

Event	SB1.0	SB2.0	SB3.0	% SB3.0
Participants				
<i>Total</i>	290	327	351	
North-America	279	298	113	32%
Europe	6	16	185	53%
Japan	3	10	10	3%
ROW	2	3	13	4%
Commercial	29	37	20	5%
Press	3	11	10	3%
				100%

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Synthetic Biology 1.0: 2004, MIT, Cambridge, USA

(http://openwetware.org/wiki/Synthetic_Biology:Synthetic_Biology_1.0)

Synthetic Biology 2.0: University of California @ Berkeley & Lawrence Livermore National Laboratory (<http://pbd.lbl.gov/sbconf/>)

Upcoming Conference

Synthetic Biology 4.0 in 2008 in Asia, location still to be announced.

Organizers

The ETH Working group in Synthetic Biology (www.syntheticbiology.ethz.ch)

Sven Panke

Jörg Stelling

Matthias Heinemann

Martin Fussenegger

Congress Web Page

<http://www.syntheticbiology3.ethz.ch/>