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Thematic Priority: Synthetic Biology

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<b>Dissemination Level</b>		
<b>PU</b>	Public	X
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

# Synthetic Biology

## Newsletter #1, July 2007

### Dear Synthetic Biologist

Welcome to our first EMERGENCE newsletter on Synthetic Biology. EMERGENCE is a European Union project under the 6<sup>th</sup> framework programme. EMERGENCE stands for 'A foundation for Synthetic Biology in Europe'. Using this newsletter tool, we would like to further inform the SB community about recent developments and events in Synthetic Biology. If you have any comments, suggestions or maybe job offers, please let us know and contact us via

[SB-Newsletter@ethz.ch](mailto:SB-Newsletter@ethz.ch)

If you would like to subscribe to our newsletter, please send us an email to the address above.

For more information about the EMERGENCE project, please visit us at

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

Kind regards, the EMERGENCE Team

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### Synthetic Biology 3.0

The Third International Conference of Synthetic Biology SB3.0 was held this year at the ETH in Zurich, Switzerland. From the 24<sup>th</sup> to 26<sup>th</sup> 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.



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

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.

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.

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 of the first two tutorials are now available 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.

#### 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
- 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 are 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, Max-Planck Institute for Wissenschaftsgeschichte, in '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	<b>351</b>	
North-America	279	298	<b>113</b>	<b>32%</b>
Europe	6	16	<b>185</b>	<b>53%</b>
Japan	3	10	<b>10</b>	<b>3%</b>
ROW	2	3	<b>13</b>	<b>4%</b>
Commercial	29	37	<b>20</b>	<b>5%</b>
Press	3	11	<b>10</b>	<b>3%</b>
				<b>100%</b>

**Synthetic Biology 1.0:** 2004, MIT, Cambridge, USA

([http://openwetware.org/wiki/Synthetic\\_Biology:Synthetic\\_Biology\\_1.0](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](http://www.syntheticbiology.ethz.ch))

Sven Panke, Jörg Stelling, Matthias Heinemann and Martin Fussenegger

## Congress Web Page

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

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## Upcoming events in Synthetic Biology

### ESF-UB Conference in Biomedicine

European Conference on Synthetic Biology ([ECSB](#)): Design, Programming and Optimisation of Biological Systems.

November 24-29, 2007 - Hotel Eden Roc, Sant Feliu de Guixols, Spain

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## Open Positions

'Research Associate in Microfluidics for Synthetic Biology'

UCL Dept of Biochemical Engineering, [more information](#)

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## Imprint

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## Synthetic Biology

### Newsletter #2, November 2007

#### Dear Synthetic Biologist

Welcome to our second EMERGENCE newsletter on Synthetic Biology. We would like to take the opportunity to inform the community about recent activities in Synthetic Biology such as the *iGEM jamboree* in the beginning of November 2007.

If you have any comments, suggestions or maybe job offers, please let us know and contact us via

[SB-Newsletter@ethz.ch](mailto:SB-Newsletter@ethz.ch)

If you would like to subscribe to our newsletter, please send us an email to the address above.

For more information about the EMERGENCE project, please visit us at

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

Kind regards, the EMERGENCE Team

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#### iGEM 2007

The *International Genetically Engineered Machines (iGEM)* competition is an annual, worldwide competition that involves undergraduate and graduate students in synthetic biology. It differs radically from most high-level educational experiences in that the participants often begin with limited backgrounds in science (many are first- or second-year undergraduates).

The procedure is as follows: Student teams are given a kit of biological parts at the beginning of the summer. Working at their own schools over the summer, they use these parts and new parts of their own design to build biological systems and operate them in living cells. During the first weekend of November, they present their work at the iGEM Competition Jamboree at MIT and have a chance to win prizes. They add their new parts to the Registry of Standard Biological Parts for the students in the next year's competition, [more information](#).

The iGEM competition has grown rapidly, from five teams in its first year (2004) to 34 teams in 2006 and 54 teams in 2007.

And it was a great success! 750 students from around the world spent their summer engineering novel biological machines using and creating BioBrick standard biological parts, then gathered in November at the 2007 Championship Jamboree to share, celebrate and compete with their projects

The 2007 iGEM Jamboree officially concluded on Sunday November 4. The team from the National Yang Ming University (NYMU) won the grand prize. Their project could help diabetics improve their quality of life and was titled 'GlucOperon': An auto-regulated system with both feed-forward and feed-back controls."

Among the finalist were the teams from UC Berkeley, Ljubljana, Paris, UCSF, and USTC Gold medals won the teams from Alberta, Edinburgh, Paris, Tokyo Tech, Bangalore, ETHZ, Peking, Tsinghua, Berkeley, Freiburg, Penn State, UCSF, Bologna, Glasgow, Princeton, USTC, Brown, Harvard, Rice, Valencia, Calgary, Imperial, Southern Utah, Virginia Tech, Caltech, Lethbridge, St. Petersburg, Ljubljana, Cambridge, Melbourne, Taipei, Davidson-Missouri, MIT, and Tianjin.

**Important: Next year's jamboree will be on November 8<sup>th</sup> to 9<sup>th</sup> and the registration opens on April 4<sup>th</sup>, 2008!**

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### Upcoming Events in Synthetic Biology

- Fourth International Conference on [Synthetic Biology SB4.0](#), October 10 - 12, 2008, Hong Kong University of Science & Technology.
- Advances in Synthetic Biology, Cambridge (UK), March 6-7, 2008
- Synthetic Biology – Molecular Bioengineering for the 21<sup>st</sup> century, Cambridge Philosophical Society, Dec 2007, [more Information](#).

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### Open Positions

#### PhD in Synthetic Biology

The Bioprocess Laboratory at the ETH Zurich, Switzerland, has currently one PhD position available and is looking for:

A process/chemical engineer with a flair for advanced numerical simulations and model-based experimental analysis, and interest in the description and manipulation of multi-enzyme reaction networks. More information can be found [here](#).

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### Imprint

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## Synthetic Biology

### Newsletter #3, April 2008

#### Dear Synthetic Biologist

Welcome to our third EMERGENCE newsletter on Synthetic Biology. This spring is full of European events in Synthetic Biology and with this newsletter, we try to give you an overview about some of them. If we forgot some important meetings or if you have some comments that you would like to send to us, please contact us via

[SB-Newsletter@ethz.ch](mailto:SB-Newsletter@ethz.ch)

**Important:** The EMERGENCE team will organize an advisory board meeting next to the Synthetic Biology SB4.0 in Hong Kong. More information will be soon available and posted on our EMERGENCE website.

For more information about the EMERGENCE project, please visit us at

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

Kind regards, the EMERGENCE Team

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#### **ESF Conference Series: European Conference on Synthetic Biology (ECSB): Design, Programming and Optimisation of Biological Systems**

The first European conference on Synthetic Biology was organized by the European Science Foundation (ESF) and featured 4 tutorials, 7 plenary sessions, 2 panel discussions and 1 poster session. The conference took place in Sant Feliu de Guixols, Spain from November 24 – 29, 2007 and was chaired by Alfonso Valencia (CNIO, Spain), Sven Panke (ETHZ, Switzerland), Natalio Krasnogor (University of Nottingham, Great Britain) and Victor de Lorenzo (CSIC, Spain).

The conference started with a tutorial day consisting of several topics covered by Sven Panke (general review and developments), N. Krasnogor (computational modeling), P. Herdewijn (nucleic acid chemistry) and P. Luisi (What is life?).

The next sessions comprised topics such as 'Biology of minimal genomes and evolution', 'simulations', 'systems analysis', 'infrastructure for SB', and 'funding and industry links for Synthetic Biology'.

[More information](#)

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#### **iGEM Jamboree 2008**

**Important deadline:** Next year's jamboree will be on November 8th to 9th and the team registration closes on April 30th, 2008!

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To register for iGEM, please follow the link below:

<http://parts.mit.edu/igem08>

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### **News: Creation of the Industry Association of Synthetic Biology (IASB) in Germany**

The Industry Association of Synthetic Biology (IASB) is a consortium of companies in synthetic biology. Founding members include ATG:Biosynthetics GmbH, Biomax Informatics AG, Entelechon GmbH, febit synbio GmbH, MWG Biotech AG and Sloning BioTechnology GmbH. The main focus of the association is the advancement and future development of synthetic biology.

[More Information](#)

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### **IASB workshop on 'Biosecurity in Synthetic Biology'**

An IASB workshop on 'Biosecurity in Synthetic Biology' was held at this year's *Analytica* in Munich on April 3, 2008. More than 30 European and American experts from industry, research, EU and associations presented and discussed the requirements for Biosecurity in the use and commercial supply of synthetic genes.

Due to the increasing performance of DNA and gene synthesis, this area of research is growing dynamically and requires effective measures for safe use of these products. The rapid and cost-effective availability of DNA molecules opens up new opportunities but also entails novel risks in biotechnology. According to the workshop participants, these risks primarily include the purposeful misuse of the technology. However, inadvertent mistakes in the proper use of the new technological potential of synthetic biology must be considered.

The workshop focused on planning of appropriate risk management measures: sources of error may be reduced by systematic cataloguing and adequate user information via a dedicated internet portal. The risk of misuse may be minimized by close monitoring of customer orders.

[More information](#)

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### **Satellite Symposium Synthetic Biology at Biofine2008 in Freiburg**

The Symposium organized by Hubert Bernauer (ATG:biosynthetics) was intended to provide an insight on the emerging European Synthetic Biology projects and its most advanced enabling technologies.

SB is on the way to provide new approaches beneficial for applications in Healthcare and pharmaceutical production. In addition, the Symposium aimed specifically on the dissemination of recent activities in Synthetic Biology in Europe to the bio-pharmaceutical scientific community. Examples of technological approaches were presented that demonstrates how this field can support bio-pharmaceutical developments in both,

increasing the efficiency of research and development and, expanding the scope of biosynthetic design options.

The meeting was divided into three parts. The morning session dealt with scientific and organizational prerequisites for Synthetic Biology. The afternoon was reserved for the industry panel entitled 'Science Based Molecular Engineering'. A panel discussion in the evening elucidated the prerequisites for the development of a European industrial community in Synthetic Biology.

[More information](#)

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### **Upcoming Events in Synthetic Biology**

- Synthetic Biology, Systems Biology and Bioinformatics [BioSysBio](#), 20 - 22 April 2008, Imperial College London.
  - The 9<sup>th</sup> International Conference on Systems Biology [ICSB2008](#), 22 - 28 August 2008, Göteborg.
  - Fourth International Conference on [Synthetic Biology SB4.0](#), October 10 - 12, 2008, Hong Kong University of Science & Technology.
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### **Imprint**

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## Synthetic Biology

### Newsletter #4, September 2008

#### Dear Synthetic Biologist

Welcome to our fourth EMERGENCE newsletter on Synthetic Biology. This autumn is full of European events in Synthetic Biology and with this newsletter, we try to give you an overview about some of them. If we forgot some important meetings or if you have some comments that you would like to send to us, please contact us via

[SB-Newsletter@ethz.ch](mailto:SB-Newsletter@ethz.ch)

**Important:** The EMERGENCE team will organize an advisory board meeting next to the Synthetic Biology SB4.0 in Hong Kong on Friday evening, October 10th. More information will be soon available and posted on our EMERGENCE website.

For more information about the EMERGENCE project, please visit us at

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

Kind regards, the EMERGENCE Team

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#### Synbiosafe e-conference

[SYNBIOSAFE](#) is the first initiative in Europe that focuses particularly on the safety, security and ethical concerns and tries to facilitate a socially acceptable development of synthetic biology.

One of the recent activities of Synbiosafe was carrying out an open online conference in May/June 2008. The aim of this open e-conference was to further stimulate a debate on safety, security and ethical issues in a proactive way at a relatively early stage. The discussions and consultations during the e-conference are an important contribution to the production of final recommendations, which will be delivered by the Synbiosafe consortium to national governments, international organizations, research centers, universities, and other stakeholders at the end of 2008.

Everyone interested in Synthetic Biology was encouraged to actively participate in the online discussion, either to submit a professional expertise, opinion, or point of view. The participation was open to everybody interested in the ethical, safety and security issues of synthetic biology.

More information on the e-conference, and on the discussions and contributions of the various participants can be found [here](#).

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## To all users of Synthetic Biology

### Do you want to organize a SB-relevant workshop and would like to get support from EMERGENCE?

A standardized three-tiered meeting structure that allows efficient review and distribution of the conclusions obtained at individual meetings was developed. You, as an interested researcher/institution can propose to the Steering Board of Emergence an initial meeting to discuss a particular subject of acute interest in SB. Please detail the topic, relevance to the CA, deliverables, number (and, whenever relevant, identity of participants), anticipated costs and requested contribution, location etc.

Once the proposed meeting is approved, financed, successfully conducted and the deliverable (usually a report) is produced, further meetings of increasing dimension or complementary could be proposed along the same basic structure. This simple and iterative procedure provides a swift means to react to acute needs in the field, and enables consolidation and deepening when the topics so demand.

Interested? Then please go to the [EMERGENCE webpage](#), fill out the provided template and send it to Vitor Martins dos Santos, [vds@helmholtz-hzi.de](mailto:vds@helmholtz-hzi.de)

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## Recent publications from the EMERGENCE team

- M.A. Marchisio & J. Stelling, Computational design of synthetic gene circuits with composable parts, *Bioinformatics*, accepted 21(17), 2008.
- de Lorenzo, V. and Danchin, A. (2008) *Synthetic Biology: discovering new worlds and new words*. *EMBO Rep* (In Press).
- de las Heras, A., Carreño, CA, de Lorenzo, V. (2008) Stable implantation of orthogonal sensor circuits in Gram-negative bacteria for environmental release. *Env Microbiol* (In Press).
- Silva-Rocha, R. and de Lorenzo (2008) Mining logic gates in prokaryotic transcriptional regulation networks. *FEBS Lett* 582: 1237-44.

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## Upcoming Events in Synthetic Biology

- Fourth International Conference on [Synthetic Biology SB4.0](#), October 10 - 12, 2008, Hong Kong University of Science & Technology.
  - [Workshop Synthetic Biology](#), November 6-8, 2008, Groningen, The Netherlands.
  - [Systems and Synthetic Biology - Scientific and Social Implications](#), November 7-8, 2008 at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany.
  - [Life under \(Re\)Construction](#), VBC PhD Symposium on Synthetic Biology. November 13-14, 2008, Vienna, Austria.
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## **Imprint**

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## Synthetic Biology

### Newsletter #5, July 2009

#### Dear Synthetic Biologist

Welcome to our fifth EMERGENCE newsletter on Synthetic Biology. This summer and autumn is full of European events in Synthetic Biology and with this newsletter, we try to give you an overview about some of them. If we forgot some important meetings or if you have some comments that you would like to send to us, please contact us via

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#### Special issue on Synthetic Biology in *Interface* (March 2009):

The organizers of the special issue 'Synthetic biology: history, challenges and prospects', Jim Haseloff (University of Cambridge), Jim Ajioka (University of Cambridge) and Dick Kitney (Imperial College, London), have brought together a collection of twelve articles, plus an introduction, by a group of internationally renowned authors. These peer-reviewed research and review papers provide an excellent overview of the subject.

[More information](#)

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#### New department for Systems Biology and Synthetic Biology at ETH Zurich:

[The Department of Biosystems Science and Engineering \(D-BSSE\)](#) is combining biological, engineering and computational approaches to analyze complex bio-molecular networks. It was officially inaugurated on June 6, 2009.

Beginning with the 2009 fall semester [BSc and MSc programs in Biotechnology](#) with specialization in synthetic biology will be offered.

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#### A Website for Synthetic Biology Resources:

This site contains details of recent papers on Synthetic Biology, with particular emphasis on: (i) development of standards in biology and DNA biobricks, (ii) microbial and (iii) plant systems, (iv) hardware for scientific computing and instrumentation, (v) tools for scientific productivity and (vi) collected miscellany.

<http://www.synbio.org.uk/>

The Technical University of Delft/3TU – The Centre for Ethics and Technology has recently launched an EU-funded project on Ethical and Regulatory Issues Raised by Synthetic Biology. More information under: <http://www.ethicsandtechnology.eu/research/projects/1122>

### **OECD interested in Synthetic Biology:**

The OECD, together with the National Academies of Sciences of the USA and the US National Science Foundation, has recently held a meeting on the science and potential implications of synthetic biology. Much of this meeting is either fully or partially online under [http://sites.nationalacademies.org/pga/stl/PGA\\_051983](http://sites.nationalacademies.org/pga/stl/PGA_051983)

### **News on the ESF-Eurocores Call in Synthetic Biology, EuroSYNBIO**

The ESF-Eurocores Call for project proposals was a success. The ESF received 24 project descriptions in the first round and invited 16 groups to submit a full proposal. These proposals are currently under revision. Decisions can be expected later this year.

<http://www.esf.org/activities/eurocores/programmes/eurosynbio/call-for-proposals.html>

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Interested? Then please go to the [EMERGENCE webpage](#), fill out the provided template and send it to Vitor Martins dos Santos, [vds@helmholtz-hzi.de](mailto:vds@helmholtz-hzi.de)

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## Recent publications from the EMERGENCE team

- Müller, D., Stelling, J. (2009) Precise regulation of gene expression dynamics favors complex promoter architecture. PLoS Comput Biol. 5(1):e1000279.
- Tigges, M., Marquez-Lago, T., Stelling, J., Fussenegger, M. (2009) A tunable synthetic mammalian oscillator. Nature, 457(7227):309-12.
- De Lorenzo, V. (2009) Recombinant bacteria for environment release: what went wrong and what we have learnt from it. Clin Microbiol Infect. 15 Suppl 1:63-5.
- Walser, M., Pellaux, R., Meyer, A., Bechthold, M., Vanderschuren, H., Reinhardt, R., Magyar, J., Panke, S., Held, M. (2009) Novel method for high-throughput colony PCR screening in nanoliter-reactors. Nucleic Acids Res.;37(8):e57.

## Upcoming Events in Synthetic Biology

- [Plant Bioinformatics, Systems and Synthetic Biology Summer School](#), July 27-31, 2009 at the University of Nottingham, UK.
- Meeting "Ethics in Synthetic Biology, October 1 & 2, University of Freiburg, Germany [http://www.igm.uni-freiburg.de/medeth/akt\\_medeth/flyer-symposium-ethik-der-synthetischen-biologie](http://www.igm.uni-freiburg.de/medeth/akt_medeth/flyer-symposium-ethik-der-synthetischen-biologie)
- [iGEM Competition Jamboree](#), October 30 - November 2, 2009, MIT, USA.
- DECHEMA Conference on "[Synthetic Bio\(tech\)nology](#)", November 9-10, 2009 Frankfurt, Germany.
- Synthetic Biology Workshop "Standardization in transcription and translation", October 21-22, 2009, Illetes, Mallorca.

## Imprint

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## Synthetic Biology

### Newsletter #6, November 2009

#### Dear Synthetic Biologist

Welcome to our 6th and last EMERGENCE newsletter on Synthetic Biology. We would like to take the opportunity to inform the community about recent activities in Synthetic Biology such as the *iGEM jamboree* in the beginning of November 2009.

EMERGENCE officially ends in November 2009.

For more information about the EMERGENCE project and the achievements of the team, please visit us at

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

Kind regards, the EMERGENCE Team

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#### iGEM 2009

iGEM 2009 is officially over. During the first weekend of November, 112 teams from all over the world presented their work at the iGEM Competition Jamboree at MIT. For the first time, this year all 3 winner teams came from Europe. The grand prize, the BioBricks trophy, went to the team from the University of Cambridge. The so-called “*E. chromi*”-team from the British university successfully expressed a spectrum of pigments in *E. coli*, creating a color generator. The second and the third price went to the teams from the University of Heidelberg and the University of Valencia, [more information](#).

Looking back at iGEM`s history, the competition was a great success and has grown rapidly, from five teams in its first year (2004) to 34 teams in 2006 and finally 112 teams in 2009.

If you are interested in frequent news about iGEM you can join the mailing list [here](#).

If you are interested in sponsoring iGEM, please contact Randy Rettberg at

[Randy@iGEM.org](mailto:Randy@iGEM.org)

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## First documentation about Synthetic Biology on DVD

The documentary film “SYNBIOSAFE-Synthetic Biology and its Safety and Ethical Aspects” by Markus Schmidt and Camillo Meinhard was recently lanced as one of the outputs of the EC-FP6 program SYNBIOSAVE. „SYNBIOSAFE“ gives a fundamental insight into Synthetic Biology and its real world applications. The documentary film also sheds a light on the benefits and risks of this new technology and what it means for our future society. It is about synthetic biology and its safety and ethical aspects.



If you are interested in the DVD you can order it [here](#)

The SYNBIOSAFE DVD contains the 38 minutes documentary film plus some 15 in-depth expert interviews.

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## New England Biolabs and Ginkgo BioWorks release the first BioBrick assembly kit

Biobricks are DNA sequences that encode a defined biological function and can be readily assembled with any other Biobrick. The BioBrick™ Assembly Kit that is now available from New England Biolabs provides a streamlined method for assembly of Biobricks into multi-component genetic systems. The process for assembling any two Biobricks is identical and results in a new composite Biobrick, [more information](#).

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## ESF EuroCORES

9 Projects were recommended for funding and transferred to the national funding agencies for further review. Results are to be expected in mid December 2009.

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## Upcoming Events in Synthetic Biology

- The National Academies Keck Futures Initiative will be [Synthetic Biology: Building on Nature's Inspiration](#) on 19-22 November, 2009, at Irvine, CA, USA.  
Ten podcast tutorial interviews with synthetic biology leaders are [available online](#)
- Synthetic Biology in Pharma Conference, The Wellcome Trust Conference Centre, Cambridge, UK, 30-31 March, 2010

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## Imprint

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