

## **Minutes Emergence Advisory Board Meeting Hong Kong**

Oct 13, 2008

University of Science and Technology (HKUST)

### **Participants:**

- ETH: Sven Panke, Mario Marchisio, Frauke Greve, Jörg Stelling, Sonja Billerbeck, Matthias Bujara
- CRG: Raik Grünberg
- CSIC: Rafael Silva-Rocha, Belén Calles
- HZI: Vitor Martins dos Santos
- DSM: Luis Passamontes
- Geneart: Frank Notka, Ralf Wagner
- UCL: Amol Jadhav
- UCAM Jim Haseloff
- Imperial College: Richard Kitney, Paul Freemount, Geoff Baldwin
- IDC: Markus Schmidt

### **Introduction EMERGENCE: Sven**

- Introduction: EMERGENCE is a coordination action funded by the EU-FP6 NEST PATHFINDER program
- Information about the participants, ideas behind Emergence and Synthetic Biology, introduction to the various workpackages, see attached slides and [www.emergence.ethz.ch](http://www.emergence.ethz.ch)
- 15 projects were funded in the 3<sup>rd</sup> EU-NEST call (2006): 13 STREPS, 3 SSA, 1 CA; nowadays approximately 120 researchers are working in Syn Bio EU projects.
- Europe is also involved in the iGEM competition ([www.igem.org](http://www.igem.org)). In 2008, 24 European teams are participating in iGEM.
- Upcoming European Syn Bio meetings: Workshop Synthetic Biology, Groningen, NL, Nov. 6-8, 2008; Wellcome Trust Workshop, London, UK, Nov. 3-4, 2009.
- Past meetings, see attached slides (p12)
- Who is included in the Emergence advisory board: all NEST project leaders plus any PI who is interested and can contribute.

### **WP1: General Networking Activities (Vitor Martins dos Santos)**

**Goal of WP1:** Fostering a community of knowledge

- Important for the advisory board members: There is a web-based template on the Emergence website available for the application of support for networking activities. These activities include workshops (potential topics: minimal genomes/minimal systems, what and how to measure, design concepts, microfluidic technologies/single cell measurements), and travel money for students.

- There is a quarterly Emergence newsletter available on the website, see [www.emergence.ethz.ch/Newsletter/newsletter.htm](http://www.emergence.ethz.ch/Newsletter/newsletter.htm); if you would like to sign up, please send an email to [SB-Newsletter@ethz.ch](mailto:SB-Newsletter@ethz.ch)
- More info on WP1, see attached slides

## **WP2: Attracting Talent to SB in Europe (Sven Panke)**

**Goal of WP2:** Fostering education in Synthetic Biology (summer schools, European master program in SB, integrated web resource for educational material)

### **Summer school (Sven Panke):**

- First 'Synthetic Biology Winter School' takes place in June 1-13, 2009 at the ETH Basel (in the new department BSSE).
- Structure: scientific lectures on eminent topics in Syn Bio; 3 twin theory/wet-lab sections over 2 weeks.
- Currently inviting instructors and lecturers

### **Master program (Alfonso Jaramillo):**

- A 'Master program on SB' at the Ecole Polytechnique is still on-going; Alfonso Jaramillo submitted the proposal to the French ministry in October 2007. Begin delayed until September 2009.

### **Institution of Engineering and Technology (IET) (Jim Haseloff):**

- Goal: Providing new channels for communication with the public
- The IET provides downloadable teaching materials, video presentations, online reviews, technical articles.
- More information on [www.theiet.org](http://www.theiet.org)

## **WP3: European IT Infrastructure for SB (Jörg Stelling)**

**Goal:** Building a European mirror of the Registry containing computational tools to retrieve biological information from other databases; and to design circuits made of the Standard Biological Parts.

- Circuit simulation (ETH: Mario Marchisio & Jörg Stelling),: Building a 'drag & drop' tool for circuit design.
- Information integration (Alfonso Valencia & Randy Rettberg, MIT): testing the Registry connectivity with other databases, development of new tools to access and visualize content of biological databases, and the realization of a pilot application.

### **Perspectives:**

- Forward integration into tool chain: (a) Links between registry, annotation/database system, parts and systems modeling & simulation; expansions of all the above technical capabilities; (b) standardized interfaces and parts characterization.
- More information, see attached slides

#### **WP4: Towards a Consensus Language for SB (Rafael Silva-Rocha from Victor de Lorenzo's group)**

- Goal: Creating a database on quantitative prokaryotic promoter performance, and building an expert group on promoter standardization formats.
- Activities in the US: Workshop in Boston after iGEM 2007 (<http://bbf.openwetware.org/Workshop.html>).
- More information on the CSIC activities, see attached slides

#### **WP5: Building the Academia-Industry Interface (Frank Notka)**

##### **1. Contribution to WP3: Building an IT infrastructure for SB:**

- Strategies and tools for gene synthesis and assembly: 1. Design, 2. Synthesis capacities, 3. Variants of CDR/regulatory elements, and 4. Functional circuit design.
- Strategies and tools for gene synthesis and assembly: Laboratory Information Management System (LIMS) on the operation- and information level.

##### **2. Organization of an IP workshop (ETH, Geneart & DSM)**

- Objectives: Discuss open source policy and role of patents; provide a basis for discussion in industry workshops
- Provide ideas for an IP-strategy that would promote integration of the European industry into the development of Synthetic Biology.
- IP Workshop took place on June 16, 2008 in Munich.
- Invited participants: Sven Panke, Joachim Henkel (Schöller Chair in Technology and Innovation Management at the TU Munich), Berthold Rutz (European Patent Office), DSM and Geneart

**Take-home message:** The realization of a European Registry involving the European industry is possible; IP-relevant parts should not be excluded.

We should think about: Standard MTA, information management system, involving funding agencies

##### **3. Organization of the Industry/Academia Workshop (Geneart, ETH, HZI & DSM):**

- Objectives: Definition SB, attract industry to European SB, link academia to industry, address IP issues
- Promote the integration of industry into the European SB development
- Organization of the Industry/Academia Workshop on June 25, 2008 at the Airport in Munich
- Experts from leading European industries covering: Chemistry (Lonza, BASF, Novozymes, Henkel), Pharma (AstraZeneca, Roche, Novartis), Environment/Biomaterials (Metabolix, BASF), Energy (Shell, Butalco), Biotechnology (Lifewizz, Brain, Collectis) and European academic Synthetic Biology exponents (DKFZ).

##### **Take-home messages:**

- Gain more visibility by presenting successful and relevant applications
- Strategic top-down approach recommended (push the buttons of politicians and investors).

- A clear bias in development (prokaryotic development much more advanced: metabolic pathways, biofuels and fine chemicals, biodetectors).
- Big pharma: too early for our engagement (prefer small cooperation strategies, slow process due to extensive negotiations).
- Redirect contacts (address smaller companies, include regulatory and IP manager, involve other types of industries).
- Open-source policy (clear tendency towards non-open solutions, IP regulation a major issue).

### **Planned activities in the second period (Sven)**

2009

- Continue work on showcases, promoter formatting (V. de Lorenzo, L. Serrano), IT infrastructure (A. Valencia)
- 2<sup>nd</sup> Academia/Industry workshop (R. Wagner, F. Notka, L. Passamontes, Sven Panke)
- IP-development strategy development
- Summer school 1 (organized by Emergence)
- Scientific workshop on formatting transcription (Gourse, Busby, Aiba, Buck), Mallorca, Spain (V. de Lorenzo)
- Promoting EU-Asia exchange

2010:

- Summer school 2 (organized by TARPOL, [www.gydb.uv.es/tarpol](http://www.gydb.uv.es/tarpol))

### **Other strategic items**

- The 'Eurocores' proposal will be uploaded onto the Emergence website

### **IGEM and Registry**

- Is a European Registry desirable?
- Do we want an iGEM or a pre-iGEM jamboree in Europe? Huge increase in European iGEM teams (12 in 2007 → 24 in 2008)

→ As Randy Rettberg was not present at the meeting, the discussion of a European registry and a European iGEM competition was postponed.

### **Standardization workshop**

- A '[Standards and Specification in SB workshop](#)' was held in April 2008 in Seattle, Washington. Question: Shall we organize a second workshop on standardization in Europe, this time supported by Emergence? → Imperial College is interested