SynBioStandards Network

** OCTOBER '09 NEWS*FLASH* **

Hope you're all feeling refreshed after the summer and that the new academic year is starting off well. A longer newsletter this month, complete with follow-up activities from the Network meeting a couple of weeks ago...

NETWORK NEWS

The SynBioStandards Network held a lively and productive **Autumn meeting** at Imperial on Friday 18 September — thanks to all those who contributed! A short summary is available on the Network website, and a number of discussion threads have been instigated on the wiki. For those of you who have not yet done so, **please upload your Powerpoint presentations to the wiki** as soon as possible. (Any problems, just contact Emma or Alistair.)

A list of possible follow-up activities from the meeting starts on page 2 of the Newsflash.

Network Seminar and Travel Bursaries

These schemes are intended to encourage more regular Network exchange and collaboration. Please make use of them! The short application forms are available to download from the wiki (contact Emma if any problems accessing.)
If you have ideas for other (relatively inexpensive) ways of fostering exchange within the Network, please contact Alistair, Emma or Jim H.

Democs — *A dialogue tool for synthetic biology*

The Genomics Forum (Edinburgh) has been working closely with the New Economics Foundation and Edinethics to develop a public dialogue tool for synthetic biology. The first kits of this 'Democs game' have now been printed. If anyone is interested in trying it out as a teaching/discussion tool, just email emma.frow@ed.ac.uk for a free kit.
As this project is still under development, any and all feedback on your experiences with Democs would be most welcome!

FOR YOUR READING PLEASURE…

Check out 'A Life of its Own: Where will synthetic biology lead us?' by Michael Specter, in *The New Yorker*, 28 September 2009.

COMING UP…

18–20th Oct 2009 : conference on Evolution and Design of Biomolecular Systems: Concepts and Strategies for Systems and Synthetic Biology, Illetes-Mallorca (Spain) — followed by a satellite sandpit meeting (21/22 Oct) on defining transcriptional standards.

30 Oct –2 Nov 2009 : iGEM 2009, Boston (USA). The SynBioStandards Network will sponsor an informal gathering in the evening on Saturday 31 October — stay tuned for details…

11–12 Nov 2009 : The Imperial Centre for Synthetic Biology and Innovation is hosting an Autumn Symposium on 11–12 November 2009. Anyone interested in attending should register with Barbara Skene asap (b.skene@imperial.ac.uk).

If you are running an event, have published an article, are speaking at a conference, have been awarded a grant, want to publicize upcoming activities, etc., just send details to emma.frow@ed.ac.uk by the last day of the month.

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Follow-up from Autumn 2009 Network Meeting

Possible Network Activities (2009–2010)

The following ideas were suggested as possible Network activities over the coming year. Comments and contributions of additional ideas most welcome — via the Network wiki (where this list has been reproduced), or by email (synbiostandards@lists.ed.ac.uk).

I) Broad Topics

- A joint one-day meeting with the **RoSBNet network** (led by Oxford), on the theme of **modularity**, with a focus on interweaving perspectives from biology and engineering.
    - *Timescale*: Perhaps a day before or after BioSysBio 2010 in Oxford?
    - *Action point*: Jim H. to make initial contact with RoSBNet?

- How might the Network engage more with the group (led by Herbert Sauro) that is attempting to develop **PoBoL**? Could we offer to host one of their 2010 meetings?
    - *Timescale:* In the second half of the year, if there is to be a January 2010 meeting in San Francisco?
    - *Action point*: Vincent R., could you comment on the feasibility of this?

- A meeting (or perhaps a series of Network seminars?) to discuss **processes of standard-setting in different contexts**. This might help the Network to get a better feel for the broader challenges facing standardization efforts. Invite external participants who have experienced standard-setting processes in fields such as mechanical, chemical, computer engineering, software development, MIAME consortia, etc.
    - *Action point*: Network members to suggest any key groups or individuals to involve.

- A meeting to discuss the ambitious goal of **being able to specify the metabolic load of BioBrick constructs**. So as not to re-invent the wheel, such a meeting should involve experts in process/system control and industrial biotechnology.
    - *Action point*: Network members to suggest any key groups or individuals to involve (e.g. the systems control group at Imperial? Members of other synthetic biology networks?)

II) More focused topics

- A meeting focused on analysing (Network-generated) data from **Bacillus promoter measurement** efforts, as discussed in the RFC session led by Neil Wipat.
    - *Timescale:* Would it be useful to set an initial meeting date (late 2009/early 2010) and some tasks to be completed by that time?
    - *Action point*: Neil to ascertain and circulate the Standard Operating Procedure for measuring promoters developed by the Bacillus SysMo Consortium.

- James Brown has some **new vectors (containing a range of fluorescent proteins)** that he is willing to make available, and would be keen to get other institutions to test and help to characterize these. [Could some of this testing / characterization be integrated into teaching / practical classes?]
    - *Timescale:* Would setting a date for a meeting (late 2009/early 2010) help to spark testing and characterization efforts?
    - *Action point*: James, could you put together a short proposal relating to the vectors you have available and how you think the Network could help work towards their characterization?

- A meeting focused on **curriculum development**, attempting to define and develop a number of demonstration systems or 'exemplar' experiments (involving both computational and practical elements) for undergraduate and postgraduate teaching in synthetic biology. The emphasis would be on developing clear and well-defined systems (using a consistent set of templates) that could be made available to course organisers.
    - *Key partner*: Dean Madden (Reading)
    - *Action point*: Any network members interested in participating in this initiative should please sign up (on the wiki or by emailing Jim) and add any thoughts to the proposal put forward by Jim (appended below).

Jim Haseloff has proposed the following regarding curriculum development:

The assembly of a series of protocol pamphlets, including background explanation and debugging instructions — specifically for synthetic biology/iGEM use. The series would run something like:

1. Laboratory setup, record keeping and storing reagents and biological material
2. Growth and handling of microbes
3. Extraction of plasmid DNA
4. Oligonucleotide design and PCR
5. Restriction endonuclease digestion and gel analysis
6. DNA fragment isolation and cloning
7. DNA sequencing
8. Microscopy

SEE OVER…

In addition, there is the prospect of putting together materials/kits for standardising curriculum development in Synthetic Biology — I think that this would have even more impact than standard protocols.

Materials for curriculum development:

- Biological Noise
- Quantifying gene expression
- Bacterial motility
- Scent production (metabolic engineering)
- Genetic Oscillator
    - Repressilator (Elowitz)
    - Tuneable oscillator (Hasty)
- Bandpass detector circuit
- Photosensitive biofilm
- Problem solving exercises

This is an ambitious list!!! - but it is a framework, and there are a number of existing resources in the area that we could use as a basis for different protocols. It is more a question of collating and standardising the material. I was thinking of providing the materials in two forms — as complete PDFs, and as InDesign documents or equivalent — where they could be easily edited for local use.

Please make use of the Network wiki and email list to contribute to discussions and planning efforts for 2009–2010. It would be great to keep up the momentum generated at the meeting a couple of weeks ago!