



# Evolution and Design of Biomolecular Systems

October 18-20 2009, Hotel BonSol, Illetes, Mallorca, Spain

Recent advances have opened up many new possibilities for modifying or creating novel biological systems through the application of a variety of tools and expertise derived from the physical sciences, engineering, biology, computer science and mathematics. The burgeoning area of synthetic biology tends to focus on the application of the engineering design cycle of design, modelling, construction and testing with a certain emphasis on engineering concepts including standardisation and abstraction. However, the properties of living systems are the consequence of highly complex interactions and this complexity may challenge the feasibility of treating them analogously to organised assemblies of machine parts. Indeed, many investigators are adopting their own strategies to create or manipulate biological pathways and processes using a variety of methods whilst remaining uncertain as to the definition of synthetic biology. Systems biology, on the other hand, endeavours to understand naturally evolved biological systems in a holistic context that takes into

account the “emergent properties” of layered levels of complexity, and clearly there is both synergy and complementarity between these two hybrid disciplines. The intention of this meeting is to consider systems biology and synthetic biology as complementary fields of research, bringing together researchers with diverse views and strategies relevant to the quantitative understanding and engineering of biological systems. We will also be reviewing the potential applications of such work in the biomedical and environmental sectors.

## **Organisers:**

John McCarthy (Manchester Interdisciplinary Biocentre, University of Manchester, UK); Victor de Lorenzo (Centro Nacional de Biotecnología, CSIC, Madrid, Spain); Virginia Cornish (University of Columbia, New York, USA); Yoshi Nakamura (University of Tokyo, Japan)

## **Workshop secretary:**

Lesley-Ann Miller [[l.miller@manchester.ac.uk](mailto:l.miller@manchester.ac.uk); Tel.: (44)1613068917]

## **Speakers include:**

Irene Chen (FAS Centre for Systems Biology, Harvard University, USA)  
Phillip Holliger (LMB, Cambridge, UK)  
Paul Freemont (Imperial College, London, UK)  
Martin Fussenegger (ETH, Zürich, Switzerland)  
Rafael Giraldo (CIB, Madrid, Spain)  
Tan Inoue (Kyoto University, Japan)  
Richard Kitney (Imperial College, London, UK)  
Vitor Martins dos Santos (Helmholtz Centre for Infection Research, Braunschweig, Germany)  
Steve Oliver (Cambridge University, UK)  
Bernhard Palsson (University of California, San Diego, USA)  
Luis Serrano (Centre for Genomic Regulation, Barcelona, Spain)  
Pam Silver (Harvard University, MA, USA)  
Stenbjörn Styring (Uppsala University, Sweden)  
Daniel van der Lelie (Brookhaven, USA)  
Peter Walde (ETH, Zürich, Switzerland)  
Ron Weiss (Princeton University, NJ, USA)

## **Discussion session:**

On the concepts and strategies underpinning systems and synthetic biology.

## **Satellite Sandpit (organised by Victor de Lorenzo):**

Defining Transcription Standards (Oct 21-22, 2009)

## **Abstract-selected talks:**

There are numerous slots in the programme for further talks. Accommodation costs for abstract-selected speakers will be at least partially covered by the organisers. If you wish to be considered for one of these slots, please submit an abstract of up to 300 words to [l.miller@manchester.ac.uk](mailto:l.miller@manchester.ac.uk).

## **Young scientist bursaries:**

We encourage PhD students and postdocs from any science or engineering background to attend the workshop in order to learn more about this area of science and engineering – presentation of a poster or short talk is optional. A limited number of bursaries are available to support applicants’ travel and accommodation costs. Please contact the workshop secretary for details.

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