

The economic and social life of synthetic biology

The first symposium in an international collaboration between the UK's Royal Society and Royal Academy of Engineering, the USA National Academy of Sciences and National Academy of Engineering, and the Chinese Academy of Sciences and Chinese Academy of Engineering.

To be held at the Royal Society and The Royal Academy of Engineering, 13-14 April 2011.

Wednesday, 13 April

(all events at the Royal Society, 6-9 Carlton House Terrace, London SW1Y 5AG)

Opening Session

8:30 **Registration**

9:00 **Introduction**

- Sir William Wakeham FREng, *Honorary International Secretary, The Royal Academy of Engineering*

9:10 **Keynote**

- Dr George Poste FRS CBE, *Chief Scientist, Complex Adaptive Systems Initiative, and Del E. Webb Chair in Health Innovation, Arizona State University*
Synthetic Biology: Mapping the Design Principles of Biological Systems and the Rise of Biomimetic Engineering

Introduced by Professor Richard Kitney OBE FREng, *Co-Director EPSRC Imperial College Centre for Synthetic Biology and Innovation*

Plenary Session 1: Progress to date and prospects for the future

9:45 **Research environment**

- Professor Guoping Zhao, *Director, Laboratory of Synthetic Biology, Institute of Plant Physiology and Ecology, Shanghai Institutes for Biological Sciences*
From molecular microbiology towards synthetic biology – A long march via new vehicles with sophisticated steering
- Professor Paul Freemont, *Co-director, Centre for Synthetic Biology and Innovation, Imperial College London*
Establishing foundational technologies to deliver the vision of synthetic biology: from biosensors to biofuels

10:40 **Coffee break**

In partnership with:

11:10 **Global infrastructure and innovation**

- Dr Drew Endy, *Assistant Professor, Bioengineering, Stanford University and President, The BioBricks Foundation*
BIOFAB International Open Facilities Advancing Biotechnology
- Professor Richard Kitney OBE FREng, *Co-Director EPSRC Imperial College Centre for Synthetic Biology and Innovation*
Towards an Infrastructure for Synthetic Biology Design, Innovation and Education

12:00 **Lunch**

Plenary Session 2: Realising the vision

13:30 **Visions of the future**

- Dr Luke Alphey, *Chief Scientific Officer, Oxitec Ltd, and Visiting Professor, Department of Zoology, University of Oxford*
Translational synthetic biology in insects
- Professor Huanming Yang, *Director, Beijing Genomics Institute*
Genomics and its relevance to synthetic biology

14:30 **From rhetoric to reality**

- Professor Peter Leadlay FRS, *Co-founder, Biotica*
Developing natural product-based drugs through biosynthetic engineering
- Dr Kirstin Eley, *External Programme Manager, TMO Renewables Ltd*
Synthetic Biology: the adventure begins

15:15 **Tea break**

15:45 **From rhetoric to reality (continued)**

- Roel Bovenberg, *Corporate Scientist, DSM, Netherlands, and Honorary Professor of Synthetic Biology and Cell Engineering, University of Groningen*
Synthetic Biology from an industrial perspective
- Lionel Clarke, *Global Strategic Programme Manager, Shell Global Solutions*
Biotech to Biofuels

16:45 **Closing remarks**

- Professor Peter Leadlay FRS, *Herchel Smith Professor of Biochemistry, University of Cambridge*

17:00 **Reception**

19:30 **Close**

In partnership with:

Thursday 14 April

(all events at The Royal Academy of Engineering, 3 Carlton House Terrace, London SW1Y 5DG)

9:00 Introduction

- Professor Richard Kitney OBE FREng, *Co-Director EPSRC Imperial College Centre for Synthetic Biology and Innovation*

9:10 Ministerial address

- Rt Hon David Willetts MP, *UK Minister for Universities and Science*

Plenary Session 3: Creating an enabling environment**9:40 An enabling environment for research**

- Dr François Képès, *Director, Epigenomics Project*
Synthetic Biology: what is needed from a strategic and research point of view?
- Professor Ben Davis, *Organic Chemistry, University of Oxford*
Synthetic Biology: a molecular perspective
- Hai-Yan Liu, *University of Science and Technology of China*
Developing reusable designs of new regulatory components for synthetic biology based on the modularity of native elements

10:40 Coffee break**11:00 An enabling environment for innovation**

- Nigel Jones, *Intellectual Property Partner and Co-Head Healthcare Sector, Linklaters LLP*
Encouraging Innovation: The Role of Intellectual Property
- Dr Ioannis Economidis, *Advisor, the EC-US Task Force on Biotechnology Research, Working Group on Synthetic Biology*
The Emerging/Enabling role of Synthetic biology in the development of biotechnological applications
- Professor Rifat Atun, *Director of Strategy, Performance and Evaluation Cluster, The Global Fund to Fight AIDS, Tuberculosis and Malaria, Geneva*
- Professor Robert Edwards, *Chief Scientist, The Food and Environment Research Agency (Fera)*
SPPI-Net: a UK Network in Applied Synthetic Biology

12:30 Lunch

In partnership with:

13:30 **An enabling environment for users**

- Dr Joy Zhang, *BIOS Centre, London School of Economics*
The international governance of synthetic biology
- Dr Françoise Roure, *Chair, Committee on Technologies and Society, French High Council for Industry, Energy and Technologies*
A Global Governance for Synthetic Biology? Lessons learned from Nanotechnology

Break-out session: hindsight and foresight

14:15 **A roadmap for syn bio**

Four mixed break-out groups

15:15 **Tea break**

Plenary Session 4: hindsight and foresight

15:45 **Panel discussion**

- Professor John McCarthy, *Head of Life Sciences, University of Warwick*
- Professor Richard Jones FRS, *Pro-Vice Chancellor for Research and Innovation, University of Sheffield*
- Heather Lowrie, *ESRC Centre for Social and Economic Research on Innovation in Genomics (Innogen), University of Edinburgh*

Chaired by

- Professor Richard Kitney OBE FREng, *Co-Director EPSRC Imperial College Centre for Synthetic Biology and Innovation*
- Professor Peter Leadlay FRS, *Herchel Smith Professor of Biochemistry, University of Cambridge*

16:45 **Closing remarks from panel chairs**

17:00 **Close & Coffee**

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