

# Opportunities and Challenges in the Emerging Field of Synthetic Biology

Under the Auspices of

The U.S. National Academies  
The Organization for Economic Cooperation and Development  
The Royal Society

9-10 July 2009

The National Academies' Keck Center

500 5<sup>th</sup> Street, NW

Room 100

Washington, DC

*Symposium Agenda*

Thursday, July 9<sup>th</sup>

8:15 **Registration / Continental Breakfast**

9:00 **Welcome:** Ralph J. Cicerone, President, National Academy of Sciences

9:15	<b>Keynote Address</b>
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Arden Bement, Jr., Director, National Science Foundation

9:45	<b>Session 1: Synthetic Biology Overview</b>
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**Moderator:** Sheila Jasanoff, Pforzheimer Professor of Science and Technology Studies, Harvard University

**Speakers:** Drew Endy, Assistant Professor, Department of Bioengineering, Stanford University

Paul Rabinow, Director of Human Practice, Synthetic Biology Engineering Research Center

10:20 **Q&A**

10:45 **Break**

11:15

**Session 2: Public Policy – Government Perspectives and Approaches**

**Moderator:** James Wilsdon, Director, Science Policy Centre, The Royal Society

**Speakers:** Adrian Smith FRS, Director General for Science and Research, Department for Business Innovation and Skills

Huanming Yang, Director, Beijing Genomics Institute

11:50 **Q&A**

12:15 **Lunch**

**Session 3: Roundtable Discussions on Innovation in Synthetic Biology**

1:00

**Tools and Techniques – Enabling Innovation**

**Moderator:** Caroline Ajo-Franklin, Staff Scientist, Biological Nanostructures Facility, University of California, Berkeley

**Speakers:** Christina Smolke, Assistant Professor, Department of Bioengineering, Stanford University

Cord Strachler, Chief Executive Officer and President, febit biomed gmbh

1:35 **Q&A**

2:00

**Eco-Innovation**

**Moderator:** James Greenwood, President and CEO, Biotechnology Industry Organization

**Speakers:** Sven Panke, Associate Professor for Bioprocess Engineering, Department for Biosystems Science and Engineering, ETHZ-Basel

Victor De Lorenzo, Research Professor, Spanish National Research Council, National Center of Biotechnology

Kinkead Reiling, Co-Founder and Senior VP, Corporate Development, Amyris

Vitor Martins Dos Santos, Systems and Synthetic Biology Group, Helmholtz Center for Infection Research

3:10 **Q&A**

3:45 **Break**

4:15

**Health and Medicine**

**Moderator:** Richard I. Kitney, Director of the Graduate School of Engineering and Physical Sciences; Chairman of the Institute of Systems and Synthetic Biology; Professor of BioMedical Systems Engineering, Department of Bioengineering, Imperial College

**Speakers:** Adriano Henney, Director, Obsidian Biomedical Consulting Ltd.

Frank Notka, Manager, Research and Development, Geneart

Roman Jerala, Head, Department of Biotechnology, National Institute of Chemistry - Slovenia

4:50 **Q&A**

5:15 **Adjourn / Reception – Second Floor Atrium**

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8:00 **Registration / Continental Breakfast**

8:30 **Welcome:** Charles M. Vest, President, National Academy of Engineering

8:45	<b>Session 4: Developing the Field – Needs of Academia and Industry</b>
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**Moderator:** Pam Silver, Professor, Department of Systems Biology, Harvard University

**Speakers:** Francois Kepes, Research Director, French National Center for Scientific Research and Founding Director, The Epigenomics Project, Genopole

Randy Rettberg, Director of the Registry of Standard Biological Parts; Director, The International Genetically Engineered Machine (iGEM) Competition; Principal Research Engineer in Biological Engineering, Massachusetts Institute of Technology

Richard A. Johnson, Senior Counsel and Senior Partner (Ret.), Arnold & Porter LLP and CEO, Global Helix LLC

9:35 **Q&A**

10:00 **Break**

10:30

**Session 5: Roundtable on Investment Models for Synthetic Biology**

**Moderator:** Ed Lazowska, Bill and Melinda Gates Chair in Computer Science, Department of Computer Science and Engineering, University of Washington

**Speakers:** Mark Waxman, Partner and Chair of the Health Care Industry Team, Foley & Co.

Greg Kisor, Vice President, Investor Relations, Intellectual Ventures

Paula J. Olsiewski, Program Director, Alfred P. Sloan Foundation

Ioannis Economidis, Principal Scientific Officer, European Commission

11:35 **Q&A**

12:00 **Lunch**

**Session 6: Governance Issues Related to Synthetic Biology**

12:45

**Health / Safety / Environment**

**Moderator:** Helge Torgersen, Senior Researcher, Institute of Technology Assessment, Austrian Academy of Sciences

**Speakers:** Takuji Wakita, Director, Department of Virology II, National Institute of Infectious Disease

Jacqueline Corrigan-Curay, Acting Director, The Office of Biotechnology Activities, Office of Science Policy, National Institutes of Health; Executive Secretary, Recombinant DNA Advisory Committee

1:20 **Q&A**

1:40

**Security**

**Moderator:** Iain Gillespie, Head, Science and Technology Policy Division, Directorate for Science, Technology and Industry, Organization for Economic Cooperation and Development

**Speakers:** Nicolas Bécard, Chargé de mission, Secrétariat de la Défense Nationale

Michael Imperiale, Arthur F. Thurnau Professor of Microbiology and Immunology, University of Michigan

2:15 **Q&A**

2:30 **Break**

3:00	<b>Session 7: Public Engagement and Participation</b>
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**Moderator:** Mike Rodemeyer, Lecturer, Science, Technology, and Society, University of Virginia

**Speakers:** David Rejeski, Director, Foresight and Governance Project, Woodrow Wilson International Center for Scholars

Robert Cook-Deegan, Director, IGSP Center for Genome Ethics, Law and Policy, Duke University

Adam Bly, Founder, CEO and Editor-in-Chief, Seed Media Group

3:50 **Q&A**

4:15	<b>Session 8: The Path Forward</b>
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**Roundtable of All Session Moderators**

5:15 **Adjourn**