

**21st Century Borders/ Synthetic Biology (21CB/SB):  
Focus on Responsibility and Governance  
Hilton El Conquistador ♦ Tucson, Ariz. ♦ December 4-7, 2012**

**Presenter Biographies**

**Dr. Drew Endy, Ph.D.**

Dr. Drew Endy is an Assistant Professor of Bioengineering at Stanford University. He teaches in the new Bioengineering major at Stanford and previously helped start the Biological Engineering major at MIT. His Stanford research team develops genetically encoded computers and redesigns virus genomes. Dr. Endy co-founded the BioBricks Foundation as a public-benefit charity supporting free-to-use standards and technology that enable the engineering of biology. He co-organized what has become the International Genetically Engineered Machines (iGEM) competition and the BIOFAB: International Open Facility Advancing Biotechnology (BIOFAB). *Esquire* magazine named Dr. Endy one of the 75 most influential people of the 21st century. He serves on the U.S. Committee on Science Technology and Law and is a new member of the National Science Advisory Board for Biosecurity. He chaired the 2003 Synthetic Biology study as a member of the DARPA Information Science and Technology Study Group. He has served as an ad hoc member of the NIH Recombinant DNA Advisory Committee and co-authored the 2007 "Synthetic Genomics: Options for Governance" report with colleagues from the Center for Strategic and International Studies and the J. Craig Venter Institute.

**Ms. Leili Fatehi, J.D.**

Ms. Leili Fatehi is a Research Fellow in the Science, Technology, and Environmental Policy program area at the Hubert H. Humphrey School of Public Affairs. She is also an Adjunct Associate Professor of Law at the University of Minnesota Law School. Her current research interests include the legal, ethical, and policy dimensions of synthetic biology, genetics, and human enhancement technologies. Ms. Fatehi has served on several grants related to issues of law and ethics in emerging sciences and technologies, including grants from the National Science Foundation and National Institutes of Health. Prior to joining to the Humphrey School, Ms. Fatehi was Associate Director of Research and Education at the University of Minnesota's Consortium on Law and Values in Health, Environment & the Life Sciences and Joint Degree Program in Law, Health & the Life Sciences. From 2005-2007, Ms. Fatehi was a Research Associate at Meridian Institute in Washington, D.C., where she researched and published on the implications of nanotechnology for the world's poor.

**Prof. Paul Freemont, Ph.D.**

Prof. Paul Freemont is co-founder and co-Director of the Engineering and Physical Sciences Research Council (EPSRC) Centre for Synthetic Biology and Innovation at Imperial College London. Additionally he is the Head of the Division of Molecular Biosciences and Chair of Protein Crystallography at the university. Previously he was Director of the Centre for Structural Biology, also at Imperial College London. His research on synthetic biology involves developing an engineering framework and new technology platforms to enable synthetic biology research in areas of bioenergy, biosensors, biomaterials, and metabolic engineering. He also maintains an interest in understanding how disease-linked proteins work at the molecular level. Prof. Freemont is a member of the CRUK Biological Sciences funding committee including external quinquennial reviews, an external review member of several UK Biosciences Departments, and a member of BBSRC pool of experts. Prof. Freemont has previously been a member of the

Wellcome Trust Genes Molecules and Cells panel, a member of the Wellcome Trust fellowships panel and a member of the Royal Academy of Engineering Synthetic Biology inquiry. Prof. Freemont has published over 140 peer-reviewed articles and has appeared regularly on radio and television broadcasts on the subject on synthetic biology.

#### **Dr. Robert Friedman, Ph.D.**

Dr. Robert Friedman was recently appointed the Chief Operating Officer at the J. Craig Venter Institute. Dr. Friedman also maintains his prior appointment as the Deputy Director for California at the Venter Institute where he directs the JCVI Policy Center and is also active in several ongoing projects in the Institute's Environmental Genomics Group. Prior to joining the Venter Institute, Dr. Friedman was Vice President for Research at The Heinz Center, a nonprofit policy research organization that brings together collaborators from government, industry, environmental organizations, and academia. Earlier, Dr. Friedman was a Senior Associate at the Office of Technology Assessment, U.S. Congress (OTA). For 16 years, he advised Congressional committees on issues involving environmental and natural resources policy. He is a Fellow of the American Association for the Advancement of Science.

#### **Prof. Eliot Herman, Ph.D.**

Prof. Eliot Herman is Professor in the School of Plant Sciences at the University of Arizona. Prior to this he was Adjunct Professor in the Division of Plant Sciences at the University of Missouri, a member of the Donald Danforth Plant Science Center, and a Molecular Biologist with the U.S Department of Agriculture/ Agricultural Research Service (USDA/ARS). Prof. Herman's research interests span the disciplines of biochemistry, physiology, cell and developmental biology, genomics, bioinformatics, and systems biology. Prof. Herman is a member of the American Society of Plant Physiologists, the American Society for Biochemistry and Molecular Biology, the Japanese Society of Plant Physiology, Sigma Xi, the American Society for Cell Biology, and the American Society of Oil Chemists. He is on the Editorial Board of *PLANTA* and, until 2012, was the Associate Editor for the *Journal of Experimental Botany*. Prof. Herman has held visiting fellowships at the Weizmann Institute in Israel, the Japanese Society for the Promotion of Science, and the U.S. Embassy in Sweden. In 2004 he was awarded the Plow Honor Award by the US Secretary of Agriculture and in 2011 he was elected a Fellow of the American Association for the Advancement of Science.

#### **Dr. Todd Kuiken, Ph.D.**

Dr. Todd Kuiken is a Senior Program Associate for the Synthetic Biology Program at the Woodrow Wilson International Center for Scholars. In his current role he collaborates with *DIYbio.org* on a project to ensure safety within the rapidly expanding community of amateur biologists and analyzes the potential biosecurity threats associated with such a diffuse community. In addition, he has numerous projects evaluating and designing new research and governance strategies to proactively address the environmental risks associated with synthetic biology. He also works with the Project on Emerging Nanotechnologies at the Woodrow Wilson Center, where he focuses on the environmental health and safety, and public policy aspects of nanotechnology. Dr. Kuiken previously worked at the Oak Ridge National Laboratory, where he studied the biogeochemical cycling of mercury, and for various environmental non-profits. Dr. Kuiken is a regular speaker on public policy issues related to nanotechnology and synthetic biology and has published a number of articles on nanotechnology, synthetic biology, and mercury cycling.

**Dr. Maria Mercedes Roca, Ph.D.**

Maria Mercedes Roca is Associate Professor of Biotechnology at Zamorano University, Honduras. Dr. Mercedes Roca joined Zamorano in 1997 as a lecturer in plant pathology, following graduate studies in the United Kingdom. She holds masters and doctoral degrees in plant pathology and virology from the University of London, and a B.S. in microbiology from Kings College, London. Dr. Mercedes Roca has worked as a faculty exchange member at the Norman Borlaug Institute at Texas A&M University, and has organized conferences for the Caribbean Division of the American Phytopathological Society, and the International Conference on Agriculture and Environment. She is an advisor to the Honduran government on agricultural biotechnology regulation, and was a member of the Honduran delegation to the Rio+20 UN Conference on Sustainable Development in 2012.

**Dr. Markus Schmidt, Ph.D.**

Dr. Markus Schmidt is founder and CEO of Biofaction, a research, technology assessment and science communication company based in Vienna, Austria. He has an educational background in electronic engineering (BSc), biology (MSc) and environmental risk assessment (PhD). Dr. Schmidt has carried out environmental risk assessment, safety and public perception studies in a number of science and technology fields. Since 2005, he has pioneered synthetic biology ethical, legal, and social implications (ELSI) research in Europe, being the principal investigator and manager of the European Commission-funded project SYNBIOSAFE, the first in Europe to look into the ethical, safety, security and governance aspects of synthetic biology. Dr. Schmidt has published extensively on the societal aspects of synthetic biology, and edited and co-wrote two books about the societal consequences of synthetic biology (2009) and its industrial and environmental applications (2012). He served as an advisor to the European Group on Ethics (EGE) of the European Commission and the US Presidential Commission for the Study of Bioethical Issues. In addition to his efforts in technology assessment he aims to contribute to a better interaction between science and society through public talks, production of scientific documentary films, and the organisation of Science Film Festivals (Bio:fiction) and art-science exhibitions (synth-ethic).

**Dr. Amy Smithson, Ph.D.**

Dr. Amy Smithson is a Senior Fellow at the James Martin Center for Nonproliferation Studies and the co-chair of the Global Agenda Council on Nuclear, Biological, and Chemical Weapons for the World Economic Forum. A specialist in biological and chemical weapons nonproliferation, to reduce threats she often recommends practical steps that blend technical and policy instruments and fashions untraditional issue alliances that cross the private and public sectors and international borders. She holds doctoral, masters, and bachelor's degrees in political science. Before joining CNS, Dr. Smithson worked at the Center for Strategic and International Studies, the Henry L. Stimson Center, and Pacific-Sierra Research Corporation. The author of numerous publications, including *Germ Gambits: The Bioweapons Dilemma, Iraq and Beyond* (Stanford Univ. Press, 2011), she has appeared frequently before Congress and in the electronic and print media.