



Warwick Centre
for Integrative Synthetic Biology

TOWARDS NEXT GENERATION SYNTHETIC BIOLOGY

21-22 November 2013
Warwick Centre for Integrative Synthetic Biology (WISB)
University of Warwick, Coventry, UK

Co-organised by
[WISB](#) and Boston University Centre for Synthetic Biology ([COSBI](#))

Speakers

Jim Collins, Michael Elowitz, Ahmad Khalil, Joshua Leonard, Tim Lu, Harris Wang, Ron Weiss, Wilson Wong, Lingchong You, Judith Armitage, Declan Bates, Janet Calvert, Tom Ellis, Alfonso Jaramillo, Victor de Lorenzo, Antonis Papachristodoulou, Orkun Soyer, Guy-Bart Stan, Dek Woolfson, Claes Gustafsson, Reshma Shetty, Andrew Philipps, Peer Staehler, Barbara Gerratana, Kedar Pandya, Rowan McKibbin, Daisy Ginsberg.

Invited participants

Douglas Denmore, James Locke, John McCarthy, Nigel Stocks, Jason Vincent, Luke Davis.

THE UNIVERSITY OF
WARWICK

BOSTON
UNIVERSITY

RESEARCH
COUNCILS UK

DAY 1 : 21 November 2013

9.15-9.45	Registration & coffee
9.45-9.55	Welcome and Introduction, John McCarthy (WISB)
10.00-10.30	"Re-building cell signaling pathways for understanding", Michael Elowitz (Caltech)
10.35-11.00	"A control engineering approach to Synthetic Biology", Antonis Papachristodoulou (Oxford University)
11.05-11.30	"Putting engineering back into bio-engineering: Applying gene synthesis and machine learning to navigate mega-dimensional bio-space", Claes Gustafsson (DNA2.0)
11.30-11.50	Coffee break
11.50-12.15	"The design space in synthetic biology: from cellular networks to microbial communities", Orkun Soyer (WISB)
12.20-12.45	"Engineering cellular behavior with transcriptional and microfluidic circuits", Ahmad Khalil (COSBI)
12.50-13.15	"Biotechnological domestication of <i>Pseudomonas putida</i> through Synthetic Biology", Victor De Lorenzo (Centro Nacional de Biotecnologia)
13.15-14.00	Lunch
14.00-14.15	"Engineering Life for Biomedical Research", Barbara Gerratana (NIH)
14.20-14.45	"Synthetic gene circuits for robust metabolic control: design constraints and noise propagation", Guy-Bart Stan (Imperial College London)
14.50-15.15	"Synthetic biology: as natural as it gets", Lingchong You (Duke University)
15.20-15.45	"Engineering synthetic cell-based therapies to enable design-driven medicine", Joshua Leonard (Northwestern University)
15.45-16.00	Coffee break
16.00-16.25	"Powering computation in living cells", Tim Lu (MIT)
16.30-16.55	"RNA circuits in <i>E. coli</i> through evolutionary computation and strand-displacement", Alfonso Jaramillo (WISB)
17.00-17.15pm	"The Dream of Better", Daisy Ginsberg (WISB)
17.15-18.00pm	Open Discussion: Industrial impact of synthetic biology & US-UK strengths/ collaboration points
18.00-19.00pm	Reception
19.00-21.00pm	Dinner

DAY 2 : 22 November 2013

9.00 – 9.25	“New tools for optimising synthetic biology in E. coli”, Tom Ellis (Imperial College London)
9.30 - 9.55	“From parts to modules to therapeutic systems in mammalian synthetic biology”, Ron Weiss (MIT)
10.00-10.25	“Programming languages for synthetic biological systems”, Andrew Phillips (Microsoft Research)
10.25-10.45	Coffee
10.45-11.10	“Synthetic biology in T cells for cancer therapy”, Wilson Wong (COSBI)
11.15-11.40	“Ultrasensitive Negative Feedback Control: A new paradigm for the design of homeostatic cellular circuits”, Declan Bates (WISB)
11.45-12.10	“Piggy-backing the chromosome”, Judith Armitage (Oxford University)
12.10-12.55	Lunch
12.55-13.10	“Update from UK Research Councils”, Kedar Pandya (EPSRC) and Rowan McKibbin (BBSRC)
13.15-13.40	“Marrying protein design and synthetic biology”, Dek Woolfson (Bristol University)
13.45-14.10	“Programming Cells and Communities by Multiplex Genome Engineering”, Harris Wang (Columbia University)
14.15-14.40	“Constructing the future of synthetic biology”, Jane Calvert (University of Edinburgh)
14.40-15.00	Coffee break
15.00-15.15	“BASF New Business: Scouting & strategy for new business and growth opportunities”, Peer Staehler (BASF)
15.20-15.45	“Developing a fab for engineering microorganisms”, Reshma Shetty (GingoBioWorks)
15.50-16.20	“Synthetic biology: biomedical applications come of age”, Jim Collins (COSBI)
16.20-17.00	Closing remarks and open discussion