

The logo consists of the text "SB 7.0" in a large, white, sans-serif font, enclosed within a white rectangular border. The background of the entire poster is a vibrant blue with a pattern of green, leaf-like shapes and various biological illustrations including a dragonfly, a toucan, a beetle, a lion, a cheetah, and several fish.

# SB 7.0

## THE SEVENTH INTERNATIONAL MEETING ON SYNTHETIC BIOLOGY

ORGANIZED BY:





Echo® Acoustic LIQUID HANDLING  
for SYNTHETIC BIOLOGY

## Reduce DNA Assembly and QC Costs

# 100-Fold

Echo® Liquid Handlers use acoustic energy to transfer DNA oligos and reagents, allowing the reduction of DNA assembly and NGS library preparation reaction volumes. Dramatically reduce reagent costs, save samples, and eliminate steps - all while improving the quality and throughput of synthetic genes.

**100-fold reduction of Gibson or Golden Gate assembly reaction volumes**

**100-fold reduction of NGS library preparation volumes**

**Increased assembly and QC throughput**

**Automation to easily process thousands of assemblies**

### COMPARISON OF LIQUID HANDLING METHODS

	Manual Pipetting	Echo® Liquid Handler
Amount of DNA	50 ng	0.06 - 2.0 ng
DNA volume (Rxn)	25 µL	200 nL
Library prep volume (Rxn)	25 µL	300 nL
Total volume	50 µL	0.5 µL
Reactions per kit	96	9600
Cost per reaction	\$72.91	<b>\$0.73</b>

For more information, visit [www.labcyte.com/synbio](http://www.labcyte.com/synbio).

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# WELCOME

Friends,

We look forward to welcoming each of you to SB7.0 in Singapore next week. The program will feature ~100 plenary speakers, ~250 selected posters, many hands-on demonstrations, and ~900 participants total. The diversity of people, topics, and perspectives along with the significance of what is happening individually and collectively is remarkable.

We are writing now to highlight three atypical aspects of SB7.0 and to ask for your help in preparing in advance, participating throughout, and sustaining and growing our collective capacities for good going forward.

First, please expect and prepare for SB7.0 to be, in part, a *\*working\** meeting. As you will learn during the opening sessions, we will be using tools developed by the Leadership Excellence Accelerator Program (LEAP) and Stanford's d.school to facilitate discussion, deliberation, and prioritization of what should be happening and how to get things done. Specifically, please be prepared to individually contribute brief statements responding to the following four prompts:

- (i) What would you *\*like\** to have or know about that you currently lack?
- (ii) What do you *\*wish\** was true that isn't now true?
- (iii) What *\*could you do\** to help others?
- (iv) What *\*will you do\** to help others?

We will be collecting and collating everyone's individual responses to the first two questions from the start of the meeting, and then during the meeting organize our collective likes and wishes so that everyone can consider and contribute potential solutions and capacities. What you contribute as your own likes, wishes, and potential actions will directly shape and form the closing sessions and, more importantly, what actually happens afterwards.

Second, please consider the four unique themes underlying SB7.0. Here they are:

(i) Revolution, 2 -- A second turning of a wheel... The early scientific and technical ideas that helped frame and motivate the field of synthetic biology were argued over and written down ~2002-2005. Many things thought to be impossible have been shown true, significant progress has been made, yet most of the work and progress is still to be realized. What are the deep, fundamental, or controversial scientific and technical ideas that we should be wrestling with now so that we can aim for non-trivial progress over the next decade?

(ii) Revolution, Too -- Change also... "Hi Mom, we made the living world fully engineerable but nothing practically changed." The preceding quote wouldn't make very much sense. Yet, as synthetic biology has matured it has been organized and adopted in ways that typically reinforce the status quo. How might (or should) the world change as we make living matter fully engineerable? How can we get better at talking about this? How can we get better at making positive change(s) true?

(iii) Diversity with Harmony -- There are many factions and interests within and around synthetic biology. Some are well acknowledged while others seem forgotten or excluded. Some people are promoting activities that others oppose. Meanwhile, we (humanity) continue to get better at understanding how natural living systems work. We are also continuing to get better at tinkering with biology. How might we all best work together? How do we sustain dialog across a plurality of perspectives?

(iv) All People & the Planet -- Back of the envelope calculations suggest that existing and emerging tools should allow for all of humanity to flourish in partnership with the Earth. I.e., make all the stuff everyone needs without trashing the place. Can we contribute to a collective telos and, if so, contribute to shared victory?

Please be ready to debate and discuss the above, or other topics and questions that may be more important to you.

Third, given how the programming of SB7.0 has developed, and taking stock of what we know about the state of the field and the world, we now anticipate that SB8.0 will take place in 2020 (three years from now). However, a location and the exact timing have not yet been determined. If you feel strongly about timing or location please let us know directly. The tradition of the SB#.0 series is that meetings should only occur when and where they need to happen; please make frank and direct suggestions with these two criteria in mind.

With gratitude, safe journeys, & looking forward!

The Entire SB7.0 Organizing Team

*PS. We expect to operate a live webcast of the meeting via [www.sb7.info](http://www.sb7.info). please forward this message to others who might wish to participate but cannot join in person. Anyone anywhere will be able to send likes/wishes/cans/wills to #synbioleap and #SB7Conf via Twitter. Anyone can also send a question for consideration in response to a plenary talk or discussion to #sb7questions via Twitter.*

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SB7.0

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MEETING ON SYNTHETIC BIOLOGY

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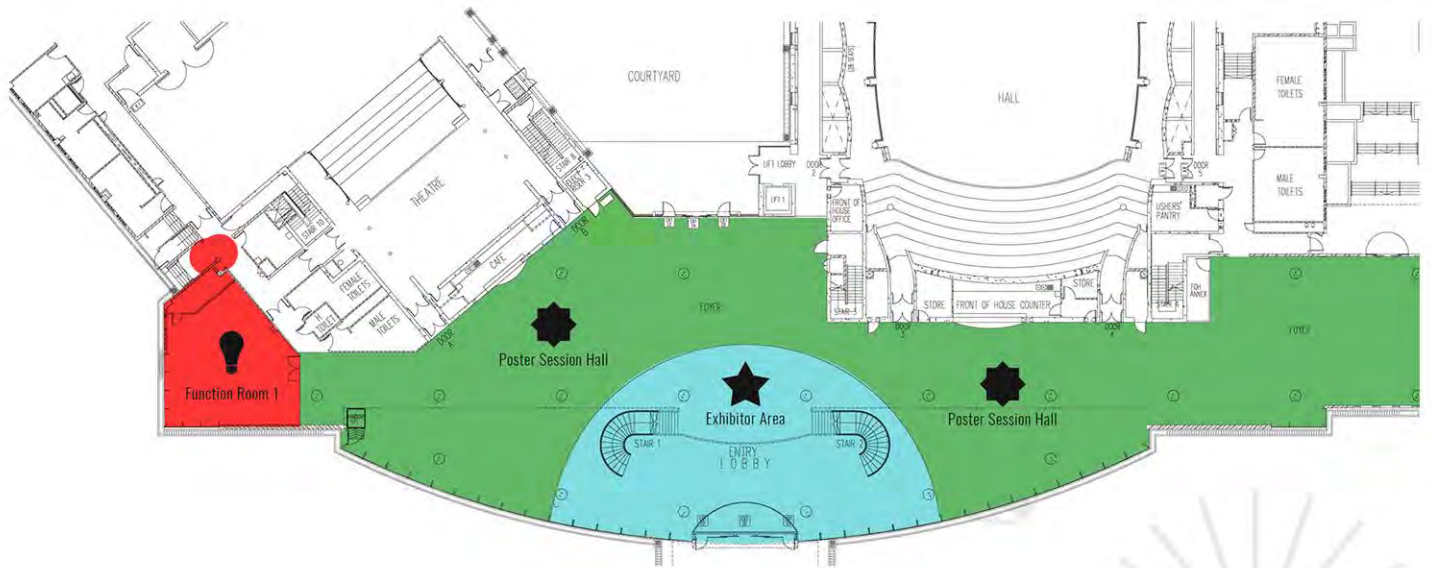
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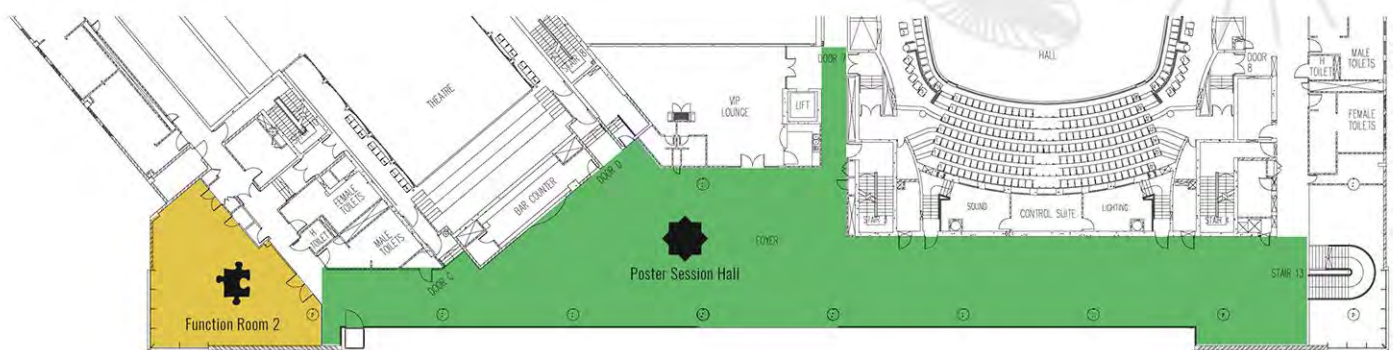






# MAP LOCATION

## FIRST FLOOR



## SECOND FLOOR



-  **FUNCTION ROOM 1**
-  **FUNCTION ROOM 2**
-  **POSTER SESSION HALL**
-  **EXHIBITOR AREA**



# SCHEDULE

## DAY 1 - TUESDAY, JUNE 13

### 9:00 am – Opening

**DREW ENDY**

Stanford University

Drew is Associate Professor of Bioengineering at Stanford University and he co-founded the BioBricks Foundation as a public-benefit charity supporting free-to-use standards and technology that enable the engineering of biology.

**RANDAL J. KIRK**

Intrexon Corp.

Randal J. Kirk has served as Intrexon's Chief Executive Officer since April of 2009 and Chairman of the Board since February 2008. Mr. Kirk provides a wealth of strategic, operational and management experience.

**ENG CHYE TAN**

Provost, National University of Singapore

**DESMOND LEE**

Prime Minister's Office, Second Minister for Home Affairs and Second Minister for National Development

**TECK SENG LOW**

National Research Foundation of Singapore

### 10:00 am – Break



# SCHEDULE

SB7.0

THE SEVENTH INTERNATIONAL  
MEETING ON SYNTHETIC BIOLOGY

## DAY 1 - TUESDAY, JUNE 13

### 10:30 am – From Ideas to Impact



**MATTHEW CHANG**

National University Singapore

Matthew Chang is Associate Professor in Biochemistry at the National University of Singapore (NUS), and Program Director of NUS Synthetic Biology for Clinical and Technological Innovation (SynCTI).



**SANG YUP LEE**

KAIST

Dr. Sang Yup Lee is Distinguished Professor at the Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST). He is currently the Dean of KAIST Institutes, Director of BioProcess Engineering Research Center, and Director of Bioinformatics Research Center.



**RESHMA SHETTY**

Ginkgo Bioworks

Reshma Shetty is a co-founder of Ginkgo Bioworks, an organism design company building organisms to spec for customers across markets including nutrition, health and consumer goods.



**CHRISTINA SMOLKE**

Stanford University

Dr. Christina Smolke heads a world-leading research program in the areas of synthetic biology, yeast metabolic engineering, and biomolecular engineering. She has pioneered the development of yeast biosynthesis platforms for an important class of plant natural products – the benzylisoquinoline alkaloids.



**MEGAN PALMER**

Stanford University

Dr. Megan J. Palmer is a Senior Research Scholar and William J. Perry Fellow in International Security at the Center for International Security and Cooperation (CISAC) at Stanford University.



**ALEXANDRE ZANGHELLINI**

Arzeda

Alexandre Zanghellini is Founder and Chief Executive Officer at Arzeda. In this capacity, he leads Arzeda's technology and product development and has raised \$20M of dilutive and non-dilutive funding to support the company. Alex is the original author of Rosetta academic enzyme design module, and Arzeda's Archytas™.



## SCHEDULE

## DAY 1 - TUESDAY, JUNE 13

11:50 am – Lunch Break

1:00 pm – Foundational Science



**PAUL FREEMONT**  
Imperial College London

Professor Freemont is Head of the new Section of Structural Biology in the Department of Medicine at Imperial College. The new Section will be based in South Kensington and will focus on the molecular mechanisms of human disease using the tools of integrated structural biology comprising X-ray crystallography, Cryo-EM and associated biophysical, spectroscopic and cellular techniques.



**MARILEEN DOGTEROM**  
Delft University of Technology

Marileen Dogterom was trained as a theoretical physicist at the University of Groningen. After finishing her thesis in Paris and Princeton, and a post doc position at Bell Labs, she became head of department at the FOM Institute AMOLF in Amsterdam. In 2000 she took up a professorship at Leiden University.



**BYUNG-KWAN CHO**  
KAIST

I am an associate professor at the department of biological sciences, KAIST. Before joining the KAIST, I have been a project scientist in the Palsson lab at University of California San Diego for seven years. I completed my Ph.D. in the molecular biotechnology and biomaterials laboratory at the Seoul National University (Seoul, Korea).



**KATE ADAMALA**  
University of Minnesota

Kate received a MSc in chemistry from the University of Warsaw, Poland, studying synthetic organic chemistry. In grad school, she worked with professor Pier Luigi Luisi from University Roma Tre and Jack Szostak from Harvard University. She studied RNA biophysics, small peptide catalysis and liposome dynamics, in an effort to build a chemical system capable of Darwinian evolution.



**CHENLI LIU**  
Chinese Academy of Sciences.

Dr. Liu Chenli, Ph.D., recipient of the “1000 Young Scholar Plan”, recipient of the “Guangdong Natural Science Foundation for Distinguished Young Scholars”, and recipient of the “Hong Kong Young Scientist Award”, executive director of the Center for Synthetic Biology Engineering Research of SIAT. His research focuses on synthetic biology and quantitative biology.



# SCHEDULE

## DAY 1 - TUESDAY, JUNE 13

### 1:00 pm – Foundational Science



**RAIVO VILU**

Tallinn University of Technology



**FEMI OLORUNNIJI**

University of Glasgow

Dr Femi Olorunniyi is a Research Fellow at the Institute of Molecular, Cell and Systems Biology at the University of Glasgow. Femi did his doctoral studies at the University of Glasgow on the catalytic mechanism of site-specific recombination. He has carried out further postdoctoral research in the field, and recently has worked on the development of recombinases as tools for DNA rearrangements and design of logic gates and genetic switches.



**SANGRAM BAGH**

Saha Institute of Nuclear Physics (SINP)

Associate Professor, Biophysics and Structural Genomics Division, Saha Institute of Nuclear Physics (SINP)

Research: Synthetic and systems biology in space-bioengineering, cellular-computation, and programmed-therapeutics.

### 3:00 pm – Break/Workshop - BBF Bionet Demo in Theatre

### 3:45 pm – Art, Critique, Design, & Our World



**LYNN ROTHSCHILD**

NASA Ames / Brown University

Tom Knight spent most of his career in computer science and electrical engineering at MIT, before playing a major role in creating the field of synthetic biology. In 1996 he seeded interest in the field at DARPA, and built a molecular biology laboratory in the MIT computer science department.



**ORON CATTS**

University of Western Australia

Oron Catts is the director of SymbioticA, the Centre of Excellence in Biological Arts, within the School of Anatomy and Human Biology, The University of Western Australia.



# SCHEDULE

## DAY 1 - TUESDAY, JUNE 13

### 3:45 pm – Art, Critique, Design, & Our World



#### ALEXANDRA DAISY GINSBERG

Studio Alexandra Daisy Ginsberg

Alexandra Daisy Ginsberg is a designer, artist and writer, developing experimental approaches to imagine new roles and ideals for design. Designing objects, workshops, writing and curating, Daisy investigates design's aesthetic and ethical futures with collaborators around the world including scientists, engineers, artists, designers, social scientists, galleries and industry.



#### JANE CALVERT

University of Edinburgh

I work in the area of the sociology of the life sciences, and my current research focuses on attempts to engineer living things in the emerging field of synthetic biology. I have a long-standing interest in interdisciplinary collaborations of all sorts. I draw on the sociology and anthropology of science, the philosophy of biology, and science policy in my work.



#### OLIVER MORTON

The Economist

Oliver Morton is The Economist's briefings editor. Before coming to The Economist as energy and environment editor in 2009, he was the chief news and features editor of Nature, the international scientific journal. He specialises in the energy business, climate science and policy, and other green issues. He is the author of "Eating the Sun: How Plants Power the Planet", a study of photosynthesis, its meanings and its implications, and "Mapping Mars: Science, Imagination and the Birth of a World".



#### JESUS CIRIZA LARRAONA

The Colours of Nature

One of very few full-fledged natural dyeing companies globally. Entirely focused on environmentally friendly vegetable dyeing processes. Started in 1993, The Colours of Nature is a commercial unit based in the International Township of Auroville, India. It took years of trial and error and steady development to revive the Natural Indigo Dyeing Fermentation Process and we undertake continuous research to stay on the cutting edge.

### 5:25 pm – Reception, Poster Session



# SCHEDULE

## DAY 2 - WEDNESDAY, JUNE 14

### 8:30 am – Building with Biology

**RESHMA SHETTY**

Ginkgo Bioworks

Reshma Shetty is a co-founder of Ginkgo Bioworks, an organism design company building organisms to spec for customers across markets including nutrition, health and consumer goods.

**CLAUDIA VICKERS**

The University of Queensland

Dr Vickers holds joint positions as director of the Synthetic Biology Future Science Platform (SynBio FSP) at the Commonwealth Scientific Investigation and Research Organisation (CSIRO) and as Group Leader at the Australian Institute for Bioengineering and Nanotechnology in The University of Queensland.

**CHEN YANG**

Institute of Plant Physiology and Ecology, SIBS, CAS

The Yang lab aims to understand and manipulate the operation of metabolic networks in microbes. The scientific goal of our research is to provide a quantitative understanding of how genes, proteins, and metabolites interact to generate and regulate functional metabolic networks. To achieve it, we develop experimental techniques for metabolic flux analysis, quantitative metabolomics, and gene expression analysis.

**TOBIAS ERB**

Max Planck Institute for Terrestrial Microbiology

Our research is located at the interface of microbial physiology, biochemistry, and ecology. We are driven by the desire to discover and engineer novel microbial pathways and enzymes that involve the transformation of carbon compounds, in particular acetate, methanol, methane or CO<sub>2</sub>.

**EMMANUEL IWUOHA**

University of the Western Cape

Emmanuel Iwuoha is the South African Research Chair for NanoElectrochemistry and Sensor Technology and a Senior (Distinguished) Professor of Chemistry at the University of the Western Cape (UWC), Cape Town, South Africa. He is currently a member of the editorial board of Bioelectrochemistry (the official journal of the Bioelectrochemical Society). All his research work are done under the umbrella of SensorLab founded by him in 2002 at the University of Western Cape.



## SCHEDULE

## DAY 2 - WEDNESDAY, JUNE 14

## 8:30 am – Building with Biology

**CÍNTIA COELHO**

Brazilian Agricultural, Embrapa/University of Brasília

Graduate at Biology from Federal University of Juiz de Fora (1994), Brazil, master's at Agronomy from Federal University of Lavras (1997), Brazil and PhD. at Plant Sciences (Genetic and Molecular Biology) from University of Arizona (2005), USA. Has experience in Genetics, focusing on Plant Molecular Biology, acting on the following subjects: cell cycle, endoreduplication, maize, medicinal plant in tumor cells and, more recently in synthetic biology.

**NOAM PRYWES**

Weizmann Institute

Noam Prywes is a post-doctoral fellow working at the Weizmann Institute in the laboratory of Dr. Ron Milo studying carbon fixation using the model bacteria *E. coli*. His work involves expressing different variants of RuBisCO in a consistent chassis in order to compare them head to head. This work aims to discover potentially useful variants of RuBisCO, setting the stage for molecular evolution. Ultimately, improved RuBisCO variants will have exciting applications in both biofuel production and agriculture.

## 10:00 am – Break

## 10:30 am – Building with Biology 2

**MARILEEN DOGTEROM**

Delft University of Technology

Marileen Dogterom was trained as a theoretical physicist at the University of Groningen. After finishing her thesis in Paris and Princeton, and a post doc position at Bell Labs, she became head of department at the FOM Institute AMOLF in Amsterdam. In 2000 she took up a professorship at Leiden University.

**AKIHIKO KONDO**

RIKEN Center for Sustainable Resource Science

Cost reduction of raw materials and processes is needed in order to use biomass as an alternative to fossil resources. Our team was established in April 2012 with an aim to integrating conventional processes, which are typically complicated and costly into a bio-process that is innovative, consistent, less costly and energy-saving. This will be achieved by optimizing, in an integrated manner, a plant's capacity to produce and degrade cellulose and the process of microorganisms' degrading and synthesizing biomass.

## SCHEDULE

## DAY 2 - WEDNESDAY, JUNE 14

## 10:30 am – Building with Biology 2



**XIAO-XIA XIA**  
Shanghai Jiao Tong



**JI-SOOK HAHN**  
Seoul National University



**JOANA RODRIGUES**  
University of Minho, Centre of Biological Engineering

Joana L. Rodrigues is a post-doctoral research fellow at Centre of Biological Engineering and has been involved in the teaching of some courses at the Department of Biological Engineering from University of Minho. She received her Master degree in Biological Engineering in 2010 and her Ph.D. in Bioengineering Systems in 2014 from the University of Minho. Under the scope of her Ph.D. work, during one year she was a visiting student at MIT, where she worked on the design and construction of a biosynthetic pathway for the production of curcuminoids in *Escherichia coli*.



**KOUROSH SALEHI-ASHTIANI**  
New York University Abu Dhabi

Kourosh Salehi-Ashtiani received his Ph.D. from Northwestern University (Illinois, USA) in Cell and Molecular Biology after which he joined the research group of Prof. Jack Szostak at Harvard Medical School. He subsequently moved to Center for Cancer Systems Biology (CCSB) at Dana-Farber Cancer Institute (a teaching affiliate of Harvard Medical School) as a Group Leader.



**ANNE MEYER**  
TU Delft

Dr. Anne S. Meyer is an Assistant Professor in the Department of Bionanoscience at TU Delft in The Netherlands. Dr. Meyer received her Ph.D. in Biological Sciences at Stanford University (USA) in 2005. Before joining TU Delft, she was a post-doctoral fellow in the Department of Biology at the Massachusetts Institute of Technology (USA). She has run the TU Delft iGEM (International Genetically Engineered Machines) team for five years, and her team won the Grand Prize in 2015.

## 12:00 pm – Lunch Break



## SCHEDULE

## DAY 2 - WEDNESDAY, JUNE 14

## 1:00 pm – Biodiversity &amp; Conservation

**ROB CARLSON**

Biodesic

At the broadest level, Rob is interested in the future role of biology as a human technology. He is a multiple start-up founder and has worked to develop new biological technologies in both academic and commercial environments, focusing on molecular measurement and microfluidic systems. He has also developed and published a number of novel metrics for quantifying the impact and progress of biological technologies. Carlson is the author of the book *Biology is Technology: The Promise, Peril, and New Business of Engineering Life*, published in 2010 by Harvard University Press. Dr. Carlson earned a doctorate in Physics from Princeton University in 1997. His blog is at [www.synthesis.cc](http://www.synthesis.cc).

**MADHU RAO**

Wildlife Conservation Society

Madhu Rao is Regional Advisor (Asia Program) with the Wildlife Conservation Society and Development Coordinator of the Asian Species Action Partnership, an IUCN SSC initiative aimed at averting the extinction of critically endangered South east Asian vertebrates. She has earned her Master's and Ph.D degrees from Duke University and is currently an Adjunct Assistant Professor at the Department of Biological Sciences, National University of Singapore.

**TERRY SUNDERLAND**

Center for International Forestry Research

Terry Sunderland is a Principal Scientist with CIFOR's Forests and Livelihoods programme, and leads the research domain 'Managing trade-offs between conservation and development at the landscape scale'. Prior to joining CIFOR, Terry was based in Central Africa for many years. Terry holds a Ph.D. from University College London and has published extensively on conservation and livelihood issues.

**MADELEINE VAN OPPEN**

Australian Institute of Marine Science

Madeleine holds a halftime position as a Senior Principal Research Scientist at the Australian Institute of Marine Science (AIMS), and a halftime Chair in Marine Biology at the University of Melbourne (School of BioSciences). Her research focuses on microbial symbiosis in corals, adaptation/acclimatisation to climate change, and connectivity of coral reefs. Her work is increasingly focusing on 'assisted evolution', where mechanisms of adaptation and acclimatisation in corals and genetic manipulations to enhance stress tolerance and fitness of corals in a changing environment are explored.

**SONJA LUZ**

Wildlife Reserves Singapore

# SCHEDULE

## DAY 2 - WEDNESDAY, JUNE 14

### 1:00 pm – Biodiversity & Conservation



#### KENT REDFORD

Archipelago Consulting

Kent H. Redford is the principal at Archipelago Consulting, established in 2011 and based in Portland, Maine. He was most recently Director of the WGS Institute and Vice President, Conservation Strategies at the Wildlife Conservation Society in New York.



#### OMAR AKBARI

University of California, Riverside

In December of 2008, Omar S. Akbari received his Ph.D. in Cell and Molecular Biology from the University of Nevada, Reno where he studied the role cis-regulatory modules play in cellular identity along the antero-posterior axis in developing *Drosophila melanogaster* embryos. In May of 2009, he joined the laboratory of professor Bruce A. Hay at the California Institute of Technology as a post-doctoral scholar to innovate synthetic biology of disease vectors. In summer of 2015, he became an Assistant Professor of Entomology at the University of California, Riverside.



#### RYAN PHELAN

Revive & Restore

Ryan Phelan is a serial entrepreneur active in both the for-profit and non-profit worlds. She is the Executive Director of Revive & Restore, with a mission to enhance biodiversity through the genetic rescue of endangered and extinct species. Ryan currently serves on the Board of Directors of the Personal Genome Project, which aims to sequence and publicize the complete genomes and medical records of 100,000 volunteers, in order to enable research into personalized medicine.



#### FRANK RHEINDT

National University of Singapore

Members of the Rheindt Lab have in common a fascination for biodiversity and its underlying evolutionary processes. With the on-going biodiversity crisis on our planet, we are also interested in how knowledge of evolutionary processes can inform conservation.

Most of our research activities focus on the mechanisms that lead to – or sometimes act against – the build-up of biodiversity, such as genetic differentiation and introgression.

### 3:15 pm – Break/Workshop - Intrexon Workshop



## SCHEDULE

## DAY 2 - WEDNESDAY, JUNE 14

4:00 pm – Health

**CHRISTINA SMOLKE**  
Stanford University

Dr. Christina Smolke heads a world-leading research program in the areas of synthetic biology, yeast metabolic engineering, and biomolecular engineering. She has pioneered the development of yeast biosynthesis platforms for an important class of plant natural products – the benzylisoquinoline alkaloids.

**YVONNE CHEN**  
UCLA

Prof. Chen's research experience includes engineering RNA-based regulatory systems for mammalian systems, demonstrating the ability to achieve rapid, reversible, small-molecule-responsive control over T-cell proliferation in tissue culture and in animal models. As a postdoctoral scholar at the Seattle Children's Research Institute and Harvard Medical School, Yvonne continued her research on engineering next-generation chimeric antigen receptors capable of logical computation of multiple antigen signals to enhance adoptive T-cell therapy for cancer.

**JIN-SOO KIM**  
Center for Genome Engineering, Institute for Basic Science

Jin-Soo Kim is an entrepreneur and chemist-turned-biologist. He graduated from Seoul National University in 1987 with a major in chemistry. He then earned a master's degree in chemistry from Seoul National University in 1989 and a Ph.D. in biochemistry from the University of Wisconsin-Madison in 1994. After postdoctoral training at Howard Hughes Medical Institute/Massachusetts Institute of Technology, he came back to Seoul in 1997 to serve as Principal Investigator at Samsung Biomedical Research Institute. He co-founded a biotechnology company, ToolGen, Inc., focused on zinc finger technology in 1999, and served as CEO and CSO for the subsequent 6 years.

**KARMELLA HAYNES**  
Arizona State University

Karmella Haynes is an Assistant Professor of Biomedical Engineering at Arizona State University. She earned her Ph.D. studying epigenetics and chromatin in *Drosophila* at Washington University, St. Louis. Postdoctoral fellowships at Davidson College and Harvard Medical School introduced her to synthetic biology. Today, her research aims to identify how the intrinsic properties of chromatin, the DNA-protein structure that packages eukaryotic genes, can be used to control cell development in tissues.

## SCHEDULE

## DAY 2 - WEDNESDAY, JUNE 14

4:00 pm – Health

**POH CHUEH LOO**

National University of Singapore

My Engineering Biology research group @ NUS focuses on Synthetic Biology to address challenges in different areas including healthcare and environment. We apply engineering principles to design and build microbes with useful capabilities for medical and industrial applications and developing foundational platform tools to accelerate the design and engineering of the microbes. This includes synthetic gene circuits design and automation, modelling of biological systems, and computer aided design tools for SynBio. We have been “reprogramming” microbes to tackle metabolic diseases, to fight infectious causing pathogen and to control biofilm formation.

**HAIFENG YE**

East China Normal University

Dr. Haifeng Ye received his Ph.D degree from Swiss Federal Institute of Technology Zurich (ETH Zurich) in 2012 and completed his Postdoctoral Research in the group of Prof. Dr. Martin Fussenegger at ETH Zurich from 2012.08-2013.12. Dr. Ye has been awarded the “ETH Silver Medal” at ETH Zurich in 2013. His research work was published in top scientific journals: Science, Nature Biomedical Engineering, PNAS, Molecular Therapy, Nucleic Acids Res, etc. His research was highlighted by a series of top scientific journals: Cell, Nature Medicine, Nature Chemical Biology.

**CARMEN MAÑAS TORRES**

Spanish National Center for Biotechnology

I'm Carmen Mañas, a PhD student from the Spanish National Center for Biotechnology. I currently live and work in Madrid but I hail from Granada, a beautiful region in the south of Spain. Ever since I began my studies in Biology, I have found a great interest in all aspects of life. After a first immersion in a laboratory studying degradation of contaminant compounds by *Pseudomonas putida* and later developing my final degree project in Utrecht University in the study of the pathogen *Neisseria meningitidis*, I have discovered a special interest in synthetic biology, a discipline with infinite possibilities.

**IN YOUNG HWANG**

National University of Singapore

Dr. In Young Hwang received her PhD from the University of Auckland (New Zealand), in the field of cancer biology and therapeutics. She then joined the Institute of Medical Biology (IMB) at A-STAR, Singapore to continue her research in the field of cancer and stem cell. She has expanded her research interest to Synthetic Biology by working with Matthew Chang. She is currently a Senior research fellow at the National University of Singapore, leading therapeutic cell and mammalian synthetic biology research clusters at the Synthetic Biology for Clinical and Technological Innovation (SynCTI). Dr Hwang has recently published work in ACS synthetic paper in 2014 and Nature Communications in 2017, which involved engineering microbes to fight against human infectious pathogen. Her work was also mentioned in various media including Nature news and The Economist.

5:45 pm – Reception, Poster Session



## SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

## 8:30 am – Foundational Tools &amp; Engineering

**CHANTAL YUE SHEN**

Genome Synthesis

Chantal Yue Shen is currently the director of Genome Synthesis and Editing Platform of China National Genebank. She and her group have set up the synthesis biology platform in BGI since 2011. She initiated the Sc2.0 yeast genome project in BGI (Chromosome II, VII and XIII) and established the genome synthesis capacity using microchip-based DNA synthesis technology and automation approaches.

**XUN XU**

BGI

Xun Xu — the deputy director of BGI-Shenzhen — presided over experimental technology of molecular biology, information technology research and development. He devoted himself to bioinformatics research, including genome assembly and annotation research for plant genomic, genetic polymorphism research based on the re-sequencing.

**EMILY LEPROUST**

Twist Bioscience

As an early pioneer in long DNA synthesis, Emily is poised to accelerate the biofactory market. She and co-founder Bill Peck share the world record for synthesizing the longest, highest quality oligo library. Emily architected the successful SureSelect product line which lowered the cost of sequencing and elucidated dozens of mendelian diseases, and she developed Agilent's Oligo Library Synthesis technology. Emily has co-authored over 34 peer-reviewed papers—many on synthetic DNA—and has extensive marketing, management, and business development experience. Prior to Twist Bioscience, Emily was Director of Applications and Chemistry R&D—Genomics at Agilent Technologies.

**CHRISTOPHER VOIGT**

Massachusetts Institute of Technology

Christopher Voigt, PhD is a Professor of Biological Engineering at MIT. He is the Co-Director of the Synthetic Biology Center and co-founder of the MIT-Broad Foundry. He is the Editor-in-Chief of ACS Synthetic Biology. He holds joint appointments at the Broad Institute, Lawrence Berkeley National Labs, Korea Advanced Institute of Science & Technology (KAIST), University of California – San Francisco, and Imperial College. He received his BSE in Chemical Engineering from the University of Michigan (1998) and PhD in Biophysics from Caltech (2002).

**BILL EFCAVITCH**

Molecular Assemblies Inc.

Bill Efcavitch was a founding member of Applied Biosystems, as the company's 9th employee. At Applied Biosystems, Dr. Efcavitch built and managed the R&D group that led the commercialization of phosphoramidite oligonucleotide synthesis and the Models 380A, 380B and 381 DNA synthesizers. He spent 18 years at the company, managing the development of many successful biotechnology instrument and reagent systems, including the AB 1700 Expression Array System, Model 3900 DNA Synthesizer, ABI Prism Models 377 and 3700, ABI Model 310 DNA Analyzer, and the Model 230A Micro Preparative Electrophoresis System.



## SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

## 8:30 am – Foundational Tools &amp; Engineering

**RICHARD KITNEY**

Imperial College London

Professor Richard Kitney is Chairman of the Institute of Systems and Synthetic Biology; and Co-Director of the EPSRC National Centre for Synthetic Biology and Innovation and The UK National Industrial Translation Centre for Synthetic Biology – both at Imperial College London. He has published over 300 papers in the fields of synthetic biology, mathematical modelling, biomedical information systems, and medical imaging. Kitney was the Co-Chair of the joint Inquiry by The Royal Academy of Engineering and the Academy of Medical Sciences on Systems Biology.

**ANIL WIPAT**

Newcastle University

Anil Wipat is the Professor of Bioinformatics at the School of Computing Science at Newcastle University. He co-directs Newcastle's Interdisciplinary Computing and Complex BioSystems (ICOS) research group.

**MARKUS GERSHATER**

Synthace

Markus co-founded Synthace after working as a Research Associate in Synthetic Biology at University College London where he developed novel biosynthesis methods using pathway engineering. Prior to UCL, he was a Biotransformation Scientist at Novacta Biosystems working as part of the industrial biotechnology group that conducted more than 90 contract research projects for over 20 clients. Markus has a PhD in Plant Biochemistry from Durham.

**CORNELIA SCHEITZ**

Autodesk

Cornelia (Conny) Scheitz is a Principal Research Scientist in the Bio/Nano Research group at Autodesk. She focuses on building next generation design tools for synthetic biology.

Prior to joining Autodesk Conny was the Lead Automation Scientist at Transcriptic. As the first scientist on the team she was essential in building both the physical and the virtual cloud lab infrastructure. In addition to her automation experience Conny has worked in the areas of cancer and stem cell biology as well as population genetics.

**WILL CANINE**

Opentrons

Will comes from a background in community organizing and political campaign management, but decided to pursue technology as a more effective way to change the world. Obsessed with microbiology since an early age, Will became interested in open-source lab automation as a lever for accelerating scientific research while working at Genspace during his master's degree at NYU's Interactive Telecommunications Program in 2014. When not working to make lab robots for everyone, he likes to read books (always physical copies, particularly sci-fi and evolutionary theory) and go for long runs.



# SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

### 8:30 am – Foundational Tools & Engineering



#### HARRY SINGER

Singer Instruments

Harry Singer is the CEO of Singer Instruments, headquartered in the UK. With satellite offices in California and Singapore, and representation in five continents, Singer collaborate with SynCTI, SynbiCITE, and clients like NASA, Carlsberg, BP and professors at the top 30 universities in the World. Harry's background in science and engineering includes a doctorate in Quantum Chaos from UCL. He holds a small portfolio of patents, mostly associated with laboratory automation. He surfs, kitesurfs and plays the ukulele – badly!



#### ADISON WONG

Singapore Institute of Technology

Adison Wong is a lecturer in the department of Chemical Engineering and Food Technology at the Singapore Institute of Technology (SIT). His research interests include genome and strain engineering of microorganisms. Prior to joining SIT, Adison served as the inaugural program manager of SynCTI, a synthetic biology research program anchored at the National University of Singapore. He was actively involved in the discussion of research initiatives with government agencies and had organized several workshops to promote synthetic biology in Singapore. Adison earned a PhD in Bioengineering from Imperial College London and Nanyang Technological University for his seminal work on reprogramming commensal microbe for infectious disease treatment.

### 10:00 am – Break/Workshop

### 10:30 am – Security



#### DAVID EVANS

University of Alberta

My lab studies poxviruses. These are large DNA viruses, best known for causing the diseases smallpox and myxomatosis in humans and rabbits, respectively. We are currently studying different aspects of poxvirus biology using funding provided by CIHR, NSERC, the Canadian Breast Cancer Foundation, the Province of Alberta, and the private sector. How you could participate will change as these projects evolve and people come and go.



#### GIGI KWIK GRONVALL

Johns Hopkins Center for Health Security

Dr. Gronvall is a Senior Associate at the JHSPH Center for Health Security and a Visiting Faculty at Johns Hopkins Bloomberg School of Public Health. She is an immunologist by training. Her work addresses the role of scientists in biosecurity—how they can diminish the threat of biological weapons and how they can contribute to an effective technical response against a biological weapon or a natural epidemic.

## SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

## 10:30 am – Security



**ELIZABETH CAMERON**  
NTI

Dr. Beth Cameron is NTI's senior director for global biological policy and programs. She previously served as the Senior Director for Global Health Security and Biodefense on the White House National Security Council (NSC) staff, where she was instrumental in developing and launching the Global Health Security Agenda and addressed homeland and national security threats surrounding biosecurity and biosafety, biodefense, emerging infectious disease threats, biological select agents and toxins, dual-use research, and bioterrorism.



**PIERS MILLETT**  
Future of Humanity Institute

Piers Millett is a Senior Research Fellow at the Future of Humanity Institute, where he focuses on pandemic and deliberate disease and the implications of biotechnology.



**NICHOLAS MARTIN**  
Naval Medical Research Center-Asia

Lieutenant Commander Nicholas J. Martin entered the military as a Cavalry Scout in the Nebraska Army National Guard in 1998. He completed undergraduate studies with a Bachelor of Science in 2000 before enrolling at the University of Nevada under the US Navy Health Science Collegiate Program. In December of 2003 he completed his Master of Science in Environmental Science and Health and was commissioned as a Lieutenant Junior Grade. Following commissioning he reported to the Naval Health Clinic Patuxent River as the Head of the Preventive Medicine Department.



**RAYMOND TZER-PIN LIN**  
National University Hospital

Raymond Lin (FRPCA, MBBS) is Head and Senior Consultant in Microbiology, Department of Laboratory Medicine, at the National University Hospital; Associate Professor at the Yong Loo Lin School of Medicine Department of Microbiology and Immunology; Head of the National Public Health Laboratory and Advisor to Biosafety Regulation at the Ministry of Health, Singapore. His work encompasses all aspects of medical microbiology including laboratory testing, infection control and antibiotic use. He has been a member of various committees of the Genetic Modification Advisory Committee (Singapore) since 1999, and is currently in the Research Subcommittee which reviews GM-related research proposals. His publications encompass studies in influenza, Zika virus, diagnostic methods and antimicrobial resistance.



**PAE WU**  
DNR Global



## SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

12:30 pm – **Lunch Break**1:30 pm – **Learning By Sharing**

**ARIEL LINDNER**  
CRI Paris

Ariel is a research director at the French National Institute of Health and Medical Research (INSERM), co-founder and vice-director of the Centre for Research and Interdisciplinarity (CRI; [www.cri-paris.org](http://www.cri-paris.org)) and co-director of its AIV M.Sc. program.



**MEAGAN LIZARAZO**  
iGEM

Meagan Lizarazo is the Vice President of Operations of the iGEM Foundation. The iGEM Foundation is an independent nonprofit dedicated to education and competition, advancement of synthetic biology, and the development of open community and collaboration. It fosters scientific research and education through organizing and operating the iGEM Competition, the premier student synthetic biology competition. Meagan has been involved with iGEM since 2005, beginning with research on automated assembly, followed by managing operations of the iGEM competition. She now directs operations of the iGEM Foundation nonprofit organization.



**FAISAL KHAN**  
CECOS University

Dr Faisal Khan is the director of the Institute of Integrative Bioscience – a first of its kind multidisciplinary institute founded at CECOS University, a leading engineering university in Pakistan. IIB specifically focuses on interdisciplinary and translational research in areas like metabolic engineering, systems biology and synthetic biology. Dr Khan's research focuses on network biology of cellular processes like cell division and infectious diseases like malaria, dengue fever and tuberculosis, and also pathway design for developing enzymes and proteins that are of industrial value.



**INGMAR RIEDEL-KRUSE**  
Stanford University

Our lab focuses on developing 'Interactive Bio-Technology' (IBT), a field we pioneered to enable real time interactive experimentation and programming with multi-cell assemblies thereby lowering access barriers to life-science experiments for experts and the public.

Our realtime interactive Biology Cloud Experimentation Labs are a particularly suited route for wide dissemination. These cloud labs are currently used for online education – and will be deployed for professional and citizen science in the future.

# SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

### 1:30 pm – Learning By Sharing

**NICOLA PATRON**

The Earlham Institute

Nicola Patron is a research group leader in synthetic biology at The Earlham Institute (UK) developing molecular tools and genome engineering technologies for photosynthetic organisms. Her current projects aim at tailoring photosynthetic organisms for efficient molecular pharming and improving the yield and nutritional value of crops. Nicola's broader interests lie in the regulation of gene expression and the mechanisms and impact of horizontal gene transfers. As a SynBioLEAP fellow Nicola was recognized as an emerging leader in synthetic biology with a desire to help innovations in the laboratory have positive social impact.

**OSMAT JEFFERSON**

The Lens

Originally from the mountains of Lebanon, Osmat holds a Ph.D. from Cornell University in Plant sciences and a master's degree in International Law from the Australian National University. She also has more than a decade of experience in the fields of plant disease management and crop improvement, mainly in Latin America and Asia. Osmat joined Cambia in 2005 as a scientist, and since 2009 she has also held dual appointments with QUT's Faculty of Science and Engineering and Faculty of Law.

**JIM HASELOFF**

University of Cambridge

Our laboratory develops high-resolution imaging and software modelling techniques for reprogramming biological systems. We use simple microbial and plant systems for rapid assembly of DNA circuits and testing of synthetic systems with self-organising properties. Our aim is to build systems for engineering morphogenesis and metabolism in plants.

**LINDA KAHL**

BioBricks Foundation

Linda J. Kahl is currently Senior Counsel and Director of Ownership and Innovation for the BioBricks Foundation, where her work focuses on developing policy initiatives, legal tools, and educational materials to promote the open and ethical use of biotechnologies.



## SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

3:30 pm – Break

4:00 pm – Strategy

**GEORGE GUO-QIANG CHEN**

Tsinghua University

Professor George Guo-Qiang Chen received his BSc and PhD from South China University of Technology in 1985 and Graz University of Technology (Austria) in 1989. He also conducted research from 1990 to 1994 as a postdoc at University of Nottingham, UK, and University of Alberta, Canada, respectively. He has been focusing his research on microbial materials polyhydroxyalkanoates (PHA), metabolic engineering, and PHA biomaterials application since 1986. After joining Tsinghua University in 1994, he has been actively promoting the microbial Bio- and Material Industries in China.

**OCKY RADJASA**

Ministry of Research, Technology and Higher Education

Dr. Ocky Radjasa obtained his Ph.D degree from Department of Aquatic Biosciences, University of Tokyo, Japan in 2001. He was a DAAD postdoctoral fellow in 2002 in Institute for Chemistry and Biology of Marine environment (ICBM), University of Oldenburg, Germany. Also, he spent one year in Institute of Marine Sciences (IFM-GEOMAR), Kiel, Germany as a Humboldt research fellow.

**HIDETAKA NISHIMURA**

Ministry of Economy, Trade and Industry

Hidetaka Nishimura is currently in charge of promotion of bio-industry including pharmaceuticals, regenerative medicine and other bio-tech industries as Director for Bio-industry Division, Ministry of Economy, Trade and Industry, Japan.

**RICK JOHNSON**

Global Helix

Rick Johnson focuses on integrating policy and law with science, engineering, Big Data, and biomedicine to drive research and innovation and to enable problem-oriented solutions to global challenges. His current interests include: (1) synthetic biology, the engineering of biology, and the industrialization of biology; (2) the bioeconomy and next-generation production economy; (3) neuroscience and brain health, especially Alzheimer's; and (4) policy issues for convergence, international S&T, and Big Data.

**DANNIE JOST**

World Trade Institute at the University of Bern

Bern. She holds a doctoral degree in Physics (Dr phil nat) from the University of Bern, and a Master of Sciences in Chemistry from California State University, Los Angeles, USA.

Dannie Jost works in policy and regulation issues where science, technology and trade are involved. In collaboration with jurists and other experts she has advised federal agencies on the scope of action for specific technologies regulation within the framework of international trade law.



## SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

## 4:00 pm – Strategy

**VINCENT SEWALT**

DuPont Industrial Biosciences

Dr. Vince Sewalt is Senior Director of Product Stewardship & Regulatory for DuPont Industrial Biosciences in Palo Alto, CA.

Vince has broad experience in plant- and microbial biotechnology innovation and in management of regulatory, safety, quality, and stewardship for biotechnology products with industrial, food, and feed applications. His past research has focused on the molecular biology of plant secondary metabolism, biochemistry of plant cell walls, and their microbial degradation. He has managed Ag & Food biotechnology R&D programs with various companies.

**JOHN CUMBERS**

SynBioBeta

John Cumbers is the founder of SynBioBeta, an activity hub for synthetic biology startup companies, industry and investors. He received his PhD in Molecular Biology, Cell Biology, and Biochemistry from Brown University. He has a masters degree in bioinformatics from the University of Edinburgh in Scotland and an undergraduate degree in computer science from the University of Hull in England. He founded the iGEM (International Genetically Engineered Machines competition) team at Brown University in 2005, was an iGEM ambassador to China in 2006/2007 and has been working in the field of synthetic biology and resource utilization in space at NASA Ames since 2008.

**LIONEL CLARKE**

UK Synthetic Biology Leadership Council

Lionel Clarke co-chairs the UK Synthetic Biology Leadership Council (SBLC), which oversees implementation of the 2012 UK Synthetic Biology Roadmap and 2016 Strategic Plan 'Biodesign for the Bioeconomy'.

He is a visiting professor in the Department of Bioengineering in Imperial College, and holds an honorary chair in the Faculty of Life Sciences at the Manchester Institute of Biotechnology. He holds advisory board member or chairman roles in several UK universities, research councils, and a government department, and was a contributor to the US National Research Council document 'Industrialization of Biology' 2015.

**ILLE GEBESHUBER**

Vienna University of Technology

Prof. Ille C. Gebeshuber is a University Professor of Physics from Austria, Europe. She is expert in Nanotechnology, Biomimetics and Tribology. She was born on April 10, 1969, in the small city Kindberg. On the schoolbus, when she wrote a message on the window to a friend who was outside, she discovered that – a natural lefthander – she can write in mirror. She uses this ability to stimulate the right side of her brain and thereby her creativity and cross-border thinking.

## 5:30 pm – Reception, Poster Session



# SCHEDULE

## DAY 3 - THURSDAY, JUNE 15

4:00 pm – **Strategy**



**GUANYOW CHEN**  
EDB

Chen GuanYow is Head of the i3 (Industry Identification and Incubation) Group, EDB. The EDB is the lead government agency responsible for the industrial development in Singapore. The group is part of the New Businesses Division which looks into new industrial development areas for Singapore, 5-10 years out into the future. He has been trying to figure out a national synthetic biology strategy since 2013. An engineer by training, he has worked in research, startups and government for over 15 years. He has been involved in technology development, business/industrial strategies, research policies, innovation management work. Prior to joining EDB, he served as the lead scientist for Surrey Nanosystems Ltd.

5:30 pm – **Reception, Poster Session**



## SCHEDULE

## DAY 4 - FRIDAY, JUNE 16

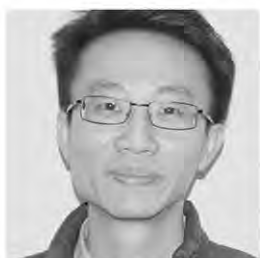
9:00 am – Yeast 2.0

**SAKKIE PRETORIUS**

Macquarie University

Professor Sakkie Pretorius is Deputy Vice-Chancellor (Research) at Macquarie University. He is internationally recognised as a pioneer in molecular microbiology and biotechnology and in translating research outcomes to innovative industry applications.

Professor Pretorius joined Macquarie University in 2013. In 2014 his passion for academic excellence and research that creates both value and opportunity for staff, students and the broader community drove the creation of the University's strategic research framework, World-leading research; World-changing impact. The framework, which will shape Macquarie's research priorities over the next decade, built on the Our University: A Framing of Futures project.

**PATRICK YIZHI CAI**

Edinburgh Genome Foundry

"Patrick" Yizhi Cai received a bachelor degree in Computer Science in China, a master degree in Bioinformatics from University of Edinburgh in the UK, and a PhD in Genetics, Bioinformatics and Computational Biology from Virginia Tech in the USA. Cai has his postdoctoral fellowship under Jef Boeke in the Johns Hopkins University School of Medicine.

**SARAH RICHARDSON**

Microbyre

Sarah Richardson was a postdoctoral fellow in synthetic biology at the Lawrence Berkeley National Lab's Joint BioEnergy Institute. Her research focused on CRISPR and other bacterially derived tools for genome editing; she hopes to improve the adoption and efficiency of genome editing for biomanufacturing.

**JUNBIAO DAI**

Tsinghua University

The Dai lab uses budding yeast as model organism to study the function of chromatin with emphasis on histone modifications. In addition, his lab is synthesizing the yeast chromosome XII as a part of the international collaborative project (the Sc2.0 project) and developing technologies for synthetic biology.

**LESLIE MITCHELL**

NYU Langone Medical Center

Research focus: Eukaryotic chromosome and genome engineering.



## SCHEDULE

## DAY 4 - FRIDAY, JUNE 16

9:00 am – Yeast 2.0

**HELOISE MULLER**

Centre de recherche de l'Institut Curie

Post-doc in Jef Boeke's lab in Johns Hopkins University, Baltimore, MD, USA, on synthetic genomics, building the synthetic yeast Sc2.0.

Second Post-doc in Romain Koszul's lab in Institut Pasteur in Paris, studying synthetic chromosome architecture.

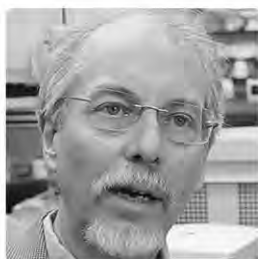
10:15 am – Break

10:45 am – Genome Projects

**SUSAN ROSSER**

University of Edinburgh

Susan is Professor of Synthetic Biology at the University of Edinburgh. She is Director of the Edinburgh Mammalian Synthetic Biology Research Centre, Co-director of the Edinburgh Genome Foundry for synthetic DNA synthesis and assembly. She also holds a prestigious EPSRC Leadership Fellowship in Synthetic Biology. Her research focuses on developing tools for synthetic biology approaches for pathway and genome engineering in bacteria, yeast and mammalian cell systems. The applications of her work include rapid strain engineering for production of high value secondary metabolites, cell lines for protein production, engineering bacteria to generate electricity and developing genetic tools for bio-computation: engineering cells to sense, process and memorise information.

**JEF BOEKE**

NYU School of Medicine

Jef Boeke is an American geneticist who is currently the founding director of The Institute for Systems Genetics at NYU Langone Medical Center. From 1986 to 2014 he was on the faculty of The Johns Hopkins University School of Medicine, where he was the founding director of the High Throughput (HiT) Center. He is a member of the American Academy of Arts and Sciences as well as the National Academy of Sciences.

**NILI OSTROV**

Research Fellow in Genetics - Harvard Medical School

# SCHEDULE

## DAY 4 - FRIDAY, JUNE 16

### 10:45 am – Genome Projects



#### **KIM PALACIOS**

International Laboratory for Human Genome Research

I was born in Mexico in 1990. I studied Genomic Sciences at the National University of Mexico (UNAM). This internationally recognized undergraduate program aims at consolidating knowledge and skills from three fundamental disciplines, biology, programming, and mathematics, and includes a full year of research experience. Given my keen interest in genetics and molecular biology, I designed my own project to detect epigenetic vulnerabilities of cancer and carried it out at Cold Spring Harbor Laboratory, under the guidance of Dr. Christopher Vakoc.



#### **ALINA CHAN**

Harvard Medical School

I am a postdoc from Canada directing various mammalian synthetic biology projects in the Silver lab, including de novo human artificial chromosomes (HACs), protein fusion therapeutics, and human-to-virus interactions. Our work regarding the delivery of synthetic genomes to human cells via yeast has been published in Nucleic Acids Research.



#### **JOHN GLASS**

JCVI Synthetic Biology and Bioenergy Group

Dr. John Glass is a Professor and leader of the JCVI Synthetic Biology and Bioenergy Group. His expertise is in molecular biology, microbial pathogenesis, RNA virology, and microbial genomics. Glass is part of the Venter Institute team that created a synthetic bacterial cell. In reaching this milestone the Venter Institute scientists developed the fundamental techniques of the new field of synthetic genomics including genome transplantation and genome assembly.

### 12:30 pm – Lunch Break

### 1:30 pm – Revolution 2 - Part 1, Free and Frank Discussion

The Student Jury

Frank Akpoviri, National University of Malaysia

The LEAP Team (Like/Wish)

Jane Calvert

Paul Freemont



# SCHEDULE

## DAY 4 - FRIDAY, JUNE 16

3:00 pm – Program Pause

3:30 pm – Revolution 2 - Part 2, Strategic Action Planning

The LEAP Team (Can/Will)

Alexandra Daisy Ginsberg

Maria Mercedes Roca

Richard Kitney

7:00 pm – Gala Dinner at Gardens by the Bay - Flower Dome



# BIOGRAPHERIES

**BRIAN SCHULZ**

Managing Director

Brian brings a strong background in nonprofit leadership to the BioBricks Foundation. Brian is responsible managing the finances and operations of the organization, and is Coordinator for the bionet project. Brian is also the lead contact at the BioBricks Foundation for SB7.0 – The Seventh International Meeting on Synthetic Biology in Singapore in June 2017.

**LINDA KAHL**

Senior Counsel &amp; Director of Ownership, Sharing and Innovation

Linda provides legal support for BBF's programs and advises the organization in the areas of trademark, patent, and contract law. She works with members of the scientific research community, industry leaders, policy makers, legal professionals, and other stakeholders to create legal frameworks, policy initiatives, and infrastructure supporting open and ethical use of biotechnologies. Linda is the legal lead for BBF's bionet program and leads development of BBF's legal tools, including the BioBrick® Public Agreement, v2.0 and the OpenMTA.

**DREW ENDY**

Board Member

Drew Endy developed the world's first "fabless" genetic engineering teaching lab in the new Bioengineering program at Stanford and previously helped start the Biological Engineering major at MIT. His Stanford research team develops genetically encoded computers and redesigns genomes. He co-founded the BioBricks Foundation as a public-benefit charity supporting free-to-use standards and technology that enable the engineering of biology (BioBricks.org). He co-organized the International Genetically Engineered Machines (iGEM.org) competition, the BIOFAB International Open Facility Advancing Biotechnology (BIOFAB.org), and Gen9, Inc. (Gen9bio.com). He serves on the US Committee on Science Technology and Law and is a new voting member of the US National Science Advisory Board for Biosecurity. He chaired the 2003 Synthetic Biology study as a member of DARPA ISAT, served as an ad hoc member of the US NIH Recombinant DNA Advisor Committee, and co-authored the 2007 "Synthetic Genomics: Options for Governance" report with colleagues from the Center for Strategic & International Studies and the J. Craig Venter Institute. Esquire named Endy one of the 75 most influential people of the 21st century. He lives in Menlo Park CA with his wife and Stanford Bioengineering colleague Prof. Christina Smolke.



# BIOGRAPHIES

**JOHN CUMBERS**

Founder

John Cumbers is the founder of SynBioBeta, an activity hub for synthetic biology startup companies, industry and investors. He received his PhD in Molecular Biology, Cell Biology, and Biochemistry from Brown University. He has a masters degree in bioinformatics from the University of Edinburgh in Scotland and an undergraduate degree in computer science from the University of Hull in England. He founded the iGEM (International Genetically Engineered Machines competition) team at Brown University in 2005, was an iGEM ambassador to China in 2006/2007 and has been working in the field of synthetic biology and resource utilization in space at NASA Ames since 2008.

John led the Planetary Sustainability Collaboratory at the NASA Ames Space Portal where he worked on partnerships that bring new technologies to bear on sustainability challenges on Earth and in space. In 2010, John was the recipient of a National Academies Keck Futures Initiative award to understand the role that synthetic biology could play in NASA's missions. He has also been involved in multiple start-ups producing food for space and using microbes to extract lunar and martian resources. He was at NASA for 7 years working on these issues and was instrumental in starting NASA's program in synthetic biology.

Thought leader, and community builder, and consultant for both the public and private sector, John is passionate about using biotechnology to make a better world through sustainable technologies. As an authority on the topic, John has built communities in the space synthetic biology arena, published multiple papers on food production in space, terraforming, and the genetics of extremophiles. Constantly educating and connecting those around him, John is person to know in the industry. His company, SynBioBeta, brings together the entire community together several times each year and gives anyone the opportunity to meet with the bright minds building and shaping the bioeconomy — from venture capitalists and angel investors to entrepreneurs and industry thought leaders.

**KATE WILDAUER**

Chief Executive Officer

Kate has over 20 years experience including positions in management consulting, project management, clinical data coordination, oncology research, and training. Kate founded and ran a successful small business for 10 years, served as adjunct faculty at Villanova University and has worked with a variety of non-profit organizations in strategic planning and growth. Kate received her Bachelor's Degree in Business Administration from Villanova University and also was awarded a Master's Degree from Thomas Jefferson University.

Kate is passionate about education and curriculum development and enjoys teaching all ages. She has shared her time and talent as a volunteer for a number of community organizations and nurtures her creative side with a number of hobbies. She lives in Pennsylvania with her husband and four children.

As CEO, Kate's focus is on building and growing the community while expanding SynBioBeta's efforts in advocacy and outreach.

# BIOGRAPHIES

**JEFF WAGENMANN**

Director of Events & Facilities

Jeff Wagenmann comes to SynBioBeta with over 15 years experience in facilities operations, meetings and events. From working with large companies like Enterprise Holdings, Marriott, Hilton and Sodexo and others, Jeff keeps projects on track and on budget, while providing a great conference experience.

**CHRISTOPHER OAKES**

Business Development Manager

Formerly the business development executive for LabCorp's west division, business development manager at Liquid Robotics and a co-founder of therapeutics startup Tacavax, Chris brings over a decade of experience in helping science startups and Fortune 50 companies develop and run sales and customer support programs. He plays a pivotal role in providing sales strategy expertise for startups globally. In addition to driving the SynBioBeta program, Chris mentors diagnostic startup companies in the Bay Area.

A former scientific diver, marine biologist, and published author, Chris is also an experienced kite surfer and has a passion for sustainable aquaculture.

He holds both a bachelors and masters degree in biology with a marine emphasis from Occidental College in California.





## BIOGRAPHIES

**WEN SHAN YEW**

Department of Biochemistry, Yong Loo Lin School of Medicine  
NUS Synthetic Biology for Clinical and Technological Innovation, National University of Singapore

Wen Shan is an Associate Professor with the Department of Biochemistry, Yong Loo Lin School of Medicine, National University of Singapore. He is also a core Principal Investigator of the NUS Synthetic Biology for Clinical and Technological Innovation (SynCTI). He trained as a mechanistic enzymologist with Professor John A. Gerlt from the University of Illinois at Urbana-Champaign. As a continuation and elaboration of his interests in enzymology, his current and future research is centered on expanding the multi-faceted interface between enzymology, biological chemistry and synthetic biology, in an area he terms “synthetic enzymology”. In particular, his research is focused on the use of structural and mechanistic enzymological knowledge for protein engineering (exploring, defining and modulating substrate specificities), biocatalysis, therapeutic development (against metabolic and infectious diseases, cancer and ageing) and bioremediation (towards urban sustainability). His research is closely aligned with industrial needs and solutions, and current industry collaborators include Agilent Technologies, Merck, Illumina, Cimelia Resource Recovery, BD Biosciences, Thermofisher Scientific and Panasonic.

**HEE KAI SHENG**

Laboratory Manager and Safety Lead

Kai Sheng studied bio-medical engineering in Nanyang Technological University (Singapore) and proceeded to work the field of synthetic biology. His research work focuses on the development of biosensors and enhanced production of biochemical in yeast before he shifted to his field of interest - safety and resources management. He believes that the key to precision and consistency is through optimal usage of resources in a clean and safe environment.

In SynCTI, he is involved in the safe usage of genetically modified biological agent such as E.Coli, Saccharomyces spp, Yarrowia, Pseudomonas, Candida, C.Elegans, Clostridium spp., Lactobacillus spp, etc and equipment including bioreactors, cell sorters and mass spectrometer. He is also heavily involved in the management of fund from local and international organizations such as National Research Foundation, National Medical Research Council, A\*STAR, National Environment Agency, Korean Ministry of Trade, Industry and Energy, U.S. Air Force, and U.S. Defense Threat Reduction Agency.

**SALLY TEH**

Management Assistant Officer

Sally is the Administrative Assistant to Associate Professor Matthew Chang, Program Lead at the NUS Synthetic Biology for Clinical and Technological Innovation (SynCTI). She is principally responsible for SynCTI's administrative matters such as scheduling of meetings and organization of workshops and seminars. She also handles finance and human resource matters.

With a long experience working for National University of Singapore, Sally has sharp organizational skills and is highly proficient in administrative management. She is passionate about hospitality and has a keen interest in event organization.

# BIOGRAPHIES



**NARAIN L.D. SMITA**

Senior Executive, IT Support



**MATTHEW CHANG**

Associate Professor, Department of Biochemistry,  
Yong Loo Lin School of Medicine, NUS.

Matthew Chang is Associate Professor in Biochemistry at the National University of Singapore (NUS), and Program Director of NUS Synthetic Biology for Clinical and Technological Innovation (SynCTI). His research interests lie in the development of biological systems that perform programmable functions. His work has received international recognition and is featured in leading media agencies worldwide. He has been honored with the Scientific and Technological Achievement Award from U.S. Environmental Protection Agency. He serves as an editor for *Biotechnology for Biofuels*, *IET Synthetic Biology*, *Applied Biochemistry and Biotechnology*, and *Critical Reviews in Microbiology*, and as an editorial board member for *Biotechnology Journal* and *ACS Synthetic Biology*. He serves on the international advisory panel of the Synthetic Biology Open Language (SBOL), an open standard designed to facilitate the exchange and storage of genetic designs. <http://synCTI.org/>



**POH CHUEH LOO**

Associate Professor - National University of Singapore

My Engineering Biology research group @ NUS focuses on Synthetic Biology to address challenges in different areas including healthcare and environment. We apply engineering principles to design and build microbes with useful capabilities for medical and industrial applications and developing foundational platform tools to accelerate the design and engineering of the microbes. This includes synthetic gene circuits design and automation, modelling of biological systems, and computer aided design tools for SynBio. We have been “reprogramming” microbes to tackle metabolic diseases, to fight infectious causing pathogen and to control biofilm formation. Our motivation is to make engineering of biology more efficient and predictive so that we can scale complexity in order to create novel solutions to tackle global challenges.



# CUTTING-EDGE FORUM IN SYNTHETIC BIOLOGY & SYSTEMS BIOSCIENCE



**WINNER** 2013 Prose Award for  
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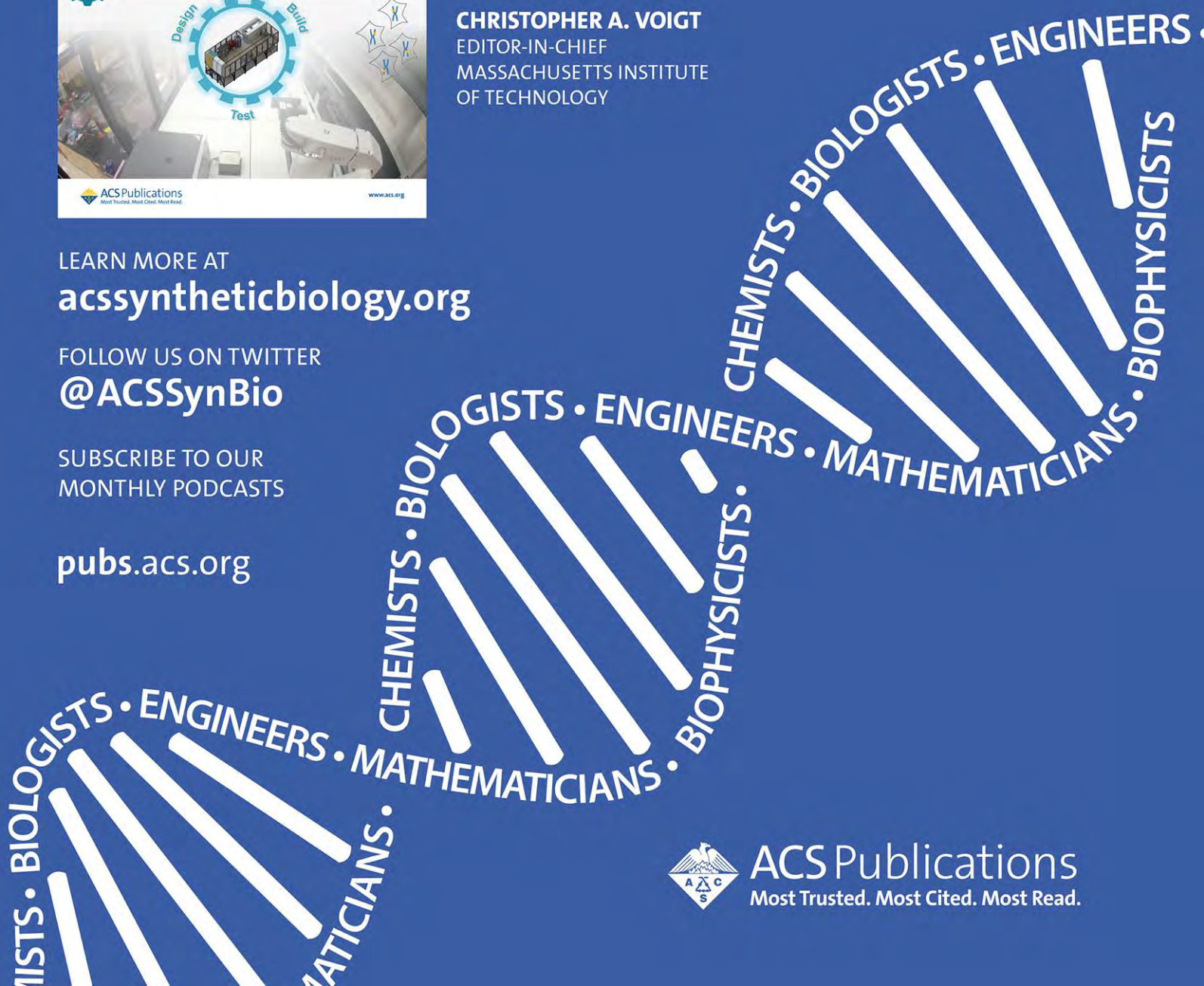
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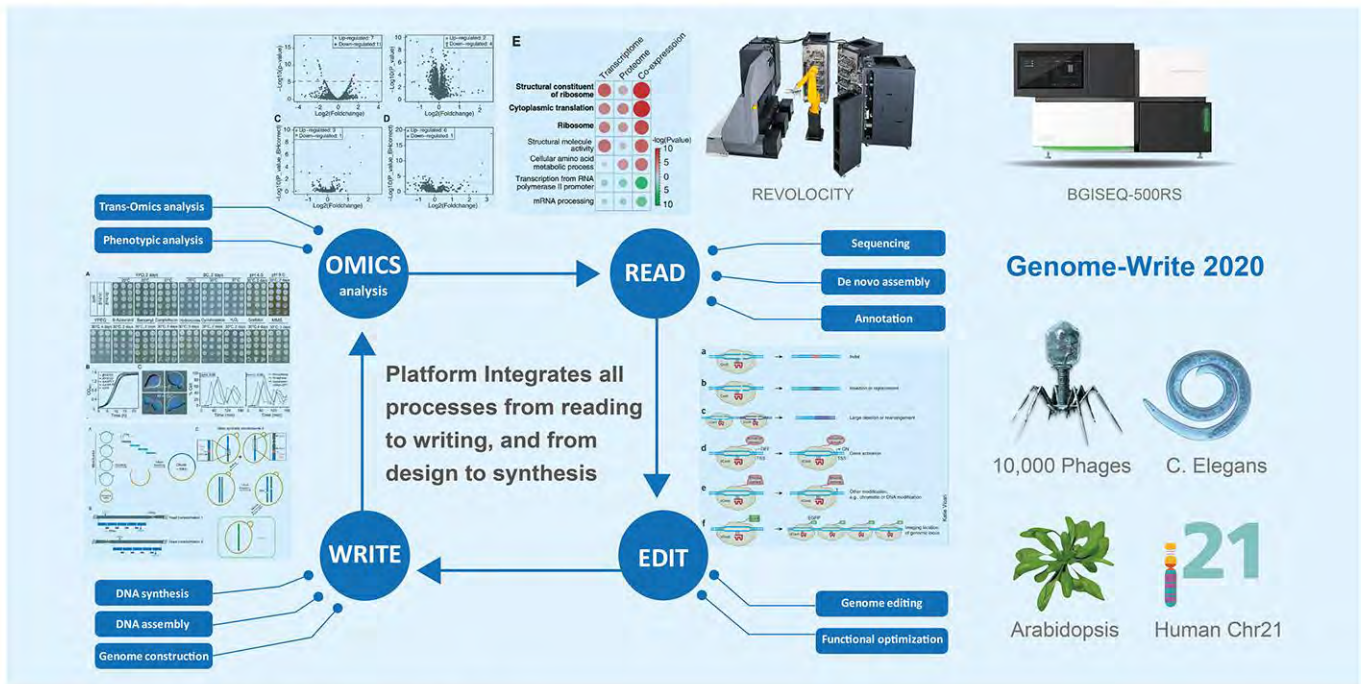


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# SB 7.0

## BIOSECURITY FELLOWSHIP WEEK

In conjunction with the Seventh International Meeting on Synthetic Biology, a group of competitively chosen, highly talented, multidisciplinary fellows will be meeting throughout the week to discuss topics at the intersection of synthetic biology and biosecurity policy and practice.

**The Fellowship:** As the combined trends of understanding evermore about natural organisms, while getting systematically better at engineering them continues, individual and collective strategies for securing overwhelmingly beneficial biological futures must also progress. With global leaders across all synthetic biology joining together for the first time in four years to discuss and debate what should happen next, this is an important opportunity to address potential biosecurity risks from synthetic biology, and strategies to reduce risk that can be achieved through science and policy. Furthermore, engaging early career scientists and policymakers in those discussions will help generate new solutions and extend discussions beyond the scope of SB7.0 alone.

Thirty-three emerging leaders from around the world, who are interested in the nexus of biosecurity and synthetic biology, are attending SB7.0 and participating in fellowship activities throughout the week. The fellows will discuss biosecurity issues and solutions with peers and senior leaders in attendance, and will propose ideas for continued discussion and areas of work when the fellowship concludes.

**Please join us** in welcoming the SB7.0 Biosecurity Fellows (as identified by their name badges) and engage them in discussions about biosecurity issues and remedies for synthetic biology.

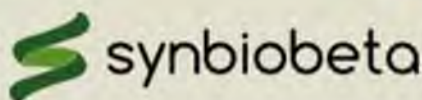
The Biosecurity Fellowship is sponsored by the [Open Philanthropy Project](#), and organized by the Johns Hopkins Center for Health Security in coordination with the BioBricks Foundation, SynBioBeta, & the National University of Singapore.



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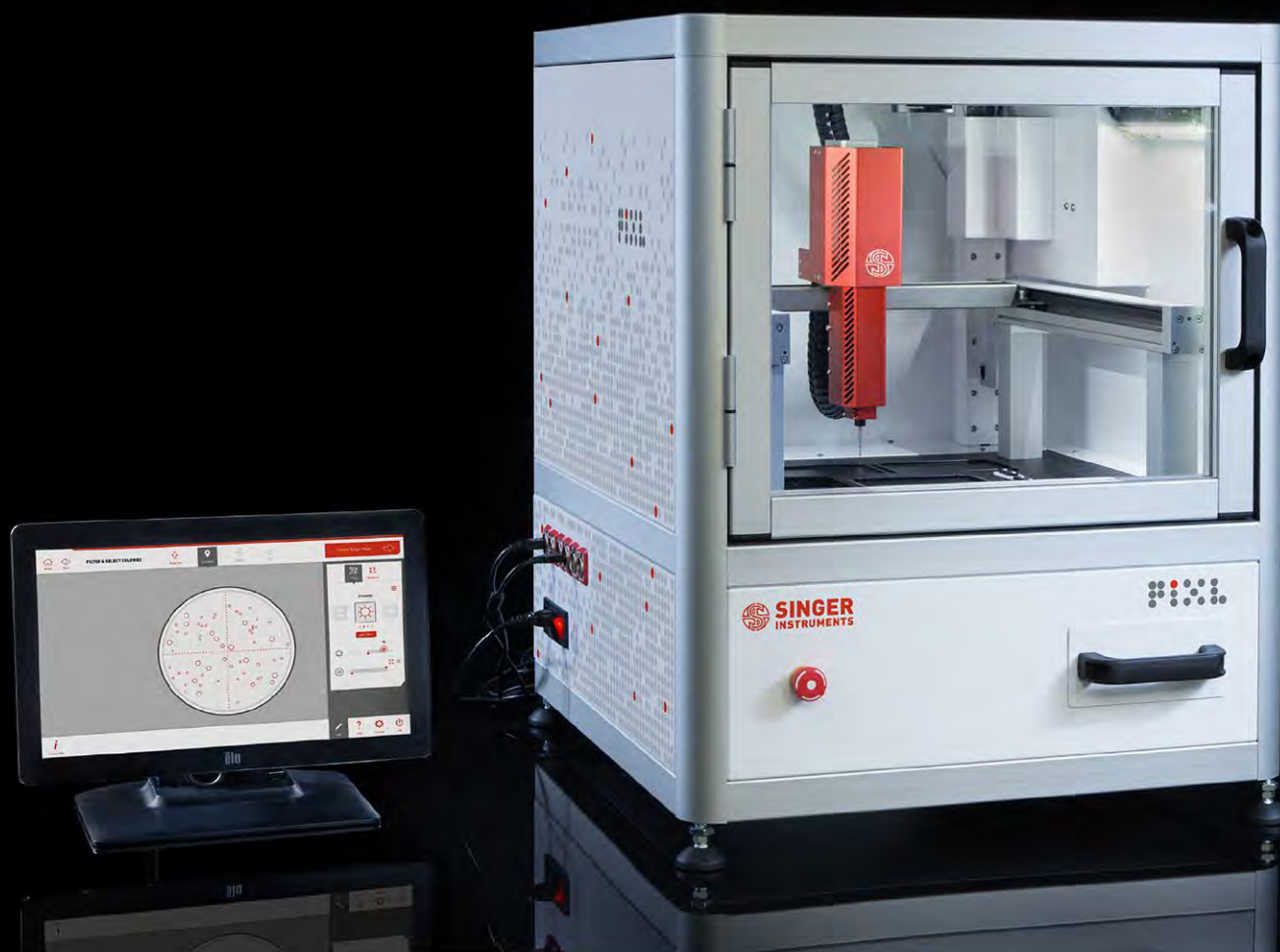
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## SF 2017

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The logo consists of the text "SB 7.0" in a bold, white, sans-serif font, enclosed within a white rectangular border. The background of the entire poster is a dark blue with a complex, layered pattern of white and light blue illustrations. These include various biological forms: a large bird with spread wings in the upper right, two dragonflies in the upper left, a spotted lizard on the left, a spotted cheetah on the right, a monkey in the lower left, and several fish at the bottom. Scattered throughout are smaller icons of bacteria, viruses, and other microscopic organisms. The overall aesthetic is scientific and artistic, representing the intersection of biology and synthetic biology.

# SB 7.0

**THE SEVENTH INTERNATIONAL MEETING  
ON SYNTHETIC BIOLOGY**



## POSTER LIST

SB7.0

Poster Number	Session A/B	First Name	Last Name	Topic Title
001	A	Jung Ho	Ahn	Metabolic engineering of <i>Mannheimia succiniciproducens</i> for enhanced production of succinic acid based on elementary mode analysis with clustering
002	B	Wendy	Smith	Reporter system for metabolic load and stress in <i>Bacillus subtilis</i>
003	A	Lucy	Eland	Microfluidics and optical tweezers for synthetic biology of mixed communities
004	B	Manisha	Wadhwa	Development of a genetic screen for improved isoprenoid biosynthesis in <i>Saccharomyces cerevisiae</i>
005	A	James Alastair	McLaughlin	SynBioHub: A Design Repository for Synthetic Biology
006	B	Eric	Leaman	Optimized Design of Quorum Sensing-based Synthetic Microbial Systems
007	A	Li	Cui	Constructing a novel biosynthetic pathway for synthesis of chiral amine pharmaceutical intermediates by integrating heterologous aminotransferase in <i>Streptomyces hygroscopicus</i>
008	B	Mathias	Foo	Control Strategies for Mitigating the Effect of External Perturbations on Plant Gene Regulatory Networks
009	A	Namjin	Cho	De novo assembly and next-generation sequencing to analyse full-length gene variants from codon-barcode libraries
010	B	James	Payne	Protein and Metabolic Engineering for the Biosynthesis of Plant Natural Product Derivatives
011	A	Guillaume	Cambray	Reprogramming viral host specificity to control insect populations
012	B	Premkumar	Jayaraman	Optogenetic control of gene expression in bacteria
013	A	Frank	Akpoviri	Convention on Biological Diversity: Applicability of the Access and Benefit-Sharing System to Genetic Sequences
014	B	Heribert	Warzecha	Engineering of halogenated indigo precursors in tobacco plants
015	A	Deze	Kong	RNA device engineering through in silico directed evolution
016	B	Jingyun	Zhang	Control biofilm formation for continuous bioproduction using synthetic approach
017	A	Ari	Dwijayanti	Making sense of antisense RNA: Engineering modular antisense RNAs for predictable gene silencing
018	B	Christopher	Reynolds	LifeCast: A platform for experimental protocol design and enforcement
019	A	Chloe	Singleton	Embedding DoE in Undergraduate Student Projects
020	B	John	Allan	RC/GC : Remote Control of Genetic Circuits
021	A	Dominik Tobias	Schmieden	Two structurally distinct types of nacre-inspired, bacterially produced materials
022	B	Ulrike	Obst	A modular toolkit for generating <i>Pichia pastoris</i> secretion libraries
023	A	Tiago	Selao	Photosynthetic D-lactate production in the marine cyanobacterium <i>Synechococcus</i> sp. PCC7002
024	B	Min Seob	Yoo	Interference of DNA Binding Proteins Regulates Elucidation of Essential Genes
025	A	Richard	McLean	Mitigation of Poultry-Borne <i>Campylobacteriosis</i> by an Engineered Enteric Commensal
026	B	Sung Woo	Park	Synthetic decoupling of transcription and translation processes for the quality control of gene expression in <i>Escherichia coli</i>
027	A	Michael	Eichenberger	Plant polyketides beyond resveratrol – what yeast can do.
028	B	Seul Ki	Lee	Engineering of a B-DNA Binding Protein to alter its DNA conformational specificity
029	A	Benjamin	Trump	A Review of Scholarly Literature on Synthetic Biology Scientific Practice, Governance, and Implications
030	A	Faisal	Khan	BioEntrepreneurship: seeding synthetic biology startups in nascent ecosystems through undergraduate education
031	A	David	Glass	A genetically-encoded toolbox of orthogonal adhesins for bacterial self-assembly
032	B	Yang Lee	Chee	Monitoring Guide RNA Synthesis for CRISPR-Cas9 Genome Editing Workflow
033	A	Julia	Bartels	Sporobeads: The Creation and Evaluation of a Vector Suite for Protein Display on the <i>Bacillus subtilis</i> Endospore Crust
034	B	Anli	Geng	Super recombinant xylose-fermenting <i>Saccharomyces cerevisiae</i> : construction, inhibitor resistance improvement and comparative genome analysis
035	A	Irina	Drachuk	Silk Fibroin Microcontainers as Targeted Delivery Reactors
036	B	Ana	Zuniga	Engineering yeast-based biosensors.
037	A	Carmen	Mañas Torres	Synthetic adhesins to target engineered <i>E. coli</i> to human tumors expressing EGFR
038	B	Rahmat	Kemal	Familiarity and Perception of Synthetic Biology among Life Science Students in Institut Teknologi Bandung, Indonesia
039	A	Fabio	Pasin	Multi T-DNA delivery to plants using novel mini binary vectors with compatible replicons
040	B	Nicolas	Krink-Koutsoubelis	Engineered production of short chain acyl-CoAs in <i>S. cerevisiae</i> : toolkit for precursor directed polyketide biosynthesis in yeast



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Poster Number	Session A/B	First Name	Last Name	Topic Title
041	A	Olivier	Borkowski	Prediction of Host-Circuit Interactions Using Cell-Free Protein Synthesis
042	B	Codruta	Ignea	Synthetic Biology as a tool for pathway elucidation. Case study: carnosic acid-related diterpenes
043	A	Eric	Wei	Containers for Engineering Lineage Agnostic Genomes Aimed at Collaborative Development of Modellable Cells
044	B	Justin	Vigar	Non-canonical translation initiation devices for engineering biology
045	A	Harrison	Steel	Design Constraints for Synthetic Biological Controllers
046	B	Alex	Fedorec	Bacteriocins provide better maintenance of unstable plasmids than commonly used toxin-antitoxin systems
047	A	Joana	Rodrigues	Heterologous production of plant natural polyphenolic compounds in <i>Escherichia coli</i>
048	B	Veronica	Delgado	Design, implementation, and characterization of an optogenetic TTFL synthetic system in <i>Saccharomyces cerevisiae</i>
049	A	Lei	Wei	High-throughput Screening of CRISPR/Cas9 Library in Cellular Senescence
050	B	Allen	Liu	Cell-sized mechanosensitive and biosensing compartment programmed with DNA
051	A	Alfonso	Jaramillo	Next-generation RNA circuits in living cells
052	B	Tee-Kheang	Ng	Engineering <i>Yarrowia lipolytica</i> for Food Waste Bioremediation: Fatty Acid Ethyl Ester Production from Vegetable Cooking Oil
053	A	Pham	Hoang Long	Engineering a Riboswitch-based Genetic Platform for the Self-directed Evolution of Acid-tolerant Phenotypes
054	B	Abdul Hadi	Abro	Role of Synthetic Biology in Under-developed countries
055	A	Melina	Mathur	Programming protein function with synthetic RNA splicing devices
056	B	Juhyun	Kim	Attenuation of couplings in co-expressed genes through the dynamic allocation of orthogonal ribosomes
057	A	Dacheng	Ma	Integration and exchange of split dCas9 domains for transcriptional controls in mammalian cells
058	B	Hung En (Terrence)	Lai	Brewing violacein analogue cocktails using the violacein biosynthetic enzymes
059	A	Jing Wui	Yeoh	A kinetic <i>E. coli</i> cellular model for studying bioproduction in bioreactor
060	B	Peter	Voyvodic	Incorporating Metabolic Enzymatic Networks into a Cell-Free TX-TL System for Rapid Expansion of Small Molecule Biosensor Design
061	A	Kyeong Rok	Choi	Engineering 5' untranslated region of mRNA in <i>Clostridium acetobutylicum</i> for stable and enhanced gene expression
062	B	Harry	Singer	Design Build Test Learn: An Engineering Story and the Birth of a New Tool
063	A	William	Shaw	A platform for developing G protein-coupled receptor-based systems in <i>Saccharomyces cerevisiae</i>
064	B	Paul	Grant	Engineering intercellular interactions for synthetic development
065	A	Danielle	Pedrolli	Targeting bacterial riboswitches with small regulatory RNAs
066	B	Kourosh	Salehi-Ashtiani	Intracellular spectral repositioning of light: A design-based approach to increase photosynthetic efficiency in diatoms
067	A	Yong Hee	Han	Synthetic redesign of methanotrophic bacterium for the production of isoprenoids from methane
068	B	Thomas	Decoene	Towards predictable 5'-UTRs in <i>Saccharomyces cerevisiae</i>
069	B	Nils	Averesch	Analysis of tropane-alkaloid biosynthesis in <i>Duboisia</i> spp. and metabolic modelling for heterologous scopolamine production
070	B	Daniel	Schindler	Sc2.0: tRNA Neochromosome - Design, Construction and Characterization
071	A	Simon	Vecchioni	BioWires: Conductive DNA nanowires in a computationally-optimized, synthetic biological platform for future nanoelectronic applications
072	B	Zhuojun	Dai	Engineered microbial swarms for miniaturized protein production
073	A	Lee Ling	Tan	"Lego"-izing lactic acid bacterial's surface display
074	B	Yan Ping	Lim	DEVELOPING ANTI-AGING THERAPEUTICS VIA SYNTHETIC ALKALOID ENZYMOLOGY
075	A	Rupali Reddy	Pasula	Light Activatable Ferritin Cargo for Photodynamic Therapy
076	B	Anthony	Borneman	Constructing a synthetic <i>Saccharomyces cerevisiae</i> pan-genome neo-chromosome
077	A	Felicity	Keiper	The International Debate on Regulatory Oversight of Synthetic Biology - An Industry Perspective
078	B	Parastoo	Khoshakhlagh	Utilizing Transcription Factor Engineering for Rapid Generation of Functional Oligodendrocytes for Clinical Applications
079	A	Qianqian	Zhuang	Engineering the pathway in <i>Escherichia coli</i> for the synthesis of medium-chain-length polyhydroxyalkanoates consisting of both even- and odd-numbered monomers
080	B	Hung-Ju	Chang	Synthetic receptors with programmable specificity
081	A	Pablo Ivan	Nikel	SynBio-Guided Metabolic Taming of Environmental Bacteria
082	B	Andrew	Waters	Genome and transcriptome editing using in vivo components of the CRISPR/Cas9 system in <i>Drosophila</i>



## POSTER LIST

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Poster Number	Session A/B	First Name	Last Name	Topic Title
083	A	Kamran	Jawed	Synergistic effect of fatty acid synthesis and $\beta$ -oxidation pathway on production of short chain fatty acid in <i>E. coli</i>
084	B	Andreas	Andreou	Mobius Assembly, a new framework for multi-level Golden Gate DNA assembly
085	A	Hans-Joachim	Wieden	Portable intrinsic terminator libraries for genetic engineering in bacteria
086	B	Belén	Calles	An all-or-none regulatory system for Gram-negative bacteria
087	A	Brandiff	Caron	Integrating public values with graduate education in synthetic biology
088	B	Chun Loong	Ho	Therapeutic commensal microbes engineered to target colorectal cancer
089	A	Yan	Feng	Tailored Biosynthesis of Plant-derived Ginsenoside Rh2 in Yeast via Repurposing a Key Promiscuous Microbial Enzyme
090	B	Yoseb	Song	Integrative analysis reveals the regulation of autotrophic growth of syngas fermenting bacteria at the translational level
091	A	Kenneth	Walker	Engineering the nano- and macroscale characteristics of bacterial cellulose produced by <i>Komagataeibacter rhaeticus</i> iGEM
092	B	Vijaykumar	Karuppiyah	Structures and mechanisms of terpene synthases
093	A	Kealan	Exley	Design, construction and modification of synthetic gene networks
094	B	Tomohisa	Hasunuma	Cell surface engineering of <i>Saccharomyces cerevisiae</i> for biomass breakdown
095	A	David	Mercer	Governance and 'iDentity' in Synthetic Biology: iGem and the imaginary of the new synthetic biology scientist.
096	B	Massimo	Bellato	Rational engineering of protein- and CRISPRi-mediated regulation devices to design predictable interconnected circuits with reduced cell load
097	A	Henry	Lee	Establishing genetic tools for <i>Vibrio natriegens</i> , the fastest free-living bacteria known
098	B	Rashmi	Rajasabhai	Synthetic Enzymology and Its Applications in Bioremediation
099	A	Thomas	Williams	Biosensor noise-control for high-throughput metabolic engineering
100	B	Almando	Geraldi	Synthetic mRNA designs for the Enhancement of the Chaperone-mediated Solubilization of Recombinant Proteins in <i>Escherichia coli</i>
101	A	Glen	Gowers	A pipeline for generation and characterisation of SCRaMbLEd synthetic yeast for industrial applications
102	B	Dominik	Mojzita	Universal expression system for eukaryotic organisms
103	A	Wataru	Nomura	Controllable genome editing by chemically inducible sequence-specific nucleases
104	B	Jorge	Maciel	Paper-based Detection using Synthetic Gene Circuits
105	A	Sung Won	Cho	Tunable control of gene expression in <i>Escherichia coli</i> by CRISPRi with synthetic sgRNAs
106	B	Faisal	Khan	Detection of CO and NOx levels in vehicle emissions using new composite BioBricks devices
107	A	Prashant	Vaidyanathan	Genetic Systems Engineering
108	B	Yusuke	Kato	Tight control of target gene expression using site-specific incorporation of unnatural amino acids with positive-feedback gene circuits
109	A	Rocio	Ochoa-Fernandez	Development of Optogenetic Tools for Plant Synthetic Biology
110	B	Yong-Su	Jin	Towards understanding and engineering the probiotic activities of <i>Saccharomyces boulardii</i>
111	A	Brecht	De Paepe	Tailor-made transcriptional biosensors for optimizing microbial cell factories
112	B	Rizki	Mardian	Genetic Designs System that Learns from Data
113	A	Ravi	Ramanathan	Automatic Bio-Protocolization for automation and robotics in bio labs
114	B	Maciej	Holowko	Biosensing <i>Vibrio cholerae</i> with genetically modified <i>Escherichia coli</i>
115	A	Hannah	Chung	One-step fermentative production of poly(lactate-co-glycolate) by metabolically engineered <i>Escherichia coli</i>
116	B	Du-Kyeong	Kang	An Efficient Genome-Wide Fusion Partner Screening System for Secretion of Recombinant Proteins in Yeast
117	A	Hongwu	Ma	Model guided design of metabolic pathways for the production of biochemicals
118	B	Fong Tian	Wong	CRISPR-Cas9 strategy for activation of silent <i>Streptomyces</i> biosynthetic gene clusters
119	A	Suvi	Santala	Towards Efficient Conversion of Lignin to Products – Molecular Toolset for Cell Factory Optimization
120	B	Janina	Hossbach	Serine integrases and recombination directionality factors as tools for synthetic biology
121	A	Nathaniel	Gaut	Step-wise Assembly of Complex Genetic Circuits in Synthetic Minimal Cells
122	B	Byungjin	Hwang	Toward a new paradigm of DNA writing using a massively parallel sequencing platform and degenerate oligonucleotide
123	A	Nico	Snoeck	Serine integrases as a toolbox for genome editing.



## POSTER LIST

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Poster Number	Session A/B	First Name	Last Name	Topic Title
124	B	Thomas	Gorochowski	Quantification of the internal workings of a genetic circuit
125	A	Medha	Sharma	Identification and Functional Characterization of Rice Straw Hydrolysing Enzyme(s) From Gut Microbial Community of Rice Stem Borer
126	B	Jae Sung	Cho	Metabolic engineering of <i>Corynebacterium glutamicum</i> for the overproduction of 5-aminovaleric acid
127	A	Keith	Shearwin	Programmable DNA looping using engineered bivalent dCas9 complexes
128	B	Giovanni	Stracquadanio	Design of a synthetic yeast genome
129	B	Jung Ho	Ahn	Highly selective production of succinic acid using <i>Mannheimia succiniciproducens</i> and its efficient purification
130	B	Benjamin	Au-Yeung	Engineering Probiotics to tackle the trend of deteriorating metabolic state
131	A	Sarah	Guizoui	A formal logic framework to program living cells.
132	B	Han Teng	Wong	Exploring the role of SipD in <i>Salmonella typhimurium</i> Type III Secretion
133	A	Benjamin	Kotopka	Model-Driven Design of Artificial Yeast Promoter Sequences
134	B	Siseon	Lee	Construction of a novel protein secretion system in <i>Pseudomonas putida</i>
135	A	Anton	Jackson-Smith	Synthetic genome-scale regulation
136	B	Kyeong Rok	Choi	Synthetic Small Regulatory RNA System for Efficient Gene Knockdown in <i>Clostridium acetobutylicum</i>
137	A	Ariel	Cerda Rojas	Engineering artificial genetic circuits in plants for processing of tissue and context specific phytohormones interplay
138	B	Shotaro	Ayukawa	Repeats of diversification on Waddington landscape realized with synthetic gene circuit
139	A	Lena	Hochrein	L-SCRaMbLE: a Tool for Light-controlled Cre-mediated Recombination in Yeast
140	B	Dongsoo	Yang	Production of $\beta$ -alanine (3-Aminopropionic acid) in metabolically engineered <i>Escherichia coli</i>
141	A	Gos	Micklem	A sequence diversity generator for synthetic biology
142	B	Juan	Byun	Enzymatic Cyclization and Preparation of Ribosomally Synthesized Fungal Peptide Toxin Precursor
143	A	Mika	Tei	A quorum sensing-based lateral inhibition system to generate contrasting patterns
144	B	Tanel	Ozdemir	Engineered <i>E. coli</i> Nissle Biosensors Capable of Detecting Dysbiotic Changes in the Intestinal Microbiota
145	A	Jee Loon	Foo	Engineering of an alcohol-forming enzyme for aldehyde production and towards biosynthesis of alkanes in <i>Saccharomyces cerevisiae</i>
146	B	Rolando	Perez	Engineering With Filamentous Fungi For Biomaterials Production
147	A	Daniela	Pinto	Extracytoplasmic function sigma factors as orthogonal switches in <i>Bacillus subtilis</i>
148	B	Lifang	Zhang	Hyaluronic acid biosynthesis in metabolic engineered cyanobacteria
149	A	Zia	Fatma	Microbial production and improvement of long-chain hydrocarbon by model assisted metabolic engineering and identification of specific aldehyde reductase Zia
150	B	Alazne	Dominguez	SynBio/Inverse Pharmacology: The use of small molecules for the regulation of CRISPR systems.
151	A	Ingmar	Riedel-Kruse	Interactive Biotechnology: Cloud Labs, Cell Swarm Programming, and Biotic Games
152	B	Satya	Prakash	De novo engineering of RNA circuits in <i>E. coli</i> and directed evolution of novel biomolecules with Phage
153	A	Maybelle	Go	Synthetic Polyketide Enzymology: Platform for Biosynthesis of Antimicrobial Polyketides
154	B	Shuyi	Zhang	CRISPR/Cas Genetic Circuit Design
155	A	Ning	Mao	Cholera treatment and diagnosis with natural and engineered lactic acid bacteria
156	B	Benjamin	Blount	Using synthetic yeast as a powerful tool for heterologous pathway optimisation
157	A	Takuya	Matsumoto	Metabolic channeling in <i>Escherichia coli</i> with sortase A as an enzyme stapler
158	B	Max	Mundt	Noise control in signaling pathways
159	A	Valeria	Verrone	Genome engineering of bacterial communities.
160	B	Elise	Cachat	Engineering multicellular organisation in mammalian cells
161	A	Atri	Choksi	A Compiler for Growing Biological Patterns
162	B	Ilya	Vainberg Slutskin	Unraveling the determinants of microRNA mediated regulation using a massively parallel reporter assay
163	A	Wonjae	Seong	High-throughput genetic enzyme screening system with rapid identification
164	B	Jimin	Kim	Synthetic redesign of <i>Escherichia coli</i> for the production of 3-hydroxypropionic acid from sucrose
165	A	Ramit	Kumar	RNA thermometer optimised for <i>Bacillus subtilis</i> and converting the translational regulatory property of the RNA thermometer into transcriptonal regulation in <i>Escherichia coli</i>
166	B	Nikolaos	Pantidos	Understanding and exploiting biological metal-nanoparticle synthesis for metal recovery



## POSTER LIST

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Poster Number	Session A/B	First Name	Last Name	Topic Title
167	A	Anne	Loechner	Robust Population Control in Synthetic Communities
168	B	Giulio	Barth	Emergence and Impact of Synthetic Biology and Open Collaboration
169	A	Sierin	Lim	Genetic Tools for Engineering <i>Gluconacetobacter</i> sp.
170	B	Muhammad	Ismail	Detection of CO and NOx levels in vehicle emissions using new composite BioBricks devices
171	A	Anwar	Sunna	Cell-free biocatalytic modules for biotransformation of organic waste
172	B	Beatriz	Alvarez	Injection of nanobodies into tumor cells using a Synthetic Injector <i>E. coli</i> (SIEC) strain
173	A	Ben	Weinberg	Large-scale design of robust genetic circuits with multiple inputs and outputs for mammalian cells
174	A	Jae Sung	Cho	Systems Metabolic Engineering of <i>Corynebacterium glutamicum</i> for large-scale production of L-Arginine
175	A	Alex	Apffel	Automated System for High Throughput Targeted Metabolomics Analysis
176	B	Abel	Chiao	Cell-Free Systems for High-Throughput Data Collection
177	A	Angel	Goni-Moreno	Engineering gene circuits in both space and time
178	B	Cindy Pricilia Surya	Prabowo	Production of L-Ornithine by Metabolically Engineered <i>Corynebacterium glutamicum</i>
179	A	Eric	Thorand	$\psi$ -Trap: microfluidic platform for long-term phenotyping of single plant cells
180	A	Nils	Averesch	Biological production of novel aramids for space and earth applications
181	A	Yamal	Al-ramahi	Towards an artificial immune system based on bacterial parts
182	B	Daniel	Hurtgen	Towards Biomimetic Cell Division: Mimikry of Fundamental Life Processes
183	A	Hsiao-Chun	Huang	A mid-cell antagonizing signal to promote synthetic functional asymmetry in <i>E. coli</i>
184	B	Joy	Xiang	Advancing RNA device engineering with data-rich strategies and automation
185	A	Yan Shan	Ang	DNA Circuit As a Synthetic Regulator to Speed Up Diagnostics in Cell-Free Expression System
186	B	Eric	van der Helm	Profiling bacterial kinase activity using a genetic circuit
187	A	Baudoin	Delépine	RetroSMARTS: a versatile reaction network prediction tool for biological engineers
188	B	Oliver	Mueller-Cajar	The importance of correct Rubisco activase selection in the synthetic biology of CO <sub>2</sub> fixation
189	A	Daisuke	Kiga	Simplified genetic code for creation of proteins without a set of amino acid species
190	B	Matthew	Haines	A decoupled and automatable in vitro selection for ribozyme engineering
191	A	Meng How	Tan	Development and evaluation of CRISPR-Cas technologies for synthetic biology applications
192	B	Lorenzo	Pasotti	Efficient conversion of industrial bio-waste into biofuels and bioproducts through <i>E. coli</i> and <i>B. subtilis</i> synthetic biology
193	A	Dongsoo	Yang	Development of synthetic small regulatory RNAs for metabolic engineering in <i>Escherichia coli</i>
194	B	Michael	Fero	Automating Synthetic Biology with Machine Learning
195	A	Manish	Kushwaha	Development of a genetically-encoded in vivo computing platform to play the game of Tic-Tac-Toe
196	B	Vitor	Martins dos Santos	Lifestyle Engineering: Streamlining and Reprogramming Bacterial Catalysts for the Production of Bulk and Fine Chemicals
197	A	Anne	Vogel	Streamlining recombination-mediated genetic engineering by validating three neutral integration sites in <i>Synechococcus</i> sp. PCC 7002
198	B	Cindy Pricilia Surya	Prabowo	<i>Escherichia coli</i> and <i>Corynebacterium glutamicum</i> Metabolic Engineering for 1,5-diaminopentane
199	A	Martina	Carrillo	In vivo implementation of a synthetic cycle for the fixation of carbon dioxide
200	B	Matthieu	Bultelle	An Update on SynBIS – the Synthetic Biology Information System
201	A	Emmanuel	Iwuoha	Phenotype-based $\beta$ -canceranosens for sensing and signalling tamoxifen biotransformation
202	B	Oliver	Schauer	Fabrication of bacteria-propelled microparticles: From attaching <i>E. coli</i> to biotic and abiotic surfaces to the chemotactic behavior of microswimmers.
203	A	Tat-Ming	Lo	Modular genetic sensor controllers for autonomous regulation of metabolic growth and production
204	B	Stamatios	Damalas	The MetaBrick platform for DNA manipulation and standardization. Bridging Synthetic Biology standards for optimal efficiency and versatility.
205	A	Joan	Marcano	Design and characterization of biological "parts" for thermophilic anaerobic bacteria
206	B	James	Gilman	Quantitative sequence-activity models for the design of synthetic promoters
207	A	Laurence	Orr	Development of synthetic quorum communication systems in Gram-positive bacteria
208	B	Shuhei	Noda	Metabolic engineering of <i>Escherichia coli</i> for maleate production via chorismate pathway
209	A	Feiran	Li	Building high quality metabolic models for reliable pathway design
210	B	Tsutomu	Tanaka	Metabolic engineering of <i>S. pombe</i> via CRISPR-Cas9 genome editing for lactic acid production from glucose and cellobiose



## POSTER LIST

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Poster Number	Session A/B	First Name	Last Name	Topic Title
211	A	Ariel	Hecht	Measurements of translation initiation from all 64 codons in <i>E. coli</i>
212	B	Lu Ting	Liow	Development of a genetic toolkit in <i>Chromobacterium violaceum</i>
213	A	Xiaofan	Jin	Optically patterned biofilms for synthetic microbial consortia
214	B	Cíntia	Coelho	Integrases target elements for DNA inversion resulting gene regulation in plant protoplasts
215	A	Ryosuke	Fujiwara	Muconic Acid Biosynthesis Using Metabolic Designed <i>Escherichia coli</i> .
216	B	Fernanda	Ely	Engineering synthetic modular protein switches
217	A	Sahal Sabillil	Muttaqin	Utilization of Synthetic Biology as Indonesias Industrial revival effort: Metabolic Engineering of carotenoids Pathways in <i>Arthrospira maxima</i>
218	B	Shuke	Wu	Synthetic Biology for Asymmetric Synthesis: Highly Selective Functionalizations of Alkenes by Modular Cascade Biocatalysis
219	A	Micaela	Chacon	Engineering <i>Escherichia coli</i> for the production of geranyl acetate as a strategy for improved geraniol recovery
220	B	Erika	Szymanski	Yeast as users and user-centered design in <i>Saccharomyces cerevisiae</i> 2.0

