



agenda

	October 10	October 11				October 12						
	Opening Day	Session A	Session B	Session C	Session D	Session A	Session B	Session C	Session D			
8:30	Welcome	Foundations and Frontiers	Building, Designing, and Learning from Genomes	Interface with Chemical Systems	Standardization of Parts I - Descriptions and Sharing	Industrial Biotechnology	Legal Schemes and Rights	Global Education and Outreach	Introduction to ASIC CAD Flow			
9:00	iGEM 2007 Redux											
9:30												
10:00	Tea Break	Tea Break				Tea Break						
10:30	Synthetic Constructions	Molecular Parts Design	Cellular Manufacturing	Biosecurity	Standardization of Parts II - Measurements	Medical Applications	Computer Aided Design	Engineering Principles for Parts and Devices	Emergence of Professional Organizations			
11:00												
11:30												
12:00	Lunch	Lunch / Commercialization of Genetic Parts (Session D)				Lunch / In Vitro Synthetic Biology: Molecular Programming (Session D)						
2:00	Synthetic Biology Programs & Applications	Biomass to Liquid Fuels	Genetic Circuit Design	Global Social Impact	Synthetic Biology and the Pharmaceutical Industry	Agriculture and Plant Genetic Engineering	Microfluidics and Biomicrosystems	Standards and Technical Workshop	Genome Engineering Futures and the Role of the Synthetic Biologist			
2:30												
3:00												
3:30	Tea Break Poster Session I	Tea Break / Poster Session II				Tea Break						
4:00						Harnessing and Evolving Microbes				Selected Student Presentations II	Investment in Synthetic Biology	Towards a Consensus Paper Guiding the Development of Synthetic Biology
4:30		Synthetic Biology and Infectious Disease	Selected Presentations I	Mathematical Modeling	Synthetic Plant Biology							
5:00	Synthetic Biology: A Political & Economic Framework					Announcement of Poster Awards						
5:30												
6:00	Open Reception	Conference Banquet (7:30pm)				Closing Remarks						

Opening Day – Citigroup Lecture Theater (LTA)

Session A – Citigroup Lecture Theater (LTA)

Session B – Lam Woo Lecture Theater (LTB)

Session C – Cheung On Tak Lecture Theater (LTE)

Session D – Chow Tak Sin Lecture Theater (LTG)

friday, october 10

Citigroup Lecture Theater (LTA, E, F)

Welcome

8:30 – 9:00am	BioBricks Foundation SB4.0 Organizers (Drew Endy, Chris Voigt, Pam Silver, Lauren Ha)		
	I-Ming Hsing	Hong Kong University of Science and Technology	
	Roland Chin	Vice President for Academic Affairs, Hong Kong University of Science and Technology	
	John S. Wadsworth, Jr.	Morgan Stanley	
	Regis Kelly	Institute for Quantitative Biosciences (QB3)	

iGEM 2007 Redux

(Chair: Wendall Lim, UCSF)

9:00 – 9:30am	Peking University iGEM team	<i>Xili Liu and Chunbo Lou</i>	A Push-ON Push-OFF Genetic Circuit	(sponsored by Ceyuan Ventures)
9:30 – 10:00am	UCSF iGEM team	<i>Alex Ng</i>	A Synthetic Yeast Organelle	(sponsored by GeneArt)

10:00 – 10:30am Tea Break (Outside LTA)

Synthetic Constructions

(Chair: Hamilton Smith, Nobel Laureate, J. Craig Venter Institute)

10:30 – 11:00am	Clyde Hutchison	J. Craig Venter Institute	Genome Construction
11:00 – 11:30am	Daphne Preuss	University of Chicago	Synthetic Plant Chromosomes
11:30 – 12:00pm	Kristala Prather	MIT	Rational Design of Microbial Chemical Factories

12:00 – 2:00pm Lunch (LG7 Canteen)

Synthetic Biology Programs & Applications

(Chair: Pamela Silver, Harvard University)

2:00 – 2:30pm	Ron Weiss	Princeton University	The iGEM Undergraduate Competition
2:30 – 3:00pm	Jian Xu	Qingdao Institute	Biofuels in China
3:00 – 3:30pm	Jay Keasling	UC Berkeley, LBNL	Fuel and Drug Production

3:30 – 5:15pm Tea Break / Poster Session I (Outside LTA/Area K)

Synthetic Biology: A Political and Economic Framework

(Chairs: Regis Kelly, QB3 / I-Ming Hsing, HKUST)

5:15 – 5:30pm	John Tsang	Financial Secretary, Government of Hong Kong SAR China
5:30 – 5:45pm	David Grewal	Harvard University
5:45 – 6:00pm	John S. Wadsworth, Jr.	Morgan Stanley

6:00pm Open Reception (Courtyard outside LTA)

saturday, october II



SESSION A – Citigroup Lecture Theater (LTA)

Foundations and Frontiers (Chair: Hamilton Smith, J. Craig Venter Institute)

8:30 – 9:00am	Waclaw Syzbalski	University of Wisconsin	Special Lecture: History of Synthetic Biology
9:00 – 9:30am	Drew Endy	Stanford University	Building a BioFAB
9:30 – 10:00am	King Chow	HKUST	The Capture of Randomness: the Making of a Biological Slot Machine
10:00 – 10:30am	Tea Break (Outside LTA, B, E)		

Molecular Parts Design (Chair: Luhua Lai, Peking University)

10:30 – 11:00am	Luhua Lai	Peking University	Computational Design of Protein Structure and Function
11:00 – 11:30am	Tanja Kortemme	UCSF	Computational Design of Signaling Partners
11:30 – 12:00pm	Christina Smolke	Caltech	Programming RNA: Information Processing and Control Devices
12:00 – 2:00pm	Lunch (LG7 Canteen)		

Biomass to Liquid Fuels (Chair: Karl Handelsman, CMEA Ventures)

2:00 – 2:30pm	James Liao	UCLA	Synthesis of Branched-Chain Higher Alcohols as Biofuels
2:30 – 3:00pm	Christopher Voigt	UCSF	Bio-MeX: A Novel Route from Biomass to Gasoline
3:00 – 3:30pm	Xiaoxia (Nina) Lin	University of Michigan	Towards Efficient Production of Next-Generation Cellulosic Biofuels
3:30 – 4:30pm	Tea Break / Poster Session II (Outside LTA, B, E / Area K)		

Synthetic Biology and Infectious Disease (Chair: Wendell Lim, UCSF)

4:30 – 5:00pm	Eckard Wimmer	Stony Brook University	DNA Synthesis and Polio Vaccine
5:00 – 5:30pm	Ralph Baric	University of North Carolina	Synthetic Genomics of SARS
5:30 – 6:00pm	Malik Peiris	University of Hong Kong	Confronting Avian Flu: The Role of Synthetic Biology
7:30pm	Conference Banquet (Hong Kong International Trade & Exhibition Centre)		

saturday, october II



SESSION B – Lam Woo Lecture Theater (LTB)

Building, Designing, and Learning from Genomes (Chair: Ron Weiss, Princeton University)

8:30 – 9:00am	Mitsuhiro Itaya	Keio University	Building Genomes in the Bacillus subtilis Genome Vector
9:00 – 9:30am	Jeffrey Wong	HKUST	Synthetic Genetic Codes
9:30 – 10:00am	Mukund Thattai	NCBS, India	Bacterial Polyketide Synthases: Standards, Modularity, and Abstraction in a Rapidly Evolving Natural System
10:00 – 10:30am	Tea Break (Outside LTA, B, E)		

Cellular Manufacturing (Chair: Christopher Voigt, UCSF)

10:30 – 11:00am	Sang Yup Lee	KAIST, Korea	Systems Metabolic Engineering of Microorganisms: Towards Genome-Scale Synthetic Biology
11:00 – 11:30am	Merja Penttilä	VTT, Finland	Industrial Optimization of Yeast
11:30 – 12:00pm	Wan-Keung Wong	HKUST	Cosmetic Production in Escherichia coli
12:00 – 2:00pm	Lunch (LG7 Canteen)		

Genetic Circuit Design (Chair: Christina Smolke, Caltech)

2:00 – 2:30pm	Tetsuya Yomo	Osaka University	Adaptive Response of Genetic Switch: Fitness-Induced Attractor Selection
2:30 – 3:00pm	Ying-jin Yuan	Tianjin University	Programmed Bacterial Symbiosis
3:00 – 3:30pm	Pamela Silver	Harvard University	Can We Build Biological Systems in Mammalian Cells with Predictable Properties?
3:30 – 4:30pm	Tea Break / Poster Session II (Outside LTA, B, E / Area K)		

Selected Presentations I (Chair: Pamela Silver, Harvard University)

4:30 – 4:50pm	Julius Lucks	UC Berkeley	Engineering an Antisense-RNA-Mediated Transcription Control System
4:50 – 5:10pm	Ju Young Lee	KAIST, Korea	Engineering Transcription Circuits to Elicit New Phenotypes in Escherichia coli
5:10 – 5:30pm	Priscilla Purnick	Princeton University	A Synthetic Multistep Autoregulated Differentiation Pathway from Embryonic Stem Cells to Insulin-Producing Beta-like Cells
5:30 – 5:50pm	Igor F. YfZ	HKUST	Engineering a Synthetic Genetic Circuit for the Production of a Synthetic Protein

7:30pm Conference Banquet (Hong Kong International Trade & Exhibition Centre)

saturday, october 11

SESSION C – Cheung On Tak Lecture Theater (LTE)

Interface with Chemical Systems (Chair: Hiroki Ueda, RIKEN)

8:30 – 9:00am	Caroline Ajo-Franklin	LBNL
9:00 – 9:30am	Pier Luigi Luisi	University of Roma Tre
9:30 – 10:00am	Erik Winfree	Caltech

Engineering Living Systems for Nanotechnology
Chemical Synthetic Biology
Exploring Evolution with DNA Tile-Based Crystals

10:00 – 10:30am Tea Break (Outside LTA, B, E)

Biosecurity (Chair: Drew Endy, Stanford University)

10:30 – 12:00pm	Peer Stähler	IASB
	Piers Millet	United Nations, Geneva
	Ben Petro	U.S. Dept. of Homeland Security
	Edward Hammond	The Sunshine Project

Why Think About Biological Security?

12:00 – 2:00pm Lunch (LG7 Canteen)

Global Social Impact (Chair: Pat Mooney, The ETC Group)

2:00 – 3:30pm	Jim Thomas	The ETC Group
	Elenita Dano	Third World Network
	Camila Moreno	Terra de Deitros
	Jennifer Corpuz	Tebtebba Foundation

3:30 – 4:30pm Tea Break / Poster Session II (Outside LTA, B, E / Area K)

Mathematical Modeling (Chair: Vitor Martins dos Santos, Helmholtz Institute)

4:30 – 5:00pm	Phillip Wright	University of Sheffield
5:00 – 5:30pm	Carolyn Lam	Helmholtz Centre for Infection Research
5:30 – 6:00pm	Alfonso Jaramillo	Ecole Polytechnique

Omics and Synthetic Biology
Formal Design Tools for Synthetic Biology
Genetic Circuits by Automated Design

7:30pm Conference Banquet (Hong Kong International Trade & Exhibition Centre)

saturday, october 11



SESSION D – Chow Tak Sin Lecture Theater (LTG)

Roundtables: Open Discussion.

Standardization of Parts I – Descriptions and Sharing

8:30 – 10:00am	Jason Morrison T^ Knight	Rochester Institute of Technology MIT
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10:00 – 10:30am	Tea Break (Outside LTA, B, E)	
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Standardization of Parts II – Measurements

10:30 – 12:00pm	Ingrid Swanson	University of Washington
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Commercialization of Genetic Parts (Lunch Session)

12:00 – 2:00pm	Robert Carlson	Biodesic
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Synthetic Biology and the Pharmaceutical Industry

2:00 – 3:30pm	Jeff Way	Merck Serano
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3:30 – 4:30pm	Tea Break / Poster Session II (Outside LTA, B, E / Area K)	
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Synthetic Plant Biology

4:30 – 6:00pm	Michael Deyholos	University of Alberta
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7:30pm	Conference Banquet (Hong Kong International Trade & Exhibition Centre)	
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sunday, october 12

SESSION A – Citigroup Lecture Theater (LTA)

Industrial Biotechnology (Chair: Ralf Wagner, GeneArt)

8:30 – 9:00am	George Guo-Qiang Chen	Tsinghua University	Application of Synthetic Biology in Industrial Biotechnology
9:00 – 9:30am	Qingsheng Qi	Shandong University	Exploiting the Novel Potential of Escherichia coli, an Industrialized Microorganism
9:30 – 10:00am	Kristy Hawkins	Caltech	Metabolic Engineering of Saccharomyces cerevisiae for the Production of Benzyloquinoline Alkaloids
10:00 – 10:30am	Tea Break (Outside LTA, B, E)		

Medical Applications (Chair: Ying Chau, HKUST)

10:30 – 11:00am	Wendell Lim	UCSF	Nanomedicine
11:00 – 11:30am	Dean Hamer	U.S. NIH	Live Bacteria HIV Therapy
11:30 – 12:00pm	Ralf Wagner	GeneArt, Germany	Programming HIV Vaccines
12:00 – 2:00pm	Lunch (LG7 Canteen)		

Agriculture and Plant Genetic Engineering (Chair: Jim Haseloff, University of Cambridge)

2:00 – 2:30pm	Jim Haseloff	University of Cambridge	Synthetic Biology of Plants
2:30 – 3:00pm	Sai-Ming Sun	Chinese University of Hong Kong	Rice Engineering
3:00 – 3:30pm	June Medford	Colorado State University	Engineered Plants as Chemical Sentinels
3:30 – 4:00pm	Tea Break (Outside LTA, B, E)		

Harnessing and Evolving Microbes (Chair: Evgueny Kroll, University of Montana)

4:00 – 4:30pm	George Church	Harvard University	
4:30 – 5:00pm	Lynn Rothschild	NASA	Limits for Life on Earth
5:00 – 5:30pm	Sydney Brenner	The Salk Institute	Special Lecture: Evolution

Announcement of Poster Awards (LTA)

5:45 – 6:00pm	Grand Prize	(Sponsored by Morgan Stanley)
	Best Part/Device	(Sponsored by Invitrogen)
	Best Use of DNA Synthesis	(Sponsored by DNA2.0)
	Best Energy Application	(Sponsored by CMEA Ventures)
6:00pm	Closing Remarks	

sunday, october 12

SESSION B – Lam Woo Lecture Theater (LTB)

Legal Schemes and Rights (Chair: Jennifer Lynch, UC Berkeley School of Law)

8:30 – 10:00am	Janet Hope Hilliary Creeley David Grewal	Australian National University UC Berkeley School of Law Harvard University
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Open Source Licenses in Synthetic Biology

10:00 – 10:30am Tea Break (Outside LTA, B, E)

Computer Aided Design (Chair: Douglas Densmore, UC Berkeley)

10:30 – 11:00am	Herbert Sauro	University of Washington
11:00 – 11:30am	Chuan-Hsiung Chang	National Yang Ming University
11:30 – 12:00pm	John Barford	HKUST

Simulation Tools
GenomeCAD: Computer Aided Whole Genome Design
A Novel Metabolic Pathway Optimization Method

12:00 – 2:00pm Lunch (LG7 Canteen)

Microfluidics and Biomicrosystems (Chair: I-Ming Hsing, HKUST)

2:00 – 2:30pm	I-Ming Hsing	HKUST
2:30 – 3:00pm	Stephen Quake	Stanford University
3:00 – 3:30pm	Irene Chen	Harvard University

BioMicrosystems for Point of Care Diagnostics and Synthetic Biology
Precision Measurement in Biology
Information in the Prebiotic World

3:30 – 4:00pm Tea Break (Outside LTA, B, E)

Selected Student Presentations II (Chair: King Chow, HKUST)

4:00 – 4:20pm	Cara Tracewell	Caltech
4:20 – 4:40pm	Manli Zhu	Tianjin University
4:40 – 5:00pm	Rafael Silva-Rocha	Centro Nacional de Biotecnologia, Portugal
5:00 – 5:20pm	Hsin-Yi Chang	National Taiwan University

Directed Evolution of New Bacterial Communication Lines
A Novel Synthetic Gene Trigger
Refactoring the Pseudomonas TOL Transcriptional Circuit
Development of 1-Butanol Tolerant Microorganisms

Announcement of Poster Awards (LTA)

5:45 – 6:00pm	Grand Prize	(Sponsored by Morgan Stanley)
	Best Part/Device	(Sponsored by Invitrogen)
	Best Use of DNA Synthesis	(Sponsored by DNA2.0)
	Best Energy Application	(Sponsored by CMEA Ventures)
6:00pm	Closing Remarks	

sunday, october 12

SESSION C – Cheung On Tak Lecture Theater (LTE)

Global Education and Outreach (Chair: King Chow, HKUST)

8:30 – 9:00am	George Cachianes	Lincoln High School	Teaching Biotechnology in High School
9:00 – 9:30am	Ezra Krausz	Animated Story Boards	The BioBuilder Movie Series: “Making of” and Showing
9:30 – 10am	Sven Panke	ETH, Zurich	iGEM: A European Success
10:00 – 10:30am	Tea Break (Outside LTA, B, E)		

Engineering Principles for Parts and Devices (Chair: Richard Kitney, Imperial College)

10:30 – 10:50am	Richard Kitney	Imperial College	Overview of Design Principles
10:50 – 11:10am	Paul Freemont	Imperial College	Design of Infection Detectors
11:10 – 11:30am	Chueh Loo Poh	NTU, Singapore	Modeling Techniques for Synthetic Biology
11:30 – 12:00pm	Vitor Martins dos Santos	Helmholtz Institute	Powering Cell Factories

12:00 – 2:00pm Lunch (LG7 Canteen)

Standards and Technical Workshop (Chair: J. Christopher Anderson, UC Berkeley)

2:00 – 2:30pm	J. Christopher Anderson	UC Berkeley	Bootstrapping Sets from Standard Assembly
2:30 – 3:00pm	T ⁺ Knight	MIT	BioBrick Technical Standards
3:00 – 3:30pm	Jason Kelly	MIT	Automated Cloning

3:30 – 4:00pm Tea Break (Outside LTA, B, E)

Investment in Synthetic Biology *An open discussion between a panel of representatives from the scientific and investment communities*

4:00 – 5:30pm	Academic/Industrial Panel	Chair: Regis Kelly	QB3, UCSF
	Panelists: Jay Keasling (UC Berkeley, LBNL)		
	Investment Panel	Chair: John S. Wadsworth, Jr.	Morgan Stanley
	Panelists: Karl Handelsman (CMEA Ventures), Talli Somekh (Musea Ventures), David Hanzel (X/Seed Ventures), David Berry (Flagship Ventures)		

Announcement of Poster Awards (LTA)

5:45 – 6:00pm	Grand Prize	(Sponsored by Morgan Stanley)
	Best Part/Device	(Sponsored by Invitrogen)
	Best Use of DNA Synthesis	(Sponsored by DNA2.0)
	Best Energy Application	(Sponsored by CMEA Ventures)
6:00pm	Closing Remarks	

sunday, october 12

SESSION D – Chow Tak Sin Lecture Theater (LTG)

Roundtables: Open Discussion.

Introduction to the ASIC CAD Flow

8:30 – 10:00am Douglas Densmore UC Berkeley

10:00 – 10:30am Tea Break (Outside LTA, B, E)

Emergence of Professional Organizations

10:30 – 12:00pm	Lauren Ha	BioBricks Foundation (BBF)
	Peer Stähler	Industry Association of Synthetic Biology (IASB)
	James Brown	Institute of Engineering and Technology (IET)
	Christina Smolke	Institute of Biological Engineering (IBE)
	Abhishek Pratap	International Society for Computational Biology (ICSB) Student Organization

In Vitro Synthetic Biology: Molecular Programming (Lunch Session)

12:00 – 2:00pm Erik Winfree Caltech

Genome Engineering Futures and the Role of the Synthetic Biologist

2:00 – 3:30pm Peter Robbins INNOGEN, UK

3:30 – 4:00pm Tea Break (Outside LTA, B, E)

Towards a Consensus Paper Guiding the Development of Synthetic Biology

4:00 – 5:30pm Markus Schmidt Idialog, Austria

Announcement of Poster Awards (LTA)

5:45 – 6:00pm	Grand Prize	(Sponsored by Morgan Stanley)
	Best Part/Device	(Sponsored by Invitrogen)
	Best Use of DNA Synthesis	(Sponsored by DNA2.0)
	Best Energy Application	(Sponsored by CMEA Ventures)

6:00pm Closing Remarks



