

PROGRAM OVERVIEW

Sunday, January 16

5:00 - 7:00 pm 6:00 - 7:00 pm	Registration Poster Session and Welcome by Jeff Varner (Cornell) and Kurt Deshayes (Genentech)	Plaza Ballroom Foyer West Farallon Room
7:00 - 8:00 pm 8:00 - 10:00 pm	Keynote by Frances Arnold (Caltech) Dinner	Plaza Ballroom Foyer East Plaza Ballroom Foyer East

Monday, January 17

7:00 am - 3:00 pm 7:30 - 8:30 am 8:30 - 11:25 am 11:30 am - 12:30 pm 12:30 - 3:30 pm 3:40 - 6:00 pm	Registration Breakfast Session 1: Evolutionary Engineering of Proteins Lunch Session 2: Synthetic Biology Session 3: Evolutionary and Combinatorial Approaches to Metabolic Pathway Engineering	Plaza Ballroom Foyer West Plaza Ballroom Foyer West Plaza Ballroom West Plaza Ballroom Foyer West Plaza Ballroom West Plaza Ballroom West
6:00 - 7:15 pm 7:15 - 8:15 pm 8:15 - 10:15 pm	Reception and Poster Session Keynote by Roger Tsien (UCSD) Dinner	Farallon Room Plaza Ballroom Foyer East Plaza Ballroom Foyer East

Tuesday, January 18

7:00 - 3:00 pm 7:30 - 8:30 am 8:30 - 9:30 pm 9:30 - 11:55 am	Registration Breakfast Keynote by Lee Hood (Institute for Systems Biology) Session 4: Experimental and Computational Tools for the Design and Engineering of Biomolecules	Plaza Ballroom Foyer West Plaza Ballroom Foyer West Plaza Ballroom West Plaza Ballroom West
12:00 - 1:00 pm 1:00 - 2:50 pm	Lunch Session 5: Strain Improvement and Intracellular and Intercellular Signaling Pathways and Networks	Plaza Ballroom Foyer West Plaza Ballroom West
3:30 pm	Free Afternoon	

Wednesday, January 19

7:00 - 10:00 am 7:30 - 8:30 am 8:30 - 11:00 am	Registration Breakfast Session 6: Biophysical and Microscale Analyses of Molecular and Cellular Function	Plaza Ballroom Foyer West Plaza Ballroom Foyer West Plaza Ballroom West
11:00 am - 12:00 pm 12:00 - 2:40 pm	Lunch Session 7: Biomolecular Probes as Diagnostic and Therapeutic Reagents	Plaza Ballroom Foyer West Plaza Ballroom West
3:00 - 5:20 pm	Session 8: Genomic, Proteomic and Metabolomic Approaches for Modifying Cellular Processes	Plaza Ballroom West
5:30 - 6:00 pm 6:00 - 7:00 pm 7:00 - 8:00 pm	Awards Presentation Keynote by Vishva Dixit (Genentech) Reception	Plaza Ballroom West Plaza Ballroom West Farallon Room

Sunday, January 16		
6:00pm - 7:00pm 7:00pm - 8:00pm 8:00pm - 10:00pm	Poster Session and Welcome by Jeff Varner (<i>Cornell</i>) and Kurt Deshayes (Genentech) Keynote by Frances Arnold (<i>Caltech</i>) Dinner	Farallon Room Plaza Ballroom East
Monday, January 17		
8:30am - 11:25am	Session 1: Evolutionary Engineering of Proteins Chair: Scott Banta, (<i>Columbia</i>)	Plaza Ballroom West
8:30am - 9:00am 9:00am - 9:20am 9:20am - 9:40am	Georges Belfort (<i>Rensselaer Polytechnic Institute</i>) Thomas K. Wood (<i>Texas A&M</i>) Sarah J. Moore (<i>Stanford</i>)	Insight into the Kinetics of Oligomer Formation During Amyloidosis Controlling Biofilm Formation and Dispersal Creating Molecular Recognition From Scratch: Stepwise Engineering of Knottin Peptides to Bind Tumor Marker CA IX
9:40am - 10:00am 10:00am - 10:15am 10:15am - 10:35am 10:35am - 10:55am 10:55am - 11:25am 11:30am - 12:30pm	Danielle Tullman-Ercek (<i>UC-Berkeley</i>) Break Thomas J. Mansell (<i>Cornell</i>) A. James Link (<i>Princeton</i>) Pehr Harbury (<i>Stanford</i>) Lunch	Engineering Microbial Efflux Pumps for Biofuel Secretion Plaza Ballroom Foyer West <i>In Vivo</i> Reporting and Modeling of N-Linked Glycosylation In <i>Escherichia Coli</i> How to Tie a Peptide Knot Protein Engineering Plaza Ballroom East
12:30pm - 3:30pm	Session 2: Synthetic Biology Chairs: Alfred Gaertner (<i>LS9</i>) and Christina Smolke (<i>Caltech</i>)	Plaza Ballroom West
12:30pm - 1:00pm 1:00pm - 1:20pm 1:20pm - 1:40pm 1:40pm - 2:00pm 2:00pm - 2:20pm	Mike Elowitz (<i>Caltech</i>) Julius B. Lucks (<i>Cornell</i>) Kristala L. Jones Prather (<i>MIT</i>) Ryan T. Gill (<i>Colorado-Boulder</i>) Joe C. Liang (<i>Caltech</i>)	Dynamic Signal Encoding at the Single-Cell Level An RNA-Based Platform for Gene Network Engineering Novel Pathway Designs for Production of Value-Added Biochemicals Genome-Engineering Tools for Fungible Diesel and Co-Product Production High-Throughput Cell-Based Strategies for Optimizing and Generating New RNA Component Functions
2:20pm - 2:40pm 2:40pm - 3:00pm 3:00pm - 3:30pm 3:30pm - 3:40pm	Cynthia H. Collins (<i>RPI</i>) Louis G. Hom (<i>LS9</i>) Jeff Hasty (<i>UCSD</i>) Break	Directed Evolution of Quorum-Sensing Repressors for Programmed Intercellular Communication In Synthetic Microbial Consortia Synthetic Biology Applications In the Rapid Development of Renewable Petroleum™ Products and Technologies Synthetic Biology Plaza Ballroom Foyer West
3:40pm - 6:00pm	Session 3: Evolutionary and Combinatorial Approaches to Metabolic Pathway Engineering Chairs: Tony Day (<i>Solazyme</i>) and Ryan Gill (<i>Colorado</i>)	Plaza Ballroom West
3:40pm - 4:10pm 4:10pm - 4:30pm 4:30pm - 4:50pm 4:50pm - 5:10pm 5:10pm - 5:30pm 5:30pm - 5:50pm 6:00pm - 7:15pm 7:15pm - 8:15pm 8:15pm - 10:15pm	Jens Nielsen (<i>Chalmers</i>) Mattheos A. G. Koffas (<i>SUNY-Buffalo</i>) Narendra Maheshri (<i>MIT</i>) Orr Srouf (<i>Techion, Israel Institute of Technology</i>) Eva-Maria Strauch (<i>UT-Austin</i>) Hyun Uk Kim (<i>KAIST</i>) Reception and Poster Session Keynote by Roger Tsien (<i>UCSD</i>) Dinner	Development of Yeast as a Platform Cell Factory Engineering Plant Secondary Metabolite Biosynthesis In Microorganisms A Method for <i>In Vivo</i> Targeted Mutagenesis Fluxomers: Efficient New Strategy for 13C Tracer Experiments Analysis <i>De Novo</i> Design of Proteins That Target Natural Protein Epitopes Systems biological strategies for new antibiotic discovery Farallon Room Breeding and Building Molecules to Image Cells and Disease Processes Plaza Ballroom East
Tuesday, January 18		
8:30am - 9:30am	Keynote by Leroy Hood (<i>Institute for Systems Biology</i>) Systems Medicine, Transformational Technologies and the Emergence of Predictive, Personalized, Preventive and Participatory (P4) Medicine	
9:30am-11:55am	Session 4: Experimental and Computational Tools for the Design and Engineering of Biomolecules Chairs: Matt DeLisa (<i>Cornell</i>) and Gideon Schreiber (<i>Weizman Institute</i>)	Plaza Ballroom West
9:30am - 9:50am 9:50am - 10:10am 10:10am - 10:25am 10:25am - 10:45am	Sai T. Reddy (<i>UT-Austin</i>) Scott A. Banta (<i>Columbia</i>) Break Diya M. Abdeljabbar (<i>Princeton</i>)	Monoclonal Antibodies Isolated without Screening by High-Throughput DNA Sequencing of Plasma Cell Repertoires A Plasmid Display Platform for the Identification of New Functional Cell Penetrating Peptides Plaza Ballroom Foyer West An Engineered Methionyl-tRNA Synthetase Enables Azidonorleucine Incorporation In Methionine Auxotrophic and Prototrophic Bacteria

10:45am - 11:05am	Costas D. Maranas (<i>Penn State</i>)	Reaction/Metabolite Standardization and Congruency Across Databases and Genome-Scale Metabolic Models
11:05am - 11:25am	Marlene Belfort (<i>Wadsworth Center</i>)	Disulfide engineering catches a self-splicing intein in a redox trap
11:25am - 11:55am	Herbert Sauro (<i>Washington</i>)	Software, Standards and Computation: A look at current developments in pathway engineering
12:00pm - 1:00pm	Lunch	Plaza Ballroom East
1:00pm - 2:50pm	Session 5: Strain Improvement and Intracellular and Intercellular Signaling Pathways and Networks Chairs: David Schaeffer (<i>UC-Berkeley</i>) and Domagoj Vucic (<i>Genentech</i>) Plaza Ballroom West	
1:00pm - 1:30pm	Mike Wendt (<i>Abbott Labs</i>)	Discovery of ABT-263 (Navitoclax), an Orally Bioavailable Bcl-2 Family Inhibitor
1:30pm - 1:50pm	Matthew S. Russell (<i>Cornell</i>)	An In-Cell Localized Mutagenesis Method for Engineering Bacterial Phenotypes
1:50pm - 2:10pm	Jennifer R. Cochran (<i>Stanford</i>)	Antagonistic VEGF Variants Engineered to Simultaneously Bind to and Inhibit Both VEGFR2 and AlphaV Beta3 Integrin
2:10pm - 2:30pm	Russell A. Gould (<i>Cornell</i>)	Analysis of the Molecular Network Regulating Epithelial-Mesenchymal Transition
2:30pm - 2:50pm	J. Pandhal (<i>Sheffield</i>)	Inverse Metabolic Engineering to Improve N-Glycosylation Efficiency In <i>E. Coli</i> Cells
3:00pm - 3:30pm	James R. Swartz (<i>Stanford</i>)	Evolving Better Medicines and More Effective Energy Technologies Using Cell-Free Protein Synthesis
3:30pm	Free Afternoon	
Wednesday, January 19		
8:30am - 11:00am	Session 6: Biophysical and Microscale Analyses of Molecular and Cellular Function Chairs: Hal Alper (<i>Texas</i>) and Jonathan Butcher (<i>Cornell</i>) Plaza Ballroom West	
8:30am - 9:00am	David Wood (<i>Ohio State</i>)	Engineered Allosteric Proteins for Drug Discovery and Environmental Monitoring
9:00am - 9:20am	Christian M. Metallo (<i>MIT</i>)	Dynamic Reprogramming of Tumor Cell Metabolism by Hypoxic Microenvironments
9:20am - 9:40am	Carissa L. Young (<i>Delaware</i>)	Single-Cell Analysis of Cellular and Endoplasmic Reticulum Quality Control (erqc) In <i>S. Cerevisiae</i>
9:40am - 9:50am	Break	Plaza Ballroom Foyer West
9:50am - 10:10am	Neda Bagheri (<i>MIT</i>)	Quantitative Statistical Analysis of Cytokine Secretion Dynamics for Individual T Cells
10:10am - 10:30am	E. James Petersson (<i>Pennsylvania</i>)	Thioamides as Fluorescence Quenching Probes: Minimalist Chromophores to Monitor Protein Dynamics
10:30am - 11:00am	Zev Gartner (<i>UC-San Francisco</i>)	Building Tissues From the Bottom-Up
11:00am - 12:00pm	Lunch	Plaza Ballroom East
12:00pm - 2:40pm	Session 7: Biomolecular Probes as Diagnostic and Therapeutic Reagents Stephen Michnick (<i>Montreal</i>) and Frederic Fellouse (<i>Samuel Lunenfeld Research Institute</i>) Plaza Ballroom West	
12:00pm - 12:30pm	Stephen Turner (<i>Pacific Biosciences</i>)	Exploring Applications of SMRT™ Sequencing in Healthcare and the Environment
12:30pm - 12:50pm	Sean Carroll (<i>UT-Austin</i>)	Targeting the Active Domain of C1s for Discovery of Antibodies That Inhibit Classical Complement Pathway Activity
12:50pm - 1:10pm	Andrew J. Bonham (<i>UC-Santa Barbara</i>)	Transcription Factor Beacons: Optical Switching Probes Driven by Native Interactions
1:10pm - 1:30pm	Peter M. Tessier (<i>RPI</i>)	Motif-Grafted, Conformation-Specific Antibodies for Selectively Targeting Toxic Misfolded Proteins
1:30pm - 1:50pm	Jeremy M. Murray (<i>Genentech</i>)	The Development of Peptide-Based Tools for the Analysis of Angiogenesis
1:50pm - 2:10pm	James T. Koerber (<i>UC-San Francisco</i>)	Engineering Neo-Epitope Antibodies to Investigate Proteolytic Signaling Networks In Cells and Patient Samples
2:10pm - 2:40pm	Kevan Shokat (<i>UC-San Francisco</i>)	Biomolecular Probes and Reagents
2:40pm - 3:00pm	Break	Plaza Ballroom Foyer West
3:00pm - 5:20pm	Session 8: Genomic, Proteomic and Metabolomic Approaches for Modifying Cellular Processes Chairs: Phil Patten (<i>Archaogen</i>) and Vassily Hatzimanikatis (<i>EFL</i>) Plaza Ballroom West	
3:00pm - 3:30pm	Ed Driggers (<i>Agios Pharmaceuticals</i>)	Targeting the Cancer Metabolome
3:30pm - 3:50pm	Nathan D. Price (<i>Illinois</i>)	Probabilistic Integrative Modeling of Genome-Scale Metabolic and Regulatory Networks
3:50pm - 4:10pm	Zachary J. Storms (<i>McGill</i>)	Self-Cycling Fermentation: A Large Scale Approach to Modifying Cellular Processes for the Production of Recombinant Proteins
4:10pm - 4:30pm	Krishanu Saha (<i>Whitehead Institute for Biomedical Research</i>)	Modeling Epigenetic Reprogramming of Mammalian Cells
4:30pm - 4:50pm	Adil Mardinoglu (<i>Chalmers</i>)	Identification of Metabolic Processes In Various Human Tissues for Reconstruction of Tissue Specific Human Metabolic Network
4:50pm - 5:20pm	James C. Liao (<i>UCLA</i>)	Evolution, Design, and Reconstruction in Metabolic Engineering of Higher Alcohols
5:30pm - 6:00pm	Awards Presentation	Plaza Ballroom West
6:00pm - 7:00pm	Keynote by Vishva Dixit (<i>Genentech</i>)	Lessons from Death Signaling
7:00pm - 8:00pm	Reception	Farallon Room