Sunday, January 18

6:00pm - 7:00pm	Poster Session and Reception	Sierra Madre
7:00pm - 10:00pm	Dinner	Reagan Room
	Welcome	Ryan Gill *(University of Colorado)* and Sachdev Sidhu *(University of Toronto)*
	Keynote	Peter Schultz *(The Scripps Institute)* An Expanding Genetic Code

Monday, January 19

8:15am - 10:45am — **Session 1: Protein Engineering and Evolution**
Co-chairs: Marc Ostermeier *(Johns Hopkins University)*

8:15am - 8:50am	Frances Arnold *(California Institute of Technology)*	Engineering by Evolution
8:50am - 9:10am	Ichiro Matsumura *(Emory University)*	*Acinetobacter Baylyi Sp*. ADP1 as a Vehicle for Gene and Genome Evolution
9:10am - 9:30am	Eric Shusta *(University of Wisconsin, Madison)*	Engineered GFP-Based Biosensors Endowed with Nanomolar Binding Capability
9:30am - 9:50am	Karl Griswold *(Dartmouth University)*	New Designs for Enzymatic Antimicrobial Therapies
9:50am - 10:10am	Scott Banta *(Columbia University)*	Enzymatic and Bioactive Hydrogels from Proteinaceous Bifunctional Building Blocks
10:10am - 10:45am	Andreas Plückthun *(University of Zürich)*	The Taming of the Shrew: Improving GPCR Expression and Stability
10:45am - 11:05am	Break	Rafael/Ynez Foyer

11:05am - 1:15pm — **Session 2: Computationally Guided Protein Engineering**
Chair: Alexey Lugovsky *(Biogen Idec)*

11:05am - 11:40am	Gideon Schreiber *(Weizmann Institute of Science)*	Computer-Based Design for Affinity and Specificity of Protein-Protein Interactions
11:40am - 12:00pm	Jesús Zurdo *(Lonza Biologics)*	*In Silico* Aggregation Screening and Protein Engineering to Improve Developability and Safety Profiles of Therapeutic Proteins
12:00pm - 12:20pm	Monica Berrondo *(Johns Hopkins University)*	Computational Predictions of the Enzymatic Activity of Single Deletion Mutants
12:20pm - 12:40pm	Adrian W.R. Serohijos *(University of North Carolina at Chapel Hill)*	Applications of Conformational and Sequence Sampling in Protein Engineering — Discrete Molecular Dynamics and Medusa Molecular Modeling Tools
12:40pm - 1:15pm	John Desjarlais *(Xencor)*	Engineering Antibodies for Enhanced Effector Function, Pharmacokinetics and Low Immunogenicity
1:15pm - 2:40pm	Lunch	Plaza del Sol Room

2:40pm - 5:25pm — **Session 3: Biomolecular Probes and Imaging**
Co-chairs: Co-Chairs: Patrick Daugherty *(University of California, Santa Barbara)* **and Jennifer Cochran** *(Stanford University)*

2:40pm - 3:15pm	Klaus Hahn *(University of North Carolina at Chapel Hill)*	New Tools to Visualize and Manipulate Signaling in Living Cells
3:15pm - 3:35pm	Jennifer Cochran *(Stanford University)*	Engineering Protein Ligands as Multimodal Tumor Imaging Agents
3:35pm - 3:45pm	Kevin Hoff *(California Institute of Technology)*	Fluorescent Sensors for Detection of Iron Sulfur Cluster Biogenesis
3:45pm - 3:55pm	Kevin Cash *(University of California, Santa Barbara)*	Electrochemical Detection of Proteins with the E-DNA Platform
3:55pm - 4:15pm	Peter Tessier *(Rensselaer Polytechnic Institute)*	Analysis of Protein Misfolding and Aggregation Using Peptide Microarrays
4:15pm - 4:50pm	Stephen Michnick *(University of Montreal)*	The Dark Matter of Protein Interaction Networks
4:50pm - 5:25pm	Bernard Palsson *(University of California, San Diego)*	Reconstruction of the Genome-Scale Human Metabolic Network Based on Build-35 and Bibliomic Data **(Rescheduled. From Session 4)**
5:25pm - 7:00pm	Poster Session and Reception	Laura Segatori *Rice University,* Sierra Madre Brian S. Hooker *Pacific Northwest National Laboratory*
7:00pm - 10:00pm	Dinner	Reagan Room
	Keynote by Jay Keasling *(University of California, Berkeley)*	Synthetic Biology in Pursuit of Low-Cost, Effective, Anti-Malarial Drugs

Tuesday, January 20

8:45am-12:10pm — **Session 4: Engineering Pathways and Complex Phenotypes**
Co-chairs: Hal Alper *(University of Texas, Austin)* **and Scott Banta** *(Columbia University)*

8:45am - 9:20am	Stefan Wildt *(Merck)*	Genetic and Metabolic Engineering of the Methylotrophic Yeast *P. Pastoris* as a Host for Therapeutic Protein Production
9:20am - 9:40am	Stephen Van Dien *(Genomatica)*	The Design, Engineering, and Evolution of Microbial Catalysts for Bio-Manufacturing of 1,4-Butanediol
9:40am - 10:00am	Huimin Zhao *(University of Illinois at Urbana-Champaign)*	Production of Fine Chemical Phloroglucinol and Antimalarial Drug FR900098 in *E. Coli*
10:00am - 10:20am	Break	Rafael/Ynez Foyer
10:20am - 10:55am	Sang Yup Lee *(Korea Advanced Institute of Science and Technology)*	Metabolic and Cellular Engineering for the Production of Chemicals and Materials
10:55am - 11:15am	Szu-Wen Wang *(University of California, Irvine)*	Engineering Non-Native Functionality in a Caged Protein Scaffold

11:15am - 11:35am	John Morgan *(Purdue University)*	Flux Analysis of CHO Cell Metabolism for Recombinant Protein Production
11:35am - 12:10pm	Jon Clardy *(Harvard University)*	Insect-Bacteria Mutualisms as a Discovery Engine
12:10pm - 2:00pm	Lunch	Plaza del Sol Room
2:00pm - 4:50pm	**Session 5: Synthetic Biology** **Co-Chairs: Justin Gallivan** *(Emory University)* **and Yi Tang** *(UCLA)*	
2:00pm - 2:35pm	Steve del Cardayre *(LS9)*	Renewable Petroleum™ Products and Technologies: Low Cost Fuel and Chemical Substitutes
2:35pm - 2:55pm	Andreas Ernst *(University of Toronto)*	Specificity Map of Synthetic PDZ-Domains
2:55pm - 3:15pm	Maung Nyan Win *(California Institute of Technology)*	Programming Synthetic RNA Devices for Cellular Information Processing
3:15pm - 3:35pm	Marc Ostermeier *(Johns Hopkins University)*	An Externally-Tunable Bacterial Band-Pass Filter
3:35pm - 3:55pm	Charles Gersbach *(Scripps Research Institute)*	Engineered Zinc Finger Proteins for Targeted Genome Editing and Gene Regulation
3:55pm - 4:15pm	Daniel Sayut *(University of Massachusetts)*	Improvement of a Minimal Genetic AND Gate Using Mutant Libraries of the LuxR Transcriptional Activator
4:15pm - 4:50pm	James Liao *(University of California, Los Angeles)*	Synthesis of Advanced Biofuels
4:50pm - 6:30pm	Poster Session and Reception	Laura Segatori *Rice University,* Sierra Madre Brian S. Hooker *Pacific Northwest National Laboratory*
6:30pm - 9:30pm	Dinner	Reagan Room
	Keynote: James Wells *(University of California, San Francisco)*	Engineering Cells to Death
Wednesday, January 21		
8:30am - 10:40am	**Session 6: Molecues to Macro Systems** **Co-Chairs: Jeff Varner** *(Cornell University)* **and Brian Hooker** *(Pacific Northwest National Laboratory)*	
8:30am - 9:05am	Uwe Sauer *(ETH Zurich)*	Unraveling Condition-Specific Networks of Active Metabolic Regulation
9:05am - 9:25am	J. Christopher Love *(Massachusetts Institute of Technology)*	Approaches to Profiling Immune Responses from Single-Cell Measurements
9:25am - 9:45am	Peng Yin *(California Institute of Technology)*	Programming Biomolecular Self-Assembly Pathways
9:45am - 10:05am	Jamey Young *(Massachusetts Institute of Technology)*	Uncovering Connections Between Metabolism and Apoptosis: a Flux Analysis Study of Hepatic Lipotoxicity
10:05am - 10:40am	Andrew Ellington *(University of Texas, Austin)*	*In Vitro* Evolution of Synthetic Circuits
10:40am - 11:00am	Break	Rafael/Ynez Foyer
11:00am - 12:55pm	**Session 7: Systems Biology** **Co-Chairs: Vassilis Sotiropoulos** *(University of Minnesota)* **and Iman Famili** *(Genomatica)*	
11:00am - 11:35am	Bruce Tidor *(Massachusetts Institute of Technology)*	Molecular and Network Modeling in Synthetic and Systems Biology
11:35am - 11:55am	Jennifer L. Reed *(University of Wisconsin Madison)*	Constraint-Based Analysis of Metabolic Capacity of *Salmonella Typhimurium* LT2
11:55am - 12:15pm	Jeffrey Varner *(Cornell University)*	Mathematical Modeling and Analysis of the Role of the BLR1 Protein and MAPK Activation in the Growth-Arrest and Differentiation Program of a Model Adult Stem-Cell
12:15pm - 12:35pm	Nathan Price *(University of Illinois at Urbana-Champaign)*	Relative Expression Analysis for Cancer Diagnosis and Identification of Perturbed Sub-Networks
12:35pm - 12:55pm	Xuerui Yang *(Michigan State University)*	Construction of Phenotype-Specific Gene Network by Synergy Analysis
12:55pm - 2:30pm	Lunch	Plaza del Sol Room
2:30pm - 4:40pm	**Session 8: Protein Engineering 2** **Chairs: Marc Ostermeier** *(Johns Hopkins University)*	
2:30pm - 3:05pm	Jim Swartz *(Stanford University)*	Custom-Designed Viral Mimics as Vaccines and Delivery Vehicles
3:05pm - 3:25pm	Graham Farrington *(Biogen Idec Inc)*	Development and Characterization of a Novel Monovalent Antibody Platform
3:25pm - 3:45pm	Matt Delisa *(Cornell University)*	Engineering High-Affinity Antibodies Using a Unique Bacterial Hitchhiker Transport Mechanism
3:45pm - 4:05pm	Patrick Cirino *(Pennsylvania State University)*	Design and Analysis of AraC Regulatory Protein Mutants with Altered Effector Specificity
4:05pm - 4:40pm	George Georgiou *(University of Texas, Austin)*	Engineering and Preclinical Development of Human Enzymes for Cancer Therapy