

World Molecular Engineering Network (WMEN) CABO XXIX, May 4–7, 2019

San Francisco / San Ignacio Rooms

Saturday Evening, May 4, 2019

16:15 – 16:30	Introduction and Welcome	Ian Wilson and Andrej Sali				
16:30– 17:30	Keynote Lecture	Robert Stroud UCSF Discovery				
17:30 – 17:45	Self-Introductions	Jill Chrencik Steven Strutt	Merck Global Blood Therapeutics			
17:45– 20:30	Short Presentations (5 + 1 min.) by TSRI , UCSF, UCB, LBNL and Stanford Graduate Students and Postdocs (Chair: Gabriel Lander)					
Mengyu Wu Christopher Cottrell Rotimi Omorodion Karthik Gangavarapu Janice Xu James Ferguson Ke Yang Angelo Solania Gabriel Brighty Paige Dickson Wesley Cochrane Tim Strutzenberg Sebastian Jojoa Yao Xiao Short Break Joshua Yim Jessica Spradlin Jenna Pellegrino Garrett Gaskins Barak Raveh Meghna Gupta Regina Shin Marco Mravic						
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Cryo-EM: highs, lows, and pursuing allosteric intermediates Targeting the HIV fusion peptide Structural evolution of anti-HIV broadly neutralizing antibodies Genomic epidemiology of West Nile virus in the United States Fishing out Pd_dinase, a commensal gut bacterial protease, and homologues from the microbiome Using ¹⁹ F-NMR to observe different states of transthyretin mutants Structure and dynamics of a viral transcription factor HTLV-1 HBZ Structural characterization of the prime side of caspases using ketone inhibitors Discovery of a new PARP1 inhibitor via inverse drug discovery Development of chemical tools to probe the 26S proteasome Activity-based DNA-encoded library screening HDX-MS reveals hyperactivation mechanism of ROR γ Cryo-EM structure of the mechanically activated ion channel OSCA1.2 Deciphering the distinct enzymatic properties of plant Argonaute protein Translating optical chemical probes for cancer imaging Harnessing the anti-cancer natural product nimbolide for targeted protein degradation Binding and activity of novel streptogramin A analogs Automating diagnosis of melanocytic atypia Integrative multiscale modeling of dynamic biological systems Nutrient sensing and transceptors Chemical targeting of the mTORC1 signaling pathway Membrane protein design: biophysical principles and chemical biology tools						
20:30 – 22:00	Reception with Buffet	Poolside				

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Sunday Morning, May 5, 2019			Structure and Biology of Cellular Processes (Chair: Kathleen Aertgeerts)
08:30	Andreas Martin	UC Berkeley	Watching a fine-tuned molecular machine at work: Structural and functional studies of the 26S proteasome during ATP-dependent substrate processing
08:50	Gabriel Lander	TSRI CA	Studying mitochondrial protein quality control with cryoEM
09:10	Danielle Grotjahn	TSRI CA	Visualizing mitochondrial fission machinery <i>in situ</i> by cryo-electron tomography
09:30	Carolyn Larabell	UCSF/LBNL	Probing membraneless organelles and phase separated droplets
09:50	Ahmet Yildiz	UC Berkeley	The mechanism and regulation of mammalian dynein-dynactin
10:10	Break		
10:30	Lisa Racki	TSRI CA	The cell biology of starvation: polyphosphate granule biogenesis in <i>Pseudomonas aeruginosa</i>
10:50	Roberto Zoncu	UC Berkeley	Dissecting and reconstituting lysosome-based nutrient sensing in health and disease
11:10	Takanori Otomo	TSRI CA	A molecular mechanism for autophagosome membrane expansion
11:30	Bill DeGrado	UCSF	Deep mutational scanning of α -synuclein reveals the molecular basis for its toxicity in yeast
11:50	Tina Izard	TSRI FL	Correlation of the tumor-suppressive function and structure of NF2
Sunday Afternoon, May 5, 2019			Chemical Biology (Chair: Pat Griffin)
16:00	Dennis Wolan	TSRI CA	New approaches for lead inhibitor optimization
16:20	Phil Dawson	TSRI CA	Non covalently immobilized macromolecules in organic solvent: from protein engineering to DNA encoded libraries
16:40	Matt Bogyo	Stanford	Applications of chemical probes for studies of serine hydrolases in parasite and bacterial pathogens
17:00	Ian Seiple	UCSF	Can we beat nature? Rational design, chemical syntheses, and molecular mechanisms of action of new antibiotics based on old natural products
17:20	Daniel Nomura	UC Berkeley	Reimagining druggability using chemoproteomic platforms
17:40	Chris Parker	TSRI FL	Chemoproteomic ligand and target discovery in cells
18:00	Break and Photograph		
			Membrane Proteins (Chair: Claudio Ciferri)
18:20	Andrew Ward	TSRI CA	CryoEM structures of membrane proteins
18:40	Mark Yeager	U. Virginia	Connexin, innexin and pannexin channels are really SWELL
19:00	Dan Minor	UCSF	The importance of selectivity filter gating for ion channel function
19:20	Lou Noodleman	TSRI CA	A branched catalytic reaction cycle for proton transfer and proton pumping in a bacterial cytochrome c oxidase
20:15 – 22:30	<u>Sponsor Dinner, by invitation only – Adults Pool</u>		

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Monday Morning, May 6, 2019			Sponsors (Chair: Daniel Santi)
09:00	Michael Ruf	Bruker	D8 VENTURE - Advances in biological crystallography
09:20	Claudio Ciferri	Genentech	Building cryo-EM at Genentech to enable research and drug discovery
09:40	Elena Menichelli	GNF	Unraveling the structural plasticity of the theophylline aptamer RNA
10:00	Kathleen Aertgeerts	Vertex Pharmaceuticals	Structural insights into allosteric sites will bring integral membrane protein SBDD to the next level
10:20	Break		
10:40	Damon Hamel	Nektar	NKTR-255: Enhancing the immunotherapeutic potential of IL-15
11:00	Vyas Ramanan	Third Rock Ventures	Company creation at Third Rock Ventures: The story of Maze Therapeutics
11:20	Norman Oppenheimer	UCSF	Thermal stabilization of NAD by GAPDH and the implications for evolution and metabolism
Monday Afternoon, May 6, 2019			Ribosome & Nuclear Receptors (Chair: Lisa Racki)
16:00	Jamie Williamson	TSRI CA	Single molecule studies of ribosome assembly
16:20	Pat Griffin	TSRI FL	Selective modulation of nuclear receptors
16:40	Doug Kojetin	TSRI FL	Structural basis of PPAR γ transcriptional repression
17:00	Kendall Nettles	TSRI FL	Structure-based design for targeting ER α in tamoxifen-resistant breast cancer
17:20	Break		
Glycobiology and Microbial Pathogens (Chair: Bill DeGrado)			
17:40	Ian Wilson	TSRI CA	Antibody-inspired design of influenza virus therapeutics
18:00	Jim Paulson	TSRI CA	Airway receptors of human influenza virus
18:20	Mia Huang	TSRI FL	Elucidating global glycan-protein interactions in native cellular environments
18:40	David Millar	TSRI CA	Dynamics of HIV-1 Gag assembly
Tuesday Morning, May 7, 2019			Computation, Systems Biology and the Cell (Chair: Carolyn Larabell)
08:30	Andrej Sali	UCSF	Meta-modeling of the cell
08:50	Graham Johnson	Allen Institute	Prototyping multiscale whole-cell visual analysis & modeling techniques
09:10	Arthur Olson	TSRI CA	Building the molecular cell
09:30	Break		
09:50	William Balch	TSRI CA	Variation Spatial Profiling (VSP): A machine learning paradigm to bridge sequence-to-function-to-structure for individualized medicine
10:10	Michel Sanner	TSRI CA	Advances in peptide docking
10:30	Stefano Forli	TSRI CA	Charting hydrogen bonds
10:50	Ian Wilson and Andrej Sali		Closing Remarks

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