



**Chairs:** E. James Petersson and Carsten Schultz

**Thursday, August 9<sup>th</sup>**

2:00 pm - 9:00 pm	Arrival and Check-in
6:00 pm	Dinner
7:00 pm - 7:15 pm	Welcome / Introductory comments by GCE site staff
7:15 pm - 7:40 pm	Welcome from the chairs and conference tasks.
7:40 pm - 9:30 pm	Session 1: <u>Frontiers in GCE</u> Discussion Leader: Carsten Schultz, Oregon Health & Science University
7:40 pm - 8:20 pm	Keynote 1: Jason Chin, MRC Laboratory of Molecular Biology “Expanding and Reprogramming the Genetic Code”
8:20 pm - 8:30 pm	Discussion
8:30 pm - 8:50 pm	Short Talk 1: Howard Hang, The Rockefeller University “Exploration of host-microbe interactions with genetic codon expansion”
8:50 pm – 9:00 pm	Discussion
9:00 pm - 10:30 pm	Poster Setup and Discussion

**Friday August 10<sup>th</sup>**

7:30 am - 8:30 am	Breakfast
9:00 am - 12:40 pm	Session 2a: <u>Biorthogonal Reactions and Functional Probes</u> Discussion Leader: Kabirul Islam, University of Pittsburgh
9:00 am - 9:30 am	Talk 1: Alex Dieters, University of Pittsburgh “Optical Control of Protein Function in Cells and Zebrafish”
9:30 am - 9:40 am	Discussion
9:40 am – 10:10 am	Talk 2: Daniel Summerer, Technical University of Dortmund “Programmable Recognition of the Expanding Epigenetic Code”
10:10 am - 10:20 am	Discussion
10:20 am - 10:40 am	Coffee Break
10:40 pm - 12:30 pm	Session 2b: <u>Biorthogonal Reactions and Functional Probes</u> Discussion Leader: Anthony Green, Manchester University
10:40 am - 11:10 am	Talk 3: Doug Johnson, Biogen “Application of Clickable Chemical Biology Probes and Bioorthogonal Chemistry in Drug Discovery”
11:10 am - 11:20 am	Discussion

11:20 am – 11:40 am Short Talk 2: Meghan Breen, University of Michigan  
“Benzoylphenylalanine Analogues with Expanded Utility for In Vivo Covalent Chemical Capture”

11:40 am - 11:45 am Discussion

11:45 am – 12:00 pm Poster Talk 1: Robert Blizzard, Oregon State University  
“Reducing Side Reactions of Tetrazines in Live Cells”

12:00 pm - 12:30 pm Talk 4: Christian Hackenberger, Humboldt Universität zu Berlin  
“The power of chemoselectivity: Functional protein conjugates for extra- and intracellular targeting”

12:30 pm - 12:40 pm Discussion

12:40 pm GCE Conference Photo

12:50 pm Lunch

1:30 pm - 4:00 pm Free Time

3:00 pm - 4:00 pm Addgene and Bachem Discussion Session

4:00 pm - 6:00 pm Poster Session 1

6:00 pm Dinner

7:30 pm - 9:30 pm Session 3: Foundational Technology  
Discussion Leader: Dan Groff, Sutro Biopharma, Inc.

7:30 pm - 8:00 pm Talk 5: Shigeyuki Yokoyama, RIKEN  
“Structural basis of the broad amino acid specificities for genetic-code expansion by pyrrolysyl-tRNA synthetase mutants”

8:00 pm - 8:10 pm Discussion

8:10 pm - 8:30 pm Short Talk 3: Michael Hammerling, Northwestern University  
“RISE: An in vitro platform for the synthesis and directed evolution of the ribosome”

8:30 pm - 8:35 pm Discussion

8:35 pm - 8:50 pm Poster Talk 2: John Lueck, University of Rochester  
“Engineered non-orthogonal tRNAs for suppression of premature termination codons”

8:50 pm - 9:20 pm Talk 6: Hiroaki Suga, The University of Tokyo  
“The RaPID way to discover bioactive macrocyclic peptides expressed under the reprogrammed genetic code”

9:20 pm - 9:30 pm Discussion

9:30 pm - 10:30 pm Poster Session

**Saturday August 11<sup>th</sup>**

7:30 am - 8:30 am Breakfast

9:00 am - 12:30 pm Session 4a: Exploring Protein Mechanisms  
Discussion Leader: Shixin Ye-Lehmann, University of Pierre and Marie Curie

9:00 am - 9:30 am Talk 7: Marcey Waters, University of North Carolina  
“Mechanism of recognition of methylated lysine by histone reader proteins”

9:30 am - 9:40 am	Discussion
9:40 am – 10:10 pm	Talk 8: JoAnne Stubbe, Massachusetts Institute of Technology “Use of Tyrosine Analogs with Altered Reduction Potentials and pK <sub>as</sub> to Probe PCET Reactions in Proteins”
10:10 am - 10:20 am	Discussion
10:20 am – 10:35 am	Poster Talk 3: Christine Phillips-Piro, Franklin & Marshall College “Probing local solvation environments and tuning oxygen binding in a heme protein using unnatural amino acids ”
10:35 am - 11:00 am	Coffee Break
11:00 am – 12:30 pm	Session 4b: <u>Genetic Code Expansion in Complex Protein Systems</u> Discussion Leader: Abhishek Chatterjee, Boston College
11:00 am - 11:30 am	Talk 9: Demin Zhou, Peking University “Manipulation of Viral Genome by Gene Code Expansion for Conversion of Life-Threatening Viruses into Bio-therapeutics”
11:30 am - 11:40 am	Discussion
11:40 am - 12:00 pm	Short Talk 4: A. James Link, Princeton University “Genetic Code Expansion in RiPPs”
12:00 pm - 12:05 pm	Discussion
12:05 pm - 12:20 pm	Poster Talk 4: Christine Koehler, European Molecular Biology Laboratory, Heidelberg “Genetic code expansion for multiprotein complex engineering and production in eukaryotes”
12:20 pm - 12:40 pm	Short Talk 5: Kathrin Lang, Technische Universität München “Site-specific ubiquitylation and SUMOylation using genetic code expansion”
12:40 pm – 12:45 pm	Discussion
12:45 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session 2
6:00 pm – 7:15 pm	Dinner
7:15 pm – 8:00	GCE Future Planning Session
8:00 pm - 9:40 pm	Session 5: <u>Enabling <i>In Vivo</i> Membrane Protein Studies</u> Discussion Leader: E. James Petersson, University of Pennsylvania
8:10 pm - 8:40 pm	Talk 10: Chris Ahern, University of Iowa “The Power of Small: Atomic Mutagenesis in a Post-Structural Era”
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:30 pm	Keynote 2: Tom Sakmar, The Rockefeller University “Expanding the Genetic Code as a Tool for GPCR-Targeted Drug Discovery”
9:30 pm - 9:40 pm	Discussion
9:40 pm - 11:00 pm	Mehl house reception