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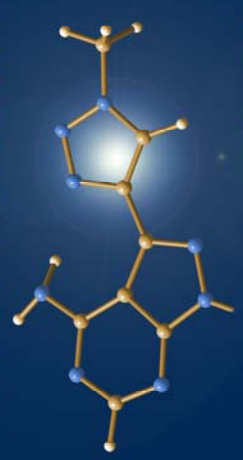

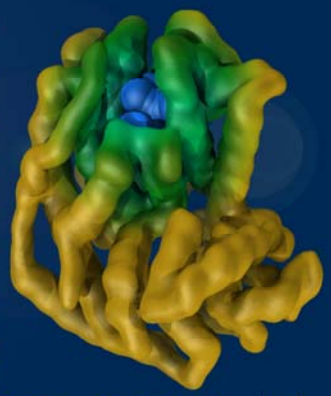

2016

UC Davis

2nd Annual CBP Retreat

September 9, 2016
Student Community Center

Schedule of Events

8:30am—9:00am	Breakfast and Registration
9:00am—9:10am	Welcome and Introduction *Dr. Pete Beal*

Session I

Chair: Cody Palumbo

9:10am—9:35am	Muhammad Hagras (Stuchebrukhov) *Novel Inhibitory Mechanism for Respiratory Complex III with a Potential Anti-cancer Application*
9:35am—10:00am	Alex Carlin (Siegel) *Education and automation integrated into an engineering process for enzyme design*
10:00am—10:25am	Nick Hurlburt (Fisher) *Structural basis of chitin binding by the fungal effector protein, Avr4*

Coffee Break and Posters

10:25am—10:45am

Session II

Chair: Katie Beglinger

10:45am—11:10am	Shu-Hao Liou (Goodin) *Effector Roles of Putidaredoxin on Cytochrome P450cam Conformational States*
11:10am—11:35am	John McArthur (Chen) *Conversion of an alpha-2,6-silyltransferase into an alpha-2,6sialidase by structure-guided directed evolution*
11:35am—12:00pm	Terry O'Brien (Tantillo/Siegel) *A computational model of a terpene cyclase for mechanistic understanding*

How Metal Ions in the Brain Tip the Toxic Balance of the Killer Prion Protein

Abstract

A prion is a misfolded form of the cellular prion protein, PrP^C. Although the role of PrP in neurodegeneration was established over 30 years ago, there is little understanding of the protein's normal function and how misfolding leads to profound disease. Recent work shows that PrP^C coordinates both Cu^{2+} and Zn^{2+} and regulates the distribution of these essential metal ions in the brain. Moreover, these metals stabilize a previously unseen fold in PrP^C, the observation of which provides new insight into the mechanism of prion disease, and perhaps other neurodegenerative diseases. I will provide a background on prion diseases, discuss magnetic resonance experiments on the metal ion promoted fold, and outline new concepts in PrP-linked neurodegeneration.

Join us in the Chemistry Courtyard after Dr. Millhauser's talk for a brief reception!

Keynote Speaker

Dr. Glenn Millhauser received his B.S. in Chemistry from California State University, Los Angeles. He attended Cornell University where he earned his Ph.D. in Physical Chemistry and continued there as a postdoc conducting research in the field of Pharmacology. Dr. Millhauser was first hired as an Assistant Professor at the University of California, Santa Cruz in 1988, where his current position is Distinguished Professor in the Department of Chemistry.

The Millhauser Lab at UCSC uses biophysical methods to study neurological proteins, their cofactors, and how misregulation contributes to disease.

You may learn more about the lab online at: millhauser.chemistry.ucsc.edu

Lunch
12:00pm—1:00pm

Poster Session
1:00pm—2:00pm

Session III
Chair: Nina McCulley

2:00pm —2:25pm — Yuru Wang (Beal)
Probing RNA recognition by Adenosine deaminase acting on RNA using high-throughput mutagenesis methods and phenotypic screening assays

2:25pm—2:50pm — Anna Case (Atsumi)
Biological Conversion of Gaseous Alkenes to Liquid Chemicals

2:50pm—3:15pm — Randy Carney (Lam)
Combinatorial library screening with liposomes for discovery of membrane active peptides

Coffee Break
3:15pm—3:30pm

Keynote Talk
Chair: Dr. Sheila David

3:30pm—4:30pm — Dr. Glenn Millhauser
How Metal Ions in the Brain Tip the Toxic Balance of the Killer Prion Protein

Reception
4:30pm—5:30pm — Chemistry Courtyard

Poster Presentations

#	Name and Title
1	Brittany Anderson (David) *Response of the DNA Glycosylase hNEIL1 to oxidatively damaged DNA*
2	Katie Beglinger (Fraser) *Phosphorylation effects on the intact structure of eukaryotic translation initiation factor 4B (eIF4B) using ion mobility mass spectrometry*
3	Katie Bradshaw (David) *Functional Implications of Iron-Sulfur Cluster MUTYH variants associated with Colorectal Cancer*
4	Shih-Wei Chuo (Goodin) *Conformational Changes of P450 3A4 Upon Substrate Binding*
5	Andrea Coleman (Ames) *Structural Basis of Ca^{2+}-dependent Localization of Neuronal Voltage-gated Ca^{2+} Channels*
6	Nicole Cooper (Shaw) *Design of Small Molecule Inhibitors in the Study of E. coli FtsZ*
7	Andrea Faulkner (Shaw) *Development of Molecular Photoswitches as MRI Contrast Agents*
8	Julia Kirpich (Larsen) *Does strong sequence similarity predict similarity in photodynamics of two canonical red/green cyanobacteriochrome domains AnPixJg2 from Anabaena and NpR6012g4 from Nostoc punctiforme?*
9	Anoopjit Singh Kooner (Chen) *Synthetic sialic acid derivatives as chemical biological probes for sialobiology*
10	Kori Lay (David) *Using Transition State Analogs to Target Glycosylases*

#	Name and Title
11	Wanqing Li (Chen) *Neu5Ac9NAc, a good mimetic of Neu5Ac9OAc to solve the instability issue of naturally occurring O-acetylation on sialic acid*
12	Wilson Mak (Siegel) *Exploring the functional landscape of aldehyde deformylating oxygenases in the ferritin superfamily*
13	Morgan Matson (Atsumi) *Biological Conversion Of Ethylene To n-Butanol and Other Chemicals Using E. coli*
14	Nina McCulley (Tantillo) *An Examination of the Spiropyran Molecular Switches*
15	Leanna Monteleone (Beal) *Site Directed RNA Editing*
16	Nicole Nozzi (Atsumi) *Developing Production of a Plant Alkaloid in a Microbial Host*
17	Cody Palumbo (Beal) *Enhancement of RNA-Protein Interactions Through Chemical Modification*
18	Abhishek Santra (Chen) *Chemoenzymatic synthesis of Glycolipids with facile purification*
19	Cody Yothers (Franz) *Improving Microalgae Feedstock for Biofuel Production using CO_2 and Waste Nutrients from Anaerobic Digesters*
20	Qinhong Yu (Ames) *NMR Structural Analysis of a Red/Green Cyanobacteriochrome, NpR6012g4*
21	Eric Zheng (Beal) *Effective and selective DNA editing in a DNA-RNA hybrid by Adenosine Deaminase acting on RNA*