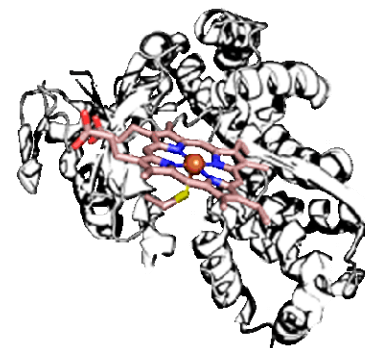




Frontiers in Metallobiochemistry

29th Summer Symposium in Molecular Biology
June 2 - 5, 2010



Wednesday, June 2, 2010

7:00 p.m. – 9:00 p.m. **Registration Check-In and Welcome Reception** Overlook Pavilion,
The Arboretum at Penn State

Thursday, June 3, 2010

7:30 a.m. – 9:30 a.m. **Registration Check-In** 1st Floor Lobby, Life Sciences Building
10:00 a.m. – 3:00 p.m. **Industrial Exhibits** Willaman Gateway, Life Sci. & Chem. Bldgs.
8:30 a.m. – 8:45 a.m. **Opening Remarks** 100 Life Sciences Building*

Cofactor Biogenesis and Metal Trafficking I

8:45 a.m. – 9:30 a.m. "In Vivo Approaches Towards Understanding Fe-S Cluster Assembly and Trafficking in Bacteria"
Dennis R. Dean, *Virginia Tech*

9:30 a.m. – 10:15 a.m. "Enzymes as Escorts in Organometallic Cofactor Trafficking"
Ruma Banerjee, *University of Michigan*

10:45 a.m. – 11:30 a.m. "Monothiol Glutaredoxins and BolA-like Proteins: Fe-S Binding Partners in Iron Homeostasis"
Caryn E. Outten, *University of South Carolina*

11:30 a.m. – 12:15 p.m. "Metal-Sensing Transcriptional Regulators: Structure and Mechanism"
David P. Giedroc, *Indiana University Bloomington*

Cofactor Biogenesis and Metal Trafficking II

2:30 p.m. – 3:15 p.m. "A Novel Role for a Diheme Enzyme in Tryptophan Tryptophylquinone Biosynthesis"
Victor L. Davidson, *University of Mississippi Medical Center*

3:15 p.m. – 4:00 p.m. "Enter the Metal Ion: Activating Manganese Superoxide Dismutase"
James W. Whittaker, *Oregon Graduate Institute*

4:00 p.m. – 4:45 p.m. "The Radical Chemistry of SAM"
Joan B. Broderick, *Montana State University*

Second-Sphere Tuning of Metallocofactor Reactivity

7:30 p.m. – 8:15 p.m. "Lesson from Nature: Utilizing Non-Covalent Interactions in Metal-Mediated Processes"
Andrew S. Borovik, *University of California Irvine*

8:15 p.m. – 9:00 p.m. "Unearthing the Importance of the Non-Covalent Secondary Coordination Sphere Interactions in Designing Functional Metalloproteins"
Yi Lu, *University of Illinois*

Friday, June 4, 2010

O₂ and C-H Activation at Mononuclear Metal Centers

8:30 a.m. – 9:15 a.m. "How Nature Uses Oxygen - Lessons from Iron Enzymes and Model Compounds"
John T. Groves, *Princeton University*

9:15 a.m. – 10:00 a.m. "Reactive Intermediates of Heme and Oxygen Involved in Cytochrome P450 Catalysis"
Stephen G. Sligar, *University of Illinois*

10:30 a.m. – 11:15 a.m. "C-H Bond Cleavage by High-Valent Iron-Oxo Complexes"
Lawrence Que, Jr., *University of Minnesota*

11:15 a.m. – 12:00 p.m. "Theoretical Studies on the Complex Reactivity of High-Valent Iron Centers in Enzymes and Model Systems"
Frank Neese, *Institute of Physical and Theoretical Chemistry Bonn*

- O₂ and C-H Activation at Dinuclear Metal Centers**
- 1:45 p.m. – 2:30 p.m. "Recent Advances in Understanding the Reaction Mechanism of Alkane Hydroxylase (AlkB), a Key Metalloenzyme in the Carbon Cycle"
Rachel N. Austin, *Bates College*
- 2:30 p.m. – 3:15 p.m. "Mössbauer, EPR and DFT Studies of Two Synthetic μ -Oxo Bridged Fe^{IV}/Fe^{III} S = 1/2 Complexes Containing a High-spin Fe^{IV}=O site: A Spin Transition at the Oxo Site Driven by Exchange Interactions."
Eckard Münck, *Carnegie Mellon University*
- 3:30 p.m. – 4:15 p.m. "Synthetic Approaches to Understanding Small Molecule Activation at Copper Enzyme Active Sites"
William B. Tolman, *University of Minnesota*
- 4:15 p.m. – 5:00 p.m. "The Active Site of Particulate Methane Monooxygenase"
Amy C. Rosenzweig, *Northwestern University*
- 7:00 p.m. – 10:00 p.m. **Poster Session and Concurrent Reception** Willaman Gateway, Life Sci. & Chem. Bldgs.

Saturday, June 5, 2010

- Complex Cofactors and Reaction Mechanisms**
- 8:30 a.m. – 9:15 a.m. "Diphthamide Biosynthesis Requires a SAM-Dependent [4Fe-4S]-Containing Enzyme"
Hening Lin, *Cornell University*
- 9:15 a.m. – 10:00 a.m. "Novel Mechanisms of Radical-Dependent Post-Translational Modifications"
Squire J. Booker, *The Pennsylvania State University*
- 10:30 a.m. – 11:15 a.m. "Unique Features of the VFe Protein of *Azotobacter vinelandii*"
Markus W. Ribbe, *University of California Irvine*
- 11:15 a.m. – 12:00 p.m. "The Electronic Structure of (π Radical) Iron Complexes : Where are the Valence Electrons?"
Karl Wieghardt, *Max Planck Institute for Bioinorganic Chemistry*
- Metals in Medicine**
- 2:00 p.m. – 2:45 p.m. "Molecular Imaging Approaches to Understanding Inorganic Chemistry in the Brain"
Christopher J. Chang, *University of California Berkeley*
- 2:45 p.m. – 3:30 p.m. "Steroid-Degrading Metalloenzymes of *Mycobacterium tuberculosis*"
Lindsay D. Eltis, *The University of British Columbia*
- 3:30 p.m. – 4:15 p.m. "Iron Homeostasis and Human Disease"
Wing-Hang Tong, *National Institutes of Health*
- The Promise of Metallobiochemistry for Society****
- 6:45 p.m. – 7:30 p.m. "Understanding and Improving Platinum Anticancer Drugs"
Stephen J. Lippard, *Massachusetts Institute of Technology*
- 7:30 p.m. – 8:15 p.m. "The Currents of Life: Electron Flow through Metalloproteins"
Harry B. Gray, *California Institute of Technology*
- 8:15 p.m. – 8:30 p.m. **Closing Remarks**

*Unless listed otherwise, all talks will be held in 100 Life Sciences Building.

**This session is open to the public.

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