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**GORDON RESEARCH CONFERENCES** *frontiers of science*

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**Nancy Ryan Gray, Ph.D.**  
Director

**2010 GORDON RESEARCH CONFERENCE  
on IRON-SULFUR ENZYMES**

**FINAL PROGRESS REPORT**

DEPARTMENT OF ENERGY  
GRANT NO. DE-SC0004603

The Gordon Research Conference on IRON-SULFUR ENZYMES was held at Colby-Sawyer College, New London, NH June 6-11, 2010. The Conference was well-attended with 107 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. and foreign scientists, senior researchers, young investigators, and students. Of the 107 attendees, 47 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 47 respondents, 17% were Minorities – 17% Asian. Approximately 24% of the participants at the 2010 meeting were women.

In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field. There was a conscious effort to stimulate lively discussion about the key issues in the field today. Time for formal presentations was limited in the interest of group discussions. In order that more scientists could communicate their most recent results, poster presentation time was scheduled. Attached is a copy of the formal schedule and speaker program and the poster program. In addition to these formal interactions, "free time" was scheduled to allow informal discussions. Such discussions are fostering new collaborations and joint efforts in the field.

Thank you for your support of this Conference. As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings. If you wish any further details, please feel free to contact me. Thank you.

Sincerely,  
*Fraser Armstrong, Conference Chairperson*  
OXFORD UNIVERSITY

## IRON-SULFUR ENZYMES

June 6-11, 2010  
Colby-Sawyer College  
New London, NH

Chair:  
Fraser Armstrong

Vice Chair:  
Tracey Rouault

Iron-sulfur (FeS) centers are essential for biology and inspirational in chemistry. These protein cofactors are broadly defined as active sites in which Fe is coordinated by S-donor ligands, often in combination with extra non-protein components, for example, additional metal atoms such as Mo and Ni, and soft ligands such as CN<sup>-</sup> and CO. Iron-sulfur centers are inherently air sensitive: they are found in essentially all organisms and it is possible that they were integral components of the earliest forms of life, well before oxygen (O<sub>2</sub>) appeared. Proteins containing FeS cofactors perform a variety of biological functions ranging across electron transfer, acid-base catalysis, and sensing where they are agents for cell regulation through transcription (DNA) or translation (RNA). They are redox catalysts for radical-based reactions and the activation of H<sub>2</sub>, N<sub>2</sub> and CO<sub>2</sub>, processes that offer scientific and economic challenges for industry. Iron-sulfur centers provide the focus for fundamental investigations of chemical bonding, spectroscopy and paramagnetism, and their functions have numerous implications for health and medicine and applications for technology, including renewable energy. The 2010 Iron-Sulfur Enzymes GRC will bring together researchers from different disciplines for in-depth discussions and presentations of the latest developments. There will be sessions on structural and functional analogues of FeS centers, advances in physical methods, roles of FeS centers in energy and technology, catalysis (including radical-based rearrangements and the activation of nitrogen, hydrogen and carbon), long-range electron transfer, FeS centers in health and disease, cellular regulation, cofactor assembly, their relevance in industry, and experiments and hypotheses relating to the origins of life.

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### SUNDAY

2:00 pm - 9:00 pm      Arrival and Check-in ([Office Closed 6:00 pm - 7:00 pm](#))

6:00 pm                  Dinner

7:30 pm - 7:40 pm      Welcome / Introductory Comments by GRC Site Staff

7:40 pm - 9:30 pm      **FUNDAMENTALS: INSIGHT FROM STRUCTURAL  
AND FUNCTIONAL ANALOGUES OF IRON SULFUR  
AND RELATED ACTIVE SITES**

Discussion Leader: **Marcetta Darensbourg** (Texas A&M University)

- 7:40 pm - 8:20 pm **Richard Holm** (Harvard University)  
"Recent Excursions into the Chemistry of Biologically Related Metal-Sulfur Clusters"
- 8:20 pm - 8:35 pm Discussion
- 8:35 pm - 9:15 pm **Patrick Holland** (University of Rochester, New York)  
"Expanding the Boundaries of Iron-Sulfur Clusters: New Arrangements and Oxidation Levels"
- 9:15 pm - 9:30 pm Discussion

## MONDAY

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **IRON SULFUR CENTER MATURATION, ASSEMBLY AND HEALTH IMPLICATIONS**  
Discussion Leader: **Tracey Rouault** (NIH, Bethesda, MD)
- 9:00 am - 9:30 am **Dennis Dean** (Virginia Technical University)  
"*In vivo* assembly of Iron-Sulfur clusters: Perspectives and challenges"
- 9:30 am - 9:40 am Discussion
- 9:40 am - 10:05 am **Wayne Outten** (University of South Carolina)  
"Exploring the *in vivo* mechanisms of *Suf* Fe-S cluster assembly in *E. coli*"
- 10:05 am - 10:15 am Discussion
- 10:15 am - 10:45 am Coffee Break / Group Photo
- 10:45 am - 11:10 am **Janneke Balk** (University of Cambridge, UK)  
"FeS biogenesis in biogenesis in plants and algae"
- 11:10 am - 11:20 am Discussion
- 11:20 am - 11:45 am **Julius Lukes** (Institute of Parasitology, Ceske Budejovice, Czech Republic)  
"Fe-S cluster assembly in the parasitic protist *Trypanosoma brucei*"
- 11:45 am - 11:55 am Discussion
- 11:55 am - 12:20 pm **Hélène Puccio** (University of Strasbourg, France)  
"The role of frataxin in Fe-S assembly and its implication in human health"
- 12:20 pm - 12:30 pm Discussion
- 12:30 pm Lunch
- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 6:00 pm Poster Session
- 6:00 pm Dinner
- 7:30 pm - 9:30 pm **NITROGENASES**  
Discussion Leader: **Brian Hoffman** (Northwestern University)
- 7:30 pm - 8:00 pm **Lance Seefeldt** (Utah State University)  
"Insights into the Nitrogenase Mechanism"

8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:40 pm	<b>Markus Ribbe</b> (University of California, Irvine) "Unique features of the VFe protein of <i>Azotobacter vinelandii</i> "
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	<b>Jonas Peters</b> (Caltech, Pasadena, CA) "Considering single and multiple site mechanisms for Fe-mediated N <sub>2</sub> fixation"
9:20 pm - 9:30 pm	Discussion
9:30 pm	Poster Session

## TUESDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>MECHANISMS OF DIRECT CATALYSIS AT IRON SULFUR CLUSTERS</b>  Discussion Leader: <b>Dick Cammack</b> (King's College, London)
9:00 am - 9:25 am	<b>Wolfgang Buckel</b> (University of Marburg, Germany) "Iron-sulfur dehydratases"
9:25 am - 9:35 am	Discussion
9:35 am - 10:00 am	<b>Pinhua Liu</b> (Boston University) "Mechanistic studies of IspH enzyme: A reductive dehydration reaction in prokaryotic isoprenoid biosynthesis"
10:00 am - 10:10 am	Discussion
10:10 am - 10:40 am	Coffee Break
10:40 am - 11:05 am	<b>Eric Oldfield</b> (University of Illinois, Urbana) "Mechanism of Action, and Inhibition, of IspG and IspH"
11:05 am - 11:15 am	Discussion
11:15 am - 11:40 am	<b>Petra Hänzelmann</b> (University of Würzburg, Germany) "Mechanistic insights into the role of the two catalytic FeS clusters of the radical SAM protein MoaA"
11:40 am - 11:50 am	Discussion
11:50 am - 12:15 pm	<b>Michael Johnson</b> (University of Georgia, Athens) "Biotin synthase revisited: The nature of the sulfur donor"
12:15 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm	Dinner
7:30 pm - 9:30 pm	<b>IRON SULFUR PROTEINS IN CELL PROCESSES, REGULATION AND REPAIR</b>

	Discussion Leader: <b>Nick LeBrun</b> (University of East Anglia, UK)
7:30 pm - 8:00 pm	<b>Marc Fontecave</b> (Université Joseph Fourier, Grenoble, France) "Sulfuration of biological macromolecules: new 'Radical-SAM' enzymes"
8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:40 pm	<b>Adrie Steyn</b> (University of Alabama, Birmingham) " <i>Mycobacterium tuberculosis</i> WhiB3, a 4Fe-4S cluster intracellular redox sensor that modulates virulence and persistence"
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	<b>Mark Dillingham</b> (University of Bristol, UK) "An iron-sulfur cluster is essential for the repair of DNA breaks by the AddAB helicase-nuclease"
9:10 pm - 9:30 pm	Discussion
9:30 pm	Poster Session

## WEDNESDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>HYDROGENASES</b>
	Discussion Leader: <b>John Peters</b> (Montana State University)
9:00 am - 9:25 am	<b>Stephen Cramer</b> (University of California, Davis) "Nitrogenase and hydrogenase -- characterizing intermediates with radiation from milli-eV to keV"
9:25 am - 9:35 am	Discussion
9:35 am - 10:00 am	<b>Wolfgang Lubitz</b> (Max Planck Institute, Mülheim, Germany) "The hydrogen-converting FeS Cluster in [FeFe] hydrogenase: Insight from magnetic resonance and vibrational spectroscopy"
10:00 am - 10:10 am	Discussion
10:10 am - 10:40 am	Coffee Break
10:40 am - 11:05 am	<b>Marcetta Darensbourg</b> (Texas A&M University) "Iron vs. sulfur-based oxygenation in hydrogenase active site synthetic analogues"
11:05 am - 11:15 am	Discussion
11:15 am - 11:40 am	<b>Oliver Lenz</b> (Humboldt University, Berlin) "Cofactor assembly and function in O <sub>2</sub> -tolerant [NiFe]-hydrogenases"
11:40 am - 11:50 am	Discussion
11:50 am - 12:15 pm	<b>Joan Broderick</b> (Montana State University) "Unraveling the mysteries of hydrogenase H-cluster assembly -- New insights into the roles of the radical SAM enzymes"
12:15 pm - 12:30 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time

4:00 pm - 6:00 pm	Poster Session
6:00 pm	Dinner
7:00 pm - 7:30 pm	<u>Business Meeting</u> (Nominations for the next Vice Chair; Fill out Conference Evaluation Forms; Discuss future Site & Scheduling preferences; Election of the next Vice Chair)
7:30 pm - 9:30 pm	<b>IRON SULFUR ENZYMES IN INTERCONVERSIONS OF CO AND CO<sub>2</sub></b> Discussion Leader: <b>Judy Hirst</b> (MRC Laboratory, Cambridge)
7:30 pm - 8:00 pm	<b>Stephen Ragsdale</b> (University of Michigan, Ann Arbor) "Nickel-iron-sulfur clusters in the activation of carbon dioxide and carbon monoxide"
8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:40 pm	<b>Holger Dobbek</b> (Humboldt University, Berlin) "Structural insights into the mechanism of Ni,Fe-containing CODHases"
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	<b>Frank Robb</b> (University of Maryland, Baltimore) "Regulation and catalytic roles of multiple carbon monoxide dehydrogenases in the carboxydotroph, <i>Carboxydotherrmus hydrogenoformans</i> "
9:20 pm - 9:30 pm	Discussion
9:30 pm	Poster Session

## THURSDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>IRON SULFUR ENZYMES AND ANALOGS IN HYDROGEN CYCLING TECHNOLOGY</b> Discussion Leader: <b>Juan Fontecilla-Camps</b> (Université Joseph Fourier, Grenoble, France)
9:00 am - 9:25 am	<b>John Golbeck</b> (Penn State University) "Hydrogen from solar energy"
9:25 am - 9:35 am	Discussion
9:35 am - 10:00 am	<b>Paul King</b> (National Renewable Energy Laboratory, Golden, CO) "Hydrogenases and solar hydrogen production"
10:00 am - 10:10 am	Discussion
10:10 am - 10:40 am	Coffee Break
10:40 am - 11:05 am	<b>Christopher Pickett</b> (University of East Anglia, UK) "Mechanism of hydride formation at [FeFe] hydrogenase subsite analogues"
11:05 am - 11:15 am	Discussion

11:15 am - 11:40 am	<b>Vincent Artero</b> (Université Joseph Fourier, Grenoble, France) "Mimicking hydrogenases: from biomimetic models to noble-metal free electrocatalytic nanomaterials for hydrogen production and uptake"
11:40 am - 11:50 am	Discussion
11:50 am - 12:30 pm	TBA (Selected Short Poster Presentations)
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm	Dinner
7:30 pm - 9:30 pm	<b>IRON, SULFUR, FUNCTIONS, AND LIFE</b> Discussion Leader: <b>Fraser Armstrong</b> (University of Oxford, UK)
7:30 pm - 8:00 pm	<b>Rolf Thauer</b> (Max-Planck Institute, Marburg, Germany) "Ferredoxins, why?"
8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:40 pm	<b>Jill Mikucki</b> (Dartmouth College, NH) "Blood Falls: Insights into Subglacial Microbial Energetics"
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	<b>Juan Fontecilla-Camps</b> (Université Joseph Fourier, Grenoble, France) "The beginning of life. Where did the electrons come from?"
9:20 pm - 9:30 pm	Discussion

## FRIDAY

7:30 am - 8:30 am	Breakfast
9:00 am	Departure

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## Iron-Sulfur Enzymes (2010)

Name	Organization	Participation	Status
ARMSTRONG, FRASER A	OXFORD UNIVERSITY	Chair	Registered
ARTERO, VINCENT	CEA-GRENOBLE	Speaker	Registered
BALK, JANNEKE	UNIVERSITY OF CAMBRIDGE	Speaker	Registered
BARONDEAU, DAVID P	TEXAS A&M UNIVERSITY	Poster Presenter	Registered
BRODERICK, JOAN B	MONTANA STATE UNIVERSITY	Speaker	Registered
BUCKEL, WOLFGANG	PHILIPPS-UNIVERSITY	Speaker	Registered
CAMMACK, RICHARD	KING'S COLLEGE LONDON	Discussion Leader	Registered
CLARK, MEGHAN M	UNIVERSITY OF ROCHESTER	Poster Presenter	Registered
COLBERT, CHRISTOPHER	UNIV. OF TX SOUTHWESTERN MEDICAL CENTER	Poster Presenter	Registered
CRAMER, STEPHEN P	UC DAVIS / LAWRENCE BERKELEY LAB	Speaker	Registered
CROOKS, DANIEL R	NIH/NICHD	Poster Presenter	Registered
CYGLER, MIREK	BIOTECHNOLOGY RESEARCH INSTITUTE	Poster Presenter	Registered
DAHL, JAN	UNIVERSITY OF POTSDAM	Poster Presenter	Registered
DANYAL, KARAMATULLAH	UTAH STATE UNIVERSITY	Poster Presenter	Registered
DARENSBOURG, MARCETTA Y	TEXAS A&M UNIVERSITY	Speaker	Registered
DE OLIVEIRA, LUISA A	VIRGINIA TECH	Poster Presenter	Registered
DEAN, DENNIS R	VIRGINIA POLYTECHNIC INSTITUTE	Speaker	Registered
DIETZEL, KEVIN	AMYRIS BIOTECHNOLOGIES	Attendee	Registered
DILLINGHAM, MARK S	UNIVERSITY OF BRISTOL	Speaker	Registered
DING, HUANGEN	LOUISIANA STATE UNIVERSITY	Poster Presenter	Registered
DOBBEK, HOLGER	HUMBOLDT-UNIVERSITAET BERLIN	Speaker	Registered
DUFFUS, BENJAMIN R.	MONTANA STATE UNIVERSITY	Poster Presenter	Registered
DUIN, EDUARDUS C	AUBURN UNIVERSITY	Poster Presenter	Registered
ELLIOTT, SEAN J	BOSTON UNIVERSITY	Poster Presenter	Registered
FLINT, DENNIS H	E. I. DUPONT	Poster Presenter	Registered
FONTECAVE, MARC	FRENCH ATOMIC ENERGY COMM./UNIV. OF GRENOBLE	Speaker	Registered
FONTECILLA-CAMPS, JUAN C	INSTITUT DE BIOLOGIE STRUCTURALE	Discussion Leader	Registered
FRAZZON, JEVERSON	VIRGINIA TECH	Attendee	Registered
GEORGE, SIMON	UNIVERSITY OF CALIFORNIA, DAVIS	Poster Presenter	Registered
GHOSH, MANIK C	NIH	Poster Presenter	Registered
GILES, LOGAN J	MONTANA STATE UNIVERSITY	Poster Presenter	Registered
GOLBECK, JOHN H	PENN STATE UNIVERSITY	Speaker	Registered
GREER, ALEXANDER	CUNY BROOKLYN COLLEGE	Attendee	Registered
HAENZELMANN, PETRA	UNIVERSITY OF WUERZBURG	Speaker	Registered
HALES, BRIAN J	LOUISIANA STATE UNIVERSITY	Poster Presenter	Registered
HEIDER, JOHANN	UNIVERSITY OF MARBURG	Poster Presenter	Registered
HIRST, JUDY	MEDICAL RESEARCH COUNCIL	Discussion Leader	Registered
HOFFMAN, BRIAN M	NORTHWESTERN UNIVERSITY	Discussion Leader	Registered
HOLLAND, PATRICK	UNIVERSITY OF ROCHESTER	Speaker	Registered
HOLM, RICHARD	HARVARD UNIVERSITY	Speaker	Registered
JOHNSON, MICHAEL K	UNIVERSITY OF GEORGIA	Speaker	Registered
JONES, ANNE K	ARIZONA STATE UNIVERSITY	Poster Presenter	Registered
JOSHI, NEELAMBARI	MONTANA STATE UNIVERSITY	Poster Presenter	Registered
KIM, EUNSUK	BROWN UNIVERSITY	Poster Presenter	Registered
KING, PAUL W	NATIONAL RENEWABLE ENERGY LABORATORY	Speaker	Registered
KULON, KINGA	MAX PLANCK INSTITUTE	Poster Presenter	Registered



LA, PING	CHILDREN'S HOSPITAL OF PHILADELPHIA	Attendee	Registered
LE BRUN, NICK	UNIVERSITY OF EAST ANGLIA	Discussion Leader	Registered
LEE, CHI-CHUNG	UNIVERSITY OF CALIFORNIA, IRVINE	Poster Presenter	Registered
LEGER, CHRISTOPHE	CNRS	Poster Presenter	Registered
LEIMKUEHLER, SILKE	UNIVERSITY OF POTSDAM	Poster Presenter	Registered
LENZ, OLIVER	HUMBOLDT-UNIVERSITAET ZU BERLIN	Speaker	Registered
LI, LEI	INDIANA UNIVERSITY-PURDUE UNIVERSITY INDIANAPOLIS	Poster Presenter	Registered
LI, HAORAN	UNIVERSITY OF SOUTH CAROLINA-COLUMBIA	Poster Presenter	Registered
LIU, PINGHUA	BOSTON UNIVERSITY	Speaker	Registered
LUBITZ, WOLFGANG	MAX-PLANCK-INSTITUT FUER BIOINORGANIC CHEMISTRY	Speaker	Registered
LUKES, JULIUS	UNIVERSITY OF SOUTH BOHEMIA	Speaker	Registered
LUKEY, MICHAEL J	OXFORD UNIVERSITY	Poster Presenter	Registered
MARELJA, ZVONIMIR	UNIVERSITY OF POTSDAM	Poster Presenter	Registered
MIKUCKI, JILL A.	DARTMOUTH COLLEGE	Speaker	Registered
NICOLET, YVAIN	CEA	Poster Presenter	Registered
NIU, SHUQIANG	GEORGETOWN UNIVERSITY	Poster Presenter	Registered
NOODLEMAN, LOUIS	SCRIPPS RESEARCH INSTITUTE	Poster Presenter	Registered
OLDFIELD, ERIC	UNIVERSITY OF ILLINOIS-URBANA-CHAMPAIGN	Speaker	Registered
OLIVEIRA, JAIM S	VIRGINIA TECH	Poster Presenter	Registered
ORTILLO, DANILO O	MONTANA STATE UNIVERSITY	Poster Presenter	Registered
OUTTEN, F. WAYNE	UNIVERSITY OF SOUTH CAROLINA	Speaker	Registered
PADDOCK, MARK L	UNIVERSITY OF CALIFORNIA, SAN DIEGO	Poster Presenter	Registered
PANDELIA, MARIA-EIRINI	MAX-PLANCK INSTITUTE FOR BIOINORGANIC CHEMISTRY	Poster Presenter	Registered
PERRIN, BRADLEY S	GEORGETOWN UNIVERSITY	Poster Presenter	Registered
PETERS, JOHN W	MONTANA STATE UNIVERSITY	Discussion Leader	Registered
PETERS, JONAS C	CALTECH	Speaker	Registered
PICKETT, CHRIS	UNIVERSITY OF EAST ANGLIA	Speaker	Registered
PIERIK, ANTONIO J.	UNIVERSITY OF MARBURG	Poster Presenter	Registered
POPESCU, CODRINA V	URSINUS COLLEGE	Poster Presenter	Registered
PUCCIO, HELENE M	IGBMC	Speaker	Registered
RAGSDALE, STEPHEN W	UNIVERSITY OF MICHIGAN MEDICAL SCHOOL	Speaker	Registered
RIBBE, MARKUS	UNIVERSITY OF CALIFORNIA, IRVINE	Speaker	Registered
RIBOLDI, GUSTAVO P	VIRGINIA TECH	Poster Presenter	Registered
ROBB, FRANK T	UNIVERSITY OF MARYLAND	Speaker	Registered
ROTH, LAUREN	UNIVERSITY OF CALIFORNIA SAN DIEGO	Poster Presenter	Registered
ROUAULT, TRACEY	NATIONAL INSTITUTE OF CHILD HEALTH & DEVELOPMENT	Vice Chair	Registered
ROUHIER, NICOLAS	NANCY UNIVERSITY	Poster Presenter	Registered
SAINI, AVNEESH K	UNIVERSITY OF SOUTH CAROLINA	Poster Presenter	Registered
SANDALA, GREGORY M	THE SCRIPPS RESEARCH INSTITUTE	Poster Presenter	Registered
SAXENA, NEETU	NICHD/ NATIONAL INSTITUTES OF HEALTH	Poster Presenter	Registered
SEEFELDT, LANCE C	UTAH STATE UNIVERSITY	Speaker	Registered
SHI, YANBO	NATIONAL INSTITUTES OF HEALTH	Poster Presenter	Registered
SINGH, ANAMIKA	MMP, NICHD, NIH	Poster Presenter	Registered
STEYN, ADRIE JC	UNIVERSITY ALABAMA AT BIRMINGHAM	Speaker	Registered
STOLL, STEFAN	UNIVERSITY OF CALIFORNIA DAVIS	Poster Presenter	Registered
SWANSON, KEVIN D	MONTANA STATE UNIVERSITY	Poster Presenter	Registered
TAN, MINGLIANG	GEORGETOWN UNIVERSITY	Poster Presenter	Registered
TEZCAN, AKIF	UCSD	Poster Presenter	Registered

THAUER, ROLF K	MARBURG UNIVERSITY	Speaker	Registered
TONG, WING-HANG	NICHD	Poster Presenter	Registered
TOWEY, BRADLEY D	MONTANA STATE UNIVERSITY	Poster Presenter	Registered
TSAI, CHI-LIN	TEXAS A&M UNIVERSITY	Poster Presenter	Registered
VANCE, MICHAEL A	MONTANA STATE UNIVERSITY	Poster Presenter	Registered
VINCENT, KYLIE A	UNIVERSITY OF OXFORD	Poster Presenter	Registered
WHITE, ROBERT H	VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY	Poster Presenter	Registered
WOLLERS, SILKE	LCBM / CEA GRENOBLE	Poster Presenter	Registered
XU, WEIYA	AUBURN UNIVERSITY	Poster Presenter	Registered
YANG, ZHIYONG	UTAH STATE UNIVERSITY	Poster Presenter	Registered
YE, HONG	NIH	Poster Presenter	Registered
ZADVORNY, OLEG A	MONTANA STATE UNIVERSITY	Poster Presenter	Registered
ZHAO, LISHAN	AMYRIS BIOTECHNOLOGIES	Attendee	Registered

## 107 Participants