

## **CURRICULUM VITAE of STEPHEN WILEY RAGSDALE**

David Ballou Collegiate Professor  
Department of Biological Chemistry  
University of Michigan Medical School  
1150 W. Medical Center Dr.  
Ann Arbor, MI 48109-0606  
Phone: 734-615-4621; Fax: 734-763-4581  
Email: [sragdsal@umich.edu](mailto:sragdsal@umich.edu);  
Website: <http://www.biochem.med.umich.edu/?q=ragsdale>

**PLACE & DATE OF BIRTH:** Rome, Georgia USA; May 26, 1952

### **EDUCATION:**

B.S., Chemistry & Biochemistry, The University of Georgia, Athens, GA, 1979.  
Ph.D. Biochemistry, The University of Georgia, Athens, GA, 1983. Lars G. Ljungdahl, Georgia Power Distinguished Professor of Biochemistry, advisor.  
Postdoctor, Case Western Reserve Univ., Cleveland, OH. Harland G. Wood, advisor. 1984-1987

### **ACADEMIC APPOINTMENTS** (first to current):

Assistant Professor, Department of Chemistry, The University of Wisconsin-Milwaukee, 1987-91  
Associate Professor, Department of Biochemistry, University of Nebraska, 1991-96.  
Professor, Department of Biochemistry, University of Nebraska, 1996-07.  
Charles E. Bessey Professor, University of Nebraska, 2003-07.  
Director, Molecular Biosciences & Biotechnology Integrated Graduate Training Program, 2006-07.  
Professor, Department of Biological Chemistry, University of Michigan, 2007-present  
David Ballou Collegiate Professor, Department of Biological Chemistry, University of Michigan, 2014-present.

### **PROFESSIONAL SOCIETY MEMBERSHIPS:**

American Society for Microbiology  
American Chemical Society  
American Association for the Advancement of Science  
American Society for Biochemistry and Molecular Biology  
Society of Biological Inorganic Chemistry  
The Protein Society  
Institute On Religion In An Age Of Science

### **PROFESSIONAL AWARDS AND HONORS:**

2018: Distinguished Faculty Achievement Award, Univ. Michigan  
2016: Endowment for the Basic Sciences Recognition Award, Univ. Michigan  
2014: Basic Sciences Teaching Award in Biological Chemistry, Univ. Michigan, Dec 2014

2014: David Ballou Collegiate Professorship, Oct 1, 2014.  
 2012: Merit Award from NIH on GM39451, "Enzymology of the Reductive Acetyl-CoA Pathway" (2012-2022)  
 2012. Inducted into the Univ of Michigan League of Educational Excellence  
 2011: Inducted into the Univ of Michigan League of Research Excellence  
 2011 & 12: Provost's Teaching Innovation Prize, Finalist ('11, '12)  
 2009: Elected Fellow of the American Academy for the Advancement of Science ('09)  
 2009: Ljungdahl Lectureship, University of Georgia, Athens, GA. Oct. 2009.  
 2009: Frederick J. Bollum Endowed Biochemistry Lectureship, University of Minnesota, May 2009  
 2006: Elected Fellow of the American Academy of Microbiology  
 2003: Outstanding Research and Creativity Award from UN System  
 2003: Charles E. Bessey Professorship  
 1987: Shaw Scholar Award, Milwaukee Foundation (1987-92)  
 1985: Public Health Service National Research Service Award from NIH (1985-86)

#### AREAS OF RESEARCH INTEREST:

Metallobiochemistry	Redox Biology & Biochemistry
Mechanistic Enzymology	Microbial One-Carbon & Greenhouse Gas Metabolism
Mercury Metabolism	Regulation of Metabolism & the Circadian Cycle

#### FUNDED RESEARCH PROJECTS: (PI, SWR unless otherwise noted & co-PI's listed)

07/1/87-06/30/90 Shaw Scholars Award, Milwaukee Foundation, \$105,000  
 03/25/88-03/24/91 Mechanism of Formation of the Carboxyl of Acetate by Acetogenic Bacteria, DOE, DE-FG02-88ER13875, \$173,720.  
 02/1/88-01/30/93 Mechanisms of Methyl Transfers in Acetyl-CoA Synthesis, NIH, R29-GM39451, \$349,553 (total).  
 03/25/91-03/24/95 Mechanistic enzymology of CO dehydrogenase from *Clostridium thermoaceticum*, Department of Energy (DOE), DE-FG02-91ER20053, \$373,000 (4 years).  
 04/01/91-03/31/95 Enzymology of Acetyl-CoA Synthesis, NIH, R01-GM39451, \$656,677 (total).  
 04/1/91-08/31/95 Enzymology of pathways for anaerobic degradation of aromatic and chlorinated compounds, Office of Naval Research, N00014-91-J-1942, \$410,000.  
 03/25/92-03/24/93 Purchase of an EPR spectrophotometer, DOE, \$450,000,  
 06/93-06/96 The function of metals in natural processes, NSF, \$2.3 million (J. Golbeck, P.I., 11 investigators), \$40,000/year (per investigator).  
 01/94-01/95 Purchase of a diode array spectrophotometer, University of Nebraska Center for Biotechnology, \$14,000.  
 04/01/95-03/31/00 Enzymology of Acetyl-CoA Synthesis, NIH, R01-GM39451, \$946,281 (total).  
 03/25/95-03/24/98 Mechanistic enzymology of acetoclastic methanogenesis, DOE, DE-FG02-91ER20053, \$370,000 (3 years).

07/1/95-06/30/96 Enzymology of metabolism of aromatic and halogenated compounds, Consortium for Plant Biotechnology Research, \$106,000 .

07/1/96-06/30/98 Enzymology of metabolism of herbicides, Consortium for Plant Biotechnology Research, \$106,000.

11/1/97-10/31/98 Redox control of Biological activity, University of Nebraska, ARD Innovative and high-risk research grant, \$20,000.

11/1/97-10/31/02 Development of crops tolerant to treatment with dicamba (Co-PI; PI, Don Weeks), United Agri Products, Inc., \$422,752.

03/25/98-03/24/01 Mechanistic enzymology of acetoclastic methanogenesis, DOE, DE-FG02-91ER20053, \$370,000 (3 years).

07/1/98-06/30/99 Enzymology of metabolism of herbicides, Consortium for Plant Biotechnology Research, \$30,000.

07/1/99-06/30/02 Biochemistry of the anaerobic dehalogenation of chlorinated aromatics, NSF, MCB9974836, \$300,000.

04/01/00-03/31/04 Enzymology of Acetyl-CoA Synthesis, NIH, R01-GM39451, \$1,235,700 (total).

07/1/00-06/30/02 Inhibition of methane production in ruminant animals, University of Nebraska ARD Interdisciplinary Research Proposal, \$40,000 Co-PIs: James Takacs and Jess Miner, UNL.

03/25/01-03/24/04 Mechanistic enzymology of acetoclastic methanogenesis, DOE, DE-FG03-ER20297, \$333,000 (total).

09/1/01-08/30-04 Inhibition of methane production in ruminant animals, (Co-PI's: Jim Takacs & Jess Miner), NIH, R41-GM64297, \$489,000.

07/1/02-06/30/06 Biochemistry of the anaerobic dehalogenation of chlorinated aromatics, NSF, MCB0211730, \$430,000

04/1/03-03/30-06 Inhibition of methane production in ruminant animals, (Co-PI's: Jim Takacs & Jess Miner), NIH, R41-GM67953, \$489,000.

03/25/04-03/24/07 Enzymology of methanogenesis: Mechanism of Methyl-CoM Reductase, DOE, DE-FG03-ER20297, \$420,000.

04/01/04-03/31/08 Enzymology of Acetyl-CoA Synthesis, NIH, R01-GM39451, \$1,099,287 (total).

05/1/06-04/30/09 REU SITE: Training in Redox Biology (P.I., Becker; Ragsdale, Co-PI) NSF, DBI-0552648, \$188,250 (total)

04/01/07-03/31/09 Elucidation of the role of the heme regulatory motif in heme oxygenase-2, NIH, R21HL089837-01, \$411,271 (total).

01/15/08-06/14/11 Enzymology of methanogenesis: Mechanism of Methyl-CoM Reductase, DOE, DE-FG02-08ER15931 (f., DE-FG02-04ER15532), \$604,275 (3 yrs).

04/01/08-03/31/12 Enzymology of the Reductive Acetyl-CoA Pathway, NIH, R01-GM39451, \$1,279,683 (total).

06/01/08-05/31/09 2008 Gordon Research Conference on Molecular Basis of Microbial One-Carbon Metabolism, NASA Astrobiology Institute, \$12,000.

06/01/08-05/31/09 2008 Gordon Research Conference on Molecular Basis of Microbial One-Carbon Metabolism, USDA, 2008-35318-04661, \$10,000.

- 06/01/08-05/31/09 2008 Gordon Research Conference on Molecular Basis of Microbial One-Carbon Metabolism, NSF, \$12,000.
- 08/15/08-01/14/09 Crystallographic Studies of Methyl-Coenzyme M Reductase, DOE, supplement to DE-FG02-08ER15931, \$80,000.
- 07/01/10-06/30/15 Thiol/Disulfide Redox Regulation of Heme Oxygenase-2, NIH, R01-HL102662, \$2,327,328 total.
- 06/15/11-06/14/15 Enzymology of methanogenesis: Mechanism of Methyl-CoM Reductase, Department of Energy, DE-FG02-08ER15931, \$678,000.
- 02/01/12-01/31/17 Enzymology of the Reductive Acetyl-CoA Pathway, NIH, R37-GM39451, \$1,972,649 (total). Merit Award.
- 02/1/14-01/1/17 Anaerobic Bioconversion Of Methane To Methanol, Department of Energy – ARPA-E, DE-AR0000426, \$2,754,690. Co-PI's: Simone Raugei PNNL; Nathan Price, Institute for Systems Biology; John Leigh, University of Washington.
- 06/1/16-05/31/17 Redox Regulation of Heme Oxygenase-2 and the Nuclear Receptor Rev-Erb by their Heme Responsive Motifs, University of Michigan & Dept Biol Chem, Biomedical Research Council Bridging Grant, \$100,000.
- 06/15/16-06/14/17 Purchase of a Cryogen-Free Variable Temperature System for EPR Spectroscopy, Supplement to DE-FG02-08ER15931, Department of Energy, \$45,000.
- 06/15/16-06/14/17 Purchase and EPR Cryostat, University of Michigan: Office of Research (Med. School & University) & Dept of Biological Chemistry, Matching Funds to Supplement, \$65,000
- 06/15/15-06/14/18 Enzymology of methanogenesis: Mechanism of Methyl-CoM Reductase, Department of Energy, DE-FG02-08ER15931, \$725,441
- 04/01/17-03/31/21 Redox Regulation of Heme Oxygenase-2 and the Nuclear Receptor Rev-Erb by their Heme Responsive Motifs, NIH, R01-GM123513-03, \$1,000,000 (total).
- 01/01/19-12/31/20 19PRE34380029 Investigation into the regulatory role of heme on the conformation and function of heme oxygenase 2, Am. Heart Assoc., AHA Predoctoral Fellowship Awarded to *Liu Liu*, PhD student in the lab. \$53,688.00 (total, 2 years)

*Current:*

- 07/01/18-06/30/22 Biochemical Mechanism of Mercury Methylation, NIH, R01-GM124174-02, 1,819,922 (total).
- 02/01/17-01/31/22 Enzymology of the Reductive Acetyl-CoA Pathway, NIH, R37-GM39451-31, \$1,972,649 (total). Merit Award.
- 06/15/18-06/14/21 Enzymology of methanogenesis: Mechanism of Methyl-CoM Reductase, Department of Energy, DE-FG02-08ER15931, \$750,670 (total), \$165,656 (Direct Yr1).

06/15/21-06/14/24 Enzymology of methanogenesis: Mechanism of Methyl-CoM Reductase, Department of Energy, DE-FG02-08ER15931, \$755,000 (total), \$165,656 (Direct Yr1).

*Pending:*

ARPA-E (Lanzatech, PI) Carbon Capture by the Wood Ljungdahl Pathway.

1 R35 GM141758-01, Metalloprotein Mechanisms of Redox Regulation and Catalysis. This is planned to replace the three current NIH grants described above.

### **TEACHING (Formal courses)**

Year

Course

#### UNIV OF MICHIGAN

2014-21	CHEM 303. Consult with students on essays related to bioinorganic topics of interest to my laboratory.
2010-21	Biology and Chemistry of Enzymes BIOC528. Redox and Inorganic Biochemistry. 6 lectures.
2010-21	Graduate Seminar BIOC711. Fall and Winter Terms. Lead the class and work with students in practice sessions and in preparing and presenting a formal 1 hr seminar to the department.
2010-21	Intro to Scientific Communication PHARM502. Winter term. helping students write and present a grant proposal to NIH or NSF on their graduate research.
2008-09	Graduate Survey of Chemical Biology CHEMBIO 501
2009-16	Creativity in the Sciences and Arts (undergrad, HON252 –). Examine the creative processes used in the sciences, humanities and arts, as well as to help students develop their own creativity. Format; lecture/discussion, workshop on alternate weeks; Students write weekly reflections and develop and present a Cumulative Project posted on-line and “performed” at the final workshop.
2013-14	Critical Analysis BIOC597
2010	Critical Analysis of the literature CHEMBIO601
2010-11	Special Problems in Psychology: The Psychology of Creativity, Psych 400

#### UNIV of NEBRASKA

1996-04	Enzymes (grad), BIOC933 16 Lectures
1997-03	Graduate Survey of Biochemistry BIOC839, 10 lectures
2005	Biochemistry Seminar, 16 meetings
2005-07	Biomolecules and Metabolism, BIOC431/831, 19 lectures
2006-07	Creativity in the Sciences and Arts, Honors Undergrad Class, 14 meetings, workshops and lectures

#### UNIV of WISCONSIN –MILWAUKEE

1987-90	Regulation of Metabolism, CHEM602, 15 lectures.
1989-91	Spectroscopic techniques, CHEM701, 2 lectures.
1988-91	Biochemistry Capstone, CHEM501, 2 lectures
1989-90	Survey of Biochemistry for health sciences majors, CHEM201, 20 lectures
1988-90	Modern Methods in Biochemistry and Molecular Biology, CHEM603

### LAY ACTIVITIES:

Press coverage of courses, science-related music at ASBMB Today: [Enzyme Purification Blues](#) and [Fostering Creativity in the Sciences and Arts](#).

Recent jazz guitar and vocal performances: *Secrets of Love*, with Marlena Studer at Cafe 704, Ann Arbor (Feb 13, 2021); various zoom and facebook live jazz performances; June, 2019, Old Towne Tavern, Ann Arbor, The Bop Dragons jazz quartet.

2021: Lay Book planned for 2021 book publication: *Science, Spirituality and Creativity*

2021: Lecture on Science, Spirituality and Creativity at the annual meeting of "International Society for Religion in the Age of Science".

### PROFESSIONAL ACTIVITIES:

#### *Editorial Boards:*

<u>Year</u>	<u>Journal</u>
87-14	BioFactors
96-04	Journal of Bacteriology, 1996-2004
97-08	The Journal of Biological Chemistry
99-02	Archives of Biochemistry and Biophysics
03-06	Archives of Microbiology
06-present	Current Opinions in Chemical Biology
07-12	BBA Proteins and Proteomics
11-present	Frontiers in Microbiological Chemistry
12-16	Editorial Advisory Board of <i>The Journal of Biological Inorganic Chemistry</i>
12-22	The Journal of Biological Chemistry

<u>Year</u>	<u>Other Editorial Activities</u>
2010	Antioxidants & Redox Signaling, Guest editor for forum issue on "Redox Switches"
2010	Methods in Enzymology, Co-editor with Amy Rosenzweig on two-volume Book on "Methods in Methane Metabolism"

<u>Year</u>	<u>Grant Review Panels</u>
1994-96	NIH Study Section – Biochemistry
1996	NIH Study Section – Physical Biochemistry
2000, 2002	NIH Study Section – Metallobiochemistry
2002	DOE "Genomes to Life"
2002	NSF Metabolic Biochemistry
2002	Ernest Orlando Lawrence Award Selection Committee, DOE
2003	Molecular Biochemistry
2005	DOE "Genomes to Life"
2006	NIH Study Section – MSFA

2007	DOE Bioenergy Centers Merit Review
2007	Energy Biosciences Panel on Metabolic Processes and Biophysics
2009	NSF Metabolic Biochemistry
2012	NIH ZRG1 BCMC-B Review panel
2013	DOE, Biological Energy Sciences Review Panel
2014	NAGMS/NIGMS National Advisory Council
2015	NIH Study Section – MSFA
2015	Biotechnology and Biological Sciences Research Council (BBSRC, UK)
2016-17	DOE, Biological Energy Sciences Review Panel
2017	NIH Study Section – MSFA

*Professional Society Activities:*

<u>Year</u>	<u>Grant Review Panels</u>
1999	American Society for Microbiology Division K Chair-elect
2000	American Society for Microbiology Division K Chair
1999-02	American Chemical Society, Nominations Committee
1999-02	American Chemical Society, Treasurer of the Biological Chemistry Division
1999	Fellow, American Association for the Advancement of Science
2011-14	Society of Biological Inorganic Chemistry (Elected Councilor)

*Meeting organizer & Session Chair:*

<u>Year</u>	<u>Meeting</u>
1990	Session Chair, FASEB Summer Conference on Folate, B <sub>12</sub> , and One Carbon Metabolism
1993	session chair, Gordon Research Conference (GRC) on Methanogenic Bacteria
1993	Session Chair, Gordon Research Conference on Metals in Biology:
1996	Organized "The Art of Anaerobes", Athens GA
1998	Annual American Society for Microbiology meeting (session organizer)
2000-02	Annual American Society for Microbiology meeting (session organizer)
2001	International Conference on Carbon Dioxide Utilization
2002	Session Chair, Gordon Research Conference Microbial One-Carbon Metabolism
2002	Annual American Chemical Society (Session organizer)
2003	Session Chair, Gordon Research Conference on Environmental Bioinorganic Chemistry
2003	Session Chair, Gordon Research Conference Microbial One-Carbon Metabolism
2003	International Conference on Carbon Dioxide Utilization
2004	Session Chair, Gordon Research Conference on Environmental Bioinorganic Chemistry
2004	Annual American Society for Microbiology meeting (session organizer)
2005	International Conference on Carbon Dioxide Utilization
2005	Session Chair, Gordon Research Conference on Metals in Biology
2005	Session Chair, Cobalamin and Corphins meeting
2006	Session Chair, Cobalamin and Corphins meeting
2006	Gordon Research Conference: Meeting co-chair (Molecular Basis of Microbial One-Carbon Metabolism)
2008	Gordon Research Conference: Meeting chair (Molecular Basis of Microbial One-Carbon Metabolism)

2011	Co-organizer: Department of Energy Workshop on Catalysis of CO <sub>2</sub> reduction
2019	Discussion Leader, Gordon Research Seminar on Bioinorganic Chemistry (GRS), 1/31-2/3/19, Four Points Sheraton. Ventura, CA
2020	Chair session on B <sub>12</sub> , Gordon Research Conference on at the Chemistry and Biology of Tetrapyrroles, Salve Regina University, Newport, RI. July 19-24.
2021	Meeting vice-chair, Gordon Research Conference on Metals in Biology, Four Points Sheraton. Ventura, CA
2022	Meeting chair, Gordon Research Conference on Metals in Biology, Four Points Sheraton. Ventura, CA.

### SIGNIFICANT LOCAL ACTIVITIES:

#### *University of Michigan:*

<u>Year</u>	<u>Activity</u>
2010-present	Member, Program in Biomedical Sciences, Dept. of Biological Chemistry
2010-18	Graduate Admissions Committee, Dept. of Biological Chemistry
2009-10	Graduate Admissions Committee, Cellular and Molecular Biology
2007-	Trainer, Cellular and Molecular Biology
2009-2019	Co-director, Trainer & member, Chemical Biology Interface Training Program
2009-present	Member, executive committee, Program in Chemical Biology
2012-15	Dept. of Biological Chemistry Departmental Executive Committee
2015-2018	Chair of Biological Chemistry departmental <i>Diversity, Equity and Inclusion</i> (DEI) committee, Faculty Ally for diversity in department
2012	Dept. of Biological Chemistry; chair ad-hoc Mentorship Committee
2012	Dept. of Biological Chemistry: Lu Faculty Search Committee member
2012	Dept. of Biological Chemistry Preliminary Exam Committee member
2012	Communications Committee & Computer Committee
2012	Dept. of Biological Chemistry Equipment Committee
2008-present	Faculty member, Chemical Biology Graduate Program (Executive Committee)
2010- present	Faculty Affiliate, <i>Program in Creativity and Consciousness Studies</i>
2012-present	Environmental Sustainability Center (Faculty Associate)
2010-present	University of Michigan Energy Institute (Faculty Associate)
2009-11	Member of Undergrad. Creativity Research Project to develop classroom practices that enhance creativity
2007-present	PhD Student Advisor in Biological Chemistry; Chemistry; Public Health Service; Pharmacology; Biophysics; Dept of Environmental Engineering (40 graduate students)

#### *Ann Arbor Community Activities:*

<u>Year</u>	<u>Activity</u>
2009-2014	Steve the Science Guy at Ozone House – biweekly meetings with at-risk youth at the youth Shelter to teach about science and nature.
2008-present	Member of Yoga Serves – monthly dinner preparation, serving
2012	Organization of Abacus & Rose: SciArt Live – Ann Arbor community-based concert/lecture series held at Kerrytown Concert House.

#### *University of Nebraska:*

<u>Year</u>	<u>Activity</u>
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1998-2007 Chairperson, Department of Biochemistry Graduate Program Committee  
 2002-2005 Chairperson UNL Research Council  
 2006-2007 Director of the Molecular Biosciences and Biotechnology Integrated Graduate Training Program  
 2005-2007 Board of Advisors, University of Nebraska Center for Applied Ethics ()  
 2012 *Fate or Faith*, a UNL campus-wide series of panels and lectures on "Evolution, Intelligent Design, and Creationism"

*University of Wisconsin-Milwaukee:*

<u>Year</u>	<u>Activity</u>
1988-1991	Chairman, Committee on Biochemistry and Molecular Biology, Chemistry Department
1988-90	Chairman, Graduate Admissions Committee, Chemistry Department.
1989-1991	Member: Space Committee, Colloquium Committee, and Graduate Admissions Committee, Chemistry Department.

**M.S. AND PH.D. THESIS DIRECTED AND POSTDOCTORAL FELLOWS**

***Current Graduate Advisees***

Liu Liu (2017-) PhD Candidate (Biological Chemistry); MS (Biological Chemistry) 2016, Univ. Mich.; Bachelor of Medicine, 2011, Shanghai.  
 Claire Griffith (2020-) Biological Chemistry, PhD Candidate; BS (Chemistry and Biochemistry) 2019, Ohio Northern University.  
 Christopher Ohmer (2020-) Chemical Biology, PhD Candidate  
 Madeline Shay, Biological Chemistry, PhD Pre-Cand Rotation Student, B.S. (Microbiology & Chemistry) 2020, University of Alabama-Birmingham.

***Current Postdoctoral Associates:***

Anjali Patwardhan (2015-) Ph.D. (Chemistry) 2003, The Ohio State University, Columbus, OH, Advisor: Prof. James A. Cowan; M.S. (Chemistry) 1996, Indian Institute of Tech., Mumbai, India Advisor: Prof. C.P.Rao; B.S. (Chemistry) 1994, Bombay University, Mumbai, India.  
 Anindita Sarkar (2017-) Ph.D. (Chemistry), 2016, Tata Institute of Fundamental Research, Mumbai, India, Advisor: Dr. Ankona Datta; MS (Organic Chemistry), 2009; University of Delhi, Delhi, India; BS (Chemistry), 2007, Hansraj College, University of Delhi, Delhi, India  
 Zhang, Kaiyuan (2018-) PhD (Biochemistry) 2018, Auburn Univ.

***Current Research Assistant Professors in the lab:***

Angela Fleishchhacker (2019-) Assistant Research Scientist, Biological Chemistry, Univ. Michigan; (2014-19) Research Investigator, Biological Chemistry, Univ. Michigan; (2013-14) Postdoctoral Fellow, Biological Chemistry, Univ. Michigan, Ann Arbor MI; (2007-12) Postdoctoral Fellow, Biomolecular Chemistry, Univ. Wisconsin, Madison WI Advisor, Patricia Kiley; (2002-2007) Ph.D. (Chemistry) Univ. Michigan Advisor: Rowena Matthews; (1998-2002) BA (Chemistry) Carleton College, Northfield MN

***Graduated PhDs***

Jacqueline B. Roberts (1988-1991) Professor and Dept Chair, DePauw University  
 David Roberts (1988-1991) Lecturer, DePauw University  
 Carol Gorst (1988-1991) Technology Consultant, XYPRO Technology Corp.

Shaying Zhao (1991-03) Professor, University of Georgia.  
Christina Furdui (1997-02) Professor, Wake Forest University Medical School  
Yih-Chern Horng (1998-03) Professor, National Changhua University of Education  
Razvan Dumitru (1999-04) Research Staff, Baylor College of Medicine  
Ryan Kunz (2002-2007) Harvard Medical School  
Nirupama Gupta (2005–09) Financial Consultant  
Yi Li (2007–10) Professor, Hubei University, Wuhan, China  
Elizabeth Pierce (2008-12) Asst. Professor, Southern Utah University  
Andrea M. Spencer (2009-14) Boston Children's Hospital/Harvard Medical School  
Katherine Rush (2013-2018) Postdoctor, Oregon Graduate Studies Research Center  
and Reed College.  
Seth Wiley (2015-2020) Postdoctor, Emory University, Atlanta.

***Graduated M.S. Students:***

*Mandra Quassis*  
*Sarah Fayad*

***Postgraduate-Scholar Advisees:***

*Past:*

Wei-Ping Lu (1987-91) Scientist, Deciphera Pharmaceuticals  
Manoj Kumar (1993-96) Director Sc. & Tech. and Food & Crop Protection Innovation,  
DSM  
Asma El Kasmi (1993-95) Professor, Al-Akawayn University In Ifrane, Morocco  
Donald Becker (1995-98) Professor and Director of the Redox Biology Center,  
University of Nebraska  
Javier Seravalli (1995-07) Research Assoc. Professor, University of Nebraska  
Devendra Naidu (1998-00) Research Scientist, SUNY-Stony Brook  
Alan Tsang (2002-2004) Research Professor, Wake Forest University.  
Tapan Kundu (2002-04) Davis Heart and Lung Research Institute  
Hishashi Hemmi (2004-06) Associate Professor, Nagoya University  
Mishu Dey (2004-08) Assistant Professor, University of Iowa; soon to become Editor,  
Nature Publications  
Mathias Antoine (2006-08) Professor, Université Henri Poincaré  
Gunes Bender (2007-11) Research Scientist, Univ. of Texas Southwestern Medical  
Center  
Yuzhen Zhou (2008-11) Associate Professor, Huaiyin Normal University  
Xianghui Li (2008-11) Scientist, New England Biolabs, Shanghai, China  
Ireena Bagai (2010-13) Postdoctor, Cornell Medical School  
Dariusz Sliwa (2011-15) Technical Specialist, Applied Photophysics Inc  
Eric Carter (2012-16) Formulation Scientist, BioMarin Pharmaceutica  
Thanyaporn Wongnate (2012-15) Assistant Professor, Vidyasirimedhi Institute of  
Science and Technology, Thailand  
Johanna Mock (2014-16) in Germany, just had their first child.  
Mehmet Can (2012-18) Senior Research Scientist, Elixir Pharmaceutical R&D  
Corporation, Ankara, Turkey  
Rodney Burton (2017-2020) Technical writer, Cayman Chemicals

**BIBLIOGRAPHY**

**Peer-Reviewed Primary Articles (166; 222 total)** Over 12,000 citations total (h-index = 58):

PubMed List:

[http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=DetailsSearch&Term=ragsdale+sw\[au\]](http://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=DetailsSearch&Term=ragsdale+sw[au])

<https://www.ncbi.nlm.nih.gov/myncbi/stephen.ragsdale.1/bibliography/public/>

- Patwardhan, A., Sarangi, R., Ginovska, B., Raugei, S., and Ragsdale, S. (2021) Nickel-Sulfonate Mode of Substrate Binding for Forward and Reverse Reactions of Methyl-SCoM Reductase Suggest a Radical Mechanism Involving Long Range Electron Transfer. *J. Am. Chem. Soc.*, in press, <https://doi.org/10.1021/jacs.1c01086>. Spotlight.
- Sarkar A, Carter EL, Harland J, Lehnert N, **Ragsdale SW**. (2021) Ferric Heme as a CO/NO Sensor in the Nuclear Receptor Reverb $\beta$  by Coupling Gas binding to Electron Transfer, *Proc. Natl. Acad. Sci. USA*:118(3):[e2016717118](https://doi.org/10.1073/pnas.2016717118). doi: 10.1073/pnas.2016717118 (See also, bioRxiv. 2020:2020.06.22.[164806](https://doi.org/10.1101/2020.06.22.164806)).
- Liu, L., Dumbrepatil, A.B., Fleischhacker, A.S., Marsh, E.N.G., **Ragsdale, S.W.** (2020) Heme oxygenase-2 is post-translationally regulated by heme occupancy in the catalytic site. *J. Biol. Chem.*, 295:17227-40. doi: 10.1074/jbc.RA120.014919 (See also, bioRxiv. 6.21.06.21.[163881](https://doi.org/10.1101/2020.06.21.163881)).
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- Ragsdale, S.W.** (2008) Redox enzymology, in R. Banerjee (ed.), *Redox Biochemistry*, Wiley and Sons, Hoboken, NJ, Chot 4.6, pp. 173-177.
- Ragsdale, S.W.** (2007) Nickel and the Carbon Cycle. *Journal of Inorganic Biochemistry* **101**: [1657-66](#). PMID: PMC2100024.
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- \*Ragsdale, S.W.** (1994) CO dehydrogenase and the central role of this enzyme in the anaerobic fixation of CO<sub>2</sub>, in "Acetogenesis", pp. 88-129, Chapman and Hall, New York, edited by H.L. Drake.
- \*Ragsdale, S.W.** (1991) Enzymology of the acetyl-CoA pathway of CO<sub>2</sub> fixation, *CRC Critical Reviews in Biochemistry and Molecular Biology* **26**: 261-300.
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- \***Ragsdale, S.W.**, Baur, J.R., Gorst, C.M., Harder, S.R., Lu, W.-P., Roberts, D.L., Runquist, J.A., & Schiau, I. (1990) The acetyl-CoA synthase from *Clostridium thermoaceticum*: from gene cluster to active-site metal clusters. *FEMS Microbiology Reviews* **87**, 397-402.
- \***Ragsdale, S.W.**, Wood, H.G., Ljungdahl, L.G., Morton, T., and DerVartanian, D.V. (1988) Nickel in CO dehydrogenase in *Bioinorganic Chemistry of Nickel* (J.R. Lancaster, ed) VCH Publishers, Inc., 311-332.
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- \*Wood, H.G., **Ragsdale, S.W.**, and Pezacka, E. (1986) The discovery of a new pathway of autotrophic growth using carbon monoxide or carbon dioxide and hydrogen. *Biochemistry International* **12**: 421-440.
- \*Wood, H.G., **Ragsdale, S.W.**, and Pezacka, E. (1986) The acetyl-CoA pathway of autotrophic growth. *FEMS Microbiology Reviews* **39**: 345-362.

#### **PATENTS:**

“Method for the inhibition of methanogenesis”, Jess L. Miner, Stephen W. Ragsdale, and James M. Takacs; application #: 20030219467, Serial no. 10/245,965.

#### **PRESENTATIONS**

- 2022 Gordon Research Conference “Molecular Basis of One-Carbon Metabolism” (C1-GRC), Waterville Valley, NH, Aug. 9-14. Rescheduled.
- 2021 Gordon Research Conference on Metals in Biology, Ventura CA, Jan 19-24.  
2021 PacifiChem, “Nature does it better: Small molecule activation in metalloenzymes and adaptation in synthetic catalysts” Dec. 15-20.  
2021. Institute for Religion in the Age of Science, July. Science, Spirituality, Creativity.
- 2019 26<sup>th</sup> Enzyme Mechanisms Conference, New Orleans, Jan 6-9.  
Metals in Biology GRS, “The role of metals in evolution and early metabolism”, Jan 31-Feb3.  
Biochemistry Department, Univ. of Georgia Spring Seminar, May, Athens, GA  
7th Annual Symposium on Structural Biology, Jun 6, Univ of Oklahoma, Norman, OK.  
Telluride workshop on “Biological and Bioinspired Redox Catalysts”, Telluride Science Research Center, CO July 16-20.  
19th International Conference on Biological Inorganic Chemistry, Interlaken, Switzerland, Aug. 11-16.
- 2018 Lecture on Ni Enzymes in the Carbon Cycle, UC-Irvine, Nov. 30  
Gordon Research Conference on Metallocofactors, Mt. Holyoke College (South Hadley, MA) June 10-15.
- 2017 Department of Chemistry and Chemical Biology, Northeastern Univ., Sept 20

Department of Chemistry, Boston University, Sept 18  
Department of Chemistry, Massachusetts Institute of Technology, Sept 17  
New Paradigm for Catalyst Design: From Enzymatic Function to Functional Mimics”, American Chemical Society, Washington DC, Aug. 20-24  
Auburn University, Auburn, AL, April 12  
Inorganic Reaction Mechanism Gordon Research Conference, Galveston TX, Mar. 10.  
University of Illinois, March 16  
ARPA-E REMOTE Meeting, Galveston, TX, Feb. 15  
Southeast Asia Bioinorganic Chemistry, Calcutta, IN, Jan. 6  
2016 Lanzatech, Inc., Chicago Dec. 9, 2016  
Physical Biosciences All PI meeting, Oct. 17, 2016  
9th International Conference on Heme Oxygenases, Prague, Sept 14-17, 2016  
Department of Chemistry, Ohio State University, Aug 30, 2016  
CIFAR Meeting on Bio-inspired Solar Energy, Vancouver, May 12-14, 2016  
ARPA-E REMOTE Meeting, San Diego, CA, Jan 20, 2016  
2015 “Biochemistry of the microbial synthesis and utilization of methane”, Department of Microbiology, University of Washington, Seattle, WA Dec 1, 2015  
C1-Net-sponsored Meeting on “Metabolism and Enzymology of C1 organisms”, Univ. of Nottingham, June 23, 2015  
College of Life Science, Hubei University, May 19, 2015  
Presentation for full university, Hubei University, May 20, 2015  
Huaiyin Normal University, May 20, 2015  
2014 International Conf. on Porphyrins and Phthalocyanines – Istanbul, Turkey, Jun 22-27, 2014  
Structure and Function of the Heme Responsive Motifs in Heme Oxygenase-2, 8th International Conference on Heme Oxygenases, Biolron & Oxidative Stress, Oct. 2014  
Mechanism of Methyl-Coenzyme M Reductase, DOE-BES Physical Biosciences, Sept. 2014  
Williams College, Metalloenzymes, Sept 2014  
Gordon Research Conference on “Chemistry & Biology Of Tetrapyrroles” - Newport, RI: July 20-25, 2014  
Pacific Northwest National Laboratory, May 28, 2014  
University of Iowa, Iowa City, IA, May 10, 2014  
Georgia State University, Atlanta, GA, March 16, 2014  
University of Nebraska, Department of Biochemistry, Feb. 12, 2014  
ARPA-E REMOTE meeting, Washington DC, Feb. 26, 2014  
2013 Iowa State University, Ames, Iowa, Sept 21, 2013  
2nd HHDP symposium, Inst. of Photonic Technologies, Jena, Germany, May 30.  
University of Delaware, “CO metabolism: from microbes & mammals”, Feb 27.

- Oak Ridge National Laboratory, Oak Ridge, TN, Feb. 14-15, 2013.
- 2012 Annual Symposium - Frontiers in biological catalysis, Cambridge, UK. Jan 10.  
Gordon Research Conference on "Metals in Biology", Ventura, CA. Jan. 22.  
Lecture at Chemical Biology Interface Training Program, Univ. Michigan, Mar. 9.  
NSF Workshop, Catalytic Mechanisms & Emergence of Metabolic Networks  
Workshop, May 23-25, 2012.  
Gordon Research Conference on the Molecular Basis of Microbial One-Carbon  
Metabolism, Bates College, August 5-10, 2012  
Univ. of Rochester, Chemistry / Biochemistry & Biophysics Seminar Program,  
"Regulation of enzymes, ion channels, and nuclear receptors by redox, heme  
and CO", Dec. 12, 2012
- 2011 International Conference on Bioinorganic Chemistry, Vancouver, BC, Canada,  
Aug 7-12, 2011.  
DOE Workshop on "CO<sub>2</sub> reduction: comparing natural and synthetic systems",  
October 24-26, 2011, Annapolis, MD.
- 2010 Department of Energy 2010 Physical Biosciences Research Meeting. Oct 18.  
"Enzymology of Methanogenesis: Mechanism of Methyl-Coenzyme M  
Reductase"  
Gordon Research Conference on "Chemistry & Biology Of Tetrapyrroles",  
July 25-30, 2010, Salve Regina University, Newport, RI. "Heme regulatory motifs  
as redox rheostats that respond to cellular redox state and control heme  
binding to proteins"  
Gordon Research Conference on "Iron Sulfur Proteins". June 6-11, 2009. "NiFeS  
proteins in generating energy-rich gases of environmental impact".  
Gordon Research Conference on Molecular Basis of Microbial One-Carbon  
Metabolism, Aug, 2010  
Genomatica, San Diego, CA, "Anaerobic Conversion of CO and Carbon  
Dioxide to Acetyl-CoA", June 1, 2010.  
Oregon Health & Science University, Portland, OR, May 28, 2010. "Human and  
Microbial Metabolism of Carbon Monoxide".  
Department of Cell Biology, Lerner Research Institute, Cleveland Clinic,  
Cleveland, OH, April 30. "Human and bacterial CO metabolism".
- 2009 Inaugural Ljungdahl Lectureship, University of Georgia, Athens, GA. October  
2009.  
Frederick J. Bollum Endowed Research Fund for Biochemistry Lectureship,  
University of Minnesota, May 6, 2009, "Nickel Enzymes in the Biochemistry of  
Biofuels".  
2009 Gordon Research Conference on Vitamin B12 and Corphins, "Evidence for  
organometallic and radical intermediates in corphin-dependent methane  
synthesis", Magdalen College (Oxford, UK), August 2-7, 2009.
- 2008 Gordon Research Conference on Environmental Bioinorganic Chemistry,  
Waterville Valley, NH, June 15-20, 2008. "Nickel Metalloenzymes and the  
Carbon Cycle".

- Genomatica, Inc., Growth on Inorganic Carbon: Genomics to Enzymology, San Diego, CA, March, 2008.
- University of Michigan: Enzymes Club (Jan, 2008), Internal Medicine (Jan 2008), Chemical Biology Symposium (July 2008)
- University of Toledo, Feb., 2008
- Gordon Research Conference on "Metals in Biology", Jan 28 - Feb 2, 2008.  
"Methyl-Coenzyme M Reductase: Intermediacy of Methyl-Nickel or Methyl Radical?"
- 2007 Structural Enzymology Symposium, University of Michigan, May 19, 2007  
Gordon Research Conference on Vitamin B<sub>12</sub> and Corphins, July 1- 6, 2007  
233rd ACS meeting, session on "Catalysis Relevant to Energy and Sustainability", Chicago, March 25-29, 2007.  
University of Georgia, March 3, 2007
- 2006 University of Toronto, Nov 2006  
Gordon Research Conference on Coenzymes, Quinones, and Radicals, Jan 11-16, 2006.  
Trends in Enzymology Conference, Societa' del Casino – Teatro Sociale, Como, Italy. June 8, 2006  
Gordon Research Conference on Molecular Basis of Microbial One-Carbon Metabolism, Aug, 2006  
Iowa State University, Ames, IA, Oct, 2006  
Biosensors and Networks minisymposium, Lincoln, NE, March 29, 2006
- 2005 University of Nebraska – Omaha. January, 2005  
Ohio State University, November, 2005.  
International Conference on Carbon Dioxide Utilization, Oslo Norway June 20, 2005
- 2004 Annual Meeting of American Society for Microbiology, New Orleans, LA. May 26, 2004  
Gordon Research Conference on Coenzymes, Quinones, and Radicals, Jan 11-16, 2004.  
Biochemistry Department, Oregon State, March 12, 2004  
Gordon Research Conference, Environmental Bioinorganic Chemistry, Bates College, Lewiston, ME, Jun 20-25, 2004.  
Gordon Research Conference, Molecular Basis of Microbial One-Carbon Metabolism, Mount Holyoke College, South Hadley, MA, Aug 1-6, 2004
- 2003 National ACS Meeting, New Orleans, March 23-27.  
Biophysics Department, University of Nebraska Medical Center, Dec. 19, 2003.  
Biochemistry Department, The University of Delaware, Sept 22, 2003  
Annual Meeting of American Society for Microbiology, Washington, DC. May 18-22, 2003  
University of Oklahoma, Feb, 2003  
Gordon Research Conference on Cobalamins, July 2003

- 2002 Gordon Research Conference on Enzymes and Metabolic Pathways, July 2003  
 Microbiology Department, University of Illinois, Oct 10, 2002  
 International conference on thiamin, its biochemistry, and structural biology,  
 Rutgers, Newark, NJ  
 103rd Annual Meeting of American Society for Microbiology, Salt Lake City, UT.  
 May 20, 2002  
 Annual Meeting of American Society for Microbiology, Salt Lake City, UT. May  
 21, 2002  
 Third Biological Inorganic Symposium: Redox Chemistry of Metalloproteins,  
 Hsinchu, Taiwan.  
 Minisymposium on Bioinorganic Chemistry, Changhua University of Education,  
 Changhua, Taiwan.  
 Biochemistry Department, University of Wisconsin - Madison, March 18, 2002  
 Microbiology Department, University of Massachusetts - Amherst April 1, 2002
- 2001 International Conference on Carbon Dioxide Utilization, Breckenridge, CO  
 International Conference on Bioinorganic Chemistry, Florence, Italy.  
 International Pteridine Symposium, Washington, D.C  
 102nd Annual Meeting of American Society for Microbiology, Orlando, FL.  
 Symposium on Interfacing Microbiology and Biotechnology, University of Florida,  
 Gainesville, FL  
 Chemistry Department, U. Florida
- 2000 International Chemical Congress of Pacific Basin Societies, Honolulu, HI  
 Chemistry Dept, Univ of Missouri - St. Louis  
 5th European Symposium on Vitamin B12 and B12-Proteins, Marburg, Germany  
 6th International Conference on the Molecular Biology of Hydrogenases  
 (Hydrogenases 2000), Potsdam, Germany  
 Gordon Research Conference on "Molecular Basis Of Microbial One-Carbon  
 Metabolism", Connecticut College  
 Society for Industrial Microbiology 2000 Annual Meeting, San Diego  
 101st Annual Meeting of American Society for Microbiology, Los Angeles, CA.  
 Conference on "Art of Anaerobes", University of Georgia, Athens GA.
- 1999 Colloquium on "Enzymatic Alkylation of Silicon" sponsored by Dow Corning  
 Corp., San Diego, CA  
 Metalloporphyrin symposium, National ACS meeting, Anaheim, CA
- 1998 Chemistry Department, Princeton University.  
 Gordon Research Conference On The Molecular Basis Of Microbial One-Carbon  
 Metabolism at New England College, Henniker, New Hampshire  
 UNL Chemistry Department in in their Friday Symposium Series
- 1997 Fifth Chemical Congress of North American, Cancun, Mexico  
 Seventeenth Midwest Enzyme Chemistry Conference, Loyola University,  
 Chicago, IL

- Enzymes, Coenzymes and Metabolic Pathways Gordon Conference, Kimball Union Academy, Meriden, NH
- Summer Course in Microbial Physiology, Ohio State Course
- Steenbock Symposium on "Biosynthesis and Function of Complex Metal Clusters", Memorial Union, University of Wisconsin, Madison, WI
- Chemistry Department, University of Utah
- Chemistry Department, Utah State University
- 1996 Fourth European Symposium on Vitamin B<sub>12</sub> and B<sub>12</sub>-proteins, plenary lecture
- 96th Annual ASM Meeting, New Orleans, LA
- 1995 Department of Biological Chemistry, Univ. of Michigan
- Chemistry Department, Univ. of Kansas
- Seventh International Conference on Bioinorganic Chemistry, Lubek, Germany
- Eighth International C<sub>1</sub> Symposium, San Diego
- 95th Annual ASM Meeting, Washington, D.C.
- Third International Conference on Carbon Dioxide Utilization, Norman, Oklahoma
- Department of Biochemistry, Univ. of California-Davis
- Department of Chemistry, Kansas State Univ.
- 1994 Department of Chemistry, Northern Illinois Univ.
- Chemistry Department, U. of Minnesota, Minneapolis, MN
- E.C. Slater Institute, University of Amsterdam, The Netherlands
- 208th Annual National ACS Meeting, Symposium on Role of Ligands in Metallobiochemistry, Washington D.C.
- 1993 Chemistry Department, Univ. Nebraska-Omaha, Omaha, NE
- Department of Biochemistry, Univ. of Nebraska Medical Center, Omaha, NE
- International Conference on Carbon Dioxide Utilization, Bari, Italy
- Fourth Gordon Research Conference on Methanogenic Bacteria, Plymouth State College, Plymouth, New Hampshire
- Plant Pathology Department, UNL, Lincoln
- 1992 FASEB Workshop on Bioremediation, Seattle, WA
- Emory University, Atlanta, GA
- J. Nehru University, New Delhi, India
- University of Delhi, South Campus
- 1991 Microbiology Department, University of Illinois, Urbana, IL, Mar. 21
- Western Illinois Univ., Macomb, Illinois, Jan. 31
- Microbiology Department, Michigan State University, East Lansing, MI, Jan. 24
- 1990 Chemistry Department, Harvard University, Cambridge, Mass., Oct. 1
- Microbiology Department, Ohio State University, Columbus, OH, Sept. 20
- FASEB Summer Conference on Folate, B<sub>12</sub>, and One Carbon Metabolism, Saxtons River, Vermont, July 29

- Third Gordon Research Conference on the "Biochemistry and Molecular Biology of Methanogenic Bacteria", Plymouth State College, Plymouth, NH, July 4  
 Department of Microbiology, Virginia Polytechnic Institute, Blacksburg, VA, Apr. 17  
 Genetics and Biotechnology Institute, New Delhi, India, Mar. 16  
 Gordon Research Conference on "Metals in Biology", Doubletree Hotel, Ventura, CA, Jan. 24  
 Department of Biochemistry and Molecular Biology, University of California-Irvine, CA., Jan. 18
- 1989 Midwest Enzyme Chemistry Conference, Northwestern Univ., Chicago, IL., Oct. 14  
 Microbiology Department, Phillips University, Marburg, W. Germany, Aug. 31  
 Department of Chemistry, ETH Swiss Federal Institute of Technology – Zurich, Sept. 8  
 9th International Symposium Pteridines & Folic Acid Derivatives, Zurich, Switzerland, Sept. 5  
 Sixth International C-1 Conference, Gottingen, W. Germany, Aug. 23  
 Fourth International Conference on Bioinorganic Chemistry, Massachusetts Institute of Technology, Cambridge, MA, July 26
- 1987 Departments of Microbiology and Biochemistry, Michigan State Univ., E. Lansing, MI, May  
 Biochemistry Department, Case Western Reserve Univ., Cleveland, OH, Feb. 6
- 1986 Biochemistry Department, UW-Madison, Madison, WI, Mar. 17.

### *Presentations*

Angela Fleischhacker, Brent Kochert, Maelyn Borowy, Amanda Gunawan, John Engen & Stephen Ragsdale (July, 2018) ( <i>oral and poster</i> ) The heme regulatory motifs of heme oxygenase-2 function to transfer heme to the catalytic site for degradation, Chemistry and Biology of Tetrapyrroles, Salve Regina University in Newport RI United States
Angela Fleischhacker, Brent Kochert, Maelyn Borowy, Amanda Gunawan, John Engen, and Stephen Ragsdale (Jan. 2018) The heme regulatory motifs of heme oxygenase-2 function to transfer heme to the catalytic site for degradation. Metals in Biology. Poster presentation.
Liu Liu, Arti Baban Dumbrepatil, Angela Fleischhacker, Neil Marsh & Stephen Ragsdale (July 2018) Investigation into the Regulatory Function of Heme on Heme Oxygenase 2 Protein Degradation. The Gordon Research Conference on Chemistry and Biology of Tetrapyrroles.
Anjali Patwardhan, Panu Pimviriyakul, Johanna Mock, Percival Yang Ting, Catherine Drennan & Stephen Ragsdale (Aug. 2018) Methane Inhibition of Methyl coenzyme M reductase: Kinetic control of a thermodynamically favorable reaction. Molecular Basis of Microbial One-Carbon Metabolism, Sunday River, Maine. Poster.
Seth Wiley, Mehmet Can, Peter Eckert, Kevin Kubarych, Ritimukta Sarangi, and Stephen W. Ragsdale (2018) The Function and Spectroscopy of Acetyl-CoA Synthase (ACS) Variants. Penn State Bioinorganic Workshop/Frontiers in Metallobiochemistry Symposium. Poster.
Seth Wiley, Mehmet Can, Peter Eckert, Kevin Kubarych, Ritimukta Sarangi, and Stephen



W. Ragsdale (2018) The Function and Spectroscopy of Acetyl-CoA Synthase (ACS) Variants. Metallocofactors Gordon Research Conference, Mount Holyoke, South Hadley, MA. Poster.

Rodney Burton, Alex Mueller, Michael Koepke, Chris Ohmer, Ben Garret, Mehmet Can, Daniel Esckilsen, Sean Simpson & Stephen W. Ragsdale (2018) Structure-Function based Analysis of the *Clostridium autoethanogenum* CODH/ACS; an Enigmatic ballet of Electrons. Gordon Research Conference on Molecular Basis of Microbial One-Carbon Metabolism. Sunday River, Maine. Poster.

Laboratory Presentations:

2018	Angela Fleischhacker, Brent Kochert, Maelyn Borowy, Amanda Gunawan, John Engen & Stephen Ragsdale (July, 2018) ( <i>oral and poster</i> ) The heme regulatory motifs of heme oxygenase-2 function to transfer heme to the catalytic site for degradation, Chemistry and Biology of Tetrapyrroles, Salve Regina University in Newport RI United States
	Angela Fleischhacker, Brent Kochert, Maelyn Borowy, Amanda Gunawan, John Engen, and Stephen Ragsdale (Jan. 2018) The heme regulatory motifs of heme oxygenase-2 function to transfer heme to the catalytic site for degradation. Metals in Biology. Poster presentation.
	Liu Liu, Arti Baban Dumbrepatil, Angela Fleischhacker, Neil Marsh & Stephen Ragsdale (July 2018) Investigation into the Regulatory Function of Heme on Heme Oxygenase 2 Protein Degradation. The Gordon Research Conference on Chemistry and Biology of Tetrapyrroles.
	Anjali Patwardhan, Panu Pimviriyakul, Johanna Mock, Percival Yang Ting, Catherine Drennan & Stephen Ragsdale (Aug. 2018) Methane Inhibition of Methyl coenzyme M reductase: Kinetic control of a thermodynamically favorable reaction. Molecular Basis of Microbial One-Carbon Metabolism, Sunday River, Maine. Poster.
	Seth Wiley, Mehmet Can, Peter Eckert, Kevin Kubarych, Ritimukta Sarangi, and Stephen W. Ragsdale (2018) The Function and Spectroscopy of Acetyl-CoA Synthase (ACS) Variants. Penn State Bioinorganic Workshop/Frontiers in Metallobiochemistry Symposium. Poster.
	Seth Wiley, Mehmet Can, Peter Eckert, Kevin Kubarych, Ritimukta Sarangi, and Stephen W. Ragsdale (2018) The Function and Spectroscopy of Acetyl-CoA Synthase (ACS) Variants. Metallocofactors Gordon Research Conference, Mount Holyoke, South Hadley, MA. Poster.
	Rodney Burton, Alex Mueller, Michael Koepke, Chris Ohmer, Ben Garret, Mehmet Can, Daniel Esckilsen, Sean Simpson & Stephen W. Ragsdale (2018) Structure-Function based Analysis of the <i>Clostridium autoethanogenum</i> CODH/ACS; an Enigmatic ballet of Electrons. Gordon Research Conference on Molecular Basis of Microbial One-Carbon Metabolism. Sunday River, Maine. Poster.
2019	Seth A. Wiley (August 2019) <i>Structural Rearrangements and Chemical Coupling Drive the Nickel-Based Organometallic Enzymology of Anaerobic CO<sub>2</sub> &amp; CO Fixation in Acetyl-CoA Synthase (ACS)</i> . International Conference on Bioinorganic Chemistry (ICBIC 19), Interlaken, Switzerland. Oral presentation..

	Seth A. Wiley, Mehmet Can, Logan Giles, Peter Eckert, Chris Dominic James, Kevin Kubarych, Ritimukta Sarangi, Brian Hoffman, Stephen W. Ragsdale (August 2019) <i>The Presence of An Alcove Facilitates Substrate Binding in Acetyl-CoA Synthase (ACS): Geometry, Methylation, and Carbonylation</i> . International Conference on Bioinorganic Chemistry (ICBIC 19), Interlaken, Switzerland. Poster presentation.