Jessica R. Sieber Ph.D.

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Education

Ph.D.	2011	Microbiology, University of Oklahoma, Norman, OK, 73019
B.S.	2004	Microbiology, University of Oklahoma, Norman, OK, 73019 Minor: Chemistry and History of Science

Professional Experience

2017-	Assistant Professor, Department of Biology, University of Minnesota-Duluth, Duluth, MN.
2016-2017	Postdoctoral Research Fellow Dr. Matthew T Andrews, Department of Biology, University of Minnesota-Duluth, Duluth, MN.
2013-2015	Postdoctoral Research Fellow Mentor: Dr. Thomas M Schmidt, Center for Microbial Systems, University of Michigan, Ann Arbor, MI.
2012-2013	Postdoctoral Research Fellow Mentors: Drs. Roderick I Mackie and Isaac K Cann, Dept. of Animal Sciences, Energy Biosciences Institute, University of Illinois, Urbana, IL.
2006-2011	Graduate Research Assistant Mentor: Dr. Michael J McInerney, Department of Microbiology and Plant Science, University of Oklahoma, Norman, OK.

Awards

- 2011 Provost's Ph. D Dissertation Award, University of Oklahoma
- 2010 Outstanding Graduate Student-Research Assistant awarded by the OU Graduate Student Senate, University of Oklahoma
- 2010 George L. and Cleo Cross Graduate Student Endowed Scholarship, Dept. of Botany and Microbiology, University of Oklahoma
- 2008 Transatlantic Environmental Biotechnology Fellowship (Funding Source)
- 2008 Harrison L. Chance Scholarship, Dept. of Botany and Microbiology, University of Oklahoma

Peer Reviewed Publications

http://www.ncbi.nlm.nih.gov/sites/myncbi/jessica.sieber.1/bibliography/41597594/public/?sort=date&direction=descending

https://scholar.google.com/citations?user=v02qGPcAAAAJ&hl=en

1. **Sieber JR**, McInerney MJ, Müller N, Schink B, Gunsalus RP, Plugge CM (2018) Methanogens: Syntrophic Metabolism. In: Stams A, Sousa D (eds) Biogenesis of Hydrocarbons. Handbook of Hydrocarbon and Lipid Microbiology. Springer, https://doi.org/10.1007/978-3-319-53114-4_2-1 (Review)

2. Sheik CS, **Sieber JR**, Badalamenti J, Carden K, Olson A (2017) Complete genome of *Desulfovibrio desulfuricans* strain G11, a model sulfate reducing, hydrogenotrophic syntrophic partner organism. *GenomeA* 5 (43), e01207-17.

3. Crable BR, **Sieber JR**, Mao X, Alvarez-Cohen L, Gunsalus RP, Ogorzalek Loo RR, Nguyen HH, McInerney MJ. 2016 Membrane complexes of *Syntrophomonas wolfei* involved in syntrophic butyrate degradation and hydrogen formation. *Front Microbiol* doi: 10.3389/fmicb.2016.01795

4. James KL, Rios-Hernandez LA, Wofford NQ, Mouttaki H, **Sieber JR**, Sheik CS, Yang Y, Xie Y, Rohlin L, Loo JA, Loo RRO, Hurst GB, Gunsalus RP, McInerney MJ. 2016 A new twist on ATP formation in bacteria: pyrophosphate-dependent ATP synthesis from acetyl-coenzyme A. *mBio* 7(4):e01208-16.

5. Venkataraman A, **Sieber JR**, Schmidt AW, Waldron C, Theis KR, Schmidt TM. 2016 Variable responses of human microbiomes to dietary supplementation with resistant starch. *Microbiome* 4:33.

6. Gunsalus, RP, Cook LE, Crable BR, Rohlin L, McDonald E, Mouttaki H, **Sieber JR,** Poweleit N, Zhou H, Lapidus AL, Daligault HE, Land M, Gilna P, Ivanova N, Kyrpides N, Culley DE, McInerney MJ. 2016 Complete genome sequence of *Methanospirillum hungatei* type strain JF1. *Stand Genomic Sci* 11**:**2.

7. **Sieber JR,** Crable BR, Sheik CS, Hurst GB, Rohlin L, Gunsalus RP, McInerney MJ. 2015 Proteomic analysis reveals metabolic and regulatory systems involved in the syntrophic and axenic lifestyle of *Syntrophomonas wolfei*. *Front Microbiol* 6:115.

8. **Sieber JR,** Le HM, McInerney MJ. 2014 The importance of hydrogen and formate transfer for syntrophic fatty, aromatic and alicyclic metabolism. *Environ Microbiol,* 16(1):177-188.

9. Hotze EM, Le HM, **Sieber JR**, Bruxvoort C, McInerney MJ, Tweten RK. 2013 Identification and characterization of the first cholesterol-dependent cytolysins from Gram-negative bacteria. *Infect Immun* 81(1):216-225.

10. **Sieber JR**, McInerney MJ, & Gunsalus RP (2012) Genomic Insights into Syntrophy: The Paradigm for Anaerobic Metabolic Cooperation. *Ann Rev Microbiol*, 66(1):429-452. (Review)

11. McInerney MJ, **Sieber JR**, Gunsalus RP. 2011 Microbial Syntrophy: Ecosystem-Level Biochemical Cooperation. *Microbe* November 2011. (Review)

12. **Sieber JR**, Sims DR, Han C, Kim E, Lykidis A, Lapidus AL, McDonnald E, Rohlin L, Culley DE, Gunsalus RP, McInerney MJ. 2010 The genome of *Syntrophomonas wolfei*: new insights into syntrophic metabolism and biohydrogen production. *Environ Microbiol* 12:2289-2301.

13. **Sieber JR,** McInerney MJ, Plugge CM, Schink B, Gunsalus RP. 2010 Methanogenesis: syntrophic metabolism. In Handbook of Hydrocarbon and Lipid Microbiology. Timmis, K.N. (ed): Springer Berlin Heidelberg, pp. 337-355. (Review)

14. McInerney MJ, **Sieber JR**, Gunsalus RP. 2009 Syntrophy in Anaerobic Global Carbon Cycles. *Curr Opin Biotechnol*. 20:623-32. (Review)

15. McInerney MJ, Struchtemeyer CG, **Sieber JR**, Mouttaki H, Stams AJM, Schink B et al. (2008) Physiology, ecology, phylogeny, and genomics of microorganisms capable of syntrophic metabolism. In Incredible Anaerobes From Physiology to Genomics to Fuels Wiegel, J., Maier, R.J., and Adams, M.W. (eds): Ann N Y Acad Sci, pp. 58-72.

16. McInerney MJ, Rohlin L, Mouttaki H, Kim U, Krupp RS, Rios-Hernandez L, **Sieber JR,** Struchtemeyer CG, Bhattacharyya A, Campbell JW, Gunsalus RP. 2007 The genome of *Syntrophus aciditrophicus*: life at the thermodynamic limit of microbial growth. *Proc Natl Acad Sci USA* May 1;104(18):7600-5.

Conference Presentations

- **Sieber JR**, Bjork JA, Andrews MT. Cold adapted microorganisms from the cecum of hibernating thirteen-lined ground squirrels. 15th International Hibernation Symposium, Las Vegas, NV, July 2016.

- **Sieber JR**, Schmidt TM. Methanogens in the gut and their interactions with beneficial butyrate producers. Anaerobe, Nashville, TN, July 2016.

Poster Presentations

- **Sieber JR**, Sheik CS, Andrews MT. Elucidating the roles of enigmatic gut associated microorganisms of an obligate fat storing hibernator. 117th General Meeting of American Society for Microbiology, New Orleans, LA, June 2017.

- Dettle SK, **Sieber JR.** Novel gut microbiota associated with fat accumulation in an obligate fat storing hibernator. 117th General Meeting of American Society for Microbiology, New Orleans, LA, June 2017.

- **Sieber JR**, Schmidt TM. Butyrate production by microbial consortia from the large intestine is enhanced by the metabolic activity of hydrogenotrophic

methanogens. 115th General Meeting of American Society for Microbiology, New Orleans, LA, May 2015.

- **Sieber JR**, Crable BR, Hurst GB, McInerney MJ. Proteomic analysis of the syntrophic, fatty acid-oxidizing organism, *Syntrophomonas wolfei*. 111th General Meeting of American Society for Microbiology, New Orleans, LA, May 2011.

- **Sieber JR**, Rohlin L, Gunsalus RP, McInerney MJ. Interspecies electron transfer during syntrophic aromatic, alicyclic, fatty acid metabolism.110th General Meeting of American Society for Microbiology, San Diego, CA, May 2010.

- **Sieber JR**, Gunsalus RP, Rohlin L, McInerney MJ, Sims DR, Han C, Kim E, Lykidis A, Lapidus AL. Genomic insights into syntrophic fatty acid metabolism: electron transfer processes of Syntrophomonas wolfei. 108th General Meeting of American Society for Microbiology, Boston, MA, June 2008.

- **Sieber JR**, Struchtemeyer CG, Mouttaki HM, Rios-Hernandez L, Gunsalus R, Rohlin L, McInerney MJ. The genome of *Syntrophomonas wolfei*. Incredible Anaerobes: From physiology to genomics to fuels. Athens, GA, March 2007.

Professional Society Memberships

- American Society for Microbiology

Manuscript Referee

- Journal of Bacteriology
- Environmental Microbiology
- Environmental Science and Technology
- FEMS Microbiology Ecology
- International Society for Microbiology-ISMEJ
- Genes
- Microbial Ecology
- Microorganisms
- Molecular Ecology
- PLOS One
- Scientific Reports

Mentoring

University of Minnesota-Duluth 2016-2018

- Clair Hess-Masters Student
- Undergraduate researchers:
    - Julianna Fernandez (2017-current) UROP and BURST
    - Lilian Meierhoff (2017-current) UROP
    - Madison Nohner (2018-current) UROP and SURP
    - Benenon Shannon (2017-2018)

- Sarah Dettle (2016-2018) UROP and BURST
- Alexander Ryan (2016-2018) BURST
- Hideko Eckels (Fall 2017)
- Ruby Buro (Fall 2017)
- Anton Sauer (2016-2017)
- Tanner Jackson (2016-2017)
- Gina McClanahan (2016-2017)
- Kendall Carden (2016)

University of Michigan 2013-2015

- Nick Lesniak-PhD student
- Isaiah Song-Masters student
- Thomas McBrien- Undergraduate researcher

University of Illinois 2012

- Undergraduate researcher-Kankanit Doungkamchan

University of Oklahoma 2006-2011

- Undergraduate researchers-Crystal (Niki) Johnson, Katherine Smith, Christopher Harvey
- High School Students-Alexander Mann, Jan Schlupp

Teaching Experience

Molecular Biology Lecture (BIOL 4231) Spring 2018 at University of Minnesota-Duluth

Molecular Biology Lecture (BIOL 4231) Spring 2017 at University of Minnesota-Duluth

Guest lecturer for Introductory Microbiology at University of Wisconsin-Superior
April 26, 2016

Guest lecturer for General Microbiology at University of Minnesota-Duluth
March 2, April 11, April 13, 2016 and September 20, 2017

Guest lecturer for Molecular Biology at University of Minnesota-Duluth
February 11, 2016

Module lecturer and lab designer for research oriented Introductory Biology Lab at University of Michigan
Spring and Fall 2015

Graduate Teaching Assistant at Dept. of Microbiology and Plant Science, University of Oklahoma:

International summer course for the theoretical and practical course on molecular approaches for *in situ* biodegradation. EC-US Working Group on Biotechnology for the Environment. June 2009

Fundamentals of Microbiology Lab, Fall 2004 and 2005

Microbial Physiology & Molecular Biology Lab, Spring 2005 and 2006.

Funding

- Synthesis of highly branched isoprenoid membrane lipids: An interdisciplinary approach to identify the genetic and biochemical basis of branched lipids in a modern diatom. To Kathryn Schreiner, Jessica Sieber, Cody Sheik, and Gage Sachs from Advanced Materials Center, University of Minnesota Duluth. $24,994 Awarded July 2017.

- Fluorescence Upright and Inverted Capability Manual Stage Microscope. To Amanda Grusz and Jessica Sieber from University of Minnesota Grant in Aid Program. $31,787 Awarded January 2018.

- Teaching Innovation Grant: Revitalizing the General Microbiology Laboratory Course BIOL 3502. To Jessica Sieber from TeachingSupport@UMN, University of Minnesota. $1000 Awarded March 2018