

I. PERSONAL

Dr. Lisa Bowers, PhD
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II. EDUCATION

INSTITUTIONS ATTENDED

PhD, Microbiology , University of Wisconsin-Madison NIH Pre-doctoral fellowship (Molecular Biosciences Training Grant)	2001-2007
Scientific Teaching Certificate <i>HHMI Scientific Teaching Fellowship Award</i>	2004-2005
Teaching License – University of Wisconsin - Whitewater (Chemistry and Biology Education certificate)	1998-2000
Bachelor of Science , University of Wisconsin – Green Bay	1998-2000

THESIS

Control of Plasmid R6K Replication in *Escherichia coli*

AREAS OF EXPERTISE AND INTEREST

Molecular microbiology, bacterial genetics, quantification of gene expression, nutrient uptake in bacteria, molecular cloning, cell cycle regulation, cellular differentiation and morphogenesis, synthetic biology

III. EMPLOYMENT AND TEACHING EXPERIENCE

ACADEMIC POSITIONS

Assistant Professor of Biology , St. Olaf College	2012-present
Visiting Assistant Professor of Biology , Grinnell College	2010-2012
NSF Postdoctoral Fellow , University of California – Berkeley Department of Plant and Molecular Biology Project: Cell cycle control in the bacterium, <i>Caulobacter crescentus</i> <i>NIH Ruth L. Kirschstein National Research Service Award</i>	2007-2010

COURSES TAUGHT AT ST. OLAF COLLEGE:

Lecture and Lab Courses:	Independent Research:	(# students)
ID 150: Explorations in Science (Co-taught) (1x)	Bio 294: Academic internship	(3)
Bio 124: Biology of Women (2x)	Bio 297: Independent research	(5)
Bio 231: Microbiology (with lab) (5x)	Bio 298: Independent study	(2)
Bio 233: Intermediate Genetics (with lab) (3x)	Bio 375: Supplemental research	(10)
Bio 364: Molecular Biology (with lab) (1x)	Bio 398: Independent research	(11)
Bio 396: Directed Undergraduate Research (3x)		

Team-taught Seminars

BMOLS 201: Explorations in Biomolecular Science (5x)

BIO 291: Exploring BioMath (1x)

IV. SCHOLARLY/ARTISTIC WORK

Refereed Articles (undergraduate researchers are underlined):

Modrak, S., Melin, M., and Bowers L. SucA-dependent uptake of sucrose across the outer membrane of *Caulobacter crescentus*. *J Microbiol.* 2018 Jul 27. doi: 10.1007/s12275-018-8225-x. [Epub ahead of print]. [Link](#)

Swift, M., **Bowers, L.**, McDonald, E., Walter, A. An Explorations Approach to Summer Bridge at a Selective Liberal Arts College: One Path Toward Equalizing Student Success. **Submitted to *Journal of STEM Education*.**

Robinson, S. Hall-Holt, O., Bowers, L. Cross-disciplinary teaching in a Microbiology and Introductory Computer Science Class. *In preparation to be submitted in Summer 2018.*

Richter, J., Lee, C., Waddell, S., Vang, D., Bowers, L. Testing household compounds for biofilm inhibition in *Pseudomonas aeruginosa*. *In preparation to be submitted in Summer 2018.*

Ryan, K.R., Taylor, J.A, and **Bowers, L.M.** 2009. The Bam complex subunit BamE (SmpA) is required for membrane integrity, stalk growth and normal levels of outer membrane β -barrel proteins in *Caulobacter crescentus*. *Microbiology* 156: 742-756

Bowers, L.M., Shapland, E.B, Ryan, K.R., 2008. Who's in charge here? Regulating cell cycle regulators. *Curr Opin Microbiol.* 11. 547-52.

Bowers, L.M., and Filutowicz, M.S., 2008. Cooperative binding mode of the inhibitors of R6K replication, p dimers. *J Mol Biol.* 337(3). 609-15.

Bowers, L.M., Krüger, R., Filutowicz, M.S., 2007. Mechanisms of origin activation by monomers of the R6K-encoded p protein. *J Mol Biol.* 368. 928-938.

Bowers, L.M., LaPoint, K., Anthony, L.C., Pluciennik, A., and Filutowicz, M.S., 2004. Bacterial expression system with tightly regulated gene expression and plasmid copy number. *Gene.* 340, 11-18.

McKinnon, J.S., DeMayo, R.F., Granquist, R., and **Weggel (Bowers), L.,** 2000. Female red throat coloration in two populations of threespine stickleback. *Behaviour.*137, 947-3.

Invited Seminars and Professional Presentations:

Bowers, L.M. American Society of Microbiology. June 2018. TonB Dependent Sucrose Transport in *Caulobacter crescentus*, Atlanta GA.

Bowers, L.M. College of St. Benedict and St. John's University. November 2016. TonB Dependent Transport in a microbial scavenger. Invited seminar.

Bowers, L.M., St. Olaf College Biology Seminar Series (2016). Scavenger: How a starving bacterium takes up scarce nutrients.

Bowers, L.M. American Society of Microbiology. October 2015. Predicting new substrates for TonB Dependent Receptors in a Microbial Scavenger.

Bowers, L.M Minnesota Graduate Women in Science Seminar. February 2015. "Classroom based undergraduate research experiences: the power of a pond organism". Invited seminar.

Mentored Student Presentations

May 2018: Tram Bui, Laura Hurtado, Nathan Meshbesh. Honor's Day Symposium. "pSuc is a tunable promoter responsive to sucrose levels in *Caulobacter crescentus*".

May 2018: Christine Lee Fatt, Jenna Richter, Sam Waddell, Dua Vang. Honor's Day Symposium. "Optimizing the Quantification of Biofilm Production".

November 2017: Nathan Meshbesh. Midstates Consortium of Math and Science. *Exploring TonB Dependent Sucrose Transport in Caulobacter crescentus*.

May 2017: Sam Modrak. MN Academy of Sciences. "Carb-Loading Bacteria: Investigating Role of Three Putative Carbohydrate Transporters in *Caulobacter crescentus*".

May 2017: Meryl Nath and Nathan Meshbesh. Honor's Day. "Exploring TonB-dependent Sucrose Transport in *Caulobacter crescentus*".

May 2016: Mattie Melin. Honor's Day Symposium. "Ton of Sugar: Exploring TonB-dependent Sucrose Substrate Transport in *Caulobacter crescentus*".

April 2015: Miles Smith and Dylan Leonard. Minnesota Academy of Science. "The Impact of High Concentrations of Essential Heavy Metals on the Gene Expression of Three TonB-Dependent Receptors in *C. crescentus*". **Awarded best poster in the Cell and Molecular Biology category.**

April 2015: Sievhong Pen. Minnesota Academy of Science. "Construction of a Gene Knockout in *C. crescentus*".

Nov. 2013: Petra Hahn, Jonathon Peterson and Lisa Bowers. Midstates Consortium Science Symposium. "Complementation and Characterization of *C. crescentus* mutant Δ cc1664".

Aug. 2013: Petra Hahn, Heena Joo, and Lisa Bowers. CURI Summer Symposium. "Complementation and Characterization of *C. crescentus* mutant Δ cc1664".

April 2013: Margret Bradley, Jonathon Peterson, and Lisa Bowers. Honor's Day Symposium. "The role of a putative transcription regulator in *Caulobacter crescentus*."

Nov. 2011: Alexander Aaring, Nora Peterson, Qimeng Gao, and Lisa Bowers. Massachusetts Institute of Technology. International Genetically Engineered Machine Competition – oral and poster presentation.

Undergraduate Researchers Mentored (34 students)

St. Olaf College (2012-2018): Jewel Lee (**McNair Scholar**) (Summer 2018); Jacy Jordahl (CURI-Summer 2018); Thomas Lerdall (CURI-Summer 2018); Jenna Richter (Spring 2018); Christine Lee (Spring 2018); Samantha Waddell (Spring 2018); Dua Vang (Spring 2018); Tram Bui (Spring 2018); Laura Hurtado (Spring 2018); Nathan Meshbesh (Spring 2017 and Spring 2018); Meryl Nath (Spring 2017); Anh Tu Phan Doan (Spring 2017); Samantha Modrak (CURI-Summer 2016, IR-Spring 2017), Zoe Hansen (Spring 2016); David Pelligrini (Fall 2015, IR-Spring 2016); Dalena Ngo (Fall 2015); Mattie Melin (Spring 2016); Bailey Kent (Spring 2016); Lauren Bird (Spring 2016), Martha Sudermann (Spring 2015); Anna Mwamasika (IS-Spring 2015); Miles Smith (CURI-Summer 2014, IR-Spring 2015, CURI-Summer 2015); Dylan Leonard (CURI-Summer 2014, CURI-Summer 2015); Allena Pen (**McNair Scholar**) (Summer 2014, IR-Fall 2014); Serina Robinson (**Beckman Scholar**) (IR-Fall 2013, IR-Spring 2015); Petra Hahn (CURI-Summer 2013, IR-Fall 2013, IS-January 2014, IR-Spring 2014); Jonathon Peterson (IR-Spring 2013, IR-January 2014); Heena Joo (CURI Summer 2013-Fall 2013); Margret Bradley (IR-Spring 2013) **Grinnell College (2010-2012):** Nora Peterson (iGEM Team Summer 2011); Alexander Aaring (iGEM team Summer 2011, MAP-Spring 2012); Qimeng Gao (iGEM team Summer 2011, MAP-Spring 2012); JoJo Ju (MAP-Spring 2012); Andrea Asimeng (MAP-Spring 2012) (IS=Independent study, IR=Independent Research, MAP=Mentored Advanced Project)

Grants Funded:

How bacterial gene expression changes in response to nutrient deprivation. St. Olaf College Professional Development Grant. 2017.

Scavengers! How starving bacteria take up scarce nutrients. St. Olaf College Teaching Released Grant. 2014.

Honors and Awards

2009-2010:	National Institutes of Health Postdoctoral Fellowship Ruth L. Kirschstein National Research Service Award
2004-2005:	Howard Hughes Medical Institute Teaching Fellowship Teaching Fellows Program
2003-2004:	University of Wisconsin-Madison - Gerhardt Travel Award
2001-2004:	National Institutes of Health Pre-doctoral Fellowship Molecular Biosciences Training Grant

Professional memberships

2008-present: American Society for Microbiology

Grants reviewed:

Fall 2013: Reviewer for the Life Sciences Research Proposal program.

V. COLLEGE AND COMMUNITY

Contributions of service and leadership to the biology department:

- 2012-2018: Faculty advisor to the Tri-Beta Biology Honors Society and Biology club
- 2013-2016: Biology Distinction Coordinator
- 2013-2015: Biology Capital Equipment Committee
- 2014: Faculty Chaperone for Midstates Consortium for Math and Science Symposium
- 2014-2015: Biology Tenure-track search committee-Organismal Biologist

College committees:

- 2015-2018: Health Professions Committee (& Health Scholars Programs selection committee)
- 2015-2016: Curriculum Committee, New Proposals Subcommittee
- 2015: MSCS Tenure Track Search Committee-Mathematical Biologist
- 2014: Student Accessibility Services Specialist Hiring Committee

Other contributions to the college:

- Speaker for Minnesota Private Colleges Week (2017 and 2018)
- Guest Lecturer-Exploring Mathematical Biology (2018)
- Guest Lecturer-Biomolecular Sciences Seminar (1 lecture / year 2013-2018)
- Guest Lecturer-Science Conversation (2014)
- Interviewer for Buntrock scholars (2017)

Contributions to the wider community:

- Spring 2016: Developed and implemented a Microscopy lab for science day at Greenvale Park Elementary school
- Spring 2016: Developed and implemented a unit for science class at Greenvale Park Elementary called "Microbial Germ Hunting"
- Fall 2015: Reading and Math Coach at Greenvale Park Elementary School.