

LISA M. RYNO

Department of Chemistry and Biochemistry
Oberlin College
Oberlin, OH 44074

Office: (440) 775-8238
Fax: (440) 775-6682
lryno@oberlin.edu

Education

The Scripps Research Institute La Jolla, CA 2008 – 2012
Ph.D., Chemical Biology, Adviser: Prof. Jeffery Kelly, “*Adapting Proteostasis Through Stress-Responsive Signaling*”
Trinity University San Antonio, TX 2004 – 2008
B.S. Chemistry, Research Adviser: Prof. Adam Urbach

Experience

Oberlin College Oberlin, OH July 2014 – present
Assistant Professor of Chemistry and Biochemistry
The University of San Diego San Diego, CA Jan. 2013 – June 2014
Postdoctoral Research Associate, Adviser: Prof. Peter Iovine
Adjunct Assistant Professor

Publications

‡ Indicates Oberlin undergraduate co-author

Bell, E.W.‡; Zheng, E.J.‡; **Ryno, L.M.** Identification of inhibitors of the *E. coli* chaperone SurA using *in silico* and *in vitro* techniques. *Bioorganic and Medicinal Chemistry Letters*, **2018**, 28(22), 3540-3548.

Ryno, L.M.; Cottine, C. The biological impact and ethical implications of pesticide use: a short module for upper-division undergraduate biochemistry courses. *Journal of Chemical Education*, **2018**, 95 (10), 1771-1777.

Genereux, J.C.; Qu, S.; Zhou, M.; **Ryno, L.M.**; Wang, S.; Shoulders, M.D.; Kaufman, R.J.; Lasmezas, C.I.; Kelly, J.W.; Wiseman, R.L. Unfolded protein response-induced ERdj3 secretion links ER stress to extracellular proteostasis. *EMBOJ*, **2015**, 34(1), 4-19.

Cooley, C.B.*; **Ryno, L.M.***; Morgan, G.F.; Hulleman, J.D.; Kelly, J.W.; Wiseman, R.L. Activating the ATF6 Arm of the UPR Decreases the Secretion of Amyloidogenic Immunoglobulin Light Chain. *Proceedings of the National Academy of Sciences*. **2014**, 111(36), 13046-13051.

*equal authorship

Ryno, L.M.; Reese, C.; Tolan, M.; O'Brien, J.; Short, G.; Sorriano, G.; Nettleton, J.; Fulton, K.; Iovine, P.M. Amphiphilic Graft Copolymers from End-Functionalized Starches: Synthesis, Characterization, Thin Film Preparation and Small Molecule Loading. *Biomacromolecules*. **2014**, 15 (8), pp 2944–2951.

Wang, X.; Cattaneo, F.; **Ryno, L.M.**; Hulleman, J.D.; Reixach, N.; Buxbaum, J.N. The Systemic Amyloid Precursor Transthyretin (TTR) Behaves as A Neuronal Stress protein regulated by HSF1 in SH- SY5Y human neuroblastoma cells and APP23 Alzheimer's disease Model Mice. *Journal of Neuroscience*. **2014**, 34(21), 7253–7265.

Ryno, L.M.; Genereux, J.C.; Naito, T.; Morimoto, R.I.; Powers, E.T.; Shoulders, M.D.; Wiseman, R.L. Characterizing the Altered Cellular Proteome Induced by the Stress-Independent Activation of Heat Shock Factor 1. *ACS Chemical Biology*. **2014**, 9(6), 1273–1283.

Ryno, L.M.; Levine, Y.; Iovine, P.M. Synthesis and Characterization of Amylose-Guest Complexes Prepared by Microwave Irradiation. *Carbohydrate Research*. **2014**, 383, 82-8.

Shoulders, M.D.*; **Ryno, L.M.***; Kelly J.W.; Wiseman, R.L. Broadly Applicable Methodology for the Doseable, Rapid, and Small Molecule-Mediated Regulation of Transcription Factors in Human Cells. *Journal of the American Chemical Society*. **2013**, 135(22), 8129–32.

***equal authorship**

Ryno, L.M.; Wiseman, R. L.; Kelly, J.W. Targeting Unfolded Protein Response Signaling Pathways to Ameliorate Protein Misfolding Diseases. *Current Opinions in Chemical Biology*, **2013**, 17, 346-352.

Shoulders, M.D.; **Ryno, L.M.**; Genereux, J.C.; Moresco, J.J.; Tu, P.G.; Yates, J.R.; Su, A.I.; Kelly J.W.; Wiseman, R.L. Stress Independent Activation of XBP1s and/or ATF6 Reveals Three Functionally Diverse ER Proteostasis Environments. *Cell Reports*, **2013**, 3(4), 1279-92.

Ramalingam, V.; Kwee, S.K.; **Ryno, L.M.**; Urbach, A.R. A cucurbit[8]uril sponge. *Organic and Biomolecular Chemistry*, **2012**, 10(43), 8587-9.

Chinai, J.M.; Taylor, A.B.; **Ryno, L.M.**; Hargreaves, N.D.; Morris, C; Hart, P.J., Urbach, A.R. Molecular Recognition of Insulin by a Synthetic Receptor. *Journal of the American Chemical Society*; **2011**, 133(23), 8810-8813.

Heitmann, L. M.; Taylor, A. B.; Hart, P. J.; Urbach, A. R. Sequence specific recognition and cooperative dimerization of N-terminal aromatic peptides by a synthetic host. *Journal of the American Chemical Society*; **2006**, 128(38), 12574-12581.

Seminars and Presentations

‡ Indicates Oberlin undergraduate, presenter is underlined

“Searching for new antibiotics: chaperones and stress-responsive signaling pathways as targets for antibiotic development.” Invited seminar, Cleveland State University Chemistry Department, Cleveland, OH. January 31, 2020.

“Sabbatical Tales: Inhibiting Chaperones, Stressing Out Bacteria, and Detecting Antibiotics.” Oberlin Chemistry and Biochemistry Department Seminar. Oberlin, OH. December 11, 2019

“The biological impact and ethical implications of pesticide use: a short module for upper-division undergraduate biochemistry courses,” oral presentation at the 25th Biennial Conference on Chemical Education, July 29 – August 1, 2018, South Bend, IN.

“Improving retention of underrepresented minority students in STEM through near-peer mentoring,” oral presentation at the annual Cottrell Scholar Conference, July 12, 2018, Tucson, AZ.

“Investigating the impact of *fliA* overexpression on the formation and composition of *E. coli* biofilms at different temperatures,” Cottrell Scholar Conference, July 11 – 13, 2018, Tucson, AZ. (Poster)

“Discovering inhibitors of the chaperone SurA using *in silico* and *in vitro* techniques,” invited seminar in the Department of Chemistry at the University of Akron, December 5, 2017.

Sarel J. Loewus[‡], Emma R. Brezel[‡], Erica J. Zheng[‡], Lisa M. Ryno. “Targeting stress-responsive and sigma factor-controlled signaling pathways to modulate biofilm growth and composition.” American Society of Biochemistry and Molecular Biology National Meeting at the Experimental Biology Conference, Antibacterial Targets and Drug Discovery Division, April 2017, Chicago, IL. (Poster)

Sarel J. Loewus[‡], Emma R. Brezel[‡], Erica J. Zheng[‡], Lisa M. Ryno. “Targeting stress-responsive and sigma factor-controlled signaling pathways to modulate biofilm growth and composition.” Gordon Research Conference: Microbial Stress Responses, July 2016. (Poster)

“Protein homeostasis and prokaryotes: investigating unexplored signaling pathways and chaperones for the development of bactericidal agents.” Science Friday Seminar Series, Oberlin College. October 16, 2015

“Protein Homeostasis, Polymers and Prokaryotes” invited seminar at John Carroll University, October 29, 2014.

Off-Campus Student Presentations

Erica J. Zheng[‡], Eric W. Bell[‡], Lisa M. Ryno. “Exploring inhibitors of the periplasmic chaperone SurA using fluorescence anisotropy.” American Society of Biochemistry and Molecular Biology National Meeting at the Experimental Biology Conference, Antibacterial Targets and Drug Discovery Division, April 2017, Chicago, IL. (Poster)

Eric W. Bell[‡], Lisa M. Ryno. “Insights into the binding behavior of chaperone SurA using *in silico* methods.” 251st American Chemical Society National Meeting, Chemical Education Division, March 2016, San Diego, CA (Poster).

Sarel J. Loewus[‡], Emily M. Curley*, Lisa M. Ryno. “Stress-responsive signaling pathways as targets for modulating biofilm growth.” 251st American Chemical Society National Meeting, Biological Chemistry Division, March 2016, San Diego, CA (Poster).

Grants and Fellowships

NIH R15 (AREA) Award: “Whole-cell sensors for subinhibitory concentrations of antibiotics using stress-responsive signaling pathways.” Submitted June 25, 2020.

Research Corporation for Science Advancement (RCSA) Scialog Fellow. Microbiome, Neurobiology and Disease. Awarded January 2020. Travel and meeting expenses funded by the RCSA, the Paul G. Allen Frontiers Group and the Frederick Gardner Cottrell Foundation.

NSF MRI (Co-PI): “Acquisition of a Confocal Microscope for Student-Faculty Research and Research Training” 10/1/2018, \$576,185 (CHE-1828041).

NSF MRI Award (Co-PI): “Acquisition of a Scanning Electron Microscope with integrated EDS, WDS, and EBSD for research and undergraduate research training” Awarded 6/6/2016, \$332,105 (CHE-1626271)

Research Corporation for Science Advancement Cottrell Scholar Award: “Investigating the impact of *fliA* overexpression on the formation and composition of *E. coli* biofilms at different temperatures.” Received January 2018, \$100,000.

NSF MRI (Co-PI): “Acquisition of a Confocal Microscope for Student-Faculty Research and Research Training” Awarded 8/10/2018, \$576,185 (CHE-1828041).

Undergraduate Research Students Mentored

Charlotte Andrews, Oberlin College '19
Eric Bell, Oberlin College '17, Honors Student
Emma Brezel, Oberlin College '17
Luke Buck, Oberlin College '21, Honors Student
Emily Curley, Oberlin College '17
Dorothy DeBiasse, Oberlin College '19
Aditi Gupta, Oberlin College '17
Joshua Holtzman, Oberlin College '21
Sarah Hughes, Oberlin College '18
Eunice Kim, Oberlin College '21, Honors Student
Sarel Loewus, Oberlin College '16, Honors Student
Maddison Paladino, Oberlin College '21
Yasmine Ramachandra, Oberlin College '19
Delia Scoville, Oberlin College '16
JoAnn Tinker, Oberlin College '20
Yuan Tian, Oberlin College '21
Gabrielle Walsh, Oberlin College '18
Erica Zheng, Oberlin College '17, Honors Student

Service

National

Manuscript Reviewer for *Bioorganic and Medicinal Chemistry Letters*, 2019-present
Manuscript Reviewer for *Journal of Chemical Education*, 2019-present
Manuscript Reviewer for *Organic Chemistry Letters*, 2019-present
Manuscript Reviewer for *ACS Infectious Diseases*, 2020-present
Contributor for Council for Undergraduate Research (CUR) blog, 2019-present
Annual Biomedical Research Conference for Minority Students (ABRCMS) abstract reviewer, October 2016, 2018 and 2019.

Oberlin College

Institutional Animal Care and Use Committee (Fall 2015-present)
Individual Major Committee (Fall 2015-Spring 2017)
Health Careers Committee (Fall 2015-Spring 2017)
Sigma Xi Membership Committee (Spring 2016)
Science Friday Coordinator (Spring 2016 - Fall 2016)
Committee on Undergraduate Research (Fall 2020 – present)
Neuroscience Honors Committee Member, Weelic Chong OC '15,
Biology Honors Committee Member, Lisa-Qiao MacDonald OC '16

Biology Honors Committee Member, Roger Ort OC '21
Biology Honors Committee Member, Roberto Ramos OC '21

Other Scholarships/Awards

NSF Graduate Research Fellowship Honorable Mention (2008, 2009)
William McGavock Award Recipient for Excellence in Undergraduate Research (2008)
Barry M. Goldwater Scholarship (2007)
Jean Dreyfus Boissevain Undergraduate Scholarship for Excellence in Chemistry (2007)
Frank and Sarah McKnight Prize in Undergraduate Chemistry Finalist (2007)

Professional Associations

American Chemical Society (2010–present)
American Society for Biochemistry and Molecular Biology (2014–present)
Sigma Xi (2015–present)