

Patrick James Lariviere

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EDUCATION

Johns Hopkins University School of Medicine, Baltimore, MD

2013-2019

- Ph.D., Biochemistry, Cellular, and Molecular Biology

Bowdoin College, Brunswick, ME

2009-2013

- B.A., Biochemistry (Honors)

RESEARCH EXPERIENCE

University of Texas at Austin, Postdoctoral Fellow

Aug 2021-Present

Synthetic Biology & Host/Symbiont Biology (PIs: Nancy Moran and Jeff Barrick)

- Currently creating tools to facilitate engineering of bacterial symbionts of honey bees.

Flagship Pioneering (FL72), Scientist

Dec 2020-May 2021

Drug Discovery

- Spearheaded development of drug discovery platform at immune therapeutics startup (NDA restricts public disclosure of work).
- Engaged in plasmid engineering as the company's primary molecular biologist.

Northeastern University, Postdoctoral Research Associate

Sep 2019-Nov 2020

Antibiotic Discovery (PI: Kim Lewis)

- Created drug discovery pipeline to identify putative antimicrobial peptides *in silico* through genome mining.
- Developed heterologous expression platform to engineer, express, isolate, and test antimicrobial activity of peptides found through genome mining.
- Collaborated with teams at NovoBiotic and J. Craig Venter Institute to develop platform for machine learning assisted prediction of antibiotic mechanism of action.

AstraZeneca, Intern

Feb 2019-Apr 2019

Cell Culture and Fermentation

- Engaged in drug development efforts to enhance recombinant antibody expression in mammalian cells.

Johns Hopkins University School of Medicine, Ph.D. Candidate

Fall 2013-Spring 2019

Molecular Microbiology (PI: Erin Goley)

- Discovered that an essential division protein, FzIA, controls the rate of constriction in the bacterium *Caulobacter crescentus*.
- Identified a novel pathway for activation of cell wall synthesis in division, whereby FzIA links the cytokinetic ring to peptidoglycan synthesis enzymes.
- Engineered over 170 bacterial strains to facilitate investigation of mechanisms of bacterial

division.

- Utilized computational and statistical methods to analyze rates of cell growth & division for 2 research projects.

Bowdoin College, Undergraduate Honors Student Researcher

Fall 2012-Fall 2013

Plant Cell Biology (PI: Bruce Kohorn)

- Characterized molecular mechanisms of the plant stress response in *Arabidopsis thaliana*.

Purdue University, NSF-Funded Summer REU Student

Summer 2012

RNA Biochemistry (PI: Barbara Golden)

- Purified and biochemically characterized the activity of HDV-like RNA enzymes (ribozymes).

Northwestern University School of Medicine, Summer Student Researcher Summers 2010-2011

Biomedical Engineering (PI: Arun Sharma)

- Characterized the ability of a bioengineered scaffold to facilitate tissue regeneration in a rat urological injury model.

PUBLICATIONS

Lariviere, P.J., Mahone, C.R., Santiago-Collazo, G., Howell, M., Daitch, A.K., Zeinert, R., Chien, P., Brown, P.J.B., Goley, E.D. Activation of SEDS-PBP cell wall synthases by an essential regulator of bacterial division. *Current Biology* (2019).

Howell, M., Aliashkevich, A., Sundararajan, K., Daniel, J.J., **Lariviere, P.J.**, Cava, F., Goley, E.D., Brown, P.J.B. *Agrobacterium tumefaciens* divisome proteins regulate the transition from polar growth to cell division. *Mol. Microbiol* (2019).

Lariviere, P.J., Goley, E. D. Cell division in *Caulobacter crescentus*: A molecular-scale model. (Book chapter; Manuscript in preparation).

Lariviere, P.J., Szwedziak, P., Mahone, C.R., Löwe, J., Goley, E.D. FzIA, an essential regulator of FtsZ filament curvature, controls constriction rate during *Caulobacter* division. *Mol. Microbiol.* **107**, 180–197 (2018).

Lariviere, P. J. and Kohorn, Bruce. Identification of MPKs involved in the wall associated kinase regulated stress response in *Arabidopsis thaliana*. (2013). (Undergraduate Honors Thesis).

Sharma, A.K., Bury, M.I., Fuller, N.J., Rozkiewicz, D.I., Hota, P.V., Kollhoff, D.M., Webber, M.J., Tapaskar, N., Meisner, J.W., **Lariviere, P.J.**, DeStefano, S., Wang, D., Ameer, G.A., Cheng, E.Y. Growth factor release from a chemically modified elastomeric poly(1,8-octanediol-co-citrate) thin film promotes angiogenesis *in vivo*. *J Biomed Mater Res Part A.* 100A:561–570. (2012).

PATENTS

Lewis, K., Miller, R., Inishi, A., **Lariviere, P.**, and Curtis, T. Novel antibiotics acting against Gram negative pathogens. U.S. Provisional Patent Application No.: 63/118,254. (2020).

PRESENTATIONS**Oral**

Biology Department Seminar Series, Bowdoin College, Brunswick, ME	Jan 2020
Young Microbiologists Symposium, John Innes Center, Norwich, UK	Sep 2019
Plant and Microbial Cytoskeleton Gordon Research Conference, Andover, NH	Aug 2018
Biogen Drug Development Conference, Cambridge, MA	Jun 2018
BCMB Graduate Program Retreat, Johns Hopkins University, Cambridge, MD	Oct 2017
Biological Chemistry Departmental Retreat, Johns Hopkins University, Baltimore, MD	Oct 2016
BCMB Graduate Program Rotation Symposium, Johns Hopkins University, Baltimore, MD	Dec 2013
Undergraduate Honors Research Symposium, Bowdoin College, Brunswick, ME	Dec 2012
Summer Student Research Symposium, Purdue University, West Lafayette, IN	Jun 2012

Poster

Biological Chemistry Departmental Retreat, Johns Hopkins University, Baltimore, MD	Sep 2018
Plant and Microbial Cytoskeleton Gordon Research Conference, Andover, NH	Aug 2018
ASCB-EMBO General Meeting, Philadelphia, PA	Dec 2017
Biological Chemistry Departmental Retreat, Johns Hopkins University, Baltimore, MD	Sep 2017
BCMB Graduate Program Retreat, Johns Hopkins University, St. Michaels, MD	Sep 2016
BCMB Graduate Program Retreat, Johns Hopkins University, St. Michaels, MD	Oct 2015
ASM Conference on Prokaryotic Cell Biology and Development, Washington, DC	Jun 2015
Biological Chemistry Departmental Retreat, Johns Hopkins University, Baltimore, MD	May 2015
BCMB Graduate Program Retreat, Johns Hopkins University, St. Michaels, MD	Oct 2014
BCMB Graduate Program Rotation Symposium, Johns Hopkins University, Baltimore, MD	Mar 2014
Undergraduate Honors Research Symposium, Bowdoin College, Brunswick, ME	Apr 2013
Summer Student Research Symposium, Purdue University, West Lafayette, IN	Jul 2012

AWARDS

Biogen Drug Development Conference, Best Team Presentation Award Summer 2018

- 1 of 40 emerging scientists selected to participate in the Biogen Drug Development Conference.
- Delivered the winning team-based presentation on the development of a mock drug, finishing in 1st place out of 8 teams.

ADDITIONAL BIOTECHNOLOGY EXPERIENCE

Johns Hopkins University Technology Ventures, Technology Transfer Intern Fall 2015-Fall 2016

- Assessed commercialization potential of 15 newly disclosed biotechnology and pharmaceutical inventions, including 5 methods in drug development.
- Communicated findings to technology transfer associates possessing a variety of technical backgrounds.

LEADERSHIP AND MENTORSHIP

Northeastern University, LEADERS Program Fellow

Fall 2020

- Participated in coursework focused on project management and leadership development for PhD students and postdocs.
- Created a detailed business plan to commercialize antibiotic discovery technology in development in the Lewis lab.

Northeastern University, Student Mentor

Fall 2020

- Mentored 1 graduate rotation student in the Lewis lab, teaching methods in natural product drug discovery and experimental design.

Johns Hopkins University School of Medicine, Student Mentor

Winter 2015-Spring 2018

- Mentored 1 undergraduate and 2 graduate rotation students in the Goley lab, teaching methods in biochemistry and cell biology, including protein purification and protein binding assays.

Johns Hopkins University School of Medicine, Teaching Assistant

Falls 2016 & 2017

- Facilitated Bacterial Genetics class activities and small group discussions for 1st year graduate students.
- Created 2 online learning modules, 1 in-class activity, 1 problem set, and 10 exam questions to promote and assess student learning.

Thread Mentoring Program, Lead Mentor

Fall 2013-Fall 2017

- Led team of 3 mentors at local non-profit to provide support for a young adult in Baltimore City resulting in high school graduation and job placement.
- Interfaced with mentee's teachers, parents, family, Thread staff, volunteers, and lawyers to promote the well-being and success of mentee.

INTERESTS

I enjoy playing/listening to music, running, biking, softball, cooking with my spouse, and playing with my dog.