Myles B. Poulin

Department of Chemistry & Biochemistry ◆ University of Maryland College Park
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Current Position:

Assistant Professor 09/2016–Present
University of Maryland College Park

Education & Training:

NSERC Postdoctoral Fellow Biochemistry 2012–2016
Albert Einstein College of Medicine, New York, NY
Advisor: Prof. Vern L. Schramm

Ph.D. Chemistry (Chemical Biology) 2007–2012
University of Alberta, Edmonton, AB
Advisor: Prof. Todd L. Lowary

B.Sc. Biochemistry & Molecular Biology 2003–2007
University of Northern British Columbia, Prince George, BC

Awards and Honors:

2016	**Dennis Shields Award for Outstanding Postdoctoral Research**, Albert Einstein College of Medicine, Bronx, NY
2015	**Poster Presentation Award**, Enzymes, Coenzymes & Metabolic Pathways Gordon Research Conference
2014–2016	**Postdoctoral Fellowship**, Natural Sciences and Engineering Research Council of Canada
2011	**Boehringer Ingelheim Prize**, University of Alberta, Edmonton, AB Canada
2010–2012	**President's Doctoral Prize of Distinction**, University of Alberta, Edmonton, AB Canada
2010–2012	**Alexander Graham Bell Canada Graduate Scholarship-Doctoral**, Natural Sciences and Engineering Research Council of Canada
2008–2011	**Alberta Innovates Graduate Scholarship**, Alberta Innovates Technology Futures
2007–2008	**Postgraduate Scholarship-Masters**, Natural Sciences and Engineering Research Council of Canada
2007–2008	**Walter H. Johns Graduate Fellowship**, University of Alberta, Edmonton, AB Canada
2007	**Centennial Award**, University of Alberta, Edmonton, AB Canada
2005	**Undergraduate Student Research Award**, Natural Sciences and Engineering Research Council of Canada

Research Experience:

10/2014–08/2016	Natural Sciences and Engineering Research Council of Canada Postdoctoral Fellow Albert Einstein College of Medicine, Bronx, NY USA Mentor: Vern L. Schramm
10/2012–10/2014	Postdoctoral Research Associate Albert Einstein College of Medicine, Bronx, NY USA Mentor: Vern L. Schramm
4/2006–09/2007	Undergraduate Research Assistant University of Northern British Columbia, Prince George, BC Canada Mentors: Kerry B. Reimer & Stephen Rader

Publications:

1. Moggré, G.-J., **Poulin, M. B.,** Tyler, P., Schramm, V. L. & Parker, E. (**2017**) Transition state analysis of adenosine triphosphate phosphoribosyltransferase. *J. Am. Chem. Soc.* (submitted)

2. Stratton, C. F., **Poulin, M. B.,** Du, Q. & Schramm, V. L. (**2017**) Kinetic Isotope Effects and Transition State Structure for Human Phenylethanolamine N-Methyltransferase. *ACS Chem. Biol.* 12, 342-346.

3. **Poulin, M. B.**, & Lowary, T. L. (**2016**) Chemical Insight into the Mechanism and Specificity of GlfT2, a Bifunctional Galactofuranosyltransferase from Mycobacteria. *J. Org. Chem.* 81, 8123-8130.

4. **Poulin, M. B.**, Matico, R.E., Hou, W., McDevitt, P.J., Holbert, M. & Schramm, V.L. (**2016**) Nucleosome Binding Alters the Substrate Bonding Environment of Histone H3 Lysine 36 Methyltransferase NSD2. *J. Am. Chem. Soc*. 138, 6699-6702.

5. **Poulin, M. B.**, Schneck, J. L., Matico, R. E., McDevitt P. J., Huddleston, M. J., Hou, W., Thrall, S. H., Meek, T. D. & Schramm, V. L. (**2016**) Transition state for the NSD2 catalyzed methylation of histone H3 lysine 36. *Proc. Natl. Acad. Sci. USA*, 113, 1197-1201.

6. **Poulin, M. B.**, Du, Q. & Schramm, V. L. (**2015**) Chemoenzymatic synthesis of ^{36}S isotopologues of methionine and *S*-adenosyl-L-methionine. *J. Org. Chem.* 80, 5344–5347.

7. **Poulin**, **M. B.**, Shi, Y., Protsko, C., Dalrymple, S. A., Sanders D. A. R., Pinto B. M. & Lowary, T. L. (**2014**) Specificity of a UDP-GalNAc Pyranose–Furanose Mutase. A Potential Therapeutic Target for *Campylobacter jejuni* Infections. *ChemBioChem,* 15, 47–56.

8. **Poulin, M. B.**, Zhou, R., & Lowary, T. L. (**2012**) Synthetic UDP-galactofuranose analogs reveal critical enzyme–substrate interactions in GlfT2-catalyzed mycobacterial galactan assembly. *Org. Biomol. Chem.* 10, 4074–4087.
    - Featured in *Chemical & Engineering News*, **2012**, 90, 38.

9. Oppenheimer, M., **Poulin, M. B.**, Lowary, T. L., Helm, R. F. & Sobrado, P. (**2010**) Characterization of recombinant UDP-galactopyranose mutase from *Aspergillus fumigatus*. *Arch. of Biochem. Biophys.* 502, 31–38.

10. **Poulin, M. B.** & Lowary, T. L. (**2010**) Methods to study the biosynthesis of bacterial furanosides. *Methods Enymol.* 478, 389–411.

11. **Poulin, M.B.**, Nothaft, H., Hug, I., Feldman, M.F., Szymanski, C.M. & Lowary, T.L. (**2010**) Characterization of a bifunctional pyranose–furanose mutase from *Campylobacter jejuni* 11168. *J. Biol. Chem.* 285, 493–501.

Abstracts:

12. Oppenheimer, M.L., Blumer, A. **Poulin, M.B.**, Helm, R.F., Lowary, T.L. & Sobrado P. (**2010**) Mechanistic studies on UDP-Galactopyranose mutases from *Aspergillus fumigatus* and *Trypanosoma cruzi*. *FASEB J.* 24, 513.2.

Invited Talks:

02/2017 **Poulin, M.B.** Mechanism and Transition State of Protein Lysine Methyltransferases. University of Maryland, Department of Cell Biology and Molecular Genetics. College Park, MD USA.

10/2016 **Poulin, M.B.** Using Isotope Effect Measurements to Design Enzyme Inhibitors. University of Maryland ASBMB undergraduate student invited speaker. College Park, MD USA.

06/2014 **Poulin, M.B.** & Schramm, V.L. Transition state analysis of human glycine *N*-methyltransferase. 97th Canadian Chemistry Conference and Exhibition. Vancouver, BC Canada.

11/2011 **Poulin, M.B.**, Zhou, R. & Lowary, T.L. Synthetic UDP-galactofuranose analogs reveal critical hydrogen bonding in GlfT2 catalyzed mycobacterial galactan assembly. 5th Banff Symposium on Organic Chemistry. Banff, AB Canada.

10/2009 **Poulin, M.B.**, Nothaft, H., Szymanski, C.M. & Lowary, T.L. Studying the Specificity of Pyranose–Furanose Mutase in *Campylobacter jejuni.* 4th Banff Symposium on Organic Chemistry. Banff, AB Canada.

04/2009 **Poulin, M.B.**, Nothaft, H., Szymanski, C.M. & Lowary, T.L. Probing the Specificity of a Pyranose–Furanose Mutase from *Campylobacter jejuni.* 5th National Carbohydrate Symposium. Banff, AB Canada.

02/2009 **Poulin, M.B.**, Nothaft, H., Szymanski, C.M. & Lowary, T.L. Probing the Specificity of a Pyranose–Furanose Mutase in *Campylobacter jejuni.* Volcano Conference on Bioorganic Chemistry. Seattle, WA USA.

Poster Presentations:

07/2015 **Poulin, M.B.,** Schneck, J.L., Matico, R., McDevitt, P., Meek, T.D. & Schramm, V.L. Kinetic and Binding isotope effects for the NSD2 catalyzed methylation of histone H3 lysine 36. Enzymes, Coenzymes & Metabolic Pathways Gordon Research Conference. Waterville Valley, NH USA.

06/2015 **Poulin, M.B.,** Schneck, J.L., Matico, R., McDevitt, P., Meek, T.D. & Schramm, V.L. Kinetic and Binding isotope effects for the NSD2 catalyzed methylation of histone H3 lysine 36. Nucleoside, Nucleotides & Oligonucleotides Gordon Research Conference. Newport, RI USA.

02/2014 **Poulin, M.B.,** Schneck, J.L., Matico, R., McDevitt, P., Meek, T.D. & Schramm, V.L. Targeting protein lysine methyltransferase by transition state analysis. Isotopes in Biological & Chemical Science Gordon Research Conference. Galveton, TX USA.

07/2012 **Poulin, M.B.,** & Lowary, T.L. Substrate recognition by *C. jejuni* pyranose–furanose mutase enzymes. 26th International Carbohydrate Symposium. Madrid, Spain.

05/2012 **Poulin, M.B.** & Lowary, T.L. Substrate recognition by *Campylobacter jejuni* pyranose–furanose mutase enzymes. 8th National Cabohydrate Symposium. Banff, AB Canada.

06/2011 **Poulin, M.B.,** Zhou, R. & Lowary T.L. Synthetic UDP-galactofuranose analogs as probes of mycobacterial galactofuranosyltransferase. Carbohydrates Gordon Research Conference. Waterville, ME USA.

06/2011 **Poulin, M.B.,** Zhou, R. & Lowary T.L. Synthetic UDP-galactofuranose analogs disrupt mycobacterial galactan biosynthesis. Canadian Student Health Research Forum. Winnipeg, MB Canada.

05/2011 **Poulin, M.B.,** Zhou, R. & Lowary T.L. Synthetic UDP-galactofuranose analogs as probes of mycobacterial galactan biosynthesis. 7th National Carbohydrate Symposium. Banff, AB Canada.

08/2010 **Poulin, M.B.,** Nothaft, H., Beadle, B., Szymanski, C.M. & Lowary, T.L. Studying the activity and specificity of bacterial pyranose–furanose mutase enzymes. 25th International Carbohydrate Symposium. Tokyo, Japan.

05/2010 **Poulin, M.B.,** Nothaft, H., Szymanski, C.M. & Lowary, T.L. Work towards understanding the activity and specificity of bacterial pyranose–furanose mutase enzymes. 6th National Carbohydrate Symposium. Banff, AB Canada.

03/2010 **Poulin, M.B.,** Nothaft, H., Beadle, B., Szymanski, C.M. & Lowary, T.L. Studying the activity and specificity of bacterial pyranose–furanose mutase enzymes. Volcano Conference on Bioorganic chemistry. Seattle, WA USA.

06/2009 **Poulin, M.B.,** Nothaft, H., Szymanski, C.M. & Lowary, T.L. Probing the specificity of a pyranose–furanose mutase from *Campylobacter jejuni.* Carbohydrates Gordon Research Conference. Tilton, NH USA.

05/2009 **Poulin, M.B.,** Nothaft, H., Szymanski, C.M. & Lowary, T.L. Probing the specificity of a pyranose–furanose mutase from *Campylobacter jejuni.* 5th National Carbohydrate Symposium. Banff, AB Canada.

Teaching Experience:

2017 CHEM 650: Problems in Organic Synthesis–Spring 2017, University of Maryland

2016 CHEM 640: Problems in Organic Reaction Mechanisms–Fall 2016, University of Maryland

2010 & 2011 Graduate Teaching Assistant Organic Chemistry 461/561, Qualitative Organic Analysis Laboratory, University of Alberta

2009 Graduate Teaching Assistant Organic Chemistry 261, Introductory Organic Chemistry Laboratory University of Alberta

2007, 2008 & 2012 Graduate Teaching Assistant General Chemistry 101/102, General Chemistry Laboratory, University of Alberta

2007 Teaching Assistant Chemistry 308, Protein Science, University of Northern British Columbia

Administrative and Other Service:

2017 Faculty coordinator, Maryland Regional Science Olympiad

2016 Discussion Leader, Enzymes, Coenzymes & Metabolic pathways Gordon Research Seminar

2015 Discussion Leader, Nucleosides, Nucleotides & Oligonucleotides Gordon Research Seminar

2012 Chemistry Judging Committee, Edmonton Regional Science Fair

2010–2011 Organizing Committee, 5th Banff Symposium on Organic Chemistry

2008–2010 Chair, Alberta Glycomics Centre Student Leadership Council, University of Alberta

Peer Review Services:

- *Journal of the American Chemical Scociety*

Students Supervised:

Undergraduate Students:

1. Aditya Maddali 01/2017-Present

Graduate Students:

1. Kevin Mrugalski (*Chemistry*) 01/2017-Present
2. Shaochi Wang (*Chemsitry*) 01/2017-Present
3. Thiwanka Ratneyake (*Chemistry*) 01/2017-Present
4. Merritt Scott (*Biochemistry*) 01/2017-Present