Landon J. **Getz**

Molecular Bacteriologist, B.Sc. (Hons)

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Education

Doctor of Philosophy, Department of Microbiology and Immunology, Faculty of Medicine, Dalhousie University. 2017 - *Present*

Transferred from M.Sc. program at Dalhousie University without receiving M.Sc. degree.
Nominated for the Vanier Canadian Graduate Scholarship by Dalhousie University - CAN$50,000 award.
Nova Scotia Graduate Scholarship (NSGS) Recipient - CAN$10,000 Award
Alexander Graham Bell Canadian Graduate Scholarship - Masters Recipient 2018 - CAN$17,500 Award
Studying the links between the environmental survival and pathogenesis of *Vibrio parahaemolyticus*

Bachelor of Science, Department of Microbiology and Immunology, Faculty of Medicine, Dalhousie University. 2013 - 2017
Graduated with a GPA of **3.97**
Award for Excellence in Undergraduate Research by the for best Undergraduate Thesis.
Dean's List Fall 2013, Fall 2014, Fall/Winter 2015, Fall/Winter 2016, Winter 2017

High School Diploma Medicine Hat High School, Medicine Hat, Alberta. 2013
Awarded Rutherford Scholarship for Academic Excellence - $2,500 award

Publications

Theses

[1] Landon J Getz. 'A Genetic Switch Controls the Type III Secretion System Master Regulator, *exsA*, in *Vibrio parahaemolyticus* RIMD2210633'. Honours Thesis. Dalhousie University, 2017, p. 64.

Peer-reviewed Journals

[1] Tyrosine phosphorylation as a widespread regulatory mechanism in prokaryotes
Landon J. Getz, Cameron S. Runté, Jan Rainey, Nikhil A. Thomas
Submitted (Mar. 2019). 2019

[2] Characterization of novel lignocellulose-degrading enzymes from the porcupine microbiome using synthetic metagenomics
Mackenzie Thornbury, Jacob Sicheri, Patrick Slaine, Landon J. Getz, Emma Finlayson-Trick, Jamie Cook, Caroline Guinard, Nicholas Boudreau, David Jakeman, John Rohde, Craig McCormick
PLOS ONE 14.1 (Jan. 2019) e0209221. Public Library of Science, 2019. DOI: 10.1371/journal.pone.0209221

[3] Angels and Devils: Dilemmas in Dual-Use Biotechnology
Landon J. Getz, Graham Dellaire
Trends in Biotechnology 36.12 (Dec. 2018) pp. 1202–1205. Elsevier Current Trends, 2018. DOI: 10.1016/J.TIBTECH.2018.07.016

[4] The Transcriptional Regulator HlyU Positively Regulates Expression of *exsA*, Leading to Type III Secretion System 1 Activation in *Vibrio parahaemolyticus*.
Landon J Getz, Nikhil A Thomas
Journal of bacteriology 200.15 (Aug. 2018) e00653–17. American Society for Microbiology Journals, 2018. DOI: 10.1128/JB.00653-17

[5] Tandem tyrosine phosphosites in the Enteropathogenic *Escherichia coli* chaperone CesT are required for differential type III effector translocation and virulence
Cameron S. Runté, Umang Jain, Landon J. Getz, Sabrina Secord, Asaomi Kuwae, Akio Abe, Jason J. LeBlanc, Andrew W. Stadnyk, James B. Kaper, Anne-Marie Hansen, Nikhil A. Thomas
Molecular Microbiology 108.5 (June 2018) pp. 536–550. John Wiley & Sons, Ltd (10.1111), 2018. DOI: 10.1111/mmi.13948

[6] Taxonomic differences of gut microbiomes drive cellulolytic enzymatic potential within hind-gut fermenting mammals
Emma C. L. Finlayson-Trick, Landon J. Getz, Patrick D. Slaine, Mackenzie Thornbury, Emily Lamoureux, Jamie Cook, Morgan G. I. Langille, Lois E. Murray, Craig McCormick, John R. Rohde, Zhenyu Cheng
PLOS ONE 12.12 (Dec. 2017) e0189404. Public Library of Science, 2017. DOI: 10.1371/journal.pone.0189404

Commentaries

[1] CRISPR gene editing: Why we need Slow Science
Landon J. Getz, Graham Dellaire
The Conversation, 2019

[2] The "Value" of Consumer DNA Sequencing
Landon J. Getz
Impact Ethics, 2019

[3] Jiankui He: A Sorry Tale of High-Stakes Science
Landon J. Getz, Graham Dellaire, Francoise Baylis
Hastings Center Bioethics Forum Blog, 2018

[4] Why we are not ready for genetically designed babies
Francoise Baylis, Graham Dellaire, Landon J. Getz
The Conversation. *Republished at the* *National Post* *and* *Halifax Chronical Herald*, 2018

[5] Thicker than Water: Slow Movement on Blood Policy
Landon J. Getz
Impact Ethics, 2018

[6] The Privacy Implication of Human DNA Sequencing
Landon J. Getz
Impact Ethics, 2018

[7] A Reflection on Blood Donation Policy in Canada
Landon J. Getz
Impact Ethics, 2017

Preprints

[1] Discovery and Characterization of Novel Lignocellulose-Degrading Enzymes from the Porcupine Microbiome by Synthetic Metagenomics
Mackenzie Thornbury, Jacob Sicheri, Patrick Slaine, Landon Getz, Emma Finlayson-Trick, Jamie Cook, Caroline Guinard, Nicholas Boudreau, David Jakeman, John Rohde, Craig McCormick
bioRxiv (July 2018). Cold Spring Harbor Laboratory, 2018. DOI: 10.1101/288985

[2] Tandem tyrosine residues in the EPEC multicargo chaperone CesT support differential type III effector translocation and early host colonization
Cameron Runte, Umang Jain, Landon Getz, Sabrina Secord, Asaomi Kuwae, Akio Abe, Jason LeBlanc, Andrew W Stadnyk, James B Kaper, Anne-Marie Hansen, Nikhil A Thomas
bioRxiv (Feb. 2018). Cold Spring Harbor Laboratory, 2018. DOI: 10.1101/270066

Abstracts

[1] Flipping the Switch on Bacterial Pathogenesis: How the Leading Cause of Seafood-borne Gastroenteritis - *Vibrio parahaemolyticus* - Regulates Virulence
Landon J. Getz, Justin Brown, Nikhil A. Thomas
LGBTSTEMinar 2019, *London, UK*, 2019

[2] Linking Phenotype and Pathogen Genomics: Tn-Seq and Next Generation DNA Sequencing
Landon J. Getz, Andre Comeau, Morgan G. I. Langille, Nikhil A. Thomas
PREP Graduate Student Research Day, Halifax, NS, 2018

[3] Linking Phenotype and Pathogen Genomics: Tn-Seq and Next Generation DNA Sequencing
Landon J. Getz, Andre Comeau, Morgan G. I. Langille, Nikhil A. Thomas
23rd Annual Infectious Disease Research Day, *Halifax, NS*, 2018

[4] HlyU and H-NS Act as a Genetic Switch for Transcriptional Control of the Type III Secretion System-I Master Regulator *exsA*
Landon J. Getz, Nikhil A. Thomas
ASM Vibrio2017: The Biology of Vibrios, Chicago, IL, 2017

[5] Discovery of a Genetic Switch in *Vibrio parahaemolyticus* That Contributes to Host Cell Death During Infection
Landon J. Getz, Nikhil A. Thomas
22nd Annual Infectious Disease Research Day, *Halifax, NS*, 2017

[6] A 'spike' in biofuel production: mining the porcupine microbiome to engineer a softwood feedstock platform
Landon J. Getz, Emma C.L. Finlayson-Trick, Patrick D. Slaine, Mackenzie Thornbury, Emily Lamourerux, Jamie Cook, Morgan G.I. Langille, Lois E. Murray, Craig McCormick, John R. Rohde, Zhenyu Cheng
iGEM Giant Jamboree 2016, *Boston, MA*, 2016

Invited Presentations

Natural History Museum Life Sciences Seminar Series, London, UK. **January 2019**
Title: The Multimodal Lifestyle of Marine *Vibrios*.
Description: *Vibrio* is a genus of marine bacteria which is able to survive and proliferate in a variety of niches, including as a human pathogen. My research aims to better understand these interactions by studying *Vibrio* environmental survival, as well as their host-pathogen interactions.

Conference and Seminar Presentations

[1] The Multimodal Lifestyle of Marine *Vibrios*.
Microbiology and Immunology Seminar Series, Dalhousie University, Halifax, NS. January, 2019.

[2] **Flipping the Switch on Bacterial Pathogenesis: How the Leading Cause of Seafood-borne Gastroenteritis - *Vibrio parahaemolyticus* - Regulates Virulence**
LGBTSTEMinar 2019, Institue of Physics, London, UK. January, 2019. Oral Presentation.

[3] Linking Phenotype and Pathogen Genomics: TnSeq and Next Generation DNA Sequencing.
PREP Graduate Student Research Day, Dalhousie University, Halifax, NS. April, 2018. Oral Presentation.

[4] *Vibrio parahaemolyticus*: A Versatile Pathogen Living a Dual-Lifestyle.
Department of Microbiology and Immunology Graduate Student Seminar, Dalhousie University, Halifax, NS. February, 2018.

[5] State of the Union: iGEM Introduction
Department of Microbiology and Immunology Seminar Series, Dalhousie University, Halifax, NS. 2017.

[6] A Genetic Switch Controls a Type III Secretion System Master Regulator in a Pandemic Isolate of *Vibrio parahaemolyticus*
Deparment of Microbiology and Immunology Honours Student Presentations, Dalhousie University, Halifax, NS. March 2017.

[7] Biofuel Production set to Spike: Identification of Biofuel Producing Enzymes in the Porcupine Microbiome.
2016 iGEM Giant Jamboree, iGEM, Boston, MA. October 2016.

Conference Posters

Presenter marked with *

[1] Exploration of HlyU DNA Binding and Virulence Gene Regulation in *Vibrio parahaemolyticus*
Justin M Brown*, **Landon J. Getz**, Nikhil A. Thomas. *Cameron Conference*, Department of Biology, Dalhousie University, Halifax, NS. February 2019.

[2] Linking Phenotype and Pathogen Genomics: TnSeq and Next Generation DNA Sequencing.
Landon J. Getz*, André M. Comeau, Morgan G. I. Langille, Nikhil A. Thomas. *23rd Annual Infectious Disease Research Day*, Centre for Vaccinology, Halifax, NS. April, 2018. Poster.

[3] **HlyU and H-NS act as a Genetic Switch for Transcriptional Control of the Type-III Secretion System I Master Regulator *exsA***
Landon J. Getz*, Nikhil A. Thomas. ASM *Vibrio2017*, American Society of Microbiology, Chicago, IL. November 2017. Poster.

[4] Discovery of a Genetic Switch in *Vibrio parahaemolyticus* that Contributes to Host Cell Death during Infection.
Landon J. Getz*, Nikhil A. Thomas. *22nd Annual Infectious Disease Research Day*, Dalhousie University, Halifax, NS. April 2017. Poster.

[5] Biofuel Production set to Spike: Identification of Biofuel Producing Enzymes in the Porcupine Microbiome.
Landon J. Getz*, Emma C. L. Finlayson-Trick*, Patrick D. Slaine, Mackenzie Thornbury, Emily Lamoureux, Jamie Cook, Morgan G. I. Langille, Lois E. Murray, Craig McCormick, John R. Rohde, Zhenyu Cheng. *2016 iGEM Giant Jamboree*, iGEM, Boston, MA.

October 2016.

Teaching and Mentoring

Part-Time Academic, Department of Chemistry, Dalhousie University. **2018 - *Present***
Instructor for CHEM 1011/1021 and CHEM 1012/1022 at Dalhousie University and First Year Chemistry Resource Centre Coordinator.
Duties include: Organize TAs, lecture once a week, respond to student e-mails, prepare course material, mark quizzes and exams.

Graduate Student Mentor, Dalhousie University 2018 - *Present*
Wetlab mentor for Dalhousie iGEM 2018. I ensure the safety of the students, teach them the appropriate molecular biology skills, and lead them through the Summer project. I also prepared a **three-day molecular biology boot-camp**, where each student cloned a piece of DNA into the pSB1C3 iGEM Biobrick Shipping Vector.
Awarded a Silver Medal and Nominated for Best in Track (top 10% of projects at the competition.)
Dalhousie iGEM 2018's website can be found here.

Senior Chemistry Resource Center Assistant, Department of Chemistry, Dalhousie University 2017- 2018
Create TA's assignment and meeting schedule, be available throughout the week to answer questions about First Year Chemistry assignments and lecture material.

Introductory Microbiology (MICI2100) Teaching Assistant, Department of Microbiology and Immunology, Dalhousie University 2017
Respond to student emails and Brightspace messages, be available for face-to-face conversations, and mark exams.

Bioinformatics and Web Design Mentor, Dalhousie iGEM 2017 2017
Be a graduate student resource for the Bioinformatics and Web Design teams.
Dalhousie iGEM 2017 Website can be found here.

Chemistry Resource Center Assistant, Department of Chemistry, Dalhousie University 2015 - 2016
Be available throughout the week to answer questions about First Year Chemistry assignments and lecture material. Attend weekly meetings with prepared assignment completed to answer other TA's questions and prepare for the coming week.

Community Assistant, Dalhousie Student Life 2014 - 2015
Helped off-campus students by providing an on-campus liaison, location and support system similar to programs in place for on-campus students.
Planned events to integrate the Halifax community with the Dalhousie Community, and be a point of contact for communication between the Halifax Community and the University community.

Student Supervision

Justin Brown, Biology Honours Student 2018 - 2019
Shared supervision with Dr. Nikhil Thomas
Project: Elucidating the Genetic Mechanism behind HlyU DNA Binding and *exsA* Genetic Activation

Skills

Computer Skills: Latex, R, Basic Matlab, HTML, CSS, Terminal Commands, Jekyll, Bioinformatics.
Molecular Biology: PCR, Recombinant DNA Techniques, DNA sequencing library preparation, SDS-PAGE, Agarose gel/Pulse-field gel electrophoresis, allelic exchange.
Bacterial Genetics and Cell Culture: Sterile technique, bacterial culture, strain maintenance and organization, bacterial conjugation, synthetic biology techniques, bacterial enumeration, human cell-line and culture, infection assays.
Laboratory Techniques: Buffer and sterile media preparation, waste destruction and removal, laboratory protocol design.
Community work: Organizing groups, holding productive meetings, leadership skills.
Communication skills: Clear and effective writing and presentations, public speaking, extensive teaching experience.

Science Communication

Science Slam Halifax Participant Nov. 2018
Discussed a subset of my work, marine nutrient cycles, to a lay audience at a Grade 8 education level
Format: 5 minute presentation, no slides.

"Ask a Scientist" Campaign, Dalhousie Faculty of Science July 2018
Discussed LGBTQ+ Science, Technology, Engineering, Maths Day at Halifax Pride along with other LGBTQ+ Scientists at Dalhousie.
Discussed Environmental Microbiology and Bacteriology with the community.

LGBTQ+ Science, Technology, Engineering, Maths Day Discussion on Information Morning with Portia Clark July 2018
Information Morning is the public broadcaster's (CBC) local morning radio show in Nova Scotia.
Discussed the importance of inclusion and diversity in STEM, along with LGBTQ+ STEM Day.

Awards

Nova Scotia Graduate Scholarship 2019
CAN$10,000 Provincial Award
Travel Award - Royal Society London Jan. 2019
£140 Local Award for presenting at the LGBTSTEMinar 2019 at the Institute of Physics
Nominated for Vanier Canadian Graduate Scholarship by Dalhousie University Oct. 2018
CAN$50,000 Federal Award.
Nova Scotia Health Research Foundation Scotia Scholars Award April 2018
CAN$10,000 Provincial Award.
Alexander Graham Bell Canadian Graduate Scholarship - Masters Recipient April 2018
CAN$17,500 Federal Award.
Nova Scotia Graduate Scholarship 2018
CAN$10,000 Provincial Award.
Award for Excellence in Undergraduate Honours Research June 2017
CAN$100 Departmental Award given to student with the best Undergraduate thesis.
Nova Scotia Graduate Scholarship 2017
CAN$10,000 Provincial Award
Faculty of Science Undergraduate Research Prize June 2017
Honours Student Prize June 2017
Faculty of Science Dean's List 2016/2017
Natural Science and Engineering Research Council University Student Research Award March 2016
CAN$4,500 Federal Award
Faculty of Science Dean's List 2015/2016
Dalhousie University In-Course Scholarship Sept. 2015
CAN$250 University Award
Faculty of Science Dean's List 2015/2016
Faculty of Science Dean's List 2013
Dalhousie University Entrance Scholarship Sept. 2013
CAN$750 University Award
Alexander Rutherford Scholarship June 2013
CAN$2,500 Provincial Award

Committee Membership

international Genetically Engineered Machine (iGEM) Diversity Committee. 2019 - *Present*
Committee Member. Work to improve diversity initiatives at the iGEM Foundation to make the conference and competition more equitable and just for all who attend.
Department of Microbiology and Immunology Undergraduate Studies Committee. 2017 - *Present*
Graduate Student Representative. I bring intimate knowledge of the undergraduate program through previous enrolment.

Community Service

Peer-Review
Reviewed for Microbiome, a Springer Nature Journal 2019

Volunteer Activity
External Coordinator, Dalhousie Urban Garden Society. 2016 - *Present*
Act as a liaison between Dalhousie Urban Garden Society with community food initiatives and groups, prepare newsletters and social media posts and take charge of regular garden maintenance.

Front of House Volunteer, Halifax Music Co-Op. 2013 - 2015
Take and sell tickets at the door, greet concert-goers, and sell merchandise/concessions.

House Co-President, Howe Hall Residence Council. 2013 - 2014
Alongside the co-president, put together a house council and hold weekly house council meetings, attend monthly residence council meetings, plan house events, and support the rest of council in community initiatives.

Career Experience

NSERC USRA Research Assistant, Dalhousie University. 2016
Ensured lab stocks and supplies were adequately stocked, performed experiments at the discretion of the Primary Investigator.
Skills learned: knock-out strain construction, polymerase chain reaction, DNA extraction and purification, secreted protein purification, DNA gel electrophoresis, protein gel electrophoresis, buffer and reagent preparation.

Groundskeeper, Mount St. Vincent University. 2015
Self-directed task-oriented work, ensure grounds of the University are maintained.
Tasks: Mowing lawns, planting and maintaining flower beds, cleaning up garbage around campus, pruning trees and shrubs.

Swim Instructor and Lifeguard, Dalpex, Dalhousie University. 2014-2015
Organize swim lessons for children aged 2 to 14 years of age, as well as hold Water Safety Instructor Certification. Overlook operations of the pool and ensure patron safety during use of the facilities, as well as hold National Lifeguard Service - Pool Option certification.

Camp Counsellor, Dalplex, Dalhousie University. 2014
Organize and Supervise activities for Camp children at Dalhousie University's Dalplex Active Kids Summer Camp. Be **CPR-C and First Aid Certified** as well as hold current **Water Safety Instructor** and **National Lifeguarding Service - Pool Option** Certifications.

Lifeguard and Swim Instructor, City of Medicine Hat 2012-2013

Technology Associate, Staples Business Depot 2011-2013

Media

CBC Nova Scotia's Information Morning Radio Show - Inclusion and Diversity in STEM with Portia Clarke, live in studio. 2018
Discussed sharp LGBTSTEMday and LGBTQ+ Representation in Science, Technology, Engineering, and Math (STEM)

The Dalhousie Gazette - Urban Garden is one of Dalhousie's hidden gems by Lauren Hazlewood. 2017
Featured for work at the Dalhousie Urban Garden.

Halifax's The Coast - 10 urban gardens you need to know by Victoria Walton. 2017
Featured for work at the Dalhousie Urban Garden.