

# 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] 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](https://doi.org/10.1371/journal.pone.0209221)
- [2] 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](https://doi.org/10.1016/J.TIBTECH.2018.07.016)
- [3] 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](https://doi.org/10.1128/JB.00653-17)
- [4] Tandem tyrosine phosphosites in the Enteropathogenic *Escherichia coli* chaperone CesT are required for differential type III effector translocation and virulence  
Cameron S. Runte, 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](https://doi.org/10.1111/mmi.13948)
- [5] 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](https://doi.org/10.1371/journal.pone.0189404)

## Commentaries

- [1] Jiankui He: A Sorry Tale of High-Stakes Science  
Landon J. Getz, Graham Dellaire, Francoise Baylis  
*Hastings Center Bioethics Forum Blog*, 2018
- [2] 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
- [3] Thicker than Water: Slow Movement on Blood Policy  
Landon J. Getz  
*Impact Ethics*, 2018
- [4] The Privacy Implication of Human DNA Sequencing  
Landon J. Getz  
*Impact Ethics*, 2018
- [5] 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](https://doi.org/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](https://doi.org/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 *exxA*  
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

## Invited Talks

**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. Oral Presentation.
- [2] **Flipping the Switch on Bacterial Pathogenesis: How the Leading Cause of Seafood-borne Gastroenteritis - *Vibrio parahaemolyticus* - Regulates Virulence**  
LGBTSTEMinar 2019, Institute 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] Linking Phenotype and Pathogen Genomics: TnSeq and Next Generation DNA Sequencing.  
23rd Annual Infectious Disease Research Day, Centre for Vaccinology, Halifax, NS. April, 2018. Poster.
- [5] *Vibrio parahaemolyticus*: A Versatile Pathogen Living a Dual-Lifestyle.  
Department of Microbiology and Immunology Graduate Student Seminar, Dalhousie University, Halifax, NS. February, 2018. Oral Presentation
- [6] **HlyU and H-NS act as a Genetic Switch for Transcriptional Control of the Type-III Secretion System I Master Regulator *exsA***  
ASM *Vibrio*2017, American Society of Microbiology, Chicago, IL. November 2017. Poster.
- [7] Discovery of a Genetic Switch in *Vibrio parahaemolyticus* that Contributes to Host Cell Death during Infection.  
22nd Annual Infectious Disease Research Day, Dalhousie University, Halifax, NS. April 2017. Poster.
- [8] Biofuel Production set to Spike: Identification of Biofuel Producing Enzymes in the Porcupine Microbiome.  
2016 iGEM Giant Jamboree, iGEM, Boston, MA. October 2016. Oral Presentation.
- [9] State of the Union: iGEM Introduction  
Department of Microbiology and Immunology Seminar Series, Dalhousie University, Halifax, NS. Oral Presentation.
- [10] A Genetic Switch Controls a Type III Secretion System Master Regulator in a Pandemic Isolate of *Vibrio parahaemolyticus*  
Department of Microbiology and Immunology Honours Student Presentations, Dalhousie University, Halifax, NS. March 2017. Oral Presentation.

## 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.

**Table of Student Ratings of Instruction from CHEM1011/1012 - Facilitated on Dec. 12th 2018.**

Key: 1 = strongly disagree, 2 = moderately agree, 3 = neither agree nor disagree, 4 = moderately agree, 5 = strongly agree.

Question	# of Responses	Mode	Median	Mean
The lecturer was well-prepared:	124	5	5	4.47
The lecturer was well-prepared:	124	5	5	4.47
The lecturer was considerate of students:	124	5	5	4.58
The lecturer was enthusiastic about the material:	124	5	5	4.45
The lecturer was knowledgeable about the material:	124	5	5	4.54
The lecturer was able to explain the materials well:	123	5	5	4.31
The lecturer was a clear communicator:	124	5	5	4.34
The lecturer was able to give constructive feedback:	122	5	5	4.27
<b>The lecturer was overall, an effective teacher:</b>	<b>124</b>	<b>5</b>	<b>5</b>	<b>4.41</b>

**Selected Student Comments from December 12th 2018 Evaluation**

**"Landon Getz is an effective teacher** and his review sessions are one of the 1st year chemistry department greatest amenities. He is really good and helpful. **No improvement necessary.** He simplifies and explains the concepts better and does it at a steady pace."

**"If he's teaching, I'm going.** Extremely helpful in the concept room."

"Landon is one of the clearest, most enthusiastic instructors I've had the pleasure of learning from. I would encourage him to continue his teaching habits going forward."

**"Landon was an overall amazing PTA.** He was always super helpful and eager to teach. I really appreciated his dedication to our education. Landon explained numerous topics to me in the concept room and was always very thorough. He was definitely my favourite PTA all semester."

"Landon was able to clearly communicate concepts in an effective way that helped me to learn. **You can tell that he cares about students success.**"

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 (MIC12100) 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

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

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, Dalplex, 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 2018  
 Portia Clarke, live in studio.

Discussed sharp LGBTSTEMday and LGBTQ+ Representation in Science, Technology, Engineering, and Math (STEM)

2017

The Dalhousie Gazette - [Urban Garden is one of Dalhousie's hidden gems](#) by Lauren Hazlewood.  
Featured for work at the Dalhousie Urban Garden.

2017

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