

CV

Landon J. Getz

Landon Getz is a Ph.D. Candidate in the Department of Microbiology and Immunology at Dalhousie University. Landon has a Bachelor of Science Honours degree as well as a certificate in Genetics from Dalhousie University. He is a Vanier Scholar, Killam Laureate, and a member of the Chief Science Advisor's inaugural youth council.

Landon has a keen interest in understanding the microbial underpinnings of pathogenesis and the evolution of pathogenesis in environmental organisms. Through this interest, Landon explores the pathogenicity and environmental survival of *Vibrio parahaemolyticus* and the genetics of T3SS biogenesis in both *V. parahaemolyticus* and Enteropathogenic *E. coli*. Landon is also deeply interested in the intersections between Science and Society, and uses this interest to pursue the ethical and policy implications of new and emerging medical and genetic technologies, such as CRISPR/Cas9. Consequently, Landon has published several peer-reviewed journal articles and commentaries on both microbial genetics and pathogenesis, as well as in bioethics.

Education

<i>Faculty of Medicine, Dalhousie University</i> , Ph.D. in Microbiology & Immunology	Enrolled
<i>Cold Spring Harbor Laboratory Course</i> , on Advanced Bacterial Genetics	June 2019
<i>Faculty of Science, Dalhousie University</i> , B.Sc. in Microbiology & Immunology	2017
First Class Honours - cGPA > 3.7	
Department of Microbiology and Immunology Honours Student Research Prize	
<i>Faculty of Science, Dalhousie University</i> , Certificate in Genetics	2017

Publications

Career Total: 8
62 Citations; h-index: 6 (as per Google Scholar)

Journal Articles

Corresponding Author[#] | *Equal Contribution*^{*} ordered alphabetically

1. **Getz, L.J.^{*}**, Kratzer, K.^{*}, Peterlini, T., Masson, J-Y., Dellaire, G. (2021). "Addressing the dark matter of gene therapy: technical and ethical barriers to clinical application." Human Genetics. DOI: <https://doi.org/10.1007/s00439-021-02272-5>
2. **Getz, L.J.**, Dellaire, G.[#] (2020). "Back to Basics: Application of the 4-principle approach to bioethics to heritable genome editing." Science and Engineering Ethics. DOI: <https://doi.org/10.1007/s11948-020-00226-0>.
3. ****Getz, L. J.****, Runté, C., Rainey, J., Thomas, N.A.[^][#] (2019). "Tyrosine phosphorylation as a widespread
4. Thornbury, M., Sicheri, J., Slaine, P.D., ****Getz, L. J.****, Finlayson-Trick, E.C.L., Cook, J., Guinard, C.

5. **Getz, L.J.**, **Dellaire, G.** (2018). "Angels and Devils: Dual-Use in Biotechnology." Trends in Biotechnology.
6. Runté, C., Jain, U., **Getz, L.J.**, Secord, S., Kuwae, A., Abe, A., Leblanc, J., Stadnyk, A.W., Kaper, J.B., et al. (2018). "Genetic Engineering of *Salmonella* for Vaccine Development." *Journal of Infectious Diseases*.
7. **Getz, L.J.**, Thomas, N.A. (2018) "The Transcriptional Regulator HlyU is a Positive Regulator for *Salmonella* Typhimurium." *Journal of Bacteriology*.
8. **Getz, L.J.**, Finlayson-Trick, E.C.L., Slaine, P.D., Thornbury, M., Lamourerux, E., Cook, J., et al. (2019). "Genetic Engineering of *Salmonella* for Vaccine Development." *Journal of Infectious Diseases*.

In Preparation

9. **Getz, L.J.**, Brown, J.M., Sobot, L., Chow, A., Mahendrarajah, J., Thomas, N.A. (2021). Resolution of the COVID-19 Pandemic: A Youth Perspective, Canadian Science Policy Conference 2020.

Theses

10. **Getz, L.J.** (2017) "A Genetic Switch Controls the Type III Secretion System Master Regulator, ExsA, in *Salmonella* Typhimurium." *PhD Thesis*.

Commentary

1. Baylis, F., **Getz, L.J.** (2021). Challenge studies for COVID-19: Now is still not the time. JME Blog
2. **Getz, L.J.**, Baylis, F. (2021). Challenge studies for COVID-19: Now is not the time. JME Blog
3. **Getz, L.J.**, Baylis, F. (2020). Canada should reject the idea of deliberately infecting vaccine volunteers, PolicyOptions.ca.
4. Baylis, F., **Getz, L.J.** (2020). Why federal government should reject human challenge trials for COVID-19 vaccine, CBC Opinion.
5. Kaiser, F., Morriveau, T., Rilling, M., Cartile, A., Sung, M., **Getz, L.J.**, Boulanger, M-E. (2020). Envisioning A Post-Pandemic Future in the Canadian Science Community: A Youth Perspective, Canadian Science Policy Conference 2020.
6. Baylis, F., **Getz, L.J.** (2020). Rush to risky challenge trials is unethical, HealthyDebate.ca.
7. **Getz, L.J.** (2020). Rushing coronavirus vaccines and treatments could do more harm than good, TheConversation.ca, Republished in Everything Zoomer, and Dal News.
8. Kofler, N., **Getz, L.J.**, Baylis, F., Dellaire, G. (2019). Genetically modifying mosquitoes to control the spread of disease carries unknown risks, TheConversation.ca, republished in Salon, HalifaxToday.ca, SaltWire Newspapers, and Gannett Newspapers.
9. **Getz, L.J.**, Dellaire, G. (2019). Moratorium on Human Genome Editing: Time to Get It Right, The Hastings Center Forum Blog.
10. **Getz, L.J.**, Dellaire, G. (2019). CRISPR gene editing: Why we need Slow Science, The Conversation.ca.
11. **Getz, L.J.** (2019). The "Value" of Consumer DNA Sequencing, Impact Ethics at Novel Tech Ethics.
12. **Getz, L.J.**, Dellaire, G., Baylis, F. (2018). Jiankui He: A Sorry Tale of High-Stakes Science, The Hastings Center Forum Blog.
13. Baylis, F., Dellaire, G., **Getz, L.J.** (2018). Why we are not ready for genetically designed babies, The Conversation: Canada Edition. Reprinted in: The National Post and the Halifax Chronicle Herald.
14. **Getz, L.J.** (2018). Thicker Than Water: Slow Movement on Blood Policy, Impact Ethics at Novel Tech Ethics.
15. **Getz, L.J.** (2018). The Privacy Implications of Human DNA Sequencing, Impact Ethics at Novel Tech Ethics.
16. **Getz, L.J.** (2017). A Reflection on Blood Donation Policy in Canada, Impact Ethics at Novel Tech Ethics.

Abstracts

1. **Getz, L.J.**, Brown, J.M., Sobot, L., Chow, A., Mahendrarajah, J., Thomas, N.A. (2021). DNA Cruciforms Regulate Virulence in Pathogenic *Vibrio* Species. 70th Annual Conference of the Canadian Society of Microbiologists, Remote - June 2021.
2. **Getz, L.J.**, Brown, J., Thomas, N.A. (2019). Type III Secretion System Gene Expression and Virulence is Regulated by a DNA Cruciform Structure at the *exsA* promoter in *Vibrio parahaemolyticus*, Genomes to Biology: the 8th International Conference on the Biology of Vibrios, McGill University, Montreal, QC. - November 2019
3. **Getz, L.J.**, Brown, J., Thomas, N.A. (2019). A DNA junction superstructure regulates Type III Secretion System gene expression and virulence in *Vibrio parahaemolyticus*, The 69th Annual Conference of the Canadian Society of Microbiologists, Université de Sherbrooke, Sherbrooke, QC. - June 2019
4. **Getz, L.J.**, Thomas, N.A. (2018). 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
5. **Getz, L.J.**, Comeau, A., Langille, M.G.I., Thomas, N.A. (2018). Linking Phenotype and Pathogen Genomics: Tn-Seq and Next Generation DNA Sequencing, PREP Graduate Student Research Day, Dalhousie University, Halifax, NS. - May 2018
6. **Getz, L.J.**, Comeau, A., Langille, M.G.I., Thomas, N.A. (2018). Linking Phenotype and Pathogen Genomics: Tn-Seq and Next Generation DNA Sequencing, 23rd Annual Infectious Disease Research Day, Dalhousie University, Halifax, NS. - Apr 2018
7. **Getz, L.J.**, Thomas, N.A. (2017). HlyU and H-NS Act as a Genetic Switch for Transcriptional Control of the Type III Secretion System-I Master Regulator *exsA*, ASM Vibrio2017: The Biology of Vibrios, Chicago, IL. - November 2017
8. **Getz, L.J.**, Thomas, N.A. (2017). 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. - March 2017
9. **Getz, L.J.**, Finlayson-Trick, E.C.L., Mostafa Hagar, Slaine, P.D., Thornbury, M., Lamourerux, E., Cook, J., Langille, M.G.I., Murray, L.E., McCormick, C., Rohde, J.R., Cheng, Z.A 'spike' in biofuel production: mining the porcupine microbiome to engineer a softwood feedstock platform, Giant Jamboree Abstract Guide, iGEM Giant Jamboree, Boston, MA. - October 2016

Invited Seminars and Talks

1. Transposon Sequencing: Functional Genomics for Probing Bacterial Pathogenesis. Genomics in Medicine - Emerging Technologies and Bioinformatic Challenges, Dalhousie University, Halifax, NS. Invited Talk. December 2019.
2. *Vibrio parahaemolyticus* and infection: A complex relationship between environment and host. Graduate Student Research Day Excellence in Research Award, Dalhousie University, Halifax, NS. Keynote. May 2019
3. The Multimodel Lifestyle of Marine *Vibrio*. Natural History Museum Life Science Seminar Series, Natural History Museum, London, UK. January 2019

Conference Talks

1. DNA Cruciforms Regulate Virulence Gene Expression in Pathogenic *Vibrio* Species. 70th Annual Conference of the Canadian Society of Microbiologists - Remote. June 2021.
2. Build Back Better: The Chief Science Advisor's Youth Council's Roundtables to Envision A Post-Pandemic Future in the Canadian Science Community. Canadian Science Policy Conference, University of Ottawa, Ottawa, QC. October 2020.
3. Functional genomics of *Vibrio* pathogenesis and environmental persistence. Canadian Student Health Research Forum, University of Manitoba, Regina, MB. August 2020.

4. A DNA Cruciform Structure Regulates Virulence Gene Expression in Human Pathogenic *Vibrio* species. PREP Graduate Student Research Day, Dalhousie University, Halifax, NS. June 2020.
5. A Regulator of Sugar Metabolism Implicated in the Secretion and Virulence of *Vibrio parahaemolyticus*. Professional Research and Education Program Graduate Student Research Day, Dalhousie University, Halifax, NS. May 2019
6. Type III Secretion System Gene Expression and Virulence is Regulated by a DNA Cruciform Structure at the *exsA* promoter in *Vibrio parahaemolyticus*. Genomes to Biology: The 8th International Conference on the Biology of Vibrios, McGill University, Montreal, QC. November 2019.
7. Creating LGBTQ+ Inclusive Spaces for Equitable Active Learning. Dalhousie Conference on University Teaching and Learning, Dalhousie University, Halifax, NS. May 2019
8. The Multimodal Lifestyle of Marine Vibrios. Microbiology and Immunology Seminar Series, Dalhousie University, Halifax, NS. January 2019
9. 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
10. Linking Phenotype and Pathogen Genomics: TnSeq and Next Generation DNA Sequencing. PREP Graduate Student Research Day, Dalhousie University, Halifax, NS. May 2018
11. *Vibrio parahaemolyticus*: A Versatile Pathogen Living a Dual-Lifestyle. Microbiology and Immunology Graduate Student Seminar, Dalhousie University, Halifax, NS. February 2018
12. Biofuel Production set to Spike: Identification of Biofuel Producing Enzymes in the Porcupine Microbiome. 2016 iGEM Giant Jamboree, iGEM, Boston, MA. October, 2016

Conference Poster Presentations

Poster Presenter*

1. **Getz, L.J.**, Brown, J.M., Thomas, N.A.*. A DNA junction superstructure regulates Type III Secretion System gene expression and virulence in *Vibrio parahaemolyticus*. 69th Annual Conference of the Canadian Society of Microbiologists, Université de Sherbrooke, Montreal, QC. June 2019
2. **Getz, L.J.***, Brown, J.M., Thomas, N.A. Type III Secretion System Gene Expression and Virulence is Regulated by a DNA Cruciform Structure at the *exsA* promoter in *Vibrio parahaemolyticus*. Centre for Comparative Genomics and Evolutionary Bioinformatics Research Retreat, Dalhousie University, Halifax, NS. November 2019
3. **Getz, L.J.***, Thomas, N.A. "Discovery of a Genetic Switch in *Vibrio parahaemolyticus* that Contributes to Host Cell Death during Infection."
4. **Getz, L.J.***, Comeau, A., Langille, M.G.I., Thomas, N.A. Linking Phenotype and Pathogen Genomics: TnSeq and Next Generation DNA Sequencing. 23rd Annual Infectious Disease Research Day, Centre for Vaccinology, Halifax, NS. April 2018
5. **Getz, L.J.***, Thomas, N.A. HlyU and H-NS act as a Genetic Switch for Transcriptional Control of the Type-III Secretion System I Master Regulator *exsA*. ASM Vibrio2017, American Society of Microbiology, Chicago, IL. November 2017.
6. **Getz, L.J.***, Thomas, N.A. 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
7. **Getz, L.J.***, Finlayson-Trick, E.C.L.* , Mostafa Hagar*, Slaine, P.D., Thornbury, M., Lamourerux, E., Cook, J., Langille, M.G.I., Murray, L.E., McCormick, C., Rohde, J.R., Cheng, Z. Biofuel Production set to Spike: Identification of Biofuel Producing Enzymes in the Porcupine Microbiome 2016 iGEM Giant Jamboree, iGEM, Boston, MA. October 2016

Grants

Awareness and understanding of apheresis plasma donation and effectiveness of alternative donor screening questions for diverse gbMSM and trans populations, Canadian Blood Services. Collaborator under PI Dr. Jaqueline Gahagan.

Total award: \$200,500

Focus on plasma donation and policies surrounding LGBTQ+ donors.

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Teaching and Course-Design Experience

Teaching Philosophy

“The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings.”

- Masanobu Fukuoka, Farmer and Philosopher

As an educator, I consider teaching to be like farming. As settlers, both sides of my family have farmed land in Canada they moved onto as part of the colonization of The West. Reflecting on this profession and on my family's experiences has given me significant guidance in my teaching career thus far. In line with how Mr. Fukuoka understands the goals of farming, I believe that education's ultimate goal is the cultivation and perfection of human beings. With that in mind, my teaching philosophy broadly covers three areas:

**Nuturing Students to grow,
Fostering Diversity and Inclusivity, and
Building Social Good through Education**

For a complete teaching philosophy, please visit: <http://landongetz.com>

Courses

Course Developer, MICI2100DE

Winter 2021

Dalhousie University

Redesigned online introductory microbiology course to include new material and more active learning activities, with less reliance on exam grades. 150-200 Students.

Online Module Developer, CHEM 1011/1021 and CHEM 1012/1022

June 2020

Dalhousie University

Redesigned the orbital hybridization online module, wrote scripts for video recordings, and built powerpoint lecture slides. 1000-1300 Students

Course-Designer & Teaching Assistant, BIOL3037: Life Rewritten

Winter 2020/Winter 2021

Dalhousie University

Developed ethics portion of this new course, and lectured these portions to students. Built exam and assignment material. ~50 Students.

Part Time Academic, CHEM 1011/1021 and CHEM 1012/1022

Fall/Winter 2018/2019

Dalhousie University

Lecture support for CHEM 1011/1021 and CHEM 1012/1022. Lectured periodically and organized the structure, schedule, and TAs for the student-taught Chemistry Resource Centre. 1000-1300 Students.

Graduate Student Mentor, Dalhousie international Genetically Engineered Machine (iGEM)

Summer/Fall 2018

Dalhousie University

Provided expertise of the iGEM competition and helped undergraduate students perform experiments and analysis.

Senior Chemistry Resource Centre Assistant, CHEM 1011/1021 and CHEM 1012/1022 Winter 2017 - Fall 2018
Dalhousie University

Organized the TAs and their schedule for the Chemistry Resource Centre. Provided additional lecture support for students through the resource centre.

Teaching Assistant, MICI 2100 Fall 2017
Dalhousie University

Provided additional resources for students, was an initial first contact for questions, and marked exams.

Bioinformatics and Web Design Mentor, Dalhousie iGEM Summer 2017
Dalhousie University

Utilized my bioinformatics and web design expertise to instruct the undergraduate iGEM students in performing experiments and analysis, and documenting it online.

Chemistry Resource Centre Assistant, CHEM 1011/1021 and CHEM 1012/1022 Fall 2015 - Fall 2016
Dalhousie University

Provided additional lecture support for CHEM 1011/1021 and CHEM 1012/1022 students in the Chemistry Resource Centre.

Laboratory Supervision Summary:

Honours Students Supervised: 3

Summer Students Supervised: 8

Experiential Learning Students Supervised: 4

Awards

Career Total: \$326,750

Significant Awards are in Bold Face

2021 Canadian College of Microbiologists sponsored Symposium Award - 70th Annual Conference of the Canadian Society of Microbiologists \$500 CAD Award

2021 Educational Leadership Award for Collaborative Teaching - Dalhousie Centre for Learning and Teaching

2020 CIHR Silver Award - Canadian Student Health Research Forum \$250 CAD Award

Nominated for: Dalhousie Impact Awards 2020: Outstanding Student of Distinction Not Awarded

Nominated for: 2020 Dalhousie's Board of Governors Award Not Awarded

People's Choice Award at the 8th International Conference on the Biology of Vibrios \$200 CAD Award

2019 President's Graduate Student Teaching Assistant Award \$500 CAD Award

2019 PREP Graduate Student Research Day Platform Presentation Award \$200 CAD Award

2019 Faculty of Medicine Excellence in Research Award \$1000 CAD Award

2018/2019 Vanier Canadian Graduate Scholarship \$150,000 CAD Award

2019 Killam Graduate Scholarship \$90,000 CAD Award

2019 Dalhousie University Faculty of Medicine Excellence in Research Award \$1,000 CAD Prize

2019 Alexander Graham Bell Canadian Graduate Scholarship - Honourary Doctoral Recipient \$35,000 CAD Award

HHMI Tuition Scholarship, Cold Spring Harbor Laboratories Advanced Bacterial Genetics \$1500 USD Award

2018 Nova Scotia Health Research Foundation Scotia Scholars Award \$10,000 CAD Award

2018 Alexander Graham Bell Canadian Graduate Scholarship - Masters Recipient \$17,500 CAD Award

2018 Nova Scotia Graduate Scholarship	\$10,000 CAD Award
2017 Award for Excellence in Undergraduate Honours Research	\$100 CAD Award
2017 Nova Scotia Graduate Scholarship	\$10,000 CAD Award
2017 Faculty of Science Undergraduate Research Prize	
2017 Honours Student Prize	\$100 CAD Award
2016/2017 Academic Year – Faculty of Science Dean’s List	
2016 NSERC University Summer Research Award	\$6,000 CAD Award
2015/2016 Academic Year – Faculty of Science Dean’s List	
2015 Dalhousie University In-Course Scholarship	\$250 CAD Award
2014/2015 Academic Year – Faculty of Science Dean’s List	
2013 Fall – Faculty of Science Dean’s List	
2013 Dalhousie University Entrance Scholarship	\$750 CAD Award
2013 Alexander Rutherford Scholarship	\$2,500 CAD Award

Professional Activities

Government

Observer, Expert Advisory Committee on COVID-19: Zoonosis <i>Office of the Chief Science Advisor, Government of Canada</i>	2020
Member, Chief Science Advisor’s Youth Council <i>Office of the Chief Science Advisor, Government of Canada</i>	2019 - 2021
Consultant, CIHR Self-Identification Questionnaire Review <i>Canadian Institute of Health Research</i>	2019 - 2020

Institutional

Organizing Committee Member, CCfV/ID Research Day <i>Dalhousie University</i>	2021
Network Member, Editing Nature <i>Yale University, New Haven, Connecticut</i>	2019 - <i>Present</i>
Graduate Student Representative, Undergraduate Studies Committee, <i>Department of Microbiology and Immunology, Dalhousie University</i>	2017 - 2019
Observer, NSHRF Peer-Review Panel <i>Dalhousie University</i>	2018

Scientific Society Membership

Student Member, American Society for Microbiology	2017 - <i>Present</i>
Student Member, Nova Scotia Institute of Science	2017 - <i>Present</i>

Scientific Peer Review

- Biochemistry and Cell Biology (x1)
- mSystems (x3)
- Microbiome (x2)

Community Activities

Board Member, Board of Directors <i>Scientists of the Maritimes</i>	2019 - <i>Present</i>
Founder <i>Queer Atlantic Canadian Science, Technology, Engineering, and Mathematics (QAtCanSTEM)</i>	2019 - <i>Present</i>
Primary Organizer, QAtCanSTEM Colloquium <i>Dalhousie University</i>	2020
Front of House Volunteer <i>Halifax Music Co-op</i>	2013 - 2017

Knowledge Translation and Media

Simcoe Reformer. Why deliberately infecting healthy young volunteers with COVID-19 virus can be done ethically. October 22, 2020.

CBC News. How microbes could help clean up Nova Scotia's abandoned mines. August 6th, 2020.

980 CKNW - The Jill Bennet Show. Conversation on coronavirus vaccines and treatments. April 23rd, 2020

570 NEWS: Kitchener Today with Brian Bourke. Conversation on coronavirus vaccines and treatments. April 16th, 2020.

Dal News. CREATING A DEEPER SENSE OF COMMUNITY FOR LGBTQ+ SCIENTISTS. January 30th, 2020.

The Signal. Halifax event connects queer voices in STEM. January 20th, 2020.

CBC Nova Scotia's Information Morning Radio Show. QAtCanSTEM Colloquium: Being Queer in STEM. January 17th, 2020.

Halifax's The Coast. A first-of-its-kind queer STEM conference is in Halifax this weekend. January 16th, 2020.

The National Post. Breakthrough or a threat? Research on genetics of same-sex behaviour ignites ethical debate. December 6th, 2019.

HalifaxToday.ca. Halifax-based group building queer community in STEM fields. November 24th, 2019.

The Sheldon McLeod Show. QAtCanSTEM and Being a Queer Scientist. November 22nd, 2019.

Dal News. PRIDE IN STEM. July 25th, 2019.

Dal News. TEACHERS WHO INSPIRE: MEET THIS YEAR'S RECIPIENTS OF DAL'S UNIVERSITY-WIDE TEACHING AWARDS. June 20th, 2019.

Current Exchange: A blog by CSHL Meetings and Courses. Visitor of the Week: Landon Getz. June 14th, 2019.

Dal News. GOVERNMENT OF CANADA SELECTS DAL PHDS AND POSTDOCS FOR ITS MOST ESTEEMED AWARDS. May 16th, 2019.

CBC Nova Scotia's Information Morning Radio Show. On the Call for a Moratorium on Germline Genome Editing. February 2019.

The Dalhousie Gazette. Urban Garden is one of Dalhousie's hidden gems by Lauren Hazlewood. September 27th, 2019.

CBC Nova Scotia's Information Morning Radio Show. LGBTSTEMDAY: Inclusion and Diversity in STEM with Portia Clarke, live in studio. July 2018.

Halifax's The Coast. 10 urban gardens you need to know by Victoria Walton. August 3rd, 2017