

Silvia T. Cardona, Ph.D

Curriculum Vitae

Department of Microbiology
University of Manitoba
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DEGREES

- 2002-2006 Postdoctoral Studies in Pathogenomics Department of Microbiology & Immunology, University of Western Ontario
1997-2001 Ph.D. Microbiology, University of Chile, Chile
1987-1995 Bachelor (Biology), University of Buenos Aires, Argentina
1983-1986 Pedagogy of Biology, CONSUDEC Institute, Buenos Aires, Argentina

EMPLOYMENT

- 2019-2022 Graduate Chair. Associate Head (Graduate Affairs) in the Department of Microbiology. Assisting the Departmental Head. Main responsibilities include maintenance and improvement of the Ph.D. and Masters' programs in Microbiology. Chair of Candidacy exams and Ph.D. Seminars. Chair of graduate awards committees.
- 2019 Professor. Department of Microbiology, University of Manitoba
- 2019 Professor (Adjunct). Department of Medical Microbiology & Infectious Disease, University of Manitoba
- 2013-2019 Associate Professor. Department of Microbiology, University of Manitoba
- 2013-2019 Associate Professor (Adjunct) Professor. Department of Medical Microbiology & Infectious Disease, University of Manitoba
- 2006-2013 Assistant Professor. Department of Microbiology, University of Manitoba

DISTINTIONS

- 2017-2022 Ian C. P. Smith Integrated Science Faculty Scholar. Participated of the development of an Interdisciplinary Science Program for undergraduate education in science
- 2017 Faculty of Science Award for Best Mentor in the Life Science Category. Awarded after being nominated by graduate and undergraduate students
- 2013 Faculty of Science Celebration of Excellence - Mention for Research Funding
- 2012 Faculty of Science Celebration of Excellence - Mention for Research Funding
- 2011 Faculty of Science Celebration of Excellence - Mention for Research Funding
- 2007 Faculty of Science Celebration of Excellence - Mention for Research Funding
- 2005-2006 Cystic Fibrosis Canada (CFC) Fellowship Award (Renewal)
- 2003-2005 Cystic Fibrosis Canada (CFC) Fellowship Award

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- 1999–2001 FONDECYT (National Fund for Science and Technology Development) Ph.D. Student Grant N° 2990035, Santiago, Chile
- 1997-2001 DAAD (German Institute for Academic Exchange) Ph.D. Scholarship to pursue doctoral studies at University of Chile

RESEARCH

Research Statement

My long-term research goal is to understand the molecular mechanisms that control microbial growth in diverse environments, such as infection sites and biotechnological processes. To that end, our lab builds genomic and synthetic biology tools with a focus on essential genes. We apply these tools to the discovery of antimicrobials, the synthesis and degradation of bioplastics, and pathogen detection. We develop some of these applications in *Burkholderia*, a group of Gram-negative bacteria that have extraordinary biotechnological potential but also cause opportunistic infections.

Active Funding

- 2021 -2025 Prediction of antibiotic activity and antibiotic mode of action by Illumina sequencing of knockdown mutant libraries and machine learning. CIHR project Grant. Principal Investigator: Silvia T. Cardona, Co-investigators: Pingzhao Hu and Rebecca Davis \$799,450
- 2021-2022 A portable CRISPRi-based pathogen detection system. Research Innovation and Commercialization award. \$7,500
- 2021 Evaluation of the antimicrobial activity of hop aqueous extracts Mitacs Accelerate. \$15,000
- 2020 - 2023 Contaminación del ambiente hospitalario por *Burkholderia contaminans*. Búsqueda a escala genómica de marcadores moleculares asociado a la resistencia a biocidas. Fondo para la Investigación Científica y Tecnológica (FONCyT) Proyecto de Investigación Triannual PICT-2019-III-A. Categoría Raíces. Principal Investigator: Maria Alejandra Bosch; Co-investigators: Silvia T. Cardona, Osvaldo Yantorno. ARS 2,165,625.00 (CAN\$ 25,000)
- 2020 - 2022 Towards zero plastic waste: Identifying bioplastic degradation genes and enzymes. Co-Investigator: David Levin. University Collaborative Research Program (UCRP) \$25,000.
- 2019-2022 Antibiotic discovery for cystic fibrosis pathogens. Cystic Fibrosis Canada Basic Research Grant. Principal Applicant. Co-investigators: Pingzhao Hu and Rebecca Davis \$300,000
- 2019 International Burkholderia Cepacia Working Group (IBCWG) 22nd Meeting. CIHR Planning and Dissemination Grant. Principal Applicant. Co-applicants: Elizabeth Tullis, Valerie Waters. \$10,000
- 2018-2020 Antibiotic discovery for *Burkholderia cepacia* complex. Cystic Fibrosis Foundation. Pilot and Feasibility Award. Principal Applicant. Co-Investigators: Pingzhao Hu and Rebecca Davis USD 107,838

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Funding under Review

- 2021-2023 Development of hop-based antimicrobials for the food industry. Sponsored Research Agreement with Nature Recombined Sciences (under review by the University of Manitoba Legal Services) \$80,000
- 2022-2021 Synthetic Biology tools to unleash *Burkholderia* biotechnological potential. NSERC Discovery Grant. \$390,000

Past Funding

- 2017-2019 Elucidation of the mechanism of action of a novel antibiotic targeting cell division. Research Manitoba Mid-Career Operating Grant. \$146,700
- 2017-2018 Prediction of novelty and mode of action of antibacterial compounds by machine learning. University Collaborative Research Program (UCRP). Co-investigator. \$24,200
- 2016 Genomic libraries for dereplication of novel antibiotics. University of Manitoba Research Grant (URGP) \$7,400
- 2016 Using bioinformatics to unravel the evolution of multiple antibiotic resistance in *Staphylococcus aureus* isolates from Argentina. Faculty of Science Interdisciplinary/New Directions Research Collaboration Initiation Grants. \$ 6,278
- 2014-2015 International *Burkholderia cepacia* working group (IBCWG) 19th meeting. CIHR. Planning and Dissemination Grants. \$10,000
- 2013-2017 Target identification of novel growth inhibitory small molecules through genome-wide competitive growth in the multiple antibiotic resistant *Burkholderia cenocepacia*. Cystic Fibrosis Canada (CFC) Research Initial Grant. \$301,790
- 2012-2013 Overcoming the knowledge gap between *Burkholderia cepacia* complex-related infections in cystic fibrosis (CF) patients from North America and Argentina. International Development Research Centre (IDRC). Canada-Latin America and the Caribbean Research Exchange Grants Program (LACREG). \$15,000.
- 2012-2013 Genome Sequencing of three *Burkholderia contaminans* isolates from Argentinian and North American Hospitals. University of Manitoba Research Grants (established) (URGP). \$7,467
- 2011-2016 Growth in the host: catabolic capacities of opportunistic bacteria and possible links to virulence. NSERC Discovery Grant \$185,000
- 2011-2013 Target Identification of novel growth inhibitors for the multiple antibiotic resistant *Burkholderia cenocepacia* through genome-wide conditional growth \$183,246. CIHR operating grant Priority Announcement Regional Partnership Program Manitoba
- 2010-2011 Construction of a *Burkholderia cenocepacia* conditional mutant library to be used in antimicrobial drug discovery. The Paul H. T. Thorlakson Foundation Fund Award \$28,833
- 2010-2011 Characterization of a conditional-growth mutant library in *Burkholderia cenocepacia*. University of Manitoba Research Grant Program, \$7,500

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- 2009-2010 Environmental Pathogens Laboratory, Canadian Foundation for Innovation. Infrastructure Operating Fund (IOF) \$29,965
- 2007-2009 Antibacterial drug discovery for cystic fibrosis bacterial pathogens, Manitoba Health Research Council (MHRC) Operating Grant, \$ 104,000
- 2007-2008 Novel antibiotic drug targets of bacterial pathogens of cystic fibrosis, University of Manitoba Research Grant Program, \$7,500
- 2007-2008 Environmental Pathogens Laboratory, Canadian Foundation for Innovation, Leaders Opportunity Fund. \$249,706
- 2006-2011 Novel genes involved in survival in vivo in the environmental pathogen *Burkholderia cenocepacia*. NSERC Discovery Grant. \$180,000

Invited Lectures

- 09/16/2021 Invited Plenary Conference Speaker. Synthetic Biology Tools for *Burkholderia* Biotechnological Applications V Congreso de Microbiología Agrícola y Ambiental September 15-17, 2021. Universidad Nacional de La Plata. Argentina
- 11/06/2020 Invited Seminar Speaker. Machine Learning Meets Antibiotic Discovery for *Burkholderia cenocepacia* Infections. Department of Medical Microbiology, University of Manitoba
- 28/11/2019 Invited Seminar Speaker. New techniques for genetic manipulation in the *Burkholderia* genus and other collaboration opportunities at the University of Manitoba. Lecture at the Institute of Investigations in Agriculture and Environmental Sciences, University of Buenos Aires, Buenos Aires, Argentina
- 20/11/2019 Invited Seminar Speaker. New techniques for genetic manipulation in the *Burkholderia* genus and other collaboration opportunities at the University of Manitoba. Lecture at the Institute of Biotechnology and Molecular Biology (IBBM) University of La Plata, La Plata, Argentina
- 11/6/2019 Invited Short Talk Speaker. Genomic approaches to uncover the mechanism of action of antibiotic molecules. 3rd International Caparica Conference in Antibiotic Resistance 2019
- 19/10/2018 Invited Symposium Speaker. Adaptation of *Burkholderia cenocepacia* to the cystic fibrosis lung environment. Host-Microbe Interactions. 32nd North American Cystic Fibrosis Conference, Denver, Colorado
- 20/06/2018 Invited Symposium Speaker. Adaptation of *Burkholderia cenocepacia* to the cystic fibrosis lung environment. 68th Annual Canadian Society of Microbiologists (CSM) Conference, Winnipeg, Manitoba
- 14/06/2017 Invited Symposium Speaker. Using next generation sequencing to advance antibiotic discovery. geXc Symposium, University of Manitoba
- 8/2/2017 Invited Speaker, Departmental Seminar. Finding novel antibiotic targets and drugs for *Burkholderia cepacia* complex infections. Department of Biological Sciences. University of Alberta

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- 24/6/2016 Invited Speaker. Illumina-based chemogenomic profiling of a novel compound with antimicrobial activity reveals its role as a bacterial cell division inhibitor. Protein Structure, Function and Malfunction Meeting. University of Saskatchewan
- 14/6/2016 Invited Symposium Speaker. Illumina-based chemogenomic profiling of a novel compound with antimicrobial activity reveals its role as a bacterial cell division inhibitor. 66th Annual Conference of the Canadian Society of Microbiologists, University of Toronto, Toronto, ON
- 26/11/2015 Invited Speaker, Research Rounds. *Burkholderia cepacia* complex infections in cystic fibrosis and the quest for novel antimicrobials. Department of Immunology, University of Manitoba
- 29/01/2015 Invited Speaker, Research Rounds. A tale of bacteria turned superbug and the quest for novel antimicrobials. Public Health Ontario
- 28/01/2015 Invited Speaker, Departmental Seminar. Phenylacetic acid: a new player in quorum sensing-regulated microbial interactions? Department of Biological Sciences, University of Toronto at Scarborough
- 19/11/2014 Invited Speaker, Departmental Seminar. Metabolism of phenylacetic acid: a novel regulator of quorum sensing? Department of Medical Microbiology & Infectious Disease, University of Manitoba
- 10/1/2014 Invited Speaker. CAREG/LACREG Brown Bag Lunch Session. Overcoming the Knowledge Gap between Infections in Cystic Fibrosis Patients from North America and Argentina. Reflections on a LACREG funded project. Hosted by the office of Research Services, University of Manitoba
- 30/11/2013 Invited Symposium Speaker, Omics Symposium. Genomic tools to profile antibiotic mode of action., XXXV Congreso Chileno de Microbiología, Maintencillo, Chile.
- 22/11/2013 Invited Speaker, Departmental Seminar. Visualizing genomes with Artemis Software. Department of Microbiology Immunology and Biotechnology, University of Buenos Aires
- 19/11/2013 Invited Speaker, Departmental Seminar. Genomic libraries and their use for detection of antibiotic mode of action. Department of Microbiology Immunology and Biotechnology, University of Buenos Aires
- 27/02/2013 Invited Speaker, Departmental Seminar. *Burkholderia cepacia* complex: a tale of a harmless bacterium turned superbug and the quest for novel antimicrobial targets. Department of Medical Microbiology, University of Manitoba
- 07/12/2011 Invited Speaker, Research Group Seminar. A chemical genomic approach to find novel antibiotics for *Burkholderia cenocepacia*. Manitoba group in protein structure and function. University of Manitoba
- 15/04/2011 Session Chair. "Novel Antimicrobials" 15th International *Burkholderia cepacia* Working Group (IBCWG) Meeting. Prague, Czech Republic
- 02/02/2009 Invited Speaker, Departmental Seminar. *Burkholderia cenocepacia* pathogenesis in real time: bacterial physiology and metabolism modeled in *Caenorhabditis elegans*. Department of Medical Microbiology, University of Manitoba

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- 10/10/2008 Invited Speaker, Departmental Seminar. *Burkholderia cenocepacia* pathogenesis in Real Time: Bacterial Physiology and Metabolism Modeled in *Caenorhabditis elegans*. Department of Biology, University of Regina
- 25/07/2003 Departmental Seminar. Essential genes in *Burkholderia cepacia*: towards the identification of new targets of antibiotics for the treatment of infections in cystic fibrosis patients. Technical university of Munich

Publications

H-index: 18; Citations: 1363; H-index since 2016: 15 (Google Scholar, 21/12/22).

Trainees under Dr. Cardona's supervision are underlined.

Peer-reviewed articles

Submitted/revision requested

4. Leon B, Casco D, Bettiol M, Leguizamón M, D'Alessandro V, Prieto C, Vita C, Figoli CB, Vescina C, Rentería F, Yantorno OM, Cardona ST, Bosch A. Association between *Burkholderia* contaminans phenotypes and poor clinical outcome in chronic lung infection of patients with cystic fibrosis. Submitted to the Journal of Cystic Fibrosis, December 23, 2021.
3. Hadipour H, Liu Ch, Davis R, **Cardona ST**, Hu P. Deep clustering of small molecules at large-scale via variational autoencoder embedding and K-means. Submitted to BMC Bioinformatics December 22, 2021.
2. Liu Ch, Hogan AM, Sturm H, Kahn, MW, Islam Md M, Rahman ASM Z, David R, **Cardona ST**, Hu P. Deep learning - driven prediction of drug mechanism of action from large-scale chemical-genetic interaction profiles. Submitted to the Journal of Cheminformatics. Revision submitted December 10, 2021.
1. Hogan AM, Cardona ST. 2021. Gradients in Gene Essentiality Reshape Antimicrobial Research. Invited Submission to FEMS Microbiology Reviews Revision submitted November 15, 2021.

Published/in press/ accepted

43. Rahman ASM Z, Timmerman L, Gallardo F, **Cardona ST**. 2021. Identification of essential protein domains from high-density transposon insertion sequencing. Scientific Reports. Accepted December 29, 2021. <https://www.researchsquare.com/article/rs-589027/v1>
42. Yossief M, Singh V, Maydaniuk D, **Cardona ST**, Kuss S. 2021. Electrochemical Characterization of the Antibiotic Auranofin in Aqueous Solutions. Electroanalysis. <https://doi.org/10.1002/elan.202100378>
41. Maydaniuk D, Wu B, Truong D, Liyanage SH, Hogan AM, Yap ZL, Yan M, **Cardona ST**. 2021. New auranofin analogs with antibacterial properties against *Burkholderia* clinical isolates. Antibiotics. <https://www.mdpi.com/2079-6382/10/12/1443>
40. Hogan AM, Jeffers KR, Palacios A, **Cardona ST**. 2021. Improved dynamic range of a rhamnose-inducible promoter for gene expression in *Burkholderia*. Applied and Environmental Microbiology. 87(18)e006472
39. Haim MS, Zaheer R, Bharat A, Di Gregorio S, Di Conza J, Galanternik L, Lubovich S, Golding GR, Graham M, Van Domselaar **Cardona ST**, Mollerach M. 2021. Genome plasticity of *Staphylococcus aureus* as an adaptive strategy in lung colonization of cystic fibrosis patients. Microbial Genomics 7(3): [mgen000510](https://doi.org/10.1099/mgen.000510)
38. Hogan AM, Rahman ASM Z, Lightly TJ, **Cardona ST**. 2019. A broad-host range CRISPRi toolkit for silencing gene expression in *Burkholderia*. ACS Synthetic Biology doi: 10.1021/acssynbio.9b00232. [doi: 10.1021/acssynbio.9b00232](https://doi.org/10.1021/acssynbio.9b00232).

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37. Lightly T, Frejtek KL, Groleau MC, Ras C, Buroni S, Déziel E, Sorensen JL, **Cardona ST**. 2019. Phenylacetyl-CoA, not phenylacetic acid, attenuates the quorum sensing-regulated virulence of *Burkholderia cenocepacia* Appl Environ Microbiol. 85(24). pii: e01594-19. doi: 10.1128/AEM.01594-19. <https://journals.asm.org/doi/10.1128/AEM.01594-19>
36. Nunvar J, Hogan AM, Buroni S, Savina S, Makarov V, Cardona ST, Drevinek P. 2019. The effect of 2-thiocyanatopyridine derivative 11026103 on *Burkholderia cenocepacia*: resistance mechanisms and systemic impact. Antibiotics (Basel) 21;8(4). pii: E159. doi: 10.3390
35. Mittal N, Tesfu H, Hogan AM, **Cardona ST**. 2019. Sorensen JL. Synthesis and antibiotic activity of novel acylated phloroglucinol compounds against methicillin-resistant *Staphylococcus aureus*. The Journal of Antibiotics 72(5):253-259.
34. Hogan AM, Scoffone VC, Makarov V, Gislason AS, Tesfu H, Stietz MS, Brassinga AKC, Domaratzki M, Li X, Azzalin A, Biggiogera M, Riabova O, Monakhova N, Chiarelli LR, Riccardi G, Buroni S, **Cardona ST**. 2018. Competitive fitness of essential gene knockdowns reveals a broad-spectrum antibacterial inhibitor of the cell division protein FtsZ. Antimicrobial Agents and Chemotherapy. 62(12). pii: e01231. <https://journals.asm.org/doi/full/10.1128/AAC.01231-18> Highlighted in [UM today](#).
33. Kumar B, Sorensen JL, **Cardona ST**. 2018. A c-di-GMP-modulating protein regulates swimming motility of *Burkholderia cenocepacia* in response to arginine and glutamate. Frontiers in Cellular and Infection Microbiology 8:56 doi: 10.3389/fcimb.2018.00056.
32. **Cardona ST** Choy M, Hogan AM. 2018. Essential two component systems regulating cell envelope functions: opportunities for antibiotic therapies. J Membr Biol. 251:75-89 doi: 10.1007/s00232-017-9995-5.
31. Gislason AS, Turner K, Domaratzki M, **Cardona ST**. 2017. Comparative analysis of the *Burkholderia cenocepacia* K56-2 essential genome reveals cell envelope functions that are uniquely required for survival in *Burkholderia* species. Microbial Genomics. Nov;3(11). doi: 10.1099/mgen.0.000140.
30. Haim MS, Di Gregorio S, Galanternik L, Lubovich S, Vazquez M, Bharat A, Zaheer R, Golding GR, Graham M, Van Domselaar G, **Cardona ST**, Mollerach M. 2017. First description of rpsJ and mepA mutations associated with tigecycline resistance in *Staphylococcus aureus* isolated from a cystic fibrosis patient during antibiotic therapy. Journal of Antimicrobial Agents. 50:739-741.
29. Stietz MS, Tolmasky M, **Cardona ST**. 2017. Evaluation of the electron transfer flavoprotein (ETF) as an antibacterial target in *Burkholderia cenocepacia*. Canadian Journal of Microbiology 63:857-863.
28. Lightly TJ, Phung RR, Sorensen JL, **Cardona ST**. 2017. Synthetic cystic fibrosis sputum medium diminishes *Burkholderia cenocepacia* antifungal activity against *Aspergillus fumigatus* independently of phenylacetic acid production. Can J Microbiol. 63:427-438.
26. Gislason AS, Bloodworth RAM, Choy M, Qu W, Li X, Zhang C, **Cardona ST**. 2016. Competitive growth enhances mutant sensitivity to antimicrobials and unravels a two-component system as an antibacterial target in *Burkholderia cenocepacia*. Antimicrob Agents Chemother. 61(1) pii: e00790-16.
25. Haim MS, Mollerach M, Van Domselaar G, Teves S, Degrossi J, **Cardona ST**. 2016. Draft Genome Sequences of *Burkholderia contaminans* FFI-28 a strain isolated from a contaminated pharmaceutical solution. Genome Announcements. 4(5): e01177-16.
24. Nunvar J, Kalferstova L, Bloodworth RAM, Kolar M, Degrossi J, Lubovich S, **Cardona ST**, Drevinek P. 2016. Understanding the pathogenicity of *Burkholderia contaminans*, an emerging pathogen in cystic fibrosis. PloS One, 11(8), e0160975.
23. Kumar B, **Cardona ST**. 2016. Synthetic cystic fibrosis sputum medium regulates flagellar biosynthesis through the *flhF* gene in *Burkholderia cenocepacia*. Frontiers in Cellular and Infection Microbiology. 6:65.
22. Bloodworth RAM, Selin C, Lopez de Volder A, Drevinek P, Degrossi J, **Cardona ST**. 2015. Draft Genome Sequences of *Burkholderia contaminans*, a *Burkholderia cepacia* Complex Species That Is Increasingly Recovered from Cystic Fibrosis Patients. *Genome Announc* 3: 10.1128/genomeA.00766-15.

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21. Bloodworth RAM, Zlitni S, Brown ED, **Cardona ST**. 2015. An electron transfer flavoprotein (ETF) is essential for viability and cell size determination in *Burkholderia cenocepacia*. *Microbiology* 161: 1909-1920.
20. Selin C, Blanchard JE, Gehrke SS, Bernard S, Hall DG, Brown ED, **Cardona ST**. 2015. A pipeline for screening *Burkholderia cepacia* Complex growth inhibitors. *PLoS One* 10: e0128587.
19. Stokes JM, Selin C, **Cardona ST**, Brown ED. 2015. Chemical inhibition of bacterial ribosome biogenesis shows efficacy in a worm infection model. *Antimicrobial Agents and Chemotherapy*. *Antimicrob Agents Chemother* 59: 2918-2920.
18. Cardona ST, Selin C, and Gislason AS. 2015. Genomic tools to profile antibiotic mode of action. *Crit Rev Microbiol* 4: 465-472.
17. Privytkova T, Lightly TJ, Kumar B, Bernier SP, Sorensen JL, Surette MG, **Cardona ST**. 2014. The attenuated virulence of a *Burkholderia cenocepacia* paaABCDE mutant is due to inhibition of quorum sensing by release of phenylacetic acid. *Molecular Microbiology*. 94:522-536.
16. Bloodworth RAM, Gislason AS, and **Cardona ST**. 2013. A *Burkholderia cenocepacia* conditional growth mutant library created by random promoter replacement of essential genes. *MicrobiologyOpen*. 2:243-258.
15. Kaplan J, LoVetri K, **Cardona ST**, Madhyastha S, Sadovskaya I, Jabbouri S, and Izano, E. 2012. Antibiofilm activity of recombinant human DNase I (Pulmozyme®) against *Staphylococcus aureus* and *Staphylococcus epidermidis*. *The Journal of Antibiotics*. 65:73-77.
14. Yakandawala N, Gawande P, LoVetri K, **Cardona ST**, Romeo T, Nitz M. and Madhyastha S. 2011. Characterization of Poly- β -1, 6-N-Acetylglucosamine Polysaccharide Component of *Burkholderia* Biofilms. *Applied and Environmental Microbiology*. 77:8303-8309.
13. Imolhore IAI, **Cardona ST**, 2011. Three-hydroxyphenylacetic acid induces the *Burkholderia cenocepacia* phenylacetic acid degradation pathway. Towards understanding the contribution of aromatic catabolism. *Frontiers in Cellular and Infection Microbiology*. 1:14.
12. Yudistira H, McClarty L, Bloodworth RAM, Hammond SA, Butcher H, Mark BL, and **Cardona ST** 2011. Phenylalanine induces *Burkholderia cenocepacia* phenylacetic acid catabolism through degradation to phenylacetyl-CoA in synthetic cystic fibrosis sputum medium. *Microbial Pathogenesis*. 52:183-193.
11. Hamlin JN, Bloodworth RAM, **Cardona ST** 2009. Regulation of phenylacetic acid degradation genes of *Burkholderia cenocepacia* K56-2. *BMC Microbiology* 8:222.
10. Law RJ, Hamlin JN, Sivro, A, McCorrister, S. J, Cardama, G. A, and **Cardona ST**. 2008. A functional phenylacetic acid catabolic pathway is required for full pathogenicity of *Burkholderia cenocepacia* in the *Caenorhabditis elegans* host model. *Journal of Bacteriology* 190: 7209-7218.
9. Ortega XP, **Cardona ST**, Brown AR, Loutet SA, Flannagan RS, Campoiano DJ, Govan JRW, and Valvano MA 2007. A lipopolysaccharide modification gene cluster essential for viability in *Burkholderia cenocepacia*. *Journal of Bacteriology* 189:3639-3644.
8. **Cardona ST**, Mueller C, and Valvano MA. 2006. Identification of essential operons in *Burkholderia cenocepacia* with a rhamnose inducible promoter. *Applied and Environmental Microbiology*, 72:2547-2555.
7. Wopperer, J, **Cardona ST**, Huber B, Jacobi C, Valvano MA, and Eberl L. 2006. Investigations on the conservation of quorum sensing regulated functions within the *Burkholderia cepacia* complex by the aid of a quorum quenching approach. *Applied and Environmental Microbiology*, 72:1579-1587.
6. **Cardona ST**, Wopperer J, Eberl L, and Valvano MA. 2005. Diverse pathogenicity of *Burkholderia cepacia* complex strains in the *Caenorhabditis elegans* host model. *Federation of European Microbiology Societies Microbiology Letters*. 250:97-104.
5. **Cardona ST**, and Valvano MA. 2005. An expression vector containing a rhamnose-inducible promoter provides tightly regulated gene expression in *Burkholderia cenocepacia*. *Plasmid*. 54:219-228.
4. Valvano MA, Keith KE, and **Cardona ST**. 2005. Survival and persistence of opportunistic *Burkholderia* species in host cells. *Current Opinion in Microbiology*. 8:1-7. Review.

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3. **Cardona ST**, Chavez F, and Jerez CA. 2002. The exopolyphosphatase gene from *Sulfolobus solfataricus*: Characterization of the first gene found to be involved in polyphosphate metabolism in *Archaea*. *Applied and Environmental Microbiology*. 68: 4812-4819.
2. **Cardona S**, Remonsellez F, Guiliani N, and Jerez CA. 2001. The glycogen-bound polyphosphate kinase from *Sulfolobus acidocaldarius* is actually a glycogen synthase. *Applied and Environmental Microbiology*. 67: 4773-4780.
1. **Cardona S**, Schebor C, Buera MP, and Chirife, J. 1997. Thermal stability of invertase in reduced moisture amorphous matrices in relation to glassy state and trehalose crystallization. *Journal of Food Science*. 62: 105-112.

Conference Proceedings

6. Hadipour H, Liu C, Davis R, **Cardona ST**, Hu P. 2021. Deep clustering of molecules via variational autoencoder embedding and K-means at a large-scale. 20th International Conference on Bioinformatics (*InCoB 2021*).
5. Islam MM, Jeffers K, Hogan AM, Liu Q, Davis R, **Cardona ST**, Hu P. 2018. Deep Neural Network Model for Predicting Gene Activity Using Three-dimensional Structures of Chemical Compounds. In *Joint Statistical Meeting Proceedings*, Section on Statistical Learning and Data Science. American Statistical Association, Vancouver, BC.
4. Lightly T, Kumar B, **Cardona ST**. 2018. Adaptation of *Burkholderia cenocepacia* to the cystic fibrosis lung environment. *Pediatric Pulmonology* 53:89-90.
3. Selin C, Brown ED, and **Cardona ST**. 2013. High-throughput screening for growth inhibitors of *Burkholderia cenocepacia*. *Pediatric Pulmonology* 48:111-112.
2. **Cardona ST**, Remonsellez F, Guiliani N, and Jerez CA. 2001 a. Polyphosphate metabolism in the archaeon *Sulfolobus acidocaldarius*. In Ciminelli, V.S.T. and Garcia O. Jr. (Eds.), *Biohydrometallurgy: Fundamentals, Technology and Sustainable Development. Part A. Proceedings of the International Biohydrometallurgy Symposium IBS 2001 held in Ouro Preto, Brazil, September 16-19*, p. 345-354. Elsevier.
1. **Cardona S**, Mazzobre F, Schebor C, Buera M. P, and Chirife J. 1997. Glass transition and thermal stability of enzymes with particular reference to trehalose systems. In Jowitt R. (Ed.). *J. Engineering and Food at the 7th International Congress on Engineering and Food*, April 13-17, pp A89.

Conference Abstracts

74. Kuss S, Lopes L, Maydaniuk D, **Cardona ST**, Schweizer F, Kumar A. Electrochemical Detection of Antibiotic Resistance in Pathogens. 240th ECS Meeting, Orlando, FL, USA.
73. Yap ZL, Tesfu H, Hawkins J, Oresnik I, Levin DB, Cardona ST. Towards zero plastic waste: Identifying bioplastic degradation genes and enzymes in *Burkholderia*. 43rd Symposium on Biomaterials, Fuels and Chemicals. April 26-28, 2021.
72. Maydaniuk D, Wu B, Truong D, Liyanage S, Yan M, **Cardona ST**. Auranofin derivatives as potent bactericidal antimicrobials against cystic fibrosis pathogen *Burkholderia cenocepacia*. The 1st International Electronic Conference on Antibiotics—The Equal Power of Antibiotics and Antimicrobial Resistance. May 5 -17, 2021.
71. Rahman ASMZ, Liu Ch, Timmerman L, Hogan AM, Davis R, Hu P, **Cardona ST**. Prediction of Antibiotic Activity against *Burkholderia cenocepacia* Using a Machine Learning Model. The 1st International Electronic Conference on Antibiotics—The Equal Power of Antibiotics and Antimicrobial Resistance. May 5 -17, 2021.
70. Hogan AM, Frantzeskakis L, Aftab AUJ, **Cardona ST**. Towards a Genome-wide Fingerprint of Antibiotic Resistance Determinants in the Cystic Fibrosis Pathogen *Burkholderia cenocepacia*. The 1st International Electronic Conference on Antibiotics—The Equal Power of Antibiotics and Antimicrobial Resistance. May 5 -17, 2021.

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69. Maydaniuk D, Wu B, Hogan AM, Rahman Z, Leon LB, Yan M, **Cardona ST**. Repurposing Auranofin Derivatives as Antimicrobials Against *Burkholderia*. 103rd Canadian Chemistry Conference and Exhibition. Virtual Meeting due to COVID-19 – 2020
68. Rahman Z, Hogan AM, **Cardona ST**. Development and Application of a Tunable CRISPRi gene Silencing in *Burkholderia*. Western Canada RNA Conference, Winnipeg, Canada June 23-26, 2019.
67. Lightly TJ, Frejuk KL, Ras C, Buroni S, Sorensen JL, **Cardona ST**. Phenylacetic Acid Pathway Metabolites Regulate the Virulence of *Burkholderia cenocepacia* via a CepR-independent Quorum Sensing Mechanism. ASM Microbe, San Francisco, United States, June 20-24, 2019.
66. Hogan AM, Rahman Z, **Cardona ST**. Development and Application of a Tunable CRISPRi gene Silencing in *Burkholderia*. ASM Microbe, San Francisco, United States, June 20-24, 2019.
65. Islam MM, Jeffers K, Hogan AM, Liu Q, Davis R, **Cardona ST**, Hu P. Deep neural network model for predicting gene activity using three-dimensional structures of chemical compounds. In Joint Statistical Meeting Proceedings, Section on Statistical Learning and Data Science. American Statistical Association. Vancouver, BC, Vancouver, Canada, July 2018.
64. Lightly TJ, Wolfram S, Sorensen SL, **Cardona ST**. Investigating the role of the phenylacetic acid pathway in the quorum sensing-regulated virulence of *Burkholderia cenocepacia*. 68th Annual Conference of the Canadian Society of Microbiologists, June 18 - 21, 2018, University of Manitoba, Winnipeg, MB.
63. Tesfu H, Mittal N, Hogan AM, Sorensen SL, **Cardona ST**. Phloroglucinol derivatives exhibit antimicrobial and antibiofilm activities against *Staphylococcus aureus*. 68th Annual Conference of the Canadian Society of Microbiologists, June 18 - 21, 2018, University of Manitoba, Winnipeg, MB
62. Hogan AM, Scoffone VC, Makarov V, Tesfu H, Stietz MS, Brassinga KA, Domaratzki M, Azzalin A, Biggiogera M, Chiarelli LR, Riccardi G, Buroni S, **Cardona ST**. A broad-spectrum antimicrobial inhibitor of the cell division protein FtsZ revealed by Illumina-based chemogenetics in *Burkholderia cenocepacia*. 68th Annual Conference of the Canadian Society of Microbiologists, June 18 - 21, 2018, University of Manitoba, Winnipeg, MB.
61. Lightly TJ, Wolfram S, Sorensen SL, **Cardona ST**. Investigating the role of the phenylacetic acid pathway in the quorum sensing-regulated virulence of *Burkholderia cenocepacia*. International Burkholderia cepacia Working Group (IBCWG) 21th Meeting. May 2-5, 2018. Dublin, Ireland.
60. Hogan AM, Makarov V, Gislason AS, Tesfu H, Brassinga KA, Domaratzki M, Riccardi G, Buroni S, **Cardona ST**. A broad-spectrum antimicrobial inhibitor of the cell division protein FtsZ revealed by Illumina-based chemogenetics in *Burkholderia cenocepacia*. International Burkholderia cepacia Working Group (IBCWG) 21th Meeting. May 2-5, 2018. Dublin, Ireland.
59. Hu P, Mohaiminul I, Jeffers K, Hogan AM, Davis R, **Cardona ST**. Deep neural network model for predicting gene activity using three-dimensional structures of chemical compounds. Joint Statistical Meeting (JSM) American Statistical Association, July 28 – August 2, 2018, Vancouver Convention Centre, Vancouver, BC.
58. Kumar B, Sorensen JL, **Cardona ST**. The role of c-di-GMP metabolizing domains in motility of *Burkholderia cenocepacia* K56-2 in cystic fibrosis sputum nutritional conditions. 67th Annual Conference of the Canadian Society of Microbiologists, June 20 - 23, 2017, University of Waterloo, Waterloo, ON.
57. Di Gregorio S, Haim MS, Herrera M, Famiglietti A, **Cardona ST**, Di Conza J, Mollerach M. Analysis of Insertion Elements in *Staphylococcus aureus* Mutants Selected After Antibiotic Treatment Using Whole Genome Sequencing. ASM Microbe. June 1 -5, 2017 New Orleans, LA. USA.
56. Haim MS, Zaheer R, Bharat A, Knox N, Di Gregorio S, Di Conza J, Galanternik L, Golding G, Graham M, Van Domselaar G, **Cardona ST**, Mollerach M. Microevolutionary Analysis of Methicillin Resistant *Staphylococcus aureus* in a Cystic Fibrosis Patient from Argentina Using Next Generation Sequencing. ASM Microbe. June 1 -5, 2017 New Orleans, LA. USA.
55. Scoffone VC, Gislason AS, Hogan A, Chiarelli LR, Stietz MS, Azzalin A, Makarov V, **Cardona ST**, Riccardi G, Buroni S. Fighting *Burkholderia cenocepacia* through a new promising bactericidal molecule. 7th Congress of European Microbiologists FEMS 2017. July 9-13, 2017, Valencia, Spain.

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Curriculum Vitae

54. Stietz MS, Lopez C, Balasko A, de Carvalho CCCR, Tolmasky ME and **Cardona ST**. Investigation of an electron transfer flavoprotein (ETF) involved in fatty acid metabolism, as a new antimicrobial target for treating *Burkholderia cenocepacia* infections. 23rd Latin-American Microbiology Conference. September 2016. Rosario, Argentina.
53. Haim MS, Zaheer R, Bharat A, Golding G, Galanternik L, Graham M, Van Domselaar G, Mollerach M, **Cardona ST**. Comparative genomics of sequential *Staphylococcus aureus* isolates recovered from respiratory samples of cystic fibrosis patients from Argentina. 23rd Latin American Microbiology Conference and 14th Argentinean Microbiology Conference. September 26th-30th, 2016. Rosario, Santa Fe, Argentina.
52. Stietz MS, Lopez C, Balasko A, de Carvalho CCCR, Tolmasky ME and **Cardona ST**. A *Burkholderia cenocepacia* electron transfer flavoprotein (ETF) plays an essential role in fatty acid metabolism. 4th Annual Meeting of Protein Structure, Function and Malfunction (PSFaM). June 2016. Saskatoon, Canada.
51. Gislason AS, Buroni S, Stietz MS, Scoffone VC, Mabilangan C, Chiarelli LR, Li X, Makarov V, Riccardi G, **Cardona ST**. Illumina-based chemogenomic profiling of a novel compound with antimicrobial activity reveals its role as a bacterial cell division inhibitor. 66th Annual Conference of the Canadian Society of Microbiologists, June 12 - 15, 2016, University of Toronto, Toronto, ON.
50. Winsor GL, Dhillon BK, Bertelli C, Zlosnik JE, **Cardona ST** and Brinkman FSL. The *Burkholderia* Genome Database: More Genomes, More Analyses, More Plans. International *Burkholderia cepacia* Working Group (IBCWG) 20th Meeting. April 27-30, 2016. Columbus, Ohio, USA.
49. Buroni S, Gislason AS, Scoffone VC, Stietz MS, Chiarelli LR, Azzalin A, Makarov V, **Cardona ST**, Riccardi G. 2016. A new promising bactericidal compound against *Burkholderia cenocepacia*. International *Burkholderia cepacia* Working Group (IBCWG) 20th Meeting. April 27-30, 2016. Columbus, Ohio, USA.
48. Nunvar J, Bloodworth R, Degrossi J, **Cardona ST**, Drevinek P. Genomic evolution of *Burkholderia contaminans* ST872 during chronic CF infection. 39th European Cystic Fibrosis Conference, Basel, Switzerland, June 08-11, 2016.
47. Lightly TJ, Pribytkova T, Sorensen JL, **Cardona ST**. Interactions between quorum sensing and phenylacetic acid metabolism in cystic fibrosis pathogens. Canadian Society of Microbiologists (CSM) 65st Annual Conference. June 15-18, 2015. University of Regina, Saskatchewan.
46. Gislason AS, Bloodworth RAM, Choy M, Qu W, Xuan Li X, Zhang C, **Cardona ST**. A chemogenetic approach for profiling bioactives by next generation sequencing reveals a novel antibacterial target in *Burkholderia cenocepacia*. Canadian Society of Microbiologists (CSM) 65st Annual Conference. June 15-18, 2015. University of Regina, Saskatchewan.
45. Lightly TJ, Pribytkova T, Sorensen JL, **Cardona ST**. Interactions between quorum sensing and phenylacetic acid metabolism in cystic fibrosis pathogens. Canadian Student Health Research Forum. June 2 - 4, 2015. Winnipeg, Manitoba.
44. Gislason AS, Bloodworth RAM, Choy M, Qu W, Li X, Zhang C, **Cardona ST**. A chemogenetic approach for profiling bioactives by next generation sequencing reveals a novel antibacterial target in *Burkholderia cenocepacia*. Canadian Student Health Research Forum. June 2 - 4, 2015. Winnipeg, Manitoba.
43. Bloodworth RAM, Selin C, López De Volder MA, Degrossi J, Drevinek P, Galanternik L, **Cardona ST**. Draft genome sequences of the *Burkholderia contaminans* strains LMG23361 and FFH2055. International *Burkholderia cepacia* Working Group (IBCWG) 19th Meeting. April 15-18, 2015. Vancouver, Canada.
42. Bloodworth RAM, Zlitni S, Brown ED, **Cardona ST**. An electron transfer flavoprotein (ETF) is essential for viability and cell size determination in *Burkholderia cenocepacia*. International *Burkholderia cepacia* Working Group (IBCWG) 19th Meeting. April 15-18, 2015. Vancouver, Canada.
41. Nunvar J, Kalferstova L, Kolar M, Degrossi J, **Cardona ST**, Bloodworth RAM, Drevinek P. Gene expression profiling of the *Burkholderia contaminans* bloodstream isolate. International *Burkholderia cepacia* Working Group (IBCWG) 19th Meeting. April 15-18, 2015. Vancouver, Canada.
40. Kumar B, Yudistira H, **Cardona ST**. Proteomic analysis of K56-2 grown in Synthetic Cystic Fibrosis Sputum Medium shows up-regulation of virulence factor flagellin and increased motility. International Union of

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Curriculum Vitae

- Microbiological Societies (IUMS), XIVth International Congress. July 27 – August 1, 2014. Montreal, Canada.
39. Gislason AS, Bloodworth RAM, Qu W, Xuan Li X, Zhang C, **Cardona ST**, Developing a high throughput chemogenomic approach for profiling bioactives against *Burkholderia cenocepacia*. International Union of Microbiological Societies (IUMS), XIVth International Congress. July 27 – August 1, 2014. Montreal, Canada.
 38. López De Volder MA, Bloodworth R, Selin C, **Cardona ST**, Degrossi J. Developing Molecular Biology and genomic tools for studying *Burkholderia* contaminans. International Union of Microbiological Societies (IUMS), XIVth International Congress. July 27 – August 1, 2014. Montreal, Canada
 37. Selin C, Brown E, and **Cardona ST**. High throughput screening for growth inhibitors of *Burkholderia cenocepacia*. International Burkholderia cepacia Working Group (IBCWG) 17th Meeting, Ann Arbor, Michigan, USA, April 10-13, 2013.
 36. Saas A, **Cardona ST**, Valvano MA, Coenye T, and Mahenthiralingan E. Structural differences between the genomes of *Burkholderia cenocepacia* strains K56-2 and J2315. International *Burkholderia cepacia* Working Group (IBCWG) 17th Meeting, Ann Arbor, Michigan, USA, April 10-13, 2013.
 35. Gislason A, Bloodworth RAM, Qu W, Li X, Zhang C. and **Cardona ST**. Developing a high throughput chemogenomic approach for profiling bioactives against *Burkholderia cenocepacia*. Canadian Society of Microbiologists (CSM) 61st Annual Conference. June 17-20, 2013. Carleton University, Ottawa.
 34. Pribytkova T. and **Cardona ST**. Phenylacetic acid degradation pathway related pathogenicity in *C. elegans* host model: understanding the mechanism of virulence. Canadian Society of Microbiologists (CSM) 61st Annual Conference. June 17-20, 2013. Carleton University, Ottawa.
 33. Selin C, Brown E, and **Cardona ST**. High throughput screening for growth inhibitors of *Burkholderia cenocepacia*. The 27th Annual North American Cystic Fibrosis Conference. Salt Lake City, Utah. October 17-19, 2013.
 32. Bloodworth RAM, Gislason, A, Hurst H, and **Cardona ST**. (2012) Random Promoter Replacement of Essential Genes As A Tool For Chemical Genomics Studies In *Burkholderia cenocepacia*. International *Burkholderia cepacia* Working Group (IBCWG) 16th Meeting, April 18-21. Montreal, Quebec.
 31. Bloodworth RAM, Gislason, A, and **Cardona ST**. (2012) A *Burkholderia cenocepacia* Essential Gene Conditional Expression Library as a tool for characterizing small-molecule target interactions. American Society of Microbiology 112th General Meeting. June 16-19. San Francisco, California, USA.
 30. LoVetri K, Gawande PV, Yakandawala N, **Cardona ST**. and Madhyastha, S. DispersinB® Enzyme-Based Product for Treating CF-Associated Infection. Montana Biofilm Meeting, Bozeman, MT, July 12-14, 2011.
 29. Bloodworth RAM, Gislason A, and **Cardona ST**. Development of an enhanced lethality assay for target identification of novel growth inhibitors of *B. cenocepacia*. International *Burkholderia cepacia* Working Group (IBCWG) 15th Meeting, Prague, Czech Republic, April 13-17, 2011.
 28. Yudistira H, McClarty LM, and **Cardona ST**. Phenylalanine Catabolism In *Burkholderia cenocepacia* During Growth In Synthetic Cystic Fibrosis Medium. Canadian Society of Microbiologists 60th Annual conference, June 14-17, 2010. McMaster University, Hamilton, Ontario.
 27. Arfaoui A, Bloodworth RAM, Lesanko AU, Hall D, and **Cardona ST**. In vitro and in vivo antibacterial activity of three novel imido-piperidines against *Burkholderia cepacia* complex (Bcc). McMaster University, Hamilton, Ontario, Canadian Society of Microbiologists 60th Annual conference, June 14-17, 2010.
 26. Yudistira H, McClarty LM, and **Cardona ST**. Phenylalanine catabolism in *Burkholderia cenocepacia* during growth in Synthetic Cystic Fibrosis Medium. International *Burkholderia cepacia* Working Group (IBCWG) 14th Meeting, Seattle, USA, April 21-24, 2010.
 25. Bloodworth RAM, Arfaoui A, and **Cardona ST**. A chemo-genetic approach to identifying *B. cenocepacia* growth inhibitors and their specific targets. International *Burkholderia cepacia* Working Group (IBCWG) 14th Meeting, Seattle, USA, April 21-24, 2010.

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24. Bamforth, J. M, Giraud, E, Doublet B, Cloeckert, A, Kabanangi F, **Cardona ST**, Graham M, Golding GR, and Mulvey MR. Salmonella Genomic Island 1 influences expression of virulence-associated genes in early stationary phase and enhances killing of *Caenorhabditis elegans* for Salmonella enterica serovar Typhimurium DT104. 3rd ASM Conference on Salmonella: Biology, Pathogenesis & Prevention. Aix-en-Provence, France, October 5-9, 2009.
23. Bloodworth RAM, Park M, Peters A, and **Cardona ST**. A genome-scale identification of essential *Burkholderia cenocepacia* genes using transposon mediated insertion of a rhamnose inducible promoter. CSM General Meeting, Montreal, Quebec, June 15-18, 2009.
22. Law RJ, Hamlin JNR, Teichroeb K, Ward T. and **Cardona ST**. Regulatory components and pathogenic features of the phenylacetic acid catabolic pathway of *Burkholderia cenocepacia* K56-2. International *Burkholderia cepacia* Working Group (IBCWG) 13th Meeting, Toronto, Canada, April 23-26, 2009.
21. Hamlin JNR, Bloodworth R, and **Cardona ST**. Regulation of phenylacetic acid degradation in *Burkholderia cenocepacia* K56-2. 58th Annual Meeting of the Canadian Society of Microbiologists, Calgary, Alberta, June 9-12, 2008.
20. Law RJ, McCorrister SJ, and **Cardona ST**. A functional phenylacetic acid catabolic pathway is required for full pathogenicity of *Burkholderia cenocepacia* in the *Caenorhabditis elegans* host model. 58th Annual Meeting of the Canadian Society of Microbiologists, Calgary, Alberta, June 9-12, 2008.
19. Shakibani MA, van Bruggen R, and **Cardona ST**. A genomic approach to discovering novel antimicrobial targets in *Burkholderia cenocepacia*. 58th Annual Meeting of the Canadian Society of Microbiologists, Calgary Alberta, June 9-12, 2008.
18. Bartholdson SJ, Brown ART, Ortega XP, **Cardona ST**, Loutet SA, Flannagan RS, Valvano MA, Campopiano DJ, Govan JRW. *Burkholderia cenocepacia*: LPS mediated antimicrobial resistance mechanisms of a cystic fibrosis super bug. Antibiotics- Where Now? Royal Society of Chemistry Conference. Royal Institute of British Architects, London, United Kingdom, January 21, 2008.
17. Hamlin JNR, Law RJ. and **Cardona ST**. A Putative TetR-type Regulator for the Phenylacetic Acid Catabolic Pathway in *Burkholderia cenocepacia*. 57th Annual Meeting of the Canadian Society of Microbiologists, Quebec City, June 17-20, 2007.
16. Hamlin JNR, Sivo A, Cardama G, Valvano MA, and **Cardona ST**. *Burkholderia cenocepacia* mutant strains defective in phenylacetic acid catabolism are attenuated in the *Caenorhabditis elegans* model of infection. American Society of Microbiology 107th General Meeting, Toronto, May 21-25, 2007.
15. Ortega XP, **Cardona ST**, Brown AR, Loutet SA, Flannagan RS, Campoiano DJ, Govan J. R. W, and Valvano MA. A Putative Gene Cluster for Aminoarabinose Biosynthesis is Essential for *Burkholderia cenocepacia* Viability. Gordon Research Conference on Antimicrobial peptides. Il Ciocco Lucca (Barga), Italy, April 29-May 4, 2007.
14. Hamlin JNR, Law RJ, and **Cardona ST**. Exploring essential genes of *Burkholderia cenocepacia* for novel antimicrobial targets. International *Burkholderia cepacia* Working Group (IBCWG) 12th Meeting, Ann Arbor, Michigan, USA, April 19-22, 2007.
13. Ortega XP, **Cardona ST**, Loutet SA, Flannagan RS, and Valvano MA. A lipopolysaccharide modification gene cluster encoding the synthesis and transfer of 4-amino-arabinose is essential for survival of *Burkholderia cenocepacia*. IIRF Research Day. University of Western Ontario, London, Ontario, November 24, 2006.
12. Bernier SP, **Cardona ST**, Bouvier M, Drevinek P, Mahenthalingam E, Valvano MA, and Sokol PA. The effect of colony morphology on *Burkholderia cenocepacia* virulence. International *Burkholderia cepacia* Working Group (IBCWG) 11th Meeting, Gent, Belgium, April 20-23, 2006.
11. **Cardona ST**, Petersen A, and Valvano MA. Transposon mutants of *B. cenocepacia* K56-2 that are attenuated for pathogenicity in *C. elegans*. Microbial Pathogenesis & Host Response. Cold Spring Harbor Laboratory, September 14-18, 2005.

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10. **Cardona ST**, and Valvano MA. Identification of essential genes in *Burkholderia cepacia* K56-2 by transposon-based delivery of a rhamnose inducible promoter. International *Burkholderia cepacia* Working Group (IBCWG) 10th Meeting. Oklahoma City, April 21-24, 2005.
9. **Cardona ST**, Whellams D, and Valvano MA. The use of *Escherichia coli* rhamnose promoter as a tool to identify essential genes in *Burkholderia cenocepacia*. University of Toronto Microbiology and Infectious Diseases Research Day, Toronto, June 2, 2004.
8. **Cardona ST**, Whellams D, and Valvano MA. The use of *Escherichia coli* rhamnose promoter as a tool to identify essential genes in *Burkholderia cenocepacia*. American Society of Microbiology 104th General Meeting, New Orleans, May 22-27, 2004.
7. **Cardona ST**, Whellams D, and Valvano MA. *Burkholderia cepacia* essential genes: Toward the identification and characterization of novel antimicrobial targets for the treatment of infections in cystic fibrosis patients. Margaret Moffat Graduate Research Day. Faculty of Medicine and Dentistry, University of Western Ontario, London, May 14, 2003.
6. **Cardona ST**, and Valvano MA. Developing a genetic strategy to validate putative essential genes from *Burkholderia cepacia*. American Society for Microbiology Michigan Branch Meeting. Flint, Michigan October 12, 2002.
5. **Cardona ST**, Chavez F, and Jerez CA. The exopolyphosphatase gene from *Sulfolobus solfataricus*: Characterization of the First Gene found to be involved in polyphosphate metabolism in Archaea. The 4th International congress of Extremophiles. Naples, Italy, September 22-25, 2002.
4. **Cardona ST**, Guiliani NS, Remonsellez F, and Jerez CA. Polyphosphate metabolism in the archaeon *Sulfolobus acidocaldarius*. American Society for Microbiology 100th General Meeting. Los Angeles, U.S.A. May, 21-25, 2000.
3. Cardona S, Remonsellez F, Guiliani N, and Jerez CA. Inorganic polyphosphate in archaea. Studies in *Sulfolobus*. XXII Chilean Congress of Microbiology. El Quisco, Chile, December 5-7, 2000. Presented in Spanish.
2. Cardona, S, Guiliani N, Remonsellez F, and Jerez CA. Polyphosphate in the archaeon *Sulfolobus acidocaldarius*: towards the genetic and functional characterization of its metabolism. XLII Annual Congress of the Chilean Society of Biology. Pucón, Chile, November 16-19, 1999.
1. **Cardona ST**, Osorio G, and Jerez CA. Genetic expression of the extremophile archaeon *Sulfolobus acidocaldarius* in phosphate starvation. XXI Annual Meeting of the Chilean Society of Biochemistry and Molecular Biology. Valdivia, Chile. September 22 -25, 1998.

TEACHING AND MENTORING

Graduate Courses

- | | |
|--------------|--|
| 2019-present | MBIO 7040 Graduate Microbiology (Co-teaching) Module: Navigating Graduate Studies |
| 2018 | MBIO 7010 Seminars in Microbiology (Co-teaching) |
| 2008-2019 | MBIO 7040 Graduate Microbiology (Co-Teaching) Module: Methods to identify and characterize Essential Genes |

Undergraduate Courses

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|-----------|---|
| 2024 | MBIO 4442 Research in Systems Microbiology |
| 2012-2023 | MBIO4440 Systems Microbiology (not teaching in 2022 and 2023 due to COVID-19 relief and applied research leave, respectively) |

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Curriculum Vitae

2020	SCI 2000 Overcoming antimicrobial drug resistance
2018	MBIO 4030 Special Topics in Microbiology
2014-2016	MBIO 1220 Essentials of Microbiology
2010-2014	MBIO 1010 Microbiology
2007-2009	MBIO 3480 Microbial Diversity
2006-2009	MBIO 2100 General Microbiology

Research Personnel and Graduate Students

Current

Dr. Anna Motnenko, Postdoctoral Fellow. Hops-derived antimicrobials for the food industry. CRISPRi methods for pathogen detection.

Atif Ul Aftab, Part-time Bioinformatician

Andrew Hogan. PhD Candidate. Chemogenomics approaches to understand mechanisms of action of novel antibacterial molecules for *Burkholderia cenocepacia*. Cystic Fibrosis Canada Doctoral Scholarship. Vanier Canada Graduate Scholarship (Vanier CGS)

Zisanur Rahman. PhD Student. CRISPRi library in *Burkholderia cenocepacia*. University of Manitoba Graduate Fellowship

Zhong Lin Yap. PhD Student. Catabolic capacities in *Burkholderia cenocepacia*. Research Manitoba Graduate Scholarship

Dustin (Nelson) Maydaniuk. PhD Student. Antibiotic Discovery in *Burkholderia cenocepacia*. CIHR CGS Masters Scholarship

Haben Tesfu. Master's Student. Identification and characterization of Extracellular mcl-PHA depolymerase and lipases in proteobacteria bacteria

Rebecca Lohman. Master's Student. Streamlining site-directed mutagenesis in *Burkholderia cenocepacia*

Zayra Batun. Master's Student. CRISPRi of essential genes for bio-containment of *Burkholderia* industrial applications, Mitacs Globalink Scholarship

Brielle Martens. Honor's Project Student. Mechanism of action of auranofin analog antibacterials in *Burkholderia cenocepacia*

Past

Postdoctoral Fellows

2014-2016	Dr. Maria Silvina Stietz. Exploration of small inhibitory RNAs as antibiotics against <i>Burkholderia cepacia</i> complex.
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Curriculum Vitae

Current position: Research Scientist at FREDSense Technologies, Calgary, AB

- 2012-2014 Dr. Carrie Selin. MHRC Postdoctoral Fellow. Identification of target/mechanism of action of molecules with antibacterial properties for treatment against *Burkholderia cepacia* complex
Current position: Indigenous Science Engagement Coordinator, University of Manitoba
- 2009-2010 Dr Arbia Arfaoui. MHRC Postdoctoral Fellow. In Vitro And In Vivo Antibacterial Activity of Three Novel Imido-Piperidines Against *Burkholderia cepacia* Complex

Graduate Students

Masters Theses

- 2015-2017 Matthew Choy. M. Sc. Program. A novel *Burkholderia cenocepacia* two component system involved in resistance to antibiotics.
Current Position: Optometry Student
- 2011-2014 Tanya Pribytkova. Ms. Sc Thesis. The attenuated virulence of a *Burkholderia cenocepacia* paaABCDE mutant is due to inhibition of quorum sensing by release of phenylacetic acid.
Current position: Dentist
- 2009-2011 Ijeme Imolorhe. Ms. Sc Thesis. Functional Characterization of The Phenylacetyl-CoA Ligase Genes of *Burkholderia cenocepacia*
Current position: undisclosed
- 2008-2010 Harry Yudistira. Ms. Sc Thesis. Metabolism of *Burkholderia cenocepacia* in the Cystic Fibrosis Lung. Current position: PhD student Oresnik Laboratory, University of Manitoba
- 2007-2009 Robyn J. Law. Ms. Sc Thesis. The Relationship between Phenylacetic Acid Catabolism and Pathogenicity of *Burkholderia cenocepacia* K56-2 In the *Caenorhabditis elegans* Host. NSERC Scholarship. Current Position: Technology Transfer Officer. University of British Columbia
- 2006-2008 Jason N. R. Hamlin. Ms Sc Thesis. Regulation of The Phenylacetic Acid Catabolic Pathway in *Burkholderia cenocepacia*. MHRC Scholarship.
Current position: Product Marketing Manager. STEMCELL Technologies

Doctoral Theses

- 2014-2019 Tasia Lightly. PhD Thesis. Phenylacetic acid metabolism as a regulator of quorum sensing during microbial interactions. Current position. Industrial Postdoctoral Fellow Cytophage Technologies
- 2012-2017 Brijesh Kumar. PhD Thesis. Nutritional cues in cystic fibrosis sputum regulate number and functioning of flagella through *flhF* and a c-di-GMP related protein BCAL1069 in *Burkholderia cenocepacia* K56-2 . Current position: Commercial Director Info-Tech Research Group
- 2011-2017 April Gislason. PhD Thesis. Identification of the essential genome of *Burkholderia cenocepacia* K56-2 to uncover novel antibacterials. Current position: Research Facilitator, University of Manitoba

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Curriculum Vitae

2008-2015 Ruhullah Bloodworth. PhD Thesis. Essential genes and genomes of the *Burkholderia cepacia* complex.
Current position: undisclosed.

Visiting PhD Students

2013-2014 Agustina Lopez de Volder. Genome sequencing of *Burkholderia contaminans* strains from Argentina. Current position: Teaching Faculty, University of Buenos Aires

2016 Maria Sol Haim. Genome sequencing of *Staphylococcus aureus* clinical isolates Emerging Leaders in the Americas Program (ELAP). Current position: PhD student, University of Buenos Aires

2019 Beltina Leon Tn-seq in *Burkholderia contaminans*. Emerging Leaders in the Americas Program (ELAP). Current position: PhD student, University of Buenos Aires

Undergraduate Students

Microbiology (MBIO 4530) Honors Projects

2018-2019 Kevin Jeffers. Improving the dynamic range of the rhamnose-inducible promoter for regulation of essential genes in *Burkholderia cenocepacia*

2018-2019 Stacey Line. Pathogenic phenotype of *Burkholderia cenocepacia* phenyl-acetyl CoA ligase mutants

2017-2018 Haben Tofu. Synergy between a novel molecule with bactericidal effects and known antibiotics

2017-2018 Samuel Wolfram. Phenylacetic acid as an inhibitor of quorum sensing

2016-2017 Vince Henega. Investigating the interaction of phenylacetic metabolic pathway with the quorum response

2015-2016 Branden Gregorchuk. *Burkholderia cenocepacia* growth in low oxygen conditions

2015-2016 Tarek Kanam. Use of an in vivo infection model to validate antimicrobial targets

2015-2016 Allison Balasko. Electrotransfer flavoprotein EtfBA. Cloning of the gene and protein purification

2014-2015 Mathew Choy. A novel *Burkholderia cenocepacia* two component system involved in antibiotic resistance

2012-2013 Gayanthi Tissera. Exploration of antibiotic activity against *Burkholderia cenocepacia* and Cefmetazole through enhanced sensitivity assay.

2011-2012 Holly Hurst. Effect of hydrogen peroxide on essential genes in *Burkholderia cenocepacia* conditional growth mutants

2011-2012 Sara Madill. Improvement of an enhanced lethality assay to find MOA for novel antibiotics in *Burkholderia cenocepacia*

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- 2010-2011 Chinelo Ezeonwuka. Characterizing essential genes in *Burkholderia cenocepacia* rhamnose growth mutants
- 2010-2011 Melanie Kehler. Is ShvR a positive regulator for the phenylacetic acid degradation pathway in *B. cenocepacia*?
- 2009-2010 Leigh McClarty. Phenylacetyl-CoA disrupts the DNA binding capabilities of PaaR, a transcriptional regulator of *Burkholderia cenocepacia*'s phenylacetic acid catabolic pathway
- 2008-2009 Anene Peters. Characterization of essential genes of *B. cenocepacia*
- 2008-2009 Alexander Nerbas. Analysis of metabolites produced by *B. cenocepacia* phenylacetic acid mutants
- 2008-2009 Haley Butcher. Cloning and expression of a TetR-like regulator gene in *B. cenocepacia*
- 2007-2008 Stuart McCorrister. Characterization of *Caenorhabditis elegans*-*Burkholderia cenocepacia* Intera RNAi Technology
- 2007-2008 Ruhullah Bloodworth. Phenylalanine Degradation in *Burkholderia cenocepacia*
- 2007-2008 Hanna El-Azzami. Phenylalanine Degradation in *Burkholderia cenocepacia*
- 2006-2007 Aida Sivro. Complementation of *A paaa* mutant in *Burkholderia cenocepacia*.
- 2006-2007 Erin Larcombe. Construction of *A paak* mutant in *Burkholderia cenocepacia*

NSERC and Faculty of Science Summer Scholars

- 2020 Flyn Gallardo. Developing a method for identifying multidomain proteins with non-essential and essential domains.
- 2019 Shelly Lam. Characterization of a conditional growth mutant library in *Burkholderia cenocepacia*
- 2019 Nathaniel Sertu. Finding regulatory elements of phenylacetic acid metabolism and virulence
- 2018 Kara Frejuk. Investigating the virulence phenotypes of *B. cenocepacia* phenylacetic acid degradation mutants.
- 2015 Hongru Ren. Unraveling the function of the essential ETF in *Burkholderia cenocepacia*
- 2015 Ryan Phung. Evaluating the interactions between *Burkholderia cenocepacia* and *Aspergillus fumigatus*
- 2015 Carmichael Mabilangan. Building a high-density transposon mutant library in *Burkholderia cenocepacia*

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- 2014 Marcellly Chue Goncalvez. Evaluating the antibiotic potential of small molecules with growth inhibitory activity against *Burkholderia cenocepacia*
Andrea Soriano. Profiling growth conditional mutants of *Burkholderia cenocepacia* against antibiotics of known action.
- 2013 Nayara Martins Ribeiro. Evaluating the antibiotic potential of small molecules with growth inhibitory activity against *Burkholderia cenocepacia*
- 2013 Jessica Holben. Evaluating the antibiotic potential of small molecules with growth inhibitory activity against *Burkholderia cenocepacia*
- 2013 Idunnu Adejo. Using a two-hybrid system to study essential protein interactions.
- 2012 Aaron MacAulay. Developing a conditional mutagenesis protocol in *Burkholderia cenocepacia* by mutant enrichment with bactericidal antibiotics
- 2012 Shilpa Alex. Development of a genetic tool for single copy complementation in *Burkholderia cenocepacia*
- 2011 Jesse Franklin. Characterization of novel antibacterial targets for *Burkholderia cenocepacia*
- 2011 Samira Atoui. Target identification of novel growth inhibitors for *Burkholderia cenocepacia*
- 2011 Alicia Ling. Development of a standardized protocol for high throughput inoculation of a conditional growth mutant library
- 2010 Blair Peters. *Burkholderia cenocepacia* PaaF mutant produces 2-hydroxyphenylacetic acid in nematode growth media. Implications to phenylacetic acid degradation-related pathogenesis.
- 2009 Kristyn Buchko. Growth curves of conditionally lethal mutants of *Burkholderia cenocepacia*
- 2008 Kali Teichroeb. Relevance of catabolic pathways in *Burkholderia cenocepacia* pathogenic processes
- Anene Peters. Characterization of novel genes required for growth in *Burkholderia cenocepacia*
- 2007 Rebekah Van Bruggen. Identification of antibacterial targets for *Burkholderia cepacia* Complex

Co-op Students

- 2020 Brandon Dash. Building a new database for managing strains, plasmids and bacterial libraries in the Cardona laboratory
- 2019 Lukas Timmerman. Data mining for Antibiotic Drug Discovery
- 2019 Hoang Anh Koy (Roy) Nguyen. Machine learning approaches for antibiotic drug discovery

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- 2019 Ryan Ha. Building genetic tools for genome-wide expression of essential genes in *B. cenocepacia*
- 2018 Kartik Sachar. Building genetic tools for genome-wide expression of essential genes in *B. cenocepacia*
- 2017 Nelson Mok. Activity of a novel antibiotic molecule against Gram negative cystic fibrosis pathogens
- 2013 Michelle Park. High Throughput Transposon Mutagenesis in *B. cenocepacia*
- 2011 Fatima Kabanangi. *B. cenocepacia*-*C. elegans* Host Pathogen Interactions

Mitacs Globalink students

- 2019 Fathima Asfal. Identifying genetic elements of polyhydroxyalkanoate degradation in *Burkholderia* sp.
- 2019 Zayra Batun. Developing a Bar-seq library in *Burkholderia cenocepacia* for antibiotic drug discovery
- 2018 Armando Palacios. Mitacs Globalink. Building genetic tools for genome -wide expression of essential genes in *B. cenocepacia*

Thesis advising and examination committees

- 2021- Mahamud Haque. Ph.D thesis. Department of Medical Microbiology
- 2021- Jhannelle Francis. MSc thesis. Department of Microbiology
- 2021- Matthew Van Schepdael. MSc thesis. Department of Microbiology
- 2020- Neil Lorente. MSc thesis. Department of Microbiology
- 2020- Ola Salama. MSc thesis. Department of Microbiology
- 2018-2019 Alexander Diamandas. MSc thesis. Department of Microbiology
- 2017-2019 Guanyu Wang. MSc thesis. Department of Chemistry
- 2016-2020 Akrm Ghergab. The interaction of the biocontrol agent *Pseudomonas chlororaphis* PA23 and *Pseudomonas brassicacearum* DF41 with the grazing predator *Acanthamoeba castellanii*. PhD thesis.
- 2016-2019 Manu Singh. Functional characterization of MexJK pumps in *P. aeruginosa* to understand its interaction with outer membrane factor (OMF) proteins OprM and OpmH. PhD thesis.
- 2014-2019 Robert Bertrand. Production of polyketide antibiotics by lichens. PhD thesis. Department of Chemistry

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- 2012-2019 Ben Balley-Elkin, Structural biology of viral cysteine proteases involved in host innate immune evasion. PhD thesis. Department of Microbiology
- 2015-2016 Farzaneh Taleb Sereshki. MSc thesis. Stereoselective Ortho-alkylation of Aromatic Ketones by Wilkinson Catalyst. MSc thesis. Department of Chemistry
- 2015-2016 Farzaneh Taleb Sereshki. MSc thesis. Stereoselective Ortho-alkylation of Aromatic Ketones by Wilkinson Catalyst. MSc thesis. Department of Chemistry
- 2013-2014 Yichen Zhao, *Pseudomonas aeruginosa* Type III secretion system: Regulation and the role in interspecies interaction. MSc thesis. Department of Oral Biology
- 2012-2013 Hamza Safi, MSc thesis. Examining the roles of microRNAs in mosquito spermatogenesis. MSc thesis. Department of Biology.
- 2011-2015 Jilagamazhi Fu, Metabolic diversity and synthesis of medium chain length polyhydroxyalkanoates by *Pseudomonas putida* LS46 cultured with biodiesel-derived by-products. PhD thesis. Biosystems Engineering, Faculty of Engineering.
- 2010-2015 Damien Riviers, Characterization of RhaK and its Role in Rhamnose Transport in *Rhizobium leguminosarum*. PhD thesis. Department of Microbiology.
- 2009-2013 Megan Regan. The effects of the SCCmec element and colony spreading on the virulence of methicillin resistant *Staphylococcus aureus* in a nematode model. MSc thesis. Department of Medical Microbiology, Faculty of Medicine
- 2008-2011 Jalil Nasiri. Identification and analysis of Rob, a transcriptional regulator from *Serratia marcescens*. Department of Microbiology.
- 2008-2010 Terry James. A structural examination of the Crimean-Congo Hemorrhagic Fever Virus Otu protease domain in the presence of the Ubiquitin and ISG15 substrates. Department of Microbiology.
- 2007-2012 Carrie Selin. Regulatory Mechanisms Underlying Biological Control Activity of *Pseudomonas chlororaphis*. Department of Microbiology.

External reviewer of PhD theses

- 2013 Allison Marie McDonald. Pathogen-Induced Inflammation in Immunocompromised Condition. University of British Columbia.
- 2014 Deng Liyu. Exploration of the transcription factors that regulate the expression of the haloacid operon in *Burkholderia caribensis* MBA4. School of Biological Sciences. University of Hong Kong.
- 2014 Cambria Alpha. Antimicrobial properties of the volatile organic compounds produced by *Muscodor albus* and other members of the *Muscodor* genus. Department of Molecular Biophysics & Biochemistry. Yale University.
- 2017 Rachel Kinsella. Investigating the roles of O-linked protein glycosylation and type two secretion in the pathogenesis of *Acinetobacter*. Biological Sciences, University of Alberta.

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- 2017 Jessica Duong. Phenotypic and Genotypic Evaluation of the Prairie Epidemic Strain (PES). Biological Sciences, University of Alberta.
- 2020 Mir Salma Akter. Functional genomics provides insights into the genetic network(s) associated with the function of the *cmd* operon in *Rhizobium leguminosarum* bv. *Viciae*. Department of Biology, University of Regina

SERVICE

Service to the Department of Microbiology

- 2020- Organization of New Graduate Student Orientation Event welcoming new graduate students and delivering introductory information about the program to 10 to 15 students every term.
- 2019- Creation and update of the Departmental website graduate component, including a program navigator, mental health resources, and career information.
- 2019- Establishment of the Departmental Leadership and Service Award for graduate students, including promoting the award, evaluating applications, and presenting awards. Four students have received awards to date.
- 2019 Organization of the departmental 3MM (3 min. of Microbiology) competition during the 2019 Microbiology Retreat. Designed to encourage students to participate in the 3-minute thesis competition.
- 2018 Search Committee (Assistant Professor in Systems Microbiology)
- 2017 Acting Associate Head (Graduate Studies)
- 2012- Graduate Studies Committee
- 2012 Search Committee (Assistant Professor in Microbiology)
- 2008 - 2010 Committee on Microbiology Course offerings
- 2007 Search Committee (Assistant Professor in Microbiology)

Service to the Faculty of Science

- 2019 Interdisciplinary Seminars Advisory Committee. Provided input on possible speakers and contributed to selection. Invited and welcomed Dr. Justin Nodwell as one of the keynote speakers.
- 2019-2022 Nucleus Promotion Committee. Appointed by the Dean of Science
- 2019 Tenure Guidelines Advisory Committee.
- 2017 LabTrek: Conducted laboratory guided visits for First Year Science students

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Curriculum Vitae

- 2015-2017 Promotion Committee
- 2012-2015 Tenure Committee
- 2012 Search Committee (Biosafety Advisor)
- 2012 Tenure and Promotion Committee

Service to the University

- 2020 Member of CFI Advisory Committee. Reviewed CFI JELF applications
- 2019 Joined a discussion panel during the event “Girls in Science” organized by University of Manitoba female students to encourage interest in a Science Career among secondary school female students.
- 2018 Delivered a presentation as a Keynote Speaker in the event “Girls in Science” organized by University of Manitoba female students to encourage interest in a Science Career among secondary school female students
- 2016- 2019 Representative to the University of Manitoba Faculty Association (UMFA) of 2016. Promoted collegiality and respect for everybody’s opinions during the strike of 2016.
- 2013- 2016 Internationalization Committee
- 2012- 2014 Biological Safety Advisory Committee member

Service to the Scientific Community

Participation of Conference Organization

- 2021 Organizing Committee for the The 1st International Electronic Conference on Antibiotics—The Equal Power of Antibiotics and Antimicrobial Resistance. Suggested possible keynote speakers Secured Dr. Kim Lewis, Dr. Eric Brown as keynote speakers, among others.
- 2020 Canadian Society of Microbiologists. Murray Award Committee. Evaluated applications and presented nominations to the society
- 2020 Co-Chair of the 22th International *Burkholderia cepacia* Working Group (IBCWG.org) Meeting, Toronto, ON. Postponed due to COVID-19.
- 2018 Infection and Immunity Symposium Co-Chair at Canadian Society of Microbiologists 68th Annual Conference, Winnipeg, MB
- 2015 Chair of the 21st International *Burkholderia cepacia* Working Group (IBCWG.org) Meeting, Vancouver, BC
- 2016 CSM Oral Student Symposium Competition Judge

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- 2012 ASM General Meeting Graduate Student Mentor
- 2012 Co-Chair of the 16th International *Burkholderia cepacia* Working Group (IBCWG.org) Meeting, Montreal, QB

Participation in Grant Review Panels

- 2021 Genomics: Systems and computational biology (GMX) committee. Peer-Reviewer of Project Grant Spring 2020 Competition. Reviewed 4 applications. Participated of discussion and scoring of applications.
- 2021 Research Manitoba Basic/Biomedical Masters/PhD Studentship Review Committee. Reviewed more than 5 applications. Participated of discussions and scoring of applications
- 2020 Michael Smith Foundation for Health Research. Served as Scientific Officer, capturing committee discussions during the review of 20 award applications
- 2020 Research Manitoba Basic/Biomedical Masters/PhD Studentship Review Committee. Reviewed more than 5 applications. Participated of discussions and scoring of applications
- 2020 Genomics: Systems and computational biology (GMX) committee. Peer-Reviewer of Project Grant Spring 2020 Competition. Reviewed more than 5 applications. Participated of discussion and scoring of applications.
- 2019-2022 CSM. Murray Award Committee. Reviewed and evaluated nominations.
- 2019-2021 Cystic Fibrosis Canada. Review and rank Basic Science Grant applications
- 2019 Michael Smith Foundation for Health Research. Served as Scientific Officer, capturing committee discussions during the review of 20 award applications
- 2017 CIHR Microbiology & Infectious Diseases Committee for Project Grant Applications. Reviewed 7 applications
- 2016 Michael Smith Foundation for Health Research. Panel Member. Reviewed 6 applications
- 2016 Saskatchewan Health Research Foundation. Collaborative Innovation Development Grant-letter of Intent. Reviewed more than 20 applications
- 2014 Canada-Latin America and the Caribbean Research Exchange Grants (LACREG) COMPETITION. Reviewed 15 applications.
- 2014-2016 Cystic Fibrosis Canada. Reviewed more than 20 applications.

Peer Reviewer of Articles

- Canadian Journal of Microbiology
- BMC Biotechnology and BMC Microbiology
- FEMS Microbiology Letters
- Microbial Pathogenesis

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- BMC Genomics
- Antimicrobial Agents and Chemotherapy (ASM)
- Infection and Immunity (ASM)
- Journal of Biomolecular Screening
- Current Microbiology
- Journal of Medical Microbiology
- BMC Microbiology
- Journal of Clinical Microbiology (ASM)
- Frontiers in Microbiology
- ACS Synthetic Biology
- Microbiology
- Scientific Reports (Nature)
- PLOS Pathogens
- Communications Biology (Nature)
- Current Opinion in Chemical Biology
- Revista do Instituto de Medicina Tropical de São Paulo
- Chemical Biology and Drug Design
- Environmental Microbiology
- Microbial Biotechnology

Editor of Scientific Journals

- 2020 Antibiotics MDPI (Section Editorial Board Member: Biochemical and Genetics Studies of Microorganisms)
- 2020 Microbiology Spectrum, American Society of Microbiology, (Bacteriology Area Editor)

External Reviewer of Grant Applications

- CFI LOF
- NSERC Discovery Grants
- Cystic Fibrosis Canada (CFC) Research Grant
- Collaborative Health Research Project (CHRP)
- NSERC Strategic Project Grants
- FWO Research Foundation, Flanders, Belgium
- CIHR Planning and Dissemination Grants
- FONCYT, Argentina
- Biotechnology and Biological Sciences Research Council (BBSRC), U.K.
- Mitacs Accelerate

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Service to the General Community

- 2020 Should we trust a COVID-19 vaccine? A virtual Town Hall Event in Pinamar, Argentina organized by a group of community volunteers (Delivered in Spanish)
- 2020 Fundraising for the Cystic Fibrosis Canada Great Strides Walk Event. Enrolled the laboratory personnel as a fundraising team. Fundraised more than \$1,000 toward a cure for cystic fibrosis
- 2019 Delivered an Interview to the Manitoban Branch of Cystic Fibrosis for release in their Newsletters
- 2018 Participated on a [local TV \(CTV\) news interview](#) on cystic fibrosis and *Burkholderia cepacia* complex infections.
- 2018 Fundraising for the Cystic Fibrosis Canada Event “Walk to Make Cystic Fibrosis History” in support of a student’s initiative
- 2017-2018 Science Fair Mentor
- 2015 Fundraising for the Cystic Fibrosis Canada Great Strides Walk Event. Enrolled the laboratory personnel as a fundraising team. Fundraised more than \$1,000 toward a cure for cystic fibrosis
- 2015 Fundraising for the Cystic Fibrosis Canada Great Strides Walk Event. Enrolled the laboratory personnel as a fundraising team. Fundraised more than \$1,000 toward a cure for cystic fibrosis
- 2014 Translation and modification of the article: Vertex Phase 3 Combination Studies of Ivacaftor (KALYDECO®) and Lumacaftor (VX-809) Show Promising Clinical Results in Most Common CF Mutation, by Ken Chan (CFC) for the Argentinian Association against Cystic Fibrosis (FIPAN)
- 2014 Women in Science at the U of M. Text interview for “The Manitoban”, the students’ newspaper of the University of Manitoba. Posted March 4, 2014
- 2013 Wiley Microbiology Advisory Board Member for publication of the textbook Wessner Microbiology
- 2013 Antibiotics and Genomic Libraries. Interview during the program “Dosis de Radio” of Radio UBA. University of Buenos Aires Radio Station. Interview Conducted in Spanish December 2th, 2013
- 2011 Promoted “All Science Challenge” Event in Radio Canada International (Interview Conducted in Spanish May 7th, 2011)
- 2007-2009 Sanofi-Aventis Biotech Challenge. Judge and mentor