

**Applicant: Imogen Porter (49405905)**

**Program:** M.Sc. in Genome Science and Technology (VGMMSC-LE)

**Entry period:** September 2024

**Application comments:**

No comments available

**Order of content:**

Application form  
Resume  
Statement of Interest/Intent  
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Reference Letter  
AVAILABLE FOR USE

# PORTER, IMOGEN (IMOGEN)

## 49405905

### Degree Selection

Submission Date: 24/Nov/2023

Campus	Program (VGMMSC-LE)	Academic Year	Term	Term Start
Vancouver	M.Sc. in Genome Science and Technology	2024-2025	W1	Sep 2024

### Source of Interest

How did you find out about UBC?
I am / was a UBC Student

### Personal and Contact Details

Student Number		Family Name (Surname)		Preferred Name
49405905		PORTER		IMOGEN
Title	Given Name	Middle Name	Former Family Name (Surname)	
MS	IMOGEN			

Date of Birth	Gender	Country of Birth	Country of Current Citizenship
16/Jun/2001	Female	United Kingdom	Canada
Dual Citizenship	Primary Spoken Language	Other Spoken Language	Visa Type
United Kingdom	English		

Address Line (1 & 2)			
2177 W 48TH AVE			
City	Province, State or Region	Postal or Zip Code	Country
VANCOUVER	BC	V6M2P6	Canada

Day Telephone Number	Evening Telephone Number	Email Address
6043385548		imogenporter@gmail.com

Do you identify yourself as an Aboriginal person of Canada?
No
Do you identify yourself as a Racialized person?
No

## Academic History

- Applicant indicates that they have only attended the University of British Columbia (UBC). UBC Data should be available here on **November 25, 2023**.

### University of British Columbia

Start Date:	03/Sep/2019
End Date (or Expected End):	30/Apr/2024
Program of Study:	
Category	Degr/Dipl/Cert
Credential Status	In Progress
Expected Conferred Date:	
Expected Credential:	Bachelor of Science
Used for Basis of Admission to UBC:	Yes

Please see SISC for Awards or Honours awarded to this applicant.

#### GPA Calculations Summary

Calculation Name	Purpose	Date of Calculation	Minimum GPA Req'd	GPA Calculation	GPA Rank	Meets Progm Requirements	Meets UBC Requirements	First Class Standing?
	Admissions	29/11/2023		89.7		Yes	Yes	Yes

## Course Details

Academic Year	Session/ Term	Course #	Credit Value	Description	Grade		Credit Earned	Standing	Degree Program	Degree Level	Campus
2019	W1	BIOL 140	2	LAB INV LIFE SC	86	A	2		B.SC.	Undergrad	Vancouver
2019	W1	FREN 122	3	INTER FRENCH I	90	A+	3		B.SC.	Undergrad	Vancouver
2019	W1-2	SCIE 1	27	SCIENCE ONE	93	A+	27		B.SC.	Undergrad	Vancouver
2020	S2	FREN 123	3	INTER FRENCH II	92	A+	3		B.SC.	Undergrad	Vancouver
2020	W2	BIOC 202	3	INTR MED BIOC	91	A+	3		B.SC.	Undergrad	Vancouver
2020	W1	BIOL 200	3	FUND CELL BIO	95	A+	3		B.SC.	Undergrad	Vancouver
2020	W1	BIOL 205	4	COMP INVERTBRAT	92	A+	4		B.SC.	Undergrad	Vancouver
2020	W1	BIOL 234	3	FUND GENETICS	96	A+	3		B.SC.	Undergrad	Vancouver
2020	W2	CHEM 205	3	PHYSICAL CHEM	93	A+	3		B.SC.	Undergrad	Vancouver
2020	W1	CHEM 233	3	Org Chem Biol Sc	95	A+	3		B.SC.	Undergrad	Vancouver
2020	W2	CPSC 103	3	INTRO SYS PRG DS	96	A+	3		B.SC.	Undergrad	Vancouver
2020	W1	MICB 201	3	INT ENV MICRBIOL	88	A	3		B.SC.	Undergrad	Vancouver
2020	W2	MICB 202	3	MED MICB & IMMUN	90	A+	3		B.SC.	Undergrad	Vancouver
2021	S2	STAT 200	3	ELEM STAT APPLIC	98	A+	3		B.SC.	Undergrad	Vancouver
2021	W1	BIOC 302	3	GENERAL BIOCHEM	92	A+	3		B.SC.	Undergrad	Vancouver
2021	W2	BIOL 335	3	MOLECULAR GEN	91	A+	3		B.SC.	Undergrad	Vancouver
2021	W1	CHEM 235	1	Org Chem Lab	95	A+	1		B.SC.	Undergrad	Vancouver
2021	W1	MICB 301	3	MICROB ECOPHYS	89	A	3		B.SC.	Undergrad	Vancouver
2021	W1	MICB 302	3	IMMUNOLOGY	92	A+	3		B.SC.	Undergrad	Vancouver
2021	W1	MICB 306	3	MOLECU L VIROLOGY	91	A+	3		B.SC.	Undergrad	Vancouver
2021	W2	MICB 308	3	PARADM BACT PATH	89	A	3		B.SC.	Undergrad	Vancouver
2021	W1	MICB 322	3	MOLECLR MICB LAB	88	A	3		B.SC.	Undergrad	Vancouver
2021	W2	MICB 323	3	MOLC IMMN&VIR LB	87	A	3		B.SC.	Undergrad	Vancouver
2021	W2	MICB 325	3	ANLYSIS MCRO G&G	92	A+	3		B.SC.	Undergrad	Vancouver
2021	W2	NURS 180	3	STRESS STRAT PRM	98	A+	3		B.SC.	Undergrad	Vancouver
2022	S1-2	MICB 398	3	COOP WRK PLCMT 1			3	P	B.SC.	Undergrad	Vancouver
2022	W1	MICB 399	3	COOP WRK PLCMT 2			3	P	B.SC.	Undergrad	Vancouver
2022	W2	MICB 498	3	COOP WRK PLCMT 3			3	P	B.SC.	Undergrad	Vancouver
2023	S1-2	MICB 499	3	COOP WRK PLCMT 4			3	P	B.SC.	Undergrad	Vancouver
2023	S2	PHIL 333	3	BIOMEDICAL ETHIC	86	A	3		B.SC.	Undergrad	Vancouver
2023	W1	MEDG 420	3	HUMN GENOM&GENET	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W2	MICB 404	3	TOP MOL BAC PATH	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W1	MICB 405	3	BIOINFORMATICS	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W2	MICB 406	3	Top Mol Virology	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W2	MICB 408	3	ADV BACT PATHGNS	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W2	MICB 425	3	MICB ECO GENOMIC	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W1	MICB 430	3	SEM MICB LIT	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W1-2	MICB 449	6	LAB PROJECT	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W2	MICB 471	3	LAB MICROBIO IMM	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver
2023	W1	MICB 475	3	DATA MICRBIO IMM	CIP	CIP	CIP		B.SC.	Undergrad	Vancouver

# Funding

## Standard Questions

### Primary Funding

<b>SOURCE</b> of the support	
<b>DOLLAR</b> amount	
Includes <b>TUITION</b> fees?	
<b>WHEN</b> the support will commence	
<b>WHEN</b> the support will end	

<b>SOURCE</b> of the support	Savings and loans, teaching assistantships
------------------------------	--------------------------------------------

Please indicate the <b>SOURCE(S)</b> of any awards, scholarships, sponsorships or fellowships for which you have applied or will apply.	CIHR CGS-M
Please indicate the Canadian Dollar amount <b>PER YEAR</b> of support applied for.	17,500
Please indicate the <b>NUMBER OF YEARS</b> of study this support would cover.	1
If you do not receive this financial support, will you be able to attend.	Likely
How do you plan to fund your studies?	Savings and loans, teaching assistantships

# Experience & Interests

## Standard Questions

### Areas of Interest

### Faculty Members

Tropini, Carolina
Blakney, Anna
Stirling, Peter
Huntsman, David

**Please provide a brief statement of your academic and/or professional goals and how these align with this graduate program.**

**Please describe any research and/or work experience (including publications, etc.) you've undertaken that is relevant to your proposed field of study.**

I have over three years of wet-lab experience pertaining to molecular and microbiology, which is highly pertinent to the GSAT programme and the labs in which I hope to rotate. Though my research experiences are very broad, they are linked by an interest in applications to public health, and strong independence in and out of the laboratory. A large proportion of my research has been in drug development: first in the Nislow yeast lab using high-throughput chemogenomics to determine potential secondary targets for FDA-approved drugs, and more recently in the Jean lab focusing on the development of broad-spectrum antivirals. These labs have afforded me a wealth of skills in molecular and cell biology that will directly translate into my success in the GSAT programme. My most recent research experiences in the Jean and Kwon labs have allowed me to develop not only wet-lab experience but also a great degree of independence and confidence in my research work. I conduct such work fully independently, from performing literature reviews to choosing and optimizing procedures to test our hypotheses. These positions contextualized the breadth of a MSc: not only performing experiments (of which my prior experiences had mainly consisted) but also looking for gaps in the literature, justifying the direction of a project, and pursuing new courses of action.

Additionally, my BSc has required a substantial degree of hands-on laboratory learning thanks to the MBIM department's focus on course-based undergraduate research experiences (CUREs). In my final year I am taking two CURE courses that each result in the publication of a paper in UJEMI, the Undergraduate Journal of Experimental Microbiology and Immunology. Thus my work experience is heavily supplemented by the fantastic opportunities afforded to me by the UBC MBIM teaching team.

Finally, for someone with a microbiology background I have a comprehensive background in quantitative genome sciences, supported by both research and coursework experiences. Due to early personal interest in genomics I was awarded an NSERC in 2021 to perform bioinformatics research in the UBC Mank Lab, where I focused on novel patterns in the repeat landscape of guppy genomes and their potential impact on sex determination. Coming into a genome sciences degree, such an experience – especially my ability to troubleshoot and develop my own analytical pipelines while working remotely – has instilled in me the ability continuously learn and develop quantitative skills. I am now working to gain more formal bioinformatics education through my coursework (elaborated on below).

## Program-Specific Questions

**Briefly discuss your background in life sciences, including academic, work or other experiences that may assist the admissions committee. Please limit your response to one page.**

I am currently completing an honours thesis in the UBC Jean virology lab where I am investigating the mechanisms of action and potency of novel host-directed antivirals against viruses of human health concern. I am analysing the effect of our antivirals on changes in intracellular pH and calcium concentration, with and without cell infection, and will subsequently be performing quantitative analysis and writing my thesis in Winter 2024. I have completed 16 months of co-op in the UBC Nislow and Kwon labs, developing a wealth of molecular biology skills. In the latter I performed a literature review of bladder innervation neurological markers, selected & stained for target candidates, and presented preliminary. I subsequently designed and applied analytical methods to quantify innervation changes. I was additionally responsible

	for assorted histological, IHC, and If staining, troubleshooting, and analysis. This is highly representative of my previous life sciences research experience.
<p><b>Briefly discuss your background in quantitative sciences (math, statistics, computer science, engineering, physics) including academic, work or other experiences that may assist the admissions committee. Please limit your response to one page.</b></p>	<p>I have striven to integrate bioinformatics and other quantitative skills into my Microbiology &amp; Immunology BSc. In my first year I wrote and published a paper using stochastic modelling in Python to imitate vaccine uptake within a model population. Spurred by my interest in genomics, I was awarded an NSERC in 2021 to perform bioinformatics research on the repeat landscape of a novel guppy genome in the UBC Mank Lab. In this position I worked with a variety of bioinformatics tools and developed data analysis pipelines in Python and R leading to a manuscript (currently in submission) for which I am second author. To supplement my somewhat improvisational knowledge I have now focused my final year on quantitative courses: I am taking courses in bioinformatics (MICB405) and data science for microbiology and immunology (MICB471), in which I am working with RNA-seq data in R and bash for transcriptomics analysis.</p>

## Referee 1

<b>Name</b>	Dr. Brian Kwon
<b>Job Title / Occupation</b>	Professor (Tenure)
<b>Institution / Company / Organization</b>	UNIVERSITY OF BRITISH COLUMBIA
<b>Type of Reference</b>	<b>Professional</b>
<b>Address</b>	ROOM 6196, BLUSSON SPINAL CORD CENTER 818 WEST 10TH AVENUEVANCOUVER BRITISH COLUMBIA Canada
<b>Referee Email / Website</b>	brian.kwon@ubc.ca
<b>Telephone #</b>	
<b>Notes to Referees</b>	Thank you so much Dr. Kwon!



## Referee 2

<b>Name</b>	Dr. Evelyn Sun
<b>Job Title / Occupation</b>	Lecturer
<b>Institution / Company / Organization</b>	UNIVERSITY OF BRITISH COLUMBIA
<b>Type of Reference</b>	<b>Academic</b>
<b>Address</b>	3136 - 6270 UNIVERSITY BLVD, BIOLOGICAL SCIENCES B VANCOUVER BC Canada
<b>Referee Email / Website</b>	evelyn.sun@ubc.ca
<b>Telephone #</b>	
<b>Notes to Referees</b>	Thank you!

### Referee 3

<b>Name</b>	Dr. Corey Nislow
<b>Job Title / Occupation</b>	Professor
<b>Institution / Company / Organization</b>	UNIVERSITY OF BRITISH COLUMBIA
<b>Type of Reference</b>	<b>Professional</b>
<b>Address</b>	OFFICE 6619, PHARMACEUTICAL SCIENCES BUILDING VANCOUVER BRITISH COLUMBIA Canada
<b>Referee Email / Website</b>	corey.nislow@ubc.ca
<b>Telephone #</b>	
<b>Notes to Referees</b>	Thanks so much Corey!

## **EDUCATION**

### **Bachelor of Science, Honours Microbiology & Immunology**

**2019 – present**

#### **University of British Columbia, Vancouver BC**

Science Scholar &amp; Dean's Honour Student, Dean of Science Scholarship (2023), Frederick J Muir

Memorial Scholarship in Science (2019-21), NSERC USRA 2021, Science Case Competition Winner 2020

## **TECHNICAL SKILLS**

- Yeast, bacterial, and human (2D, 3D) cell culture, maintenance, transformation
- Cell assays: growth, viability, cytotoxicity
- Histology, immunohistochemistry
- RNA extraction, RNA-Seq, RT-qPCR
- Coding: Python, R, bash
- Bioinformatics: differential expression & metabolomics (QIIME2, PICRUST, DESeq, etc.)

## **PUBLICATIONS**

Metzger, DCH., **Porter, I.** et al. (in press). Transposon wave remodelled the epigenomic landscape in the rapid evolution of a novel X chromosome dosage compensation mechanism. *Genome Research*.

Racey, C.S., Donken, R., **Porter, I.**, et al. (2022). Intentions of public school teachers in British Columbia, Canada to receive a COVID-19 vaccine. *Vaccine: X*, 8, 100106. doi: 10.1016/j.jvacx.2021.100106

Racey, C. S., Donken, R., Fox, E., **Porter, I.**, et al. (2021). Characterization of vaccine confidence among teachers in British Columbia, Canada: A population-based survey. *PLOS ONE*, 18(7). doi: 10.1371/journal.pone.0288107R

Illing H, **Porter I.** (2021). Studying HPV vaccination and infection through a simplified stochastic model [R]. *UBC cIRCLE*. doi: 10.14288/1.0398356

## **CURRENT PROJECTS**

### **Differential expression of metabolic pathways in apo-symbiotic and stable symbiotic *E. chlorotica*.**

Completion and submission to *UJEMI+* December 2023 for UBC MICB405 (Bioinformatics).

### **Synergistic effects of smoking and diet Westernization on gut microbiome metabolism.**

Completion and submission to *UJEMI+* December 2023 for UBC MICB475 (Data Science for Microbiology)

## **RESEARCH EXPERIENCE**

### **Honours student, Jean Lab**

**August 2023 – Present***Department of Microbiology & Immunology, University of British Columbia, Vancouver*

- Development of novel broad-spectrum antivirals targeting the host autophagy pathway, testing against SARS-CoV-2 variants, RSV, Dengue, Zika, and Influenza A.
- Quantifying transcriptomic changes using RT-qPCR and assaying for alterations in intracellular pH and calcium concentration in five cell lines, for manuscript and thesis publication in 2024.

### **Co-op student, Kwon Lab**

**May– August 2023***iCORD, University of British Columbia, Vancouver*

- Histological, immunohistochemical and immunofluorescent analysis of porcine bladder tissue to investigate the effects of spinal cord injury and the implantation of medical devices.
- Independently designed and executed histology analysis pipelines, which were used to create written methods and quantitative data for upcoming manuscript.

### **Co-op student, Nislow Lab**

**May 2022 – May 2023***Department of Pharmaceutical Sciences, University of British Columbia, Vancouver*

- Molecular analysis of human and yeast cell cultures (gDNA extraction, PCR, RNA-seq, etc)
- Independently designed and transformed constructs for novel yeast experiments.
- Drug treatments, viability assays, RNA-seq, on 3D HepG2 cell cultures in novel SpinPod vessels.

### **Undergraduate Research Assistant, Talhouk Lab**

**May 2021 – present***Department of Obstetrics and Gynaecology, University of British Columbia, Vancouver*

- Led one-on-one interviews with Lynch Syndrome (LS) patients discussing their experiences and barriers to care, then coded interviews in NVivo to identify and extrapolate on patterns.
- Delivered a comprehensive literature review covering LS gynaecological screening.

- Currently responsible for manuscript writing, with goal of submission in early 2024.

**Work-Learn student, Weidberg Lab**

**August 2021 – May 2022**

*Department of Zoology, University of British Columbia, Vancouver*

- Preparation of differential and selective growth media and agar plates for yeast and bacteria.
- Maintenance of lab materials (sterile stock solutions, buffers, autoclaved glassware, etc.).

**Undergraduate NSERC USRA Student Researcher, Mank Lab**

**May – August 2021**

*Department of Zoology, University of British Columbia, Vancouver*

- Bioinformatical annotation and analysis of a novel genome to produce a detailed library of repeat elements, later analysed in Python and R to identify and present unique patterns for sex determination.

**Volunteer Research Assistant, Vaccine Evaluation Centre (VEC)**

**May 2020 – June 2021**

*BC Women's Health Foundation, Vancouver*

- Survey database development, creation and refinement of data analysis plans later completed for the final manuscripts published in Vaccine (2021) and PLOS (2023).

**ADDITIONAL ACADEMIC EXPERIENCE**

**Editor-in-Chief, Canadian Journal of Undergraduate Research (CJUR)**

**June 2020 – May 2023**

- Ran a team of 10 editors to facilitate manuscript peer review, including management of communications between undergraduate authors and post-graduate reviewers.
- Currently serving as Senior Advisor to the new Board of Editors.

**Undergraduate Teaching Assistant**

**August 2022 – May 2023**

*Department of Microbiology & Immunology, University of British Columbia, Vancouver*

- Developed novel case studies in environmental microbiology and bacterial pathogenesis, with the goal of enhancing scientific literacy and data analysis skills.
- Surveyed students to evaluate effectiveness of new learning materials.

**Undergraduate Teaching Assistant**

**August 2020 – May 2022**

*Science One programme, University of British Columbia, Vancouver*

- Held office hours thrice weekly, collaborated with other TAs to design and teach biweekly Biology workshops and tutorials, graded Biology and Chemistry quizzes and exams.
- Reported by 100% of students as helpful, well-prepared, considerate, and easily understood.

**VOLUNTEER EXPERIENCE**

**Microbiology & Immunology Mentor, University of British Columbia**

**November 2021 – Present**

- Academic and pastoral mentorship to three incoming students in Microbiology & Immunology.

**Microbiology & Immunology Co-op Mentor, University of British Columbia**

**August 2023 – Present**

- Advising a third-year student in their co-op job search and future career paths.

**Teacher Partnership Programme Volunteer, Let's Talk Science**

**December 2020 – May 2021**

- Collaborated with a local BC teacher to provide age-appropriate online workshops to a class of 25 grade 4/5 students, covering elements of the BC science curriculum through novel activities.

**RELEVANT COURSES (UBC Vancouver)**

MICB322 – Molecular Microbiology Laboratory

MICB323 – Molecular Immunology and Virology Laboratory

MICB405 – Bioinformatics

MICB471 – Laboratory Research in Microbiology and Immunology

MICB475 – Data Science Research in Microbiology and Immunology

MEDG420 – Human Genomics and Medical Genetics

## **Imogen Porter – Statement of Intent, UBC Genome Science and Technology**

It took me a while to figure out what I wanted to do. Entering my undergraduate degree four years ago I was confident that I wanted to work in research, pursue studies that addressed real-world problems, and to enjoy what I did. These goals were helpful as a character study but exceedingly broad; I could barely decide between studying science or law, let alone a particular specialty. In an attempt to narrow my scope I pushed myself to gain a wide variety of experiences and allowed my natural interests to grow and guide my studies. It is thanks to these efforts to push myself into new fields – and in part the advent of a viral pandemic – that I am drawn to microbiology and immunology, where I found a slew of fascinating and unanswered questions about disease-causing agents and pathogenesis.

Over time, as I learned more I found myself interested in the intersection of genetics and disease. Specifically, I was fascinated by how we could apply genomics to better understand pathogenesis and to understand why individuals may experience different symptoms. In the future I hope to apply my research to a pursue a career as a practicing researcher and genetic counsellor, informing both disciplines and providing bench-to-clinic care. Through my teaching experience and research in public health, I have also gained substantial deference for effective scientific communication, which is something I endeavour to prioritise throughout my career. To these ends, I am currently completing my Bachelor of Science in Microbiology & Immunology at UBC with an honours thesis in virology. I am excited to apply this background to an MSc in Genome Sciences and Technology.

The GSAT programme represents the intersection between my current and future interests. No other programme provides so much support across both microbiological and human genomic research, as well as evident focus on the technological future of both these fields. I'm deeply appreciative of how the GSAT faculty encompass a fabulously wide range of research foci which will enable me to seek out a variety of experiences during rotations. The topics covered in GSAT 502 alone are indicative of wealth of knowledge into which I am excited to dive. In particular, I am interested in working under Drs. Tropini, Robinson, and Shakiba, whose labs address my interests in human genetics and pathogenesis through three completely different lenses. I hope that the ability to work in labs with such different backgrounds will make me a much more rounded scientist, with an appreciation for different techniques and styles of research. I believe that my wealth of previous research experience, combined with my drive to learn and push towards better understanding of disease, makes me an excellent candidate for the programme and these labs.

I wholeheartedly believe that the UBC GSAT MSc is the best route for me to pursue my academic and career interests, and that I am likewise a strong candidate for its consideration. I am hugely grateful for this opportunity, and look forward to hearing from the selection committee.



November 23, 2023

To whom it may concern,

**It is my pleasure to provide this enthusiastic letter in support of Imogen Porter's application to the GSAT (Genome Science and Technology) program at UBC.**

To provide the admissions committee with the bottom-line up front- of the approximately 100 graduate students I have had the pleasure to supervise at Rutgers, Stanford, University of Toronto and The University of British Columbia- Imogen is the complete package. She is extremely intelligent, hardworking, tenacious in the face of research challenges, and a model lab citizen. I met Imogen in March 2022, when she interviewed for a Co-op position in my laboratory. The Co-op program at the University of British Columbia is, in my opinion, the best in Canada, and the trainees that I have supervised in this program are on par with programs at best US Universities. I was extremely impressed by Imogen's poise and intelligence, and her letters of recommendation were, quite frankly, extraordinary in their praise of Imogen's scientific aptitude and work ethic.

Upon joining our lab, Imogen became a key part of our team. She worked independently on yeast and human cell culture under PhD candidates as well as on individual projects, each involving a large variety of molecular biology techniques. These projects are all quite high-risk/high-reward activities, and I would normally not ask an undergraduate to participate, but given her intelligence and critical thinking skills, Imogen became crucial to their success. Imogen has already been an author on a poster presentation, and I would conservatively estimate that she will be an author on two peer-reviewed publications from my laboratory. This is addition to her authorship on a Genome Research paper from a previous Co-op term.

After completing her Co-op in my lab, Imogen began her undergraduate thesis in François Jean's lab in the Immunology Department at UBC where she has been studying the mechanisms of action of novel host-directed antivirals against viruses of human health concern, including Zika, Dengue, and SARS-CoV2. I find it extremely encouraging to see her incorporate what she learned in our lab and apply it creatively to her thesis project.

While it is always difficult to rank individual students, I would place Imogen in the top 5% of approximately 25 undergraduate trainees that I have supervised at Stanford, University of Toronto and the University of British Columbia. Based on this assessment, Imogen has the perseverance, tenacity and passion to succeed as an independent scientist.

Imogen's academic achievements are manifold; she is highly engaged in academic development both in and outside of the classroom. She has worked consistently as a teaching assistant for the past three years to encourage the academic growth of her peers. Furthermore, despite having been involved in many diverse projects, Imogen maintains high a level of involvement in research projects in which she has been engaged throughout her undergraduate degree:

working part-time as a research assistant during the academic year and full-time during the summer including an NSERC USRA in Zoology. This kind of continued engagement is certainly not typical.

In my laboratory, Imogen mastered diverse, complex systems biology techniques, including; DNA/RNA extraction and next generation sequencing, PCR, cell culture, and live-cell fluorescence microscopy. Recognizing the need to be able to analyze her own data, Imogen has become facile in basic bioinformatics, including coding in R and python.

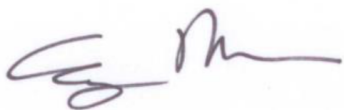
Imogen exhibits a mature understanding of the roles and responsibilities of a scientist in today's society. She has demonstrated to me her passion for public health research through the lens of microbiology and molecular biology, with a specific interest in women's health. She is also keenly aware of the role of scientific communication and currently serves as chief editor for the Canadian Journal of Undergraduate Research.

After having the opportunity in her current co-op job and past RA work to develop a great deal of wet lab skills, this scholarship represents an opportunity for Imogen to apply these skills to novel microbiology projects that have direct implications for public health.

Having worked in the Bay area for over a decade (as a research professor at the Stanford Genome Technology Center and in three Biotech companies), and based on my first-hand (dare I say extremely deep) knowledge of the quality of GSAT, I know that Imogen is an excellent fit for the program- with broad expertise in molecular and cell biology and an excellent appreciation for the need to translate from the bench to the clinic. The emphasis of the BMS program on the basis of human pathophysiology will be incredibly helpful in guiding Imogen to a successful interdisciplinary graduate degree.

**I give my emphatic endorsement of Imogen's application and am quite confident that your investment in this promising young scientist will pay great dividends!**

Sincerely,

A handwritten signature in purple ink, appearing to read 'Corey Nislow', with a stylized, flowing script.

Dr. Corey Nislow, Professor  
Faculty of Pharmaceutical Sciences  
6619-2405 Wesbrook Mall, Vancouver, BC V6T 1Z3  
Tel: (604) 822-1579  
[corey.nislow@ubc.ca](mailto:corey.nislow@ubc.ca)

**Brian K. Kwon, MD, PHD, FRCSC**

*Canada Research Chair in Spinal Cord Injury and Dvorak Chair in Spine Trauma*  
Professor, Department of Orthopaedics, University of British Columbia  
International Collaboration on Repair Discoveries (ICORD)  
Vancouver Spine Surgery Institute

September 28, 2023

**Genome Science + Technology Graduate Program**

100-570 West 7th Avenue  
Vancouver, BC Canada V5Z 4S6

**RE: Imogen Porter – MSc Applicant**

***To Whomever it May Concern,***

It is with great pleasure that I am writing this letter to offer my strongest recommendation for Imogen Porter to the UBC GSAT MSc program. I was Imogen's supervisor when she undertook a 4-month UBC co-op term in my research lab at the International Collaboration On Repair Discoveries (ICORD), UBC, Vancouver, Canada. From the time of her arrival in the lab in May 2023, Imogen demonstrated a passion for research, tenacity in all her work, and strong teamwork and interpersonal skills. It is for these reasons that I am confident she would be an excellent addition to the GSAT community.

Our research lab focuses on "bench-to-bedside" and "bedside back to bench" bi-directional translational research for spinal cord injury. Imogen was responsible for the immunohistochemical analysis of neuronal markers of bladder tissue following spinal cord injury, looking specifically at changes in bladder tissue composition and innervation patterns in pigs with and without traumatic injury. Imogen received guidance and instruction on how to perform immunohistochemical and immunofluorescent techniques, but then quickly became responsible for independently designing and executing experiments and analytical pathways to address the project's goals.

Although she was only in the lab for 4 months, Imogen was a well-respected member of our team and demonstrated confidence and determination. She proactively acquainted herself with the current literature. The great majority of her work was performed with little supervision, yet was of a calibre I would expect of my Masters and PhD students. During her short tenure she demonstrated a firm grasp on the concepts and data that she had gathered, and gave a very clear presentation of her work to me and the rest of the lab at a recent lab meeting. During her time in the lab, it became evident that Imogen's wide range of laboratory experience made her not only technically capable but also highly adaptable. I am especially impressed with her ability to troubleshoot and respond to failed experiments with new questions and experiments, reflecting a resilience that will suit her well in graduate studies.

In addition to her research capabilities, Imogen is an excellent communicator and a team player with a clear passion for knowledge translation. She presented project updates independently at a 30-person lab meeting just 6 weeks into her internship, defending the project goals with an impressive grasp of the literature and experimental techniques. She is a strong technical writer, providing clarity without sacrificing concision, as demonstrated by her work on an upcoming manuscript on which she will be a co-author.

In summary, Imogen is an excellent student with an evident passion for research. I believe she would make an excellent MSc student and she has my wholehearted recommendation to the university.

***Sincerely,***



**Brian Kwon**





THE UNIVERSITY OF BRITISH COLUMBIA

Dr. Evelyn Sun  
University of British Columbia  
3106 Biological Sciences Building  
6270 University Blvd  
Vancouver, BC V6T 1Z4

Nov 30, 2023

### **REFERENCE LETTER FOR IMOGEN PORTER**

To Whom-it-may-concern:

It is my pleasure to recommend Imogen Porter for the M.Sc. in Genome Science and Technology at UBC. I first got to know Imogen as her supervisor when she was appointed as an undergraduate academic assistant on a project that involves the development of an open educational resource (OER) for MICB 211, a second-year Foundations in Microbiology course. What stood out to me about her application was her letter of interest which was very student-focused which meant that she really emphasized a commitment to wanting to improve the student experience. This was the reason why I hired her for this project, and she did such an amazing job. The responsibilities for this role involved curating scientific literature and using the literature to develop case studies for the course. This role started in Sept 2021 and ran until April 2022 (8 months), and she developed a total of 25 case studies for the course. Those case studies are now implemented into the course as tutorial case studies and exam questions. This project involved quite a bit of independent work, but she demonstrated a strong work ethic which meant completing case studies in a timely manner and meeting all deadlines. In addition to developing case studies, she also edited and provided feedback on the course textbook. Imogen's contributions to this project were instrumental in the development and continual renewal of MICB 211 that I greatly appreciate.

Following my experience with working with Imogen, I also want to highlight her contributions to helping improve the student experience and science communication within and beyond the course. Through her work on this OER, she has contributed significantly to helping improve the learning experience in MICB 211 by informing changes to the textbook and creating course activities. Her feedback was always oriented towards helping students better understand concepts in microbiology, and I could clearly tell that this was a focus for her when she reviewed course material and when she developed case studies. Curating research papers that are appropriate for the course is not trivial and requires a good level of evaluation that goes into reviewing the papers before designing the case studies. This shows that she has strong scientific literacy skills. In addition to her work in MICB 211, she continues to support fellow students by taking on roles such as teaching assistant positions and mentorship roles in the Microbiology and Immunology Student Association where she supports more junior students as they navigate through their degree. Her extracurricular activities align with her commitment to improving the student experience at UBC.

One other value that Imogen holds is on the importance of science communication. She is the senior advisor for the Canadian Journal of Undergraduate Research (CJUR) where she runs workshops to support students in writing publication ready manuscript and provides student with the opportunity to publish papers. She has worked with organizations like Let's Talk Science that strives to bring scientific literacy to the broader community. Imogen is currently one of my students for a data science research course, and she has continually showed strong communication skills both orally and written up to scientific standards.

I had a chance to speak to her direct thesis supervisors who shared with me some insight into her research potential. The feedback that I received reflects an industrious student who is capable of generating and executing complex lab protocols. Imogen appears to be very meticulous in her lab work and is able to adapting and learning new skills quickly. Her supervisor has emphasized her effective ability to work under pressure and strict deadlines and how well-suited Imogen would be for a graduate program.

I believe that Imogen is such an amazing student who has done much to help the UBC and broader community when it comes to the learning environment and scientific literacy. I believe that she is passionate and motivated. She has such an amazing spirit that has allowed her to work as a leader in several areas. I believe that she would be well suited for this program.

Sincerely,

A handwritten signature in black ink, appearing to read 'E. Sun', with a long horizontal stroke extending to the right.

Evelyn Sun, Ph.D.  
Lecturer  
Department of Microbiology and Immunology  
University of British Columbia

This passport is valid for all countries unless otherwise specified. The bearer must comply with any visa or other entry regulations of the countries to be visited.

SEE OBSERVATIONS BEGINNING ON PAGE 5 (IF APPLICABLE)

Le postulat est valable pour tout les pays, quel que soit le système. Le système doit se conformer aux formules relatives aux votes ou aux autres formules d'élection des candidats à l'intérieur de ce cadre.

STUDIES ON THE EFFECTS OF CHLORAMPHENICOL  
ON THE GROWTH OF *STREPTOCOCCUS*

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Signature of bearer Signature du titulaire



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PASSPORT  
PASSEPORT

CANADA



Type/Type	Issuing Country/Pays émetteur
P	CAN

Passport No./N° de passeport  
**HG127080**

Sumner/Norm  
PORTER

Given names/Prénoms

IMOGEN LEANNE AYLIE

Nationality/Nationalité  
CANADIAN/CANADIENNE

Date of birth/Date de naissance

16 JUNE/JUIN 01

Place of birth/Lieu de naissance  
LONDON GBR

Date of issue	Date de délivrance
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15 JAN / JAN 16

Date of entry/Date d'inscription

15 JAN / JAN 21

issuing Authority/autoritățile de debanșare  
**SHANGHAI**



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