

Quinlan K. Torstensen

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EDUCATION

University of British Columbia

2021 - 2026

Bachelor of Science, Microbiology & Immunology

Technical Projects

Characterizing the Role of BamC in BrkA Secretion and Membrane Stability (Sep-Dec 2025)

Collaborated with a team to investigate the functional importance of the nonessential BAM complex protein, BamC, in *Escherichia coli*. Validated single-gene knockout strains ($\Delta bamB$, $\Delta bamC$, and $\Delta bamE$) from the Keio collection using PCR and Sanger sequencing. Conducted Western blot analysis of 6xHis-tagged BrkA to demonstrate that deleting *bamC* significantly reduces the secretion of BrkA virulence factor. Performed EDTA minimum inhibitory concentration (MIC) assays and growth curve analyses, discovering that BamC is less critical for maintaining membrane stability compared to BamB and BamE. Our findings suggest that BamC plays a regulatory role in the BAM complex by stabilizing the BamCDE subcomplex for efficient substrate delivery.

Lifestyle Resilience and the Gut Microbiome in Cardiovascular Disease (Sep-Dec 2025)

Collaborated with a team to analyze 16S rRNA sequencing data from a Columbian cohort to determine how fibre and exercise influence the gut microbiome during the westernization of the diet. Utilized the QIIME2 pipeline and DADA2 for denoising, followed by alpha and beta diversity metrics to assess microbial shifts. Performed PICRUST2 functional modeling and DESeq2 differential abundance analysis, identifying that adequate fibre and exercise suppress pathogenic pathways and promote short-chain fatty acid-producing taxa. Constructed microbial co-occurrence networks to characterize lifestyle-responsive modules and connectivity changes associated with cardiometabolic status. Results suggest that high-fibre diets and physical activity may mitigate cardiovascular risk by “rescuing” microbial diversity and metabolic function.

Antiviral Drug Combinations for Highly Immune-Evasive Omicron (Nov-Dec 2023)

BA.2.86 (Pirola) Subvariant (literature review)

Independently reviewed 13 primary scientific publications outlining the efficacy and behaviour of anti-viral drugs on several SARS-CoV-2 strains before carefully summarizing my findings into a literature review. Independently authored an essay outlining a potential three drug regimen that could be used to increase the antiviral effects of the treatment when used on the novel SARS-CoV-2 subvariant BA.2.86, resulting in a 93% on the assignment.

WORK EXPERIENCE/EXPERIENCE

Bioanalytics Co-op, Aspect Biosystems

Jan 2025 – Aug 2025

Vancouver, BC

- Executed specialized material testing for bio-gel candidates, specifically performing rheology and osmolality measurements to assess physical properties and stability
- Contributed to analytical assay development by participating in the design and refinement of a novel KGSIS design and process to improve the testing accuracy of in vitro experiments on bio printed therapeutics
- Performed high-resolution fluorescence imaging and viability testing on bio printed therapeutic devices to evaluate post-printing and post-implant cellular health and structural integrity
- Regularly conducted ELISAs to quantify c-peptide levels in streptozotocin-induced diabetic rodent models to measure the effectiveness of trial bio printed therapeutic devices
- Spearheaded the post-processing of raw laboratory data, transforming complex datasets into clear, presentable visual representations for experimental review

- Facilitated the development and strategic rollout of new analytical processes, coordinating cross-functional efforts to standardize laboratory methodologies

**Quality Assurance Laboratory Assistant, Parallel 49 Brewing Company
Vancouver, BC**

Aug 2024 – Jan 2025

- Responsible for the collection and preparation of product samples
- Diligently prepared agar plates and various incubation broths
- Conducted chemical and biological tests including but not limited to: pH and Plato monitoring, alcohol measurement, total acidity, colour, bitterness, dissolved oxygen, cell counting, microbiological identification, aseptic isolation of bacteria and yeast, yeast propagation, and PCR for spoilage organisms
- Accurately performed, submitted, and catalogued data collected through chemical and biological testing
- Effectively maintained communication between departments to provide accurate information and data on products, as well as to rapidly facilitate any further requests for the laboratory

**Team Lead Varsity Promotions, UBC Athletics & Recreation
Vancouver, BC**

Sep 2023 – May 2026

- Spearheaded the activation of half-time shows, t-shirt tosses, and intermission shows across several different sports and venues to ensure the engagement of upwards of 3000 fans per event
- Effectively managed 3-5 members of staff per event, coordinating activations and fan interactions
- Maintained constant communication with the event staff, concessions, table technicians, and teams to ensure a high-quality experience for the fans

SKILLS AND ABILITIES/SKILLS/ABILITIES/TECHNICAL SKILLS

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| • Strong communication and interpersonal skills | • Proficient in Google Suites |
| • Literature searches, reference managers | • Data collection, lab notebook entry, data analysis |
| • Report writing, presentations | • Experimental Design |
| • Proficiency in various Microbiological Lab Techniques | • Familiarity with R |
| • Proficient in Microsoft® Word, Excel, and PowerPoint | • Proficiency in GraphPad Prism |
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COMMUNITY CONTRIBUTIONS AND LEADERSHIP EXPERIENCE

**Microbiology & Immunology Student Association, Grad Rep.
UBC, Vancouver**

May 2023 – May 2026

- Acted as a liaison between MBIM+BIOTECH, the Microbiology and Immunology Student Association, and the faculty. Through the use of surveys and open meetings ensured the smooth communication and resolution of desires, expectations, and grievances of each party
 - Spearheaded and assisted in the organization and marketing of student-tailored events serving upwards of 100 people at each event to increase collaboration and engagement within the department
 - Diligently managed various projects including the creation of a unique website, monthly newsletters, adverts, fundraisers, and social media presence and outreach
 - Help to cater events aimed at supporting fourth and fifth year students following graduation
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HOBBIES AND INTERESTS

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| • Athletics (Gym, Hiking, Skiing, Hockey, ect...) | • Wine Making |
| • Reading and Music | |