Janelle Cheung

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Education

BSc Combined Biochemistry and Chemistry + Minor in International Relations
University of British Columbia, Vancouver, BC (2015 - 2021)

- **2020 SUS Club Operation Grant** ($1400)
  Wrote and obtained Club operation grants that fund day-to-day operations of awarded clubs. Funds the Biochemistry Student Association Club.
- **2019 ECOSCOPE Undergraduate Research Award** ($3000)
  Funds 10 undergraduate students annually for pursuing research projects and participating in the UBC design teams

Research Experience

Dr. Simcha Srebnik Lab, University of British Columbia **Jan 2024 – Present**
Volunteer

- Project: **Artificial Tree – Water cavitation in cellulose membrane system**
  - Modelling water cavitation in cellulose membrane pockets using LAMMPS.

WISEST AI Project – Dr. Lunny, University of British Columbia **Nov 2023 – Present**
Volunteer

- Processed systematic reviews using ROBIS/AMSTAR 2 to add to a database. The database will be use in training an NLP Machine Learning model to extract information from new systematic reviews and create language generation.

Vallance Lab, University of British Columbia – BC Children's Hospital, Canada **Aug 2022 –Sep 2023**
Organoid Research Technician

- Work with graduate students and post-docs in processing adult, pediatric and neonatal organoids for ATAC-seq, genotyping, qPCR, flowcytometry, immunostaining, intestinal organoid monolayers, reversing intestinal epithelial organoids polarity, gut on a chip system, and intestinal explants.
- Review SOP for maintaining and processing human intestinal biopsies into organoids and developed a protocol for scratch assay using Air-liquid interface organoids.
- Maintained and transformed over 180 human intestinal biopsies into organoids for bio-bank storage and complied with safety protocols and quality control measures, leading to successful laboratory inspections.

UBC BIOMOD + Nanoworks - Hallam Lab, University of British Columbia **Dec 2018 – Dec 2021**
Research Scientist

- Project: **A clew into targeted drug delivery using pH-dependent DNA origami**
  - Designed a DNA nanostructure that is capable of combinational therapy.
  - Performed scoping literature review, created designs using NUPACK.
  - Performed circular dichroism, DLS, and DNA PAGE Gels, and visualized using AFM and SEM.
  - Evaluated binding specificity and therapeutic efficacy of nanostructures on Hodgkin's lymphoma using flow cytometry, fluorescent microscopy. and cell viability assays.
  - Collaborated with other UBC Principal Investigators on various projects and drafted a disclosure agreement for IP protection.

Bach lab, Vancouver Prostate Centre – Canada **Jul 2020 – Sept 2021**
Research Assistant

- Project: **Novel antibody-conjugated DNA tetrahedron drug delivery platform for Ewing's sarcoma and prostate cancer treatment.**

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- Developed an effective and specific drug delivery platform for treating childhood and adolescent bone sarcoma and prostate cancer by conjugating a DNA tetrahedron with an antibody through copper-free click chemistry.
- Analyzed efficacy and specificity of therapeutic through multiple cell lines and MTT assays.
- Worked on applying for the 2020 Health Innovation Funding Investment (HIFI) Award.

TRIUMF, University of British Columbia (Dr. Radchenko) **Jan 2021 – May 2021**
Research Student

- Project: **Radiolabeling Enterobactin analogs with ^{44}Sc, ^{89}Zr, and Multinuclide for PET imaging**
  - Preparing targets for radiolabeling and developing an SOP for radiolabeling siderophore using radio-TLC to determine labeling efficiency, gamma spectrometry to determine isotopes present.
  - Calibrated the gamma spectrometer, and analyzed calibration using ^{44}Sc.

Vancouver General Hospital Division of Thoracic Surgery, Canada **Sept 2019 – Dec 2019**
Research Assistant - UBC Science Co-op

- Performed scoping literature review on ctDNA lung cancer tumors and compiled data for a meta-analysis review.
- Aided with the grant writing process and recruiting patients to consent for ctDNA analysis.

BC Women's Hospital, Canada **Jun 2017 –Sep 2018**
Research Assistant

- Project: **Map – Flow Quality Review**
  - Analyzed and presented the program capacity and strain of the Complex Chronic Disease Program in BC Women's Hospital by compiling patients' visit information and analyzing through statistical modeling.
  - Facilitated volunteer training on protocols and proper data collection for Map-Flow Quality Review Project, and provided a standard quality control data collection protocol.

Complex Chronic Disease Program – Volunteer **Jan 2016 –Jun 2017**

Introduced and implemented ways to track and enter data for Cord Blood Data Register in addition to managing and completing data entry, using the REDCap program and excel.

Research publication

Yan C, Law M, Nguyen S, **Cheung J**, Kong J., Comparing Public Sentiment Toward COVID-19 Vaccines Across Canadian Cities: Analysis of Comments on Reddit. J Med Internet Res 2021;23(9):e32685 URL: https://www.jmir.org/2021/9/e32685 DOI: 10.2196/32685

Research presentations

Cheung, J. … (2021) Radiolabeling Enterobactin with 44Sc, 89Zr, and Multinuclide for PET imaging - poster and oral presentation for **CHEM 445** (https://tinyurl.com/h57pud3s)

Abdi, I. **Cheung, J**, … (2020) A clew into targeted drug delivery using pH-dependent DNA origami (https://tinyurl.com/7dzh6ym4) - poster presentation at **2020 Harvard NCRC, 2020 BPP Research Night**

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Abdi, I. **Cheung, J** … (2019) Beyond the Double Helix: DNA as a Novel Cancer Therapeutic (https://tinyurl.com/693dt8f8) - poster and oral presentation at **UBC innovation on Board**.

Cheung, J. (2016) literature review on Kondo et al., 2015 Antibody against early driver of neurodegeneration *cis* P-tau blocks brain injury and tauopathy - molecular mechanism, functional consequence, and proposed future research methods and directions. **-** Oral Presentation at **2016 Multidisciplinary Undergraduate Research Conference (MURC).**

Competitions

- **Let's Talk Overdose 2022 – Youth Case Competition**
  - Placed 2nd – Presentation on Opioid Risk Assessment for Youth (ORAY)

- **STEM Fellowship – 2021 Undergraduate Big Data Challenge**
  - Overleaf Outstanding Science Communication Award - 2nd place ($600)
  - Finalist - (Vancouver Reddit Sentiment on COVID 19 https://tinyurl.com/4vakrpdb)

- GI-Nc (G-quadruplex I-motif Nanoclew): A targeted Drug Delivery Device for Combinatorial Therapy against Hodgkin's lymphoma
  - **2019 International Bio-Molecular Design Competition (BIOMOD)** - placed sliver
  - **2020 UBC Innovation on Board** - placed 3rd ($2000)
    Entrepreneurship competition at UBC
  - **2020 Princeton Tiger Launch** (International Entrepreneurship competition) - placed top three in the Seattle regionals and competed in the Final
  - **The Innovation UBC 2020 Start-up Idea Competition (Life Science)**
    Entrepreneurship competition at e@UBC

- **2020 Canadian Undergraduate Policy Competition**
  - Policy Brief Competition on the effects on climate change and food security on northern communities (https://tinyurl.com/p73d96f7)

Leadership and Teaching Experience

The Major Group for Children and Youth, United Nation **Nov 2023 – present**
Science-Policy Interface Platform Coordination Team - *Data Focal Points*
- Youth participant in "The Summit of the Future in 2024".
- Worked with multiple global stakeholders and partners in creating global data-thon.

Engineering for Kids, Vancouver BC **April 2022 – April 2023**
Teaching Lead
- Assist with lesson planning and provide interactive lessons to teach children (ages 5-12) fundamental of engineering, aerospace, and programming with Minecraft.

Biochemistry Student Association (BSA), UBC AMS Clubs
Founder + Co-president **April 2020 – May 2021**
- Created the new science departmental club through the University's Alma Mater Society (AMS) and UBC Science Undergraduate Society (SUS).
- Built and organized a student group from the ground up for undergraduate Biochemistry students which fosters the faculty's community.

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Biochemistry, Pharmacology, and Physiology (BPP) UBC Club

Biochemistry Rep **April 2018 – April 2020**

- Promoted the biochemistry representation in the club by collaborating with biochemistry professors in hosting biochemistry related events.

Communication Director **Sep 2017 - April 2018**

- Advertised club events by creating and updating the BPP website using WordPress and Adobe InDesign; created promotional materials using adobe: lightroom, illustrator, and photoshop.

Life Science Research Night Committee member

- Represented BPP by collaborating with multiple clubs in the creation of Life Science Research Night: organized and recruited 54 volunteers for 300 attendees, worked with contacting presenters for workshops, and worked in organizing research presenters.

Biochemistry Mentor

- Aided with the creation of a Biochemistry, Pharmacology, and Physiology mentorship program for 1st year students. Encouraged/motivated students to be more involved in other research programs in UBC.
- Facilitated the creation of a community by bringing awareness to opportunities that can help 1st year to succeed academically and professionally.

Chemistry Department, UBC **Sep 2018 – Dec 2018**

***Chemistry Lab Teaching Assistant* – CHEM 121 Vantage college**

- Taught 1st year undergraduate students laboratory skills through demonstrations and explanations, while providing training of critical lab skills and facilitating the process of composing academic writing within the given lab reports.
- Evaluated the students' quality of work with high attention to detail and marked accordingly while providing written comments and verbal feedback.

Asian Pacific Foundation of Canada, BC **Nov 2019 – Jan 2020**

Member of the Taiwan Election watch

- Discussed Taiwan political issues within a collaborative group and raised public awareness about Taiwanese elections by managing a social media campaign on Twitter.
- Worked on a collaborative discussion about the Taiwan election results: https://www.asiapacific.ca/publication/student-election-watch-taiwan-2020-toward-uncertain-future

Anandia Testing, BC **May 2019 – Aug 2019**

Supply Chain Intern - UBC Science Coop

- Worked with a cross-functional capacity between various laboratory groups to help with inventory volume and processes of laboratory equipment and disposables.
- Compiled and analyzed statistical data to determine trends of laboratory expenditures and supplies, which aided with procuring and ordering laboratory consumables, by collaborating with Finance and testing operations.

Technical Skills

Chemistry	HPLC | Gas, Column, and TLC | Mass spectrometry | P H C NMR, IR, UV-Vis spectroscopy and Melting point analysis | Recrystallization | Titration | Preparation with standard solution | Gamma spectroscopy | JASCO spectrum | Working in inert conditions
Biochemistry	RNA, Protein, and plasmid isolation and purification | chromatography | SDS and DNA-PAGE | Agarose gel electrophoresis | Transfection | PCR and qPCR | Protein

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	crystallization | Dot Plot | BSA, enzyme activity assay – spectrophotometric | Vector transformation | Dialysis | Cell Culture
Software	Languages: Python, R, SQL | Modeling: GROMACs, LAMMPS | Visualization: VMD, PyMol | Excel, Google Sheets | RedCap | Graphics programs (Adobe: Photoshop, Lightroom, Illustrator, Premiere Pro, After Effects)

Training Certificates

Advanced Radiation Safety – Nuclear Energy Worker Completion date: Jan 27, 2021
TRIUMF

Biological Safety Course Completion date: Jan 31, 2019
University of British Columbia

Chemical Safety Course Completion date: Jan 28, 2019
University of British Columbia

TCPS 2: CORE Completion date: Jan 29, 2016
Canadian panel on Research Ethics