

# Yu-Chi (Serena) Chuang

604-562-0702 • schuang@bccrc.ca

## **EDUCATION**

### **MSc/PhD, Interdisciplinary Oncology**

**Sept 2022 – Present**

University of British Columbia

- Project: “Investigating SHPRH as a Risk Factor in Lung Adenocarcinoma Initiation and Development”
- Supervisor: Dr. William Lockwood
- Fast-Track from MSc (Transferring Sept 2024)

### **MM, Master in Management**

**June 2021 – May 2022**

University of British Columbia

- Capstone Project: City of Vancouver Accessibility Toolkit

### **BSc, Honours Biochemistry**

**Sept 2016 – May 2021**

University of British Columbia

- Honours Thesis: “Tempering the Cytokine Storm Caused by SARS CoV-2 Infection”
- Supervisor: Dr. Alice Mui
- Co-op Program
  - Lepzi Biotechnology
  - Klein Geltink Lab, BC Children’s Hospital Research Institute

May 2019 – Dec 2019

Jan 2020 – Apr 2020

## **HONOURS AND AWARDS**

- Canada Graduate Scholarships-Master's (CGSM) 2023 – 2024
- Michael Smith Memorial Fellowship, UBC 2024
- Faculty of Medicine Graduate Award, UBC 2022 – 2023
- Undergraduate 3 Minute Thesis Winner - 1st Place 2021
- Rayrock Yellowknife Resources Inc Entrance Scholarship 2016 – 2020

## **RESEARCH EXPERIENCES**

### **Graduate Student, Lockwood Lab, Vancouver BC**

**Sept 2022 - Present**

- Researched changes in gene expression and proteomic interactions of SHPRH in lung adenocarcinoma cells through RNA-sequencing and immunoprecipitation mass spectrometry respectively
- Assayed methods of measuring malignant cell transformation *in vitro* following exposure to environmental carcinogens
- Utilized bioinformatics tools to align reads, perform quality control, and isolate differentially expressed genes of interest of RNA-sequencing data
- Communicated research results through oral presentations at lab meetings, one-on-one meetings, and research conferences

### **Honours Thesis Student/Volunteer Researcher, Mui Lab, Vancouver BC**

**Sept 2020 – Feb 2022**

- Assisted with ongoing research evaluating the role of anti-inflammatory cytokines such as IL-10 in coronavirus infected cells
- Prepared 1-4 western blot gels or 1 ELISA plate per experiment to evaluate changes to protein levels and cytokines involved in IL-10 signaling
- Communicated findings through oral reports, PowerPoints, and a written paper to 3-5 lab members

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**Co-op Student**, *Klein Geltink Lab - BCCHRI*, Vancouver, BC

Jan 2020 – Apr 2020

- Assisted in concurrent projects to develop a robust protocol for evaluating metabolic profiles of CPT1a deficient T cells and to investigate the role of integrins in regulatory T cell metabolism
- Performed extracellular and intracellular staining and assayed T cells on the flow cytometer and analyzed data on FlowJo to look for T cell activation markers
- Prepared cells for Seahorse Extracellular Flux Assays to assess changes to glycolysis and mitochondrial respiration in various different conditions
- Contributed to weekly Journal Club discussions through questions and summaries on new findings in the field of immunometabolism

**R&D Assistant**, *Lepzi Biotechnology*, Richmond, BC

May 2019 – Dec 2020

- Designed and executed 3-5 weekly experiments to test the stability, reliability, and reproducibility of biomarkers used for point-of-care diagnosis of pre-eclampsia and heart failure
- Demonstrated strong organizational skills through consistent data analysis and documentation according to industry standards
- Practiced effective oral and written communication of scientific data through daily oral reports, written discussions, and PowerPoint presentations to R&D team and to the entire company

## **WORK EXPERIENCES**

**Medical Office Assistant**, *Bayswater Family Practice*, Vancouver, BC

Nov 2021 – Feb 2022

- Assisted 5-20 patients per hour by phone, email, or in-person in a caring and empathetic manner to ensure patients can access quality healthcare in a timely and beneficial manner
- Practiced strong organizational and administrative skills through simultaneously handling phone calls, physician requests, and patient in-flow smoothly and efficiently

**Lead-in-Training**, *Byte Camp*, Lower Mainland, BC

Jul 2018 – Aug 2018

- Collaborated with a team of 1-3 people to teach children aged 9-14 creative tech skills including coding, animation, graphic design, and game design
- Practiced effective crisis management of first aid issues, disputes, and technical difficulties through effective assessment of the situation and swift action

## **MENTORSHIP EXPERIENCE**

**Graduate Mentor**, *SUS x GSS Mentorship Program*, Vancouver, BC

Feb 2023 – Feb 2024

- Mentored 2 first-year science undergraduate students by providing insights into study habits, mental health, and career development opportunities

**Mentor**, *BCCRC: Diversify Research Program*, Vancouver, BC

Jul 2023 – Aug 2023

- Educated 20-30 high school students from underrepresented demographics in basic scientific concepts and research techniques through virtual presentations
- Led a hands-on workshop to teach 25 students the basics of gel electrophoresis and restriction enzyme digest by allowing them to practice experimental design, sample preparation, gel loading, and data interpretation

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## **VOLUNTEER EXPERIENCES**

- Volunteer**, *Looking Glass Foundation*, Vancouver, BC Oct 2019 – Present
- Provided virtual support to 2-8 individuals with eating disorders to support personal growth and mental wellness
  - Practiced compassion, empathy, and sensitivity in response to struggling individuals with serious mental health conditions to assist them through difficult times
- Volunteer**, *BIG24 Organizing Committee*, Vancouver, BC Oct 2023 – Mar 2024
- Created promotional materials for the conference, including the logo, posters, banners, social media posts, and certificates
  - Facilitated smooth operation of the conference by assisting with setup/takedown and handling event day issues
- Volunteer Holiday Gift Wrapper**, *Big Brothers Big Sisters of Langley*, Langley, BC Dec 2021 – Dec 2023
- Helped raise money to support youth mentorship programs in Langley through a holiday gift wrapping program
- VP Health & Wellness**, *UBC MMDD Student Association*, Vancouver, BC June 2021 – Jan 2022
- Worked in a team of 6 to plan monthly physical and mental wellness events for MM students with attendance levels of 10 – 60 people
- VP Events**, *UBC Biochemistry Student Association*, Vancouver, BC June 2020 – May 2021
- Worked in teams of 4 – 10 to plan monthly social, networking, and educational events for undergraduate biochemistry students with attendance levels of 20 – 70 people
- Korea-UBC House President**, *Place Vanier Residence Association*, Vancouver, BC Aug 2017 – Apr 2018
- Collaborated with 13-15 student leaders with a budget of \$800 to create and execute monthly events for students living in the UBC Place Vanier Residence to build community, socialize, and access support resources
- Event Volunteer**, *City of White Rock*, White Rock, BC Jul 2016 – Aug 2023
- Assisted with event programming and logistics of the City of White Rock's annual Canada Day and Sea Festival celebrations through assisting vendors, facilitating children's activities, and assisting with food preparation alongside the Semiahmoo First Nations

## **CONFERENCE PRESENTATIONS**

**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. Exploring SNF2 Histone Linker PHD Ring Helicase (SHPRH)'s Role in Initiation and Development of Lung Adenocarcinoma. Poster to be presented at European Association for Cancer Research 2024 Congress, Rotterdam, Netherlands, June 2024.

**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. The Role of SHPRH in Lung Adenocarcinoma Initiation and Development. Poster presentation at Life Science Symposium 2024, Vancouver, BC, March 2024.

**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. The Role of SHPRH in Lung Adenocarcinoma Initiation and Development. Oral and Poster presentation at B.I.G.24 Annual Research Conference, Vancouver, BC, March 2024.

**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. Investigating SHPRH as a Risk Factor for Lung Adenocarcinoma Initiation and Development. Poster presentation at Faculty of Medicine Building the Future 2024, Vancouver, BC, March 2024. (**2<sup>nd</sup> Place Poster Award - \$20**)

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**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. The Role of SHPRH in Lung Adenocarcinoma Initiation and Development. Oral presentation at IOP Tumour Signalling and Metabolism Workshop, Vancouver, BC, March 2024. (**Outstanding Speaker Award**)

**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. Investigating SHPRH as a Risk Factor for Lung Adenocarcinoma Initiation and Development. Virtual poster presentation at BC Cancer Summit 2024, Vancouver, BC, November 2023.

**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. Investigating SHPRH as a Risk Factor for Lung Adenocarcinoma Initiation and Development. Poster presentation at BC Cancer Research Institute: Rising Stars, Vancouver, BC, November 2023.

**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. Investigating SHPRH as a Risk Factor for Lung Adenocarcinoma Initiation and Development. Poster presentation at BC Cancer Research Day, Vancouver, BC, September 2023.

Sihota, T.S., **Chuang, Y.C.**, Nagelberg, A.L., Chow, J.L.M., Shi, R., and Lockwood, W.W. Characterizing SHPRH as a Novel Tumour Suppressor Gene in Lung Adenocarcinoma. Poster presentation at B.I.G. 2023 Annual Research Conference, Vancouver, BC, March 2023.

Sihota, T.S., **Chuang, Y.C.**, Nagelberg, A.L., Chow, J.L.M., Shi, R., and Lockwood, W.W. Characterizing SHPRH as a Novel Tumour Suppressor Gene in Lung Adenocarcinoma. Poster presentation at Faculty of Medicine Building the Future 2023, Vancouver, BC, March 2023.

**Chuang, Y.C.**, Sihota, T.S., Nagelberg, A.L., and Lockwood, W.W. SHPRH: A Genetic Risk Factor for Lung Cancer? Oral presentation at UBC 3-Minute Thesis, Vancouver, BC, March 2023.

Sihota, T.S., **Chuang, Y.C.**, Nagelberg, A.L., Chow, J.L.M., Shi, R., and Lockwood, W.W. Characterizing SHPRH as a Novel Tumour Suppressor Gene in Lung Adenocarcinoma. Poster presentation at Faculty of Medicine Precision Health Symposium, Vancouver, BC, February 2023.

Sihota, T.S., **Chuang, Y.C.**, Nagelberg, A.L., Chow, J.L.M., Shi, R., and Lockwood, W.W. Characterizing SHPRH as a Novel Tumour Suppressor Gene in Lung Adenocarcinoma. Virtual poster presentation at BC Cancer Summit 2022, Vancouver, BC, November 2022.

Sihota, T.S., **Chuang, Y.C.**, Nagelberg, A.L., Chow, J.L.M., Shi, R., and Lockwood, W.W. Characterizing SHPRH as a Novel Tumour Suppressor Gene in Lung Adenocarcinoma. Poster presentation at Terry Fox Laboratory Symposium, Vancouver, BC, November 2022. (**New Trainee Award - \$200**)

## **PUBLICATIONS**

Nagelberg, A.L., Sihota, T.S., **Chuang, Y.C.**, Shi, R., Chow, J.L.M., English, J., MacAulay, C., Lam, S., Lam, W.L., and Lockwood, W.W. (2024). Integrative genomics identifies SHPRH as a tumor suppressor gene in lung adenocarcinoma that regulates DNA damage response. British Journal of Cancer.

## **Investigating SNF2 Histone Linker PHD RING Helicase (SHPRH) as a Risk Factor for Lung Cancer Initiation and Development**

**Background:** Lung cancer (LC) is the leading cause of cancer-related death. Late-stage diagnosis is a major contributor to the high mortality rates, highlighting a need for early screening and treatment strategies. Determining factors that affect one's susceptibility to LC development can help identify people who may benefit from increased screening or early intervention.

LC incidence is a multifaceted interplay of genetic and environmental factors. While smoking and air pollution are significant etiologies, genetic factors can also enhance LC risk in both never-smokers and smokers. Using whole exome sequencing of never-smokers with lung adenocarcinoma (LUAD), our lab identified a candidate gene which could be linked to LC susceptibility. SHPRH is an E3 ubiquitin ligase located on chromosome 6q within a genetic locus associated with heritable LC susceptibility. This gene is frequently inactivated in never smokers with LC, and low expression of this gene is correlated with worse clinical outcome in LC patients. Our lab has demonstrated that SHPRH acts as a tumour suppressor in the context of LUAD, and expression of this gene is associated with reduced proliferation *in vitro* and tumour burden *in vivo*. However, its mechanism of action and role in mediating LC risk has yet to be elucidated.

**Hypothesis, Aims & Experimental Approach:** I hypothesize that SHPRH expression affects major biological processes within lung epithelial cells, and inactivation of this gene leads cells to become more susceptible to LUAD initiation, particularly in presence of known carcinogens.

**Aim 1:** *To determine the mechanism of SHPRH mediated tumour suppression.* Using LUAD cell lines genetically engineered to express SHPRH with the addition of doxycycline, I will perform RNA-sequencing (RNA-seq) to assess changes in gene expression. This will help identify upregulated and downregulated pathways associated with SHPRH expression. Additionally, changes in protein interactions with SHPRH expression can be assessed with immunoprecipitation-mass spectrometry (IP-MS). The pathways identified via RNA-seq and protein interactors identified via IP-MS can be further validated and genetically manipulated to assess if SHPRH's ability to suppress colony formation *in vitro* and reduce tumour burden *in vivo* is affected. Together, these experiments will increase understanding of SHPRH's tumour suppressive mechanism and identify interactors that may be future therapeutic targets.

**Aim 2:** *To evaluate the effects of SHPRH inactivation on LUAD initiation with long-term carcinogen exposure.* To assess SHPRH's role in LUAD initiation, I will use normal lung epithelial cell lines with CRISPR-Cas9 mediated SHPRH inactivation and expose them to cancer-causing agents – including tobacco smoke and environmental pollution condensate - over several months. The goal will be to induce malignant transformation through long-term carcinogen exposure. These cells will be closely monitored for signs of malignant transformation including changes to cell shape (morphology) and the speed of cell growth (proliferation). Once these early signs of transformation are observed, soft agar assays will be performed to assess anchorage-independent growth. If SHPRH has a protective function against carcinogen exposure, then its inactivation would lead to increased rate of malignant transformation. Changes in gene expression pre- and post- transformation and the level of key pathway proteins can then be assayed through RNA-seq and western blots respectively. Together, these experiments will assess if SHPRH inactivation increases susceptibility to LUAD initiation upon long-term carcinogen exposure.

**Significance:** Early detection and intervention can greatly improve survival outcomes in LC patients. Thus, increased understanding SHPRH's tumour suppressive function and contribution to LC may help identification of at-risk patients. Furthermore, understanding the impact of carcinogen exposure in combination with SHPRH inactivation can help increase opportunities for early intervention and reduce harmful exposure. The combination of improved risk prediction and increased opportunities for behavioural intervention will work to limit the onset of this devastating disease.

**Surname:**

Chuang

**Given Names:**

Yu-Chi

**Student Number:**

30577167

**Date:**

June 10, 2024

## UBC Credentials

Master of Management  
Granted: May 18, 2022

Bachelor of Science  
Honours in Biochemistry  
Co-operative Education Program  
Granted: May 19, 2021

## Transfer Credits

2016 Winter Credits Awarded for Bachelor of Science UBC Vancouver: 3.0

Language level FRENCH 11

UBC Vancouver 2016 Winter  
MATH 100 3.0

## Winter Session 2016 - 2017

### Bachelor of Science (UBC Vancouver) - Year 1

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	BIOL 112	(3.0)	Biology of the Cell	94	A+	3.0				302	80
1	CHEM 121	(4.0)	Structure and Bonding in Chemistry	91	A+	4.0				213	68
1	ENGL 112	(3.0)	Strategies for University Writing	81	A-	3.0				33	73
1	MATH 100	(3.0)	Differential Calculus with Applications to Physical Sciences and Engineering	75	B	3.0				194	71
1	PHYS 101	(3.0)	Energy and Waves	90	A+	3.0				235	79
2	BIOL 121	(3.0)	Genetics, Evolution and Ecology	87	A	3.0				189	72
2	BIOL 140	(2.0)	Laboratory Investigations in Life Science	89	A	2.0				915	81
2	CHEM 123	(4.0)	Thermodynamics, Kinetics and Organic Chemistry	84	A-	4.0				196	68
2	COMM120	(3.0)	Business Immersion	87	A	3.0				28	80
2	ENGL 110	(3.0)	Approaches to Literature	82	A-	3.0				170	75
2	MATH 101	(3.0)	Integral Calculus with Applications to Physical Sciences and Engineering	80	A-	3.0				116	67

**Sessional Average for BSC:** 85.5%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
34.0	=	34.0	0.0	0.0	0.0	0.0

Dean's Honour List

### UBC Academic Awards

Rayrock Yellowknife Resources Inc Entrance Scholarship

## Winter Session 2017 - 2018

### Bachelor of Science (UBC Vancouver) - Year 2 - Honours in Biochemistry

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	BIOL 200	(3.0)	Fundamentals of Cell Biology	90	A+	3.0				1326	76
1	BIOL 234	(3.0)	Fundamentals of Genetics	89	A	3.0				174	71
1	CHEM 203	(4.0)	Introduction to Organic Chemistry	77	B+	4.0				233	64
1	MATH 200	(3.0)	Calculus III	75	B	3.0				116	65
1	MICB 202	(3.0)	Introductory Medical Microbiology and Immunology	84	A-	3.0				288	76
2	BIOC 203	(3.0)	Fundamentals of Biochemistry	70	B-	3.0				121	74
2	CHEM 211	(4.0)	Introduction to Chemical Analysis	75	B	4.0				154	74
2	CHEM 213	(3.0)	Organic Chemistry	68	B-	3.0				220	69
2	CHEM 245	(1.0)	Intermediate Synthetic Chemistry Laboratory	80	A-	1.0				40	70
2	COMM220	(3.0)	Business Communications and Ethics	78	B+	3.0				25	78

**Sessional Average for BSC:** 78.3%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
30.0	=	30.0	0.0	0.0	0.0	0.0

### UBC Academic Awards

Rayrock Yellowknife Resources Inc Entrance Scholarship

## Summer Session 2018

### Bachelor of Science (UBC Vancouver) - Year 2 - Honours in Biochemistry

Surname:

Chuang

Given Names:

Yu-Chi

Student Number:

30577167

Date:

June 10, 2024

## Summer Session 2018 continued...

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	PSYC 102	(3.0)	Introduction to Developmental, Social, Personality, and Clinical Psychology	94	A+	3.0				166	71
1	SOCI 101	(3.0)	Social Interaction and Culture	82	A-	3.0				57	70
<b>Sessional Average for BSC: 88.0%</b>											
Credits Attempted = Passed Failed Withdrawn Audited Incomplete											
6.0 = 6.0 0.0 0.0 0.0 0.0											

## Winter Session 2018 - 2019

### Bachelor of Science (UBC Vancouver) - Year 3 - Honours in Biochemistry

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	CHEM 304	(3.0)	Fundamentals of Thermodynamics and Statistical Mechanics	79	B+	3.0				157	79
1	CHEM 315	(1.0)	Chemistry Integrated Laboratory I	85	A	1.0				24	81
1	CLST 301	(3.0)	The Technical Terms of Medicine and Biological Science	91	A+	3.0				229	76
1	COMM321	(1.5)	Organizational Behaviour	81	A-	1.5				51	80
1	ECON 310	(3.0)	Principles of Microeconomics	85	A	3.0				229	74
1-2	BIOC 301	(3.0)	Biochemistry Laboratory	83	A-	3.0				152	82
1-2	BIOC 303	(6.0)	Molecular Biochemistry	67	C+	6.0				130	73
2	BIOC 304	(3.0)	Contemporary Biochemical Research	73	B	3.0				110	78
2	BIOL 335	(3.0)	Molecular Genetics	75	B	3.0				169	69
2	CHEM 313	(3.0)	Advanced Organic Chemistry for the Life Sciences	53	D	3.0				139	68
2	CHEM 335	(1.0)	Chemistry Integrated Laboratory II	86	A	1.0				24	82
2	COMM320	(1.5)	Foundations in Accounting I	80	A-	1.5				56	75

**Sessional Average for BSC: 76.0%**

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
32.0	=	32.0	0.0	0.0	0.0	0.0

### UBC Academic Awards

Rayrock Yellowknife Resources Inc Entrance Scholarship

## Summer Session 2019

### Bachelor of Science (UBC Vancouver) - Year 3 - Honours in Biochemistry

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1-2	BIOC 398	(3.0)	Internship Work Placement I			3.0	P				

**Sessional Average for BSC:**

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
3.0	=	3.0	0.0	0.0	0.0	0.0

## Winter Session 2019 - 2020

As of 16 March 2020, the COVID-19 pandemic disrupted regular academic activities. Modes of instruction and assessment were shifted to on-line activities mid-term, including changes to exam practices and weighting in some cases. Deadlines to withdraw or change to Credit/D/Fail or Pass/Fail grading were extended by some programs.

### Bachelor of Science (UBC Vancouver) - Year 4 - Honours in Biochemistry

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	BIOC 399	(3.0)	Internship Work Placement II			3.0	P				
2	BIOC 498	(3.0)	Internship Work Placement III			3.0	P				

**Sessional Average for BSC:**

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
6.0	=	6.0	0.0	0.0	0.0	0.0

## Winter Session 2020 - 2021

### Bachelor of Science (UBC Vancouver) - Year 4 - Honours in Biochemistry

**Surname:**

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**Given Names:**

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**Student Number:**

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**Date:**

June 10, 2024

## Winter Session 2020 - 2021 continued...

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	BIOC 402	(3.0)	Proteins: Structure and Function	79	B+	3.0				149	77
1	BIOC 410	(3.0)	Nucleic Acids-Structure and Function	81	A-	3.0				130	78
1	BIOC 420	(3.0)	Advanced Biochemical Techniques	88	A	3.0				24	88
1	COMM420	(1.5)	Marketing	86	A	1.5				59	82
1-2	BIOC 404	(3.0)	Biochemical Methods	89	A	3.0				25	85
1-2	BIOC 449C	(6.0)	Honours Thesis	96	A+	6.0				19	92
2	BIOC 450	(3.0)	Membrane Biochemistry	83	A-	3.0				59	79
2	BIOC 460	(3.0)	Advanced Techniques in Biochemistry	85	A	3.0				26	85
2	CHEM 302	(3.0)	Atmospheric Environmental Chemistry	81	A-	3.0				254	83
2	COMM421	(1.5)	Introductory Finance	86	A	1.5				54	83

**Sessional Average for BSC:** 86.4%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
30.0	=	30.0	0.0	0.0	0.0	0.0

Dean's Honour List

**UBC Academic Awards**

Rayrock Yellowknife Resources Inc Entrance Scholarship

## Summer Session 2021

### Master of Management (UBC Vancouver)

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	BABS 550	(1.5)	Application of Statistics in Management	93	A+	1.5				33	86
1	BAHR 505	(1.5)	Leadership	85	A	1.5				33	82
1	BAIT 510	(1.5)	Project Management in Delivering Business Solutions	86	A	1.5				33	84
1	BAPA 550	(1.5)	Managerial Economics I	93	A+	1.5				33	81
1-2	BA 520	(1.5)	Career Development			1.5	P				
2	BA 560	(1.5)	Ethics and Sustainability	86	A	1.5				32	81
2	BAAC 551	(1.5)	Foundations in Accounting II	92	A+	1.5				32	81
2	BAMA 508	(1.5)	Marketing Research	91	A+	1.5				32	83
2	BASM 550	(1.5)	Strategic Management	77	B+	1.5				32	78

**Sessional Average for MM:** 87.9%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
13.5	=	13.5	0.0	0.0	0.0	0.0

## Winter Session 2021 - 2022

### Master of Management (UBC Vancouver)

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	BA 511	(1.5)	Community Business Project	81	A-	1.5				66	83
1	BA 515	(1.5)	Fundamentals of Analytics and Tech	92	A+	1.5				32	88
1	BA 551	(1.5)	Business Capstone			1.5	P				
1	BA 562	(1.5)	Creativity	84	A-	1.5				32	85
1	BAEN 550	(1.5)	Fundamentals in Entrepreneurship	84	A-	1.5				32	81
1	BAFI 511	(1.5)	Investment Theory and Asset Pricing	87	A	1.5				31	84
1	BAHR 507	(1.5)	Two-Party Negotiations	82	A-	1.5				32	81
1	BALA 503	(1.5)	Commercial Law	84	A-	1.5				32	82
1	BAMA 505	(1.5)	Business Development	84	A-	1.5				32	83
1	BASC 523	(1.5)	Supply Chain Management	90	A+	1.5				33	82
1	BASC 550	(1.5)	Operations	87	A	1.5				32	81

**Sessional Average for MM:** 85.5%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
16.5	=	16.5	0.0	0.0	0.0	0.0

## Winter Session 2022 - 2023

### Master of Science (UBC Vancouver) - In Interdisciplinary Oncology

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	MEDG 420	(3.0)	Human Genomics and Medical Genetics	93	A+	3.0				17	93
1	MEDI 501	(3.0)	Molecular and Cellular Biology of Experimental Medicine	88	A	3.0				19	88
1	ONCO 502	(3.0)	Concepts in Oncology	85	A	3.0				23	87
1-2	ONCO 510	(3.0)	Seminars in Oncology				T				



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**Date:**  
June 10, 2024

## Winter Session 2022 - 2023 continued...

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size Avg
1-2	ONCO 549	(12.0)	Master of Science Thesis				T			
2	MEDG 505	(3.0)	Genome Analysis	96	A+	3.0				18 92
2	MEDG 521	(3.0)	Molecular and Cell Biology of Cancer	93	A+	3.0				20 88

**Sessional Average for MSC:** 91.0%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
30.0	=	15.0	0.0	0.0	0.0	15.0

**UBC Academic Awards**  
Faculty of Medicine Graduate Award

## Summer Session 2023

**Master of Science (UBC Vancouver) -  
In Interdisciplinary Oncology**

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size Avg
1-2	ONCO 549	(12.0)	Master of Science Thesis				T			

**Sessional Average for MSC:**

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
12.0	=	0.0	0.0	0.0	0.0	12.0

**UBC Academic Awards**  
CIHR Canada Graduate Scholarship Master's Award

## Winter Session 2023 - 2024

**Master of Science (UBC Vancouver) -  
In Interdisciplinary Oncology**

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size Avg
1-2	ONCO 510	(3.0)	Seminars in Oncology				T			
1-2	ONCO 549	(12.0)	Master of Science Thesis				T			

**Sessional Average for MSC:**

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
15.0	=	0.0	0.0	0.0	0.0	15.0

**UBC Academic Awards**  
CIHR Canada Graduate Scholarship Master's Award  
Faculty of Medicine Graduate Award  
Michael Smith Memorial Fellowship

## Summer Session 2024

**Master of Science (UBC Vancouver) -  
In Interdisciplinary Oncology**

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size Avg
1-2	ONCO 549	(12.0)	Master of Science Thesis			0.0	CIP			

**Sessional Average for MSC:**

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
12.0	=	0.0	0.0	0.0	0.0	12.0

**UBC Academic Awards**  
Michael Smith Memorial Fellowship

\*\*\*\*\* End of Record \*\*\*\*\*



Provincial Health Services Authority

William Lockwood, PhD  
Senior Scientist, Integrative Oncology  
British Columbia Cancer  
Associate Professor, Pathology & Laboratory Medicine  
University of British Columbia  
Michael Smith Foundation for Health Research Scholar  
Canadian Institutes of Health Research New Investigator  
wlockwood@bccrc.ca

June 6, 2024  
UBC Interdisciplinary Oncology Program  
Award Committee

**Re: Serena Chuang Reference**

Dear Awards Committee,

It is my great pleasure to recommend Serena Chuang for a UBC Four Year Fellowship Award. I have known Serena since she started working in my lab as a research student in the summer of 2022 and since this time, she has demonstrated tremendous research potential and achievements, interpersonal skills and academic abilities that make her very deserving of this prestigious award.

Serena is very accomplished in terms of academics, having demonstrated a track record of excellence throughout the course of her undergraduate and previous masters degrees. Serena graduated in May 2021 with a Bachelor of Science from the University of British Columbia (UBC) in honours biochemistry, a very difficult program heavy on lab-based courses. She was awarded a prestigious UBC Presidential Scholars Award (Rayrock Yellowknife Resources Inc Entrance Scholarship) upon her initial admission to UBC, speaking to her high grades and extracurricular achievements coming out of high school. She was clearly able to maintain this high standard, maintaining an impressive 82% (A-) average over the course of her degree, ranking her well with the top of all applicants I have had to my lab. During this time, which was interspersed with many co-op terms (described below), she also completed her honours thesis and achieved a very impressive A+ (96%), further demonstrating her academic acumen. Her achievements were further recognized by being on the Dean's Honor List in recognition of exceeding an 80% average. After graduating, Serena switched gears from science and enrolled in a Master of Management program at UBC, where she achieved an A (87%) cumulative average over all courses. The ability to excel in two very different programs at both the undergraduate and graduate level clearly demonstrates her tremendous capacity for learning. Taken together, it is clear that Serena is an exceptional student, ranking near the very top of this category based on my experiences.

Serena has an impressive track record of lab experience that clearly demonstrates her tremendous potential as a scientist. Through co-op placements, her honours thesis and volunteer work, Serena has worked in various capacities in four different research groups, spanning both academia and industry, for over three years total. This has included substantial experience in immunology, from working on immunoassay development at Lepzi Biotechnology, to evaluating metabolic and molecular profiles of memory and effector T cells in the Klein Geltink Lab at BC Children's Hospital. Furthermore, her honours thesis work in the Lui lab at the Jack Bell Research Centre investigated ways to temper the cytokine storm caused by SARS CoV-2 infection. While distinct from her proposed research in my lab, the techniques, and concepts she learned during these experiences, including model and assay development, will benefit her greatly when assessing the function of the putative tumor suppressor



Provincial Health Services Authority

SHPRH in lung cancer. Further, for her honours thesis work, Serena won the UBC Undergraduate 3 Minute Thesis Competition, an extremely competitive competition that truly highlights the quality of her research and her ability to understand and convey complex concepts. During her time in my lab, briefly as a research student and then as a graduate student, she has further proven her fantastic potential while starting her thesis project. She is highly motivated and has a true ability for self-directed learning, often going out of her way to learn new methods and read papers related to the field of study to complement her existing knowledge. This work ethic has enabled her to analyse data from her experiments and interpret their meaning in a broader context, moving the project forward quicker than I anticipated. Indeed, her presentation that included her initial experimental work at the recent 40<sup>th</sup> Anniversary Terry Fox Laboratory Symposium was recognized by the Best New Trainee Poster Award, a very remarkable feat for someone just starting their graduate degree that clearly demonstrates the progress she has already made. Furthermore, a journal article on this work is in press at British Journal of Cancer, of which Serena has played a major role and is recognized with second authorship. Thus, for someone within their year and a half of their studies, I feel Serena clearly ranks at the very top of similar students in terms of research potential.

Above all, Serena has stuck me as a terrific person with great leadership and interpersonal skills. Her ability to communicate effectively are evident from both our one-on-one weekly meetings - where we discuss her most recent data and determine future plans - and our lab meetings, where she actively participates and presents to my group of graduate students and technical staff. She is patient and mature, listening to constructive criticism and using this advice to better her subsequent experimental plans. Although somewhat quiet by nature, she leads by example and I have no doubt that her fantastic work ethic has driven the rest of my lab members to work harder themselves. She is passionate about education, science communication and outreach, which is highlighted by her work as Vice President of Events for the UBC Biochemistry Student Association, where she coordinated with UBC faculty and former alumni to provide opportunities for mentorship and networking, highlighting her leadership qualities. Not only is she interested in health science, she has great compassion for patients and always relates our findings to their potential impact on patient care. Her volunteer experience with the Looking Glass Foundation - which supports individuals affected by eating disorders - demonstrates her caring nature and ability to support individuals experiencing health related issues. Balancing these activities with her already busy work schedule shows a true dedication to helping people in need and speaks to her great character as a person. Based on these attributes, I strongly believe Serena will be successful as a graduate student and develop into a fantastic medical researcher.

Based on these attributes, I strongly recommend Serena for a UBC Four Year Fellowship Award.

Sincerely,

A handwritten signature in black ink, appearing to read 'William W. Lockwood'.

William W. Lockwood, PhD

Senior Scientist, Integrative Oncology, BC Cancer

Associate Professor, Pathology and Laboratory Medicine, University of British Columbia

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THE UNIVERSITY OF BRITISH COLUMBIA

Department of Pathology & Laboratory Medicine  
Faculty of Medicine



Vancouver, June 6th, 2024

**Re: Letter of support for Serena Chuang for 4-Year Fellowship award.**

It is with great enthusiasm that I write to support the application of Serena Chuang for a UBC 4-year fellowship. I have known Serena for ~4 years since she joined my laboratory as a co-op student in 2020 while in undergraduate studies at The University of British Columbia, and interactions in seminars, workshops and conferences since starting their graduate degree.

Serena joined my laboratory a few months before research curtailment was put in place in April 2020. Despite only working in the lab for just under 4 months of an 8-month co-op project, Serena made significant progress on a challenging immunometabolism project using human primary cells. As part of a team investigating the role of fatty acid metabolism in the generation of long-lasting immune protection, Serena had to quickly learn how to isolate and grow a type of human immune cell type called T cells. Despite their limited lab experience before joining my lab, they very quickly figured out how to perform reproducible experiments in primary cells. When things did not work immediately, Serena was first to trouble shoot and never lost enthusiasm.

After research curtailment was put in place, Serena remained a part of the lab in virtual lab meetings and ongoing weekly journal clubs. In these journal clubs, aimed at improving our understanding of the immunometabolism field, Serena showed a profound ability to integrate very complex subjects and apply this to research design which has yielded great prelim data. Part of the data Serena generated as an undergraduate student researcher in the lab is the foundation of a recently funded grant. Serena is a great team player and has had a very positive impact on the atmosphere in the laboratory, despite the relatively short stint of in person work. After research curtailment, Serena performed their thesis research in the laboratory of Dr. Mui at UBC, and as a highlight of their ability to present complicated subjects to a wide audience, Serena recently presented their findings in a local 3-minute thesis meeting, and won the best presentation award, highlighting their exceptional presentation skills.

With minimal guidance, Serena took ownership of a complex project involving multiple tasks with a remarkable level of organization, initiative, and time-management that far exceeded my normal expectations for an undergraduate co-op student. Serena managed multiple experiments with meticulousness and attention to detail. Serena is a bright graduate student and I am confident that she will be very successful as a scientist.

Serena worked closely with a postdoctoral researcher, a graduate student and 2 other undergraduate students while in my lab. All members of my laboratory expressed how much they enjoyed working with Serena, as they are a cooperative, caring, personable, and responsible person. Serena is easy to work with, and a very clear communicator of research findings, ideas, and or issues that arise experimentally. Serena's attention to detail contributed to newly developed protocols that were easy to follow, and implemented for an ongoing collaborative translational study in the lab.

I have no doubt that Serena's positive attitude, collaborative aptitude and continually growing research skills will allow them to thrive in academia and make them a deserving candidate for a 4-YF award.

Please let me know if I can provide any more information in support of Serena's application.

Sincerely,

Ramon Klein Geltink, PhD

Assistant Professor | Michael Smith Health Research BC Scholar  
Faculty of Medicine | Department of Pathology and Laboratory Medicine  
The University of British Columbia | BC Children's Hospital Research Institute  
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