

# MARISSA FOO

+1 (604) 362-5676

[mfoo@bccrc.ca](mailto:mfoo@bccrc.ca)

## EDUCATION

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|----------------|---|
| 2022 – Present | <b>PhD Interdisciplinary Oncology</b><br>University of British Columbia, 92.2% GPA  |
| 2017 – 2022    | <b>BSc (Hons) Cellular, Anatomical, and Physiological Sciences</b><br>University of British Columbia, 88.5% GPA <i>with Distinction</i> |

## RESEARCH EXPERIENCE

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|----------------|---|
| 2022 – Present | <b>Weng Lab, Terry Fox Labs, BC Cancer Research Institute</b><br><i>Graduate Student</i> <ul style="list-style-type: none"><li>Investigating the role of DNMT3A in the epigenetic regulation of normal and leukemic T-cell development.</li><li>Proficient in primary cell culture, high-parameter spectral flow cytometry, and fluorescence-activated cell sorting (FACS).</li><li>Act as a mentor to undergraduate co-op students.</li></ul>  |
| 2022           | <b>Moukhles Lab, Life Sciences Institute, University of British Columbia</b><br><i>Undergraduate Honours Thesis Student</i> <ul style="list-style-type: none"><li>Investigated changes in blood brain barrier permeability after ischemic stroke, using a transient middle cerebral artery occlusion (tMCAO) rat model.</li><li>Utilized confocal fluorescence microscopy to analyze expression of extracellular matrix proteins in fixed tissue.</li></ul>   |
| 2021 – 2022    | <b>Weng Lab, Terry Fox Labs, BC Cancer Research Institute</b><br><i>Co-op Student and Research Student</i> <ul style="list-style-type: none"><li>Constructed and titrated recombinant lentiviral vectors to deliver T-ALL oncogenes to human primary CD34+ cord blood.</li><li>Co-cultured transduced human primary cord blood with OP9-DL1s to produce synthetic pre-leukemias.</li><li>Screened cell phenotypes using flow cytometry and analyzed data using FlowJo and Graphpad Prism.</li><li>Assisted in mouse peripheral blood processing and necropsies.</li></ul>                       |
| 2019 – 2020    | <b>Mayor Lab, Michael Smith Laboratories, University of British Columbia</b><br><i>Work Learn Student and Co-op Student</i> <ul style="list-style-type: none"><li>Screened laboratory yeast strains for optimal recombinant protein expression using high-throughput enzymatic colorimetric assays.</li><li>Designed primers for cloning and utilized Gibson assembly.</li><li>Expressed recombinant plasmids in <i>E. coli</i> and <i>S. cerevisiae</i>.</li><li>Coordinated the ordering of lab supplies and reconciliation of invoices, communicating with vendors when necessary.</li></ul> |

## AWARDS

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- International Tuition Award – \$3,200 2022 - 2024
- Faculty of Medicine Graduate Award – \$1,500 2022 - 2024
- International Leader of Tomorrow (ILOT) Award – \$50,000/year 2017 - 2022
- Faculty of Science International Student Scholarship – \$5,000 2018 - 2019
- Trek Excellence Scholarship – \$1,000 2018
- Dean of Science Scholarship – \$425 2018

## PUBLICATIONS

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- Wong, R., **Foo, M.**, Gusscott, S., Segat, G. C., Carles, A., Bowlby, R., Hirst, M., Weng, A. *DNMT3A Limits Myeloid Signalling Responses in Committed T cells during Normal and Leukemic Development*. **Manuscript in preparation.**
- Segat, G. C., Sun, A., Zhu, A., **Foo, M.**, Barreto Rodriguez, C., Wong, R., Gusscott, S., Hirst, M., Weng, A. *MYCN is Required in Immature T-ALL and Bears Epigenetic Marks Associated with Cell Identity*. **Manuscript in preparation.**

## RELEVANT COMMUNITY ENGAGEMENT

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2019 – 2024

### **St. John Ambulance, Vancouver Division (59)**

*Medical First Responder and Divisional Administration Officer*

- Provided first aid at community events in Vancouver, e.g. Canucks games, Pride Parade, Sun Run.
- Spearheaded recruitment and managed a team of 3 officers to revitalize the division after the pandemic.
- 438 hours volunteered to date.

2023

### **Science Undergraduate Society Mentorship Program**

*Mentor*

- Mentored two undergraduate students throughout their first year.
- Provided resources for them to experience a day at a research laboratory.

## CONFERENCES

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- **BIG Research Day**, 2024 (poster)
- **BC Cancer Research Summit**, 2023 (poster)
- **BIG Research Day**, 2023 (poster)
- **Terry Fox Research Institute 9<sup>th</sup> Scientific Meeting**, 2022 (poster)
- **Multi-Disciplinary Undergraduate Conference**, 2019 (poster)

## CERTIFICATIONS (year issued)

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- Introduction to Working with Rodents in Research (2024)
- Rodent Restrain and SQ/IP Injections (2024)
- Rodent Tail Vein Injection – Conscious (2024)
- TCPS2-CORE (2024)
- Advanced Medical First Responder (2022)

**Introduction:** T-cell development is a temporally protracted process in which transcription factors and epigenetic modulators coordinate the sequential exclusion of alternative cell fates and acquisition of specialized T-cell functions. Mutations in genes involved in the process of T-cell differentiation can cause a malignant expansion of immature T-cells, leading to diseases such as T-cell acute lymphoblastic leukemia (T-ALL). While many efforts have focused on the transcription factors which drive normal development and leukemogenesis, the underlying epigenetic constraints remain poorly understood. DNA methyltransferase 3A (*DNMT3A*) is an epigenetic regulator that is recurrently mutated in hematological malignancies including T-ALL, likely resulting in protein loss-of-function (LOF). Although T-ALL is a highly curable disease, the survival rate of patients with relapsed/refractory disease can be as low as 10%.<sup>1</sup> In addition, T-ALL patients with *DNMT3A* mutations have significantly lower survival and higher rates of relapse.<sup>2</sup>

**Objectives:** *DNMT3A* mutations are associated with more immature (less differentiated) subtypes in T-ALL, often with myeloid lineage-associated features.<sup>3</sup> Thus, our first objective is to determine the effect of *DNMT3A* LOF on normal T-cell differentiation and lineage commitment. We will then explore downstream pathways that are affected by *DNMT3A* LOF to better understand how this epigenetic alteration modifies gene expression and/or signalling pathways to promote treatment resistance.

**Methodology:** The role of *DNMT3A* in early stages of T-cell development was explored using an *in vitro* cord blood (CB) differentiation system in combination with lentiviral shRNA-mediated knockdown (KD) and CRISPR/Cas9-mediated knockout (KO) to mimic *DNMT3A* LOF mutations. To assess durability of commitment to the T lineage, we transferred cells at the post-commitment CD44- stage from culture conditions supporting T-cell differentiation to conditions favoring myeloid differentiation. The cells were plated at limiting dilution, and Poisson statistics were used to calculate the proportion of cells capable of giving rise to myeloid colonies.

**Results:** T-cell progenitors with *DNMT3A* KD/KO were able to grow in myeloid media and expressed an aberrant T/myeloid phenotype at significantly higher frequency as compared to negative controls. Interestingly, this lineage switching activity was nearly exclusively represented in a small subset of cells that expressed myeloid growth factor (GF) receptors on the cell surface. Although this subset was present in *in vitro* derived T-cells and in normal thymus at similar frequencies, myeloid GF responsiveness was only observed under *DNMT3A* KO conditions.

**Future Directions:** To examine these findings in the context of T-ALL, we will use CRISPR/Cas9 to model the most common patient-derived *DNMT3A* mutations (e.g. R882C) in our previously established synthetic human CB leukemia model.<sup>4</sup> We will introduce known T-ALL oncogenes into *DNMT3A*-mutated or silent-mutation control CB cells and inject them into NRG or NRG-3GS mice. Subsequently derived leukemias will be examined by whole transcriptome, whole genome, DNA methylation, and functional assays. We anticipate that *DNMT3A*-mutated leukemias will exhibit distinct features including demethylation and expression of myeloid lineage signaling pathways driven by human GFs such as IL-3, GM-CSF, and SCF as provided in NRG-3GS mice.

**Significance:** Our results support a working model in which *DNMT3A* loss in T-cell progenitors derepresses their ability to respond to myeloid GF stimulation both in terms of cell growth and myeloid marker expression. *DNMT3A* LOF mutations may thus afford T-ALL cells the ability to exploit alternate myeloid GF-replete niches in the body. Our efforts to define underlying molecular mechanisms and its resulting functional capabilities in this disease context will motivate the design of novel targeted therapies.

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<sup>1</sup> DuVall et al., "Updates in the Management of Relapsed and Refractory Acute Lymphoblastic Leukemia."

<sup>2</sup> Bond et al., "DNMT3A Mutation Is Associated with Increased Age and Adverse Outcome in Adult T-Cell Acute Lymphoblastic Leukemia."

<sup>3</sup> Aref et al., "Clinicopathologic Effect of *DNMT3A* Mutation in Adult T-Cell Acute Lymphoblastic Leukemia."

<sup>4</sup> Kusakabe et al., "Synthetic Modeling Reveals HOXB Genes Are Critical for the Initiation and Maintenance of Human Leukemia."

**Surname:**

Foo

**Given Names:**

Marissa Jia Mint

**Student Number:**

58425885

**Date:**

June 10, 2024

## UBC Credentials

Bachelor of Science  
Honours Cell, Anatomical & Physiological Sciences  
Co-operative Education Program  
WITH DISTINCTION  
Granted: May 18, 2022

## Transfer Credits

2017 Winter Credits Awarded for Bachelor of Science UBC Vancouver: 19.0

Advanced Level Results 2017

UBC Vancouver 2017 Winter

BIOL	111	EX	0.0
BIOL	121	EX	0.0
BIOL	140	EX	0.0
BIOL	1ST		8.0
CHEM	111		4.0
CHEM	113		4.0
MATH	100		3.0

## Winter Session 2017 - 2018

### 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	95	A+	3.0				296	79
1	CHEM 121	(4.0)	Structure and Bonding in Chemistry	92	A+	4.0				150	77
1	ENGL 110	(3.0)	Approaches to Literature	78	B+	3.0				134	73
1	MATH 102	(3.0)	Differential Calculus with Applications to Life Sciences	93	A+	3.0				142	74
1	PHYS 100	(3.0)	Introductory Physics	98	A+	3.0				242	78
1-2	CSPW 100	(1.0)	Coordinated Science Program Workshop			1.0	P				
2	BIOL 121	(3.0)	Genetics, Evolution and Ecology	81	A-	3.0				105	70
2	CHEM 123	(4.0)	Thermodynamics, Kinetics and Organic Chemistry	95	A+	4.0				136	81
2	ENGL 112	(3.0)	Strategies for University Writing	87	A	3.0				32	76
2	MATH 103	(3.0)	Integral Calculus with Applications to Life Sciences	88	A	3.0				134	73
2	PHYS 101	(3.0)	Energy and Waves	93	A+	3.0				255	72

**Sessional Average for BSC:** 90.2%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
33.0	=	33.0	0.0	0.0	0.0	0.0

Science Scholar - Dean's Honour List

### UBC Academic Awards

International Leader of Tomorrow Award

## Winter Session 2018 - 2019

### Bachelor of Science (UBC Vancouver) - Year 2 - Honours Cell, Anatomical & Physiological Sciences

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	83	A-	3.0				1141	72
1	CHEM 211	(4.0)	Introduction to Chemical Analysis	86	A	4.0				167	76
1	CHEM 233	(3.0)	ORG CHEM BIOL SC	90	A+	3.0				199	67
1	CHEM 235	(1.0)	ORG CHEM LAB	82	A-	1.0				86	71
1	FREN 101	(3.0)	Beginners' French I	95	A+	3.0				35	82
1	STAT 200	(3.0)	Elementary Statistics for Applications	85	A	3.0				314	72
2	BIOL 201	(3.0)	Introduction to Biochemistry	77	B+	3.0				179	78
2	CHEM 205	(3.0)	Physical Chemistry	93	A+	3.0				177	81
2	CLST 301	(3.0)	The Technical Terms of Medicine and Biological Science	87	A	3.0				143	78
2	FREN 102	(3.0)	Beginners' French II	85	A	3.0				28	75
2	MICB 202	(3.0)	Introductory Medical Microbiology and Immunology	93	A+	3.0				216	82
2	PHYS 118	(3.0)	Electricity, Light and Radiation	86	A	3.0				168	72

**Sessional Average for BSC:** 87.1%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
35.0	=	35.0	0.0	0.0	0.0	0.0

Dean's Honour List

**Surname:**

Foo

**Given Names:**

Marissa Jia Mint

**Student Number:**

58425885

**Date:**

June 10, 2024

## Winter Session 2018 - 2019 continued...

### UBC Academic Awards

Dean of Science Scholarship

Faculty of Science International Student Scholarship

International Leader of Tomorrow Award

Trek Excellence Scholarship (International Students)

## 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 3 -

#### Honours Cell, Anatomical & Physiological Sciences

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	BIOC 302	(3.0)	General Biochemistry	82	A-	3.0				120	72
1	CAPS 390	(3.0)	Introduction to Microscopic Human Anatomy	84	A-	3.0				186	75
1	PATH 375	(3.0)	Introduction to Human Pathology	85	A	3.0				126	80
1-2	BIOC 301	(3.0)	Biochemistry Laboratory	90	A+	3.0				150	82
1-2	CAPS 301	(6.0)	Human Physiology	87	A	6.0				240	81
1-2	CAPS 303	(3.0)	Laboratory in Human Physiology (Honours)	89	A	3.0				27	88
2	CAPS 391	(3.0)	Introduction to Gross Human Anatomy	87	A	3.0				343	82
2	FREN 111	(3.0)	Elementary French I	88	A	3.0				28	82
2	PSYC 207	(3.0)	Contemporary Topics in Biological and Cognitive Psychology	89	A	3.0				169	73
A	PHYS 333	(3.0)	Energy and Climate	89	A	3.0			2019/11/29	91	80

Sessional Average for BSC: 87.0%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
33.0	=	33.0	0.0	0.0	0.0	0.0

Dean's Honour List

### UBC Academic Awards

Faculty of Science International Student Scholarship

Karen McKellin International Leader of Tomorrow Award

## Summer Session 2020

### Bachelor of Science (UBC Vancouver) - Year 3 -

#### Honours Cell, Anatomical & Physiological Sciences

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

### UBC Academic Awards

Karen McKellin International Leader of Tomorrow Award

## Winter Session 2020 - 2021

### Bachelor of Science (UBC Vancouver) - Year 4 -

#### Honours Cell, Anatomical & Physiological Sciences

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

### UBC Academic Awards

Karen McKellin International Leader of Tomorrow Award

## Summer Session 2021

### Bachelor of Science (UBC Vancouver) - Year 4 -

#### Honours Cell, Anatomical & Physiological Sciences

Surname:

Foo

Given Names:

Marissa Jia Mint

Student Number:

58425885

Date:

June 10, 2024

## Summer Session 2021 continued...

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1-2	CAPS 499	(3.0)	Cooperative Work Placement IV			3.0	P				
<b>Sessional Average for BSC:</b>											
Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete					
3.0	=	3.0	0.0	0.0	0.0	0.0					

### UBC Academic Awards

Karen McKellin International Leader of Tomorrow Award

## Winter Session 2021 - 2022

### Bachelor of Science (UBC Vancouver) - Year 4 - Honours Cell, Anatomical & Physiological Sciences

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Avg
1	CAPS 421	(3.0)	Advanced Cellular and Molecular Physiology	90	A+	3.0				32	88
1	CAPS 422	(3.0)	Mammalian Cardiovascular and Respiratory Physiology	89	A	3.0				22	82
1	CAPS 423	(3.0)	Mammalian Renal and Gastrointestinal Physiology	91	A+	3.0				23	86
1-2	CAPS 430	(6.0)	Advanced Laboratory in Physiology	92	A+	6.0				14	92
1-2	CAPS 449	(6.0)	Graduating Essay	91	A+	6.0				13	91
2	CAPS 424	(3.0)	Mammalian Endocrinology	87	A	3.0				34	87
2	CAPS 426	(3.0)	Physiological Basis of Central Nervous System Functions	89	A	3.0				43	86

### Sessional Average for BSC: 90.2%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
27.0	=	27.0	0.0	0.0	0.0	0.0

Science Scholar - Dean's Honour List

### UBC Academic Awards

Karen McKellin International Leader of Tomorrow Award

Karen McKellin International Leader of Tomorrow Award

## 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	MEDI 501	(3.0)	Molecular and Cellular Biology of Experimental Medicine	91	A+	3.0				19	88
1	ONCO 502	(3.0)	Concepts in Oncology	93	A+	3.0				23	87
1-2	ONCO 510	(3.0)	Seminars in Oncology			3.0	P				
1-2	ONCO 549	(12.0)	Master of Science Thesis				T				
2	MEDG 521	(3.0)	Molecular and Cell Biology of Cancer	88	A	3.0				20	88
2	MICB 502	(3.0)	Advanced Immunogenetics	91	A+	3.0				18	90

### Sessional Average for MSC: 90.8%

Credits Attempted	=	Passed	Failed	Withdrawn	Audited	Incomplete
27.0	=	15.0	0.0	0.0	0.0	12.0

### 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

## Winter Session 2023 - 2024

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

**Surname:**  
Foo

**Given Names:**  
Marissa Jia Mint

**Student Number:**  
58425885

**Date:**  
June 10, 2024

## Winter Session 2023 - 2024 continued...

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size Avg
1	MEDG 520	(3.0)	Advanced Human Molecular Genetics	98	A+	3.0				24 95
1-2	ONCO 510	(3.0)	Seminars in Oncology				T			
1-2	ONCO 549	(12.0)	Master of Science Thesis				T			
<b>Sessional Average for MSC: 98.0%</b>										
Credits Attempted = Passed Failed Withdrawn Audited Incomplete										
18.0 = 3.0 0.0 0.0 0.0 15.0										

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

## 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			
<b>Sessional Average for MSC:</b>										
Credits Attempted = Passed Failed Withdrawn Audited Incomplete										
12.0 = 0.0 0.0 0.0 0.0 12.0										

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

June 6, 2024

**RE: FOO, Marissa**

Dear Members of the Selection Committee,

It is with great pleasure that I write this letter of support for Marissa Foo in her application for a UBC Four Year Doctoral Fellowship (4YF) award. I have served as the primary supervisor for 16 graduate students over the past 20 years in my lab, and in the past few years during which Marissa has been in my lab, I have been and continue to be genuinely impressed by her wholehearted dedication to scientific investigation, her initiative in designing and executing her own experiments, and her growing capacity for building coherent and relevant narratives for how her work fits into and contributes to the larger body of existing scientific literature.

Marissa joined my lab after having completed a very productive 8-month UBC Co-op term where she was trained by and worked closely with two senior graduate students. Her work then and continues to be related to elucidating fundamental mechanisms of leukemogenesis using human T-cells, which involves highly sophisticated primary cell culture techniques and heavy reliance of high parameter flow cytometry. During her time as a Co-op Marissa became our “go-to” person for executing complex experimental designs as her fastidious attention to detail and rigorous technical skills enabled her to execute these experiments flawlessly. In her time as graduate student, she has further developed on these critical skills, but now having advanced to their design as well as execution. For example, Marissa’s current work entails transducing primary human CD34+ cord blood (CB) cells serially with lentiviral shRNA knock-down and cDNA expression constructs at various time points during a 28-day culture period with regular monitoring by 8-12 parameter flow cytometry. At the day 28 time point, she then performs FACS sorting to enrich for subpopulations of cells, sometimes rare (~0.5%) in total abundance, and plating at limiting dilution into hundreds of individual wells of a 96-well plate. These cells are then cultured for an additional 10 days, and results are harvested by high-throughput plate-based flow cytometry. The data are then analyzed by Poisson statistics to determine cell lineage outputs. She also just recently completed a set of experiments where she scored CRISPR/Cas9-edited DNMT3A R882C primary human CB cells which were provided by a close collaborator. These experiments form the basis for a substantial component of a multi-lab collaboration looking at epigenetic modifiers in lineage commitment and leukemogenesis.

To support these complex experiments, Marissa has taken the lead for the lab in adopting the latest technology, spectral flow cytometry. This allows much improved resolution of signals in high parameter flow cytometry. Marissa has also shown impressive ability in the analysis of this high parameter data, employing complex clustering and dimensional reduction analyses to enable high level interpretations of massively complex datasets.

Marissa has also shown a keen interest and courage in developing her skills in scientific discourse. At the last TFRI Scientific Retreat held in Vancouver, Marissa was one of the few

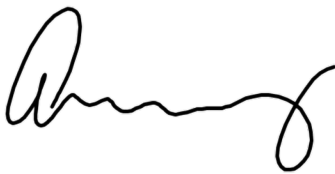


students who remained at her poster for the entire session, and it was well rewarded as John Dick (Canada's pre-eminent researcher in leukemia stem cell biology) asked her to present her poster one-on-one. Although intimidating, especially for a first-year graduate student, Marissa did a great job and got some very insightful input on her project. I was exceedingly proud and impressed by her desire to interact directly with and learn from others in the context of a scientific meeting.

Marissa also represented our lab as part of a TFRI Program Project Grant site visit last month where she presented her work to the reviewers in a one-on-one poster session. This is a daunting ask for a junior trainee – to stand and be grilled by an external reviewer where a \$7.5M grant is on the line. Shortly after the review day completed, I debriefed with Marissa who said nothing about the stress but rather her excitement in discussing her experimental system with the reviewers, what her results meant for leukemia biology, and what additional experiments she could pursue to fill out the story. From my perspective, it is this emotional response to science that keeps trainees engaged through the highs and lows of graduate school, and ultimately propels them onwards to each new challenge.

In sum, I recommend Marissa highly for a 4YF award as she exhibits the uncommon combination of hard work, dogged determination, and natural joy and curiosity for discovering how things work. I find in Marissa exceptional potential to make substantial contributions in the area of cancer biology and feel that she is highly deserving of your consideration for this funding support.

Sincerely,



Andrew P. Weng, MD, PhD  
Distinguished Scientist, Terry Fox Laboratory, BC Cancer  
Professor, Pathology and Laboratory Medicine, UBC



RE: Reference Letter for Marissa Foo

May 29, 2024

To Whom It May Concern,

It is a great pleasure to write a reference letter for Marissa Foo who was a Work-learn, then a Co-op student in our laboratory from September 2019 to December 2020. Marissa is a smart, dedicated and diligent student with a strong work ethic, who I strongly recommend for a Scholarship.

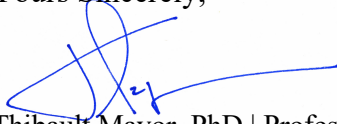
Marissa was a top student in the Cellular, Anatomical and Physiological Sciences program. Notably, she was in the Dean's Honour list and was recipient of the International Leader of Tomorrow Scholarship. We first hired her as Work-learn student in September 2019. We regularly employ undergraduate students to help prepare reagents in our laboratory. While Marissa did not have prior lab experience, she left a very strong impression during the interview, as a very independent and confident student eager to learn more about research. Indeed, during her first months in the lab, Marissa volunteered additional hours in order to learn molecular biology techniques, alongside her regular lab duties. We then decided to offer her an eight-month Co-op position to retain her in our research team.

During her Co-op term, Marissa worked alongside a senior graduate student to help establish a new assay. This project was at the crossroads of microbiology and biochemistry, where we are screening for host cells that can sustain higher recombinant enzyme production. Marissa was involved in developing brand new plasmids for this project and setting up multiple tests to determine which conditions needed to be used for our screening assay. In retrospect, this was clearly an ambitious project, and part of its success was Marissa's dedication and technical skills. For instance, Marissa carried out high-throughput screens where she had to set up 96 well cultures that were grown for four days prior to assaying the secreted enzyme activity. We discovered that minute errors in pipetting would severely impact the results, and thanks to Marissa's efforts, we also noticed that even small temperature changes in our incubators were affecting the outcome. The project is almost completed, we are preparing a manuscript to present the results of our screen later this year, and Marissa will be a co-author of the study. Marissa demonstrated exceptional planning and work ethic to carry out multi-day experiments and had an excellent grasp of the technical aspects of her work. During her term Marissa developed very strong analytical skills and was able to adequately analyze her results. I have been extremely pleased by her work and definitely rank her among the top undergraduate students who have worked in our lab.

Marissa is a mature student not afraid to take responsibilities and has a very nice personality making her easy to work with. The graduate student who directly supervised her was very

satisfied with her dedicated work and results. Marissa was an exemplary lab citizen, she does not leave a mess behind and she efficiently communicates with others if there is an issue with an equipment or reagent. I am very happy to see that Marissa joined a graduate program at UBC and is now transferring to the PhD stream. She is poised to become a successful and bright scientist and is a strong candidate for the UBC 4-Year Doctoral Fellowship award.

Yours Sincerely,

A handwritten signature in blue ink, appearing to read 'Thibault Mayor', with a stylized flourish extending to the right.

Thibault Mayor, PhD | Professor  
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