LEYA LUBARSKY

Bachelor of Pharmaceutical Sciences student

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A. EDUCATION

Institution and Location	Degree	Start Date MM/YYYY	Completion Date MM/YYYY	Field of Study
University of British Columbia, Vancouver	BPSc	09/2022	04/2026	Pharmaceutical Sciences

B. PERSONAL STATEMENT

I am a third-year undergraduate student in the Faculty of Pharmaceutical Sciences at the University of British Columbia (UBC) in Vancouver. With a personal history of neonatal lupus and second-degree heart block and familial struggles with severe Systemic Lupus Erythematosus (SLE), it is my mission to make a meaningful difference in the health and quality of life for those affected by chronic autoimmune disease. To date, my research experience has consisted of (1) investigating Chinook salmon seasonal and spawning-origin-related feeding habits through marine fieldwork and expert collaboration, and (2) gaining experience with basic organic and analytical chemistry techniques and more rigorous molecular biology *in vitro* assays–including recombinant protein engineering and bacterial cloning. My research interests currently lie in developing personalized nanomedicine strategies to improve the precision and reduce the side effects of current skin-related therapies, as well as in creating *ex vivo* models for yet-to-be cured autoimmune diseases, like Systemic Lupus Erythematosus. I ultimately aim to gain foundational research experience in the Pharmaceutical Sciences and Biomedical Engineering fields, along with in-depth knowledge of the petroleum industry, process engineering and industrial applications. My goal is to translate principles from macroscale oil and gas processing technologies into microscale fluidic platforms, organ-on-a-chip models and advanced pharmaceutical purification systems to ultimately enhance treatment and care for patients with autoimmune diseases.

C. RESEARCH EXPERIENCE

Student in Undergraduate Laboratory Courses, *UBC,* Vancouver, BC **Sep 2022 - Apr 2025**

CHEM 121, CHEM 123, CHEM 211, CHEM 235, PHAR 203, PHAR 304 and PHAR 307 Laboratories

Gained experience with organic and analytical chemistry techniques, and molecular biology *in vitro* assays–including small-scale distillation, crystallization purification, bacterial culturing, plating and transfection, PCR, DNA sequencing, DNA gel electrophoresis, SDS-PAGE, Western blotting, LNP and liposome synthesis, spectrometry, ELISA, immunofluorescence microscopy, kinetic/metabolic assays, NMR and HPLC-MS.

Of notable mention, E. coli cells were successfully engineered to express the amilCP recombinant protein–where the protein was subsequently purified, analyzed and confirmed. This project involved *in silico* and *in vitro* pUC19 vector design, bacterial culturing and plating, molecular cloning and verification of successful transformation via PCR and agarose gel electrophoresis. The expression of the amilCP protein was further confirmed via Sanger DNA sequencing, SDS-PAGE, ion-exchange chromatography, the Bradford assay and Western blotting. Extensive optimizations of bacterial growth conditions and competency were also performed, yielding optimal cell growth, high transformation efficiency and maximal amilCP protein expression.

Independant Research Project, *Shawnigan Lake School,* Vancouver Island, BC **Sep 2020 - Jun 2022**

Investigated the impact of environmental conditions and spawning origin (i.e., wild vs. hatchery) on Chinook salmon feeding habits off the coast of Vancouver Island, BC. Conducted fieldwork in collaboration with the head of the Mark Robson Hatchery, local marine experts and biologists at the University of Victoria to study seasonal feeding patterns of Chinook salmon throughout winter, spring, and summer. Worked with the Coastal Restoration Society to address the threat of European Green Crabs (EGCs) on Chinook salmon habitats.

Major outcomes included the identification of an age-, spawning origin- and season-based dietary shift in Chinook salmon. Juveniles and fish in colder months primarily consuming zooplankton and aquatic vertebrates, Palaeoptera and Trichoptera, while salmon in adulthood and warmer months fed on sand lance, herring, and small crustaceans. Hatchery salmon were consistently observed to feed on nutrient-rich pellets. During fieldwork, over 4,000 EGCs were removed from shallow eelgrass water near Sooke, British Columbia–directly supporting salmon habitats and promoting local ecosystem health. This research was presented to over 200 students, faculty and Shawnigan Lake community members, receiving an honourable mention for its depth and quality of execution.

D. AWARDS AND HONOURS

Year	Award or Honour	Institution or Issuer
2025	Margaret E. Barr Bigelow Memorial Scholarship	University of British Columbia, Vancouver
2024	Dean's List	University of British Columbia, Vancouver
2022	Governor General's Academic Medal of Canada	Government of Canada
2022	BC Achievement Scholarship	Government of British Columbia
2022	SLS Groves' All-Rounder Major School Award	Shawnigan Lake School, BC
2018 – 22	Academic Honour Roll	Shawnigan Lake School, BC
2018 – 22	Effort Based Academic Honour Roll (Dean's Dinner)	Shawnigan Lake School, BC

E. SKILLS/TECHNIQUES/LANGUAGES

Laboratory Skills

- Small-scale distillation, crystallization purification, bacterial culturing, plating and transfection, PCR, DNA sequencing, DNA gel electrophoresis, SDS-PAGE, Western blotting, LNP and liposome synthesis, UV-VIS spectrometry, ELISA, ion-exchange column chromatography, immunofluorescence microscopy, kinetic/metabolic and fluorescent microplate assays, NMR and HPLC-MS

Technical Skills

- Proficient in Microsoft Office, SketchUp and Canva
- Experience with R, SnapGene and GraphPad PRISM
- Skilled in reading, analyzing and critically appraising academic literature, publications and research articles
- Fluent in English (spoken, written, and typed)

Professional Skills

- Skilled in scientific writing, editing and design
- Dependable, organized and detail-oriented
- Excellent collaboration and teamwork abilities
- Strong scientific-analysis skills and problem-solving abilities

Values and Interests

- Humility, compassion and integrity
- Dedication to continuous learning, curiosity and innovation
- Research Interests include personalized nanomedicine for targeted skin therapies and development of ex vivo models for autoimmune disease

F. SCHOLASTIC PERFORMANCE

Year	Course Title	Precent Grade	Grade
2024	Pharmaceutical Cases I	95	A+
2024	Pharmacokinetics and Pharmacogenomics	91	A+
2024	Techniques in Molecular Biology and Pharmacology Theory and Laboratory	91	A+
2024	Systematic Pharmacology	88	A
2024	Organic Chemistry Laboratory	98	A+
2024	Clinical Epidemiology & Pharmaceutical Outcomes I	97	A+
2024	Pharmaceutical Topics and Communication Seminar II	93	A+
2024	Pharmaceutical Research	92	A+
2024	Drug Delivery Technologies and Personalized Medicine Theory and Laboratory	83	A-
2023	Introduction to Chemical Analysis	85	A
2023	Elementary Statistics for Applications	76	B+
2023	Biochemical Pharmacology	84	A-
2023	Introductory Immunology & Virology	81	A-
2023	Organic Chemistry for the Biological Sciences	72	B
2023	Pharmaceutical Topics and Communication Seminar I	89	A
2023	Thermodynamics, Kinetics and Organic Chemistry	82	A-
2022/23	Human Biology: Physiology and Introductory Anatomy	82	A-
2022	Integral Calculus with Applications	77	B+
2022	Structure and Bonding in Chemistry	80	A-
2022	Biology of the Cell	90	A+
2022	Writing and Research in the Disciplines	90	A+
2022	Differential Calculus with Applications*	N/A	TR*
2022	Introductory Psychology*	N/A	TR*

**Differential Calculus with Applications and Introductory Psychology courses are transfer credits (TR) granted by the University of British Columbia from Advanced Placement (AP) Calculus AB and AP Psychology courses taken at Shawnigan Lake School.*

G. REFERENCES

Alexander D. Smith, PhD (he, him, his)
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