

***The following is the essay written by Zeynab Asadi-Lari at the completion of her experience in the Gene Researcher For A Week program at UNBC.***

I always dreamt of becoming a researcher and luckily for a week, I had the opportunity to fulfill that dream in the best possible way. Being part of the GRFAW program was on my checklist since three years ago when I first heard about it, and I was so humbled to be one of 50 students across Canada to be selected for the program. My experience throughout the week was exceptional, both academically and personally; from novel techniques in the lab to the kind people of Prince George, this adventure was a huge step in my life. From the beginning of my journey, I had the chance to meet and talk with great people who ended up helping me in various ways. During my flight, I sat next to a woman named Gail who worked at the Prince George Citizen newspaper. After explaining about GRFAW, she became very interested and told me that a reporter will be at the lab very soon! Surprisingly, on Tuesday a reporter came by and took pictures that ended up on the newspaper! After all, it was a good feeling to be recognized, both for GRFAW and additionally for Dr. Lee's \$400,000 grant.

Aside of this experience, the most important part was definitely learning about Gene research and doing basic procedures in a lab. I have to admit that our host, Dr. Chow Lee, was the most kind, welcoming and inspiring researcher that I have ever seen. The first day was split into 4 sections, each dedicated to a grad student researching on a different project.

Sebastian, an MSc student at UNBC, talked about his research on the Molecular interaction between the Coding Region Determinant-Binding Protein (CRD-BP), an RNA-binding protein, and its mRNA targets. Chuyi, another grad student, explained her research on the study and screening for inhibitors of CRD-BP-KRAS RNA interaction using the Fluorescent Polarization method, which provides information on molecular orientation, and processes that modulate them. Sumreen, was working on the discovery of novel immunomodulatory compounds from British Columbia wild mushrooms. Her research included: Immuno-stimulation, adding mushroom to activate macrophages, therefore producing Tumor Necrosis Factor Alpha (TNF $\alpha$ ) to kill tumor cells. And Immuno-inhibition (anti-inflammatory), adding LPS (Lipopolysaccharide) to macrophages in order to increase TNF $\alpha$ , and then inhibit the production by adding mushroom. Finally Belal's research was on understanding the molecular interaction between CRD-BP and its oncogenic target mRNAs. He made us familiar with the enzyme APE-1 which cuts the mRNA to get rid of the cancerous proteins. We also attended a lab meeting, where a student was presenting his research on the structural elucidation of polysaccharides, identifying which compounds could effectively fight cancer.

On Tuesday, we first attended an Advanced Nucleic Acids class taught by Dr. Lee, and took lots of notes! Later, we extracted DNA from a mushroom which included a long procedure of using detergents, heat, trypan blue dye, buffers, and enzymes. To amplify the DNA, we carried out the PCR process the next day. However the process was long, but the results were very interesting and worth understanding. We ran the PCR product on the electrophoresis gel, and got amazing results. Dr. Lee also extracted genomic DNA from HepG2 hepatoma cells, which were completely visible- long swirly white strings of DNA! On Thursday we cleaned up the PCR products by using enzymes and buffers, and sent our sample for DNA quantification/sequencing. Following that, Sebastian explained another technique called Western Blot, which is used to identify specific amino-acid sequences in proteins. He talked about his journey and passion in research, and gave a lot of inspiring tips.

On Friday, Sumreen taught us another technique called ELISA (Enzyme-Linked Immunosorbent Assay) which is a test that uses antibodies and color change to identify a substance. However it was a day long

process, but I learnt that patience and hope is the key to success in researching. No matter what result we get, nothing should let us down and prevent us from trying harder.

In a nutshell, GRFAW gave me unique skills and experiences that is an advantage for my future path. Working alongside one of the best research teams, and exploring the city surrounded with warm people was grateful. Sharing this journey with a partner was as delightful and exciting, and I was lucky to have such a great lab host. The adventure is over, but what I learnt will never be buried in my past; I will use my knowledge to not only succeed in my studies and career path, but to also inspire many other students interested in Genetics research. GRFAW is definitely a bright window towards a successful path, and I hope that along many other great opportunities, we could build a bridge towards a new world of discoveries in Gene Research.