

Summer Internship Report 2017

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Hometown: Crown Point, Indiana



Biology Research Assistantship Sewanee, Tennessee

Provide an overview of the organization/research project and a summary of your responsibilities, tasks, and/or projects.

I worked for Professor Alyssa Summers in the Biology Department at Sewanee. I worked on her T Cell project along with Marq Schieber. This project focused on how the GIMAP family of genes is regulated by Hdac3. Understanding this regulatory pathway is important to potential Hdac3 inhibitor based cancer treatments. We maintained live cells in the tissue culture lab, performed PCR to amplify isolated DNA, verified primers with gel electrophoresis. When primers were successfully added to pgl3 vector and transfected into cells we grew colonies on agar plates overnight. This was followed by mini and mega prep and finally a luciferase assay. We cleaned, organized, and maintained the lab space. We ordered the products needed and had to keep inventory to stay ahead on what we need. We kept notes and wrote protocols. Additionally we prepared agar plates for the biology department.

During your internship, what did you accomplish or how did you make a difference? In what ways did you grow in your professional and technical skills?

With the help of my lab partner and Professor Summers, I designed and ordered primers for 3 GIMAP genes, amplified GIMAP DNA using Polymerase chain reaction (PCR) and then made agarose gels and ran the DNA in the gel to validate primers. We had to use various qiagen kits which involved precise measurements and detailed protocols. We also learned how to prepare and perform luciferase assays. Additionally we prepared various solutions for a pro seq experiment Dr. Summers plans to carry out in the future. I gained lots of practice with various lab techniques and used equipment like the centrifuge, PCR machine and autoclave. I learned how to be diligent and precise because it is necessary in the lab. I learned the importance of keeping a good journal and writing up proper procedures.

Describe a problem that you helped to solve at your internship. What skills or knowledge from your education at Sewanee helped you address the problem?

In order to correct a mistake we made during the day, I met my lab partner in the lab around 8 p.m. when we learned of our mistakes over email. It was a long, tiring night but we made sure we did everything right the second time. I feel my experience with lab classes I have taken and long nights I have spent studying helped me persevere through frustrating mistakes and failed experiments.

In what way were your teamwork skills strengthened?

During my two months in the lab I worked with my Lab Partner Marq and learned how to work seven hours a day in lab with another person on the same project. I learned how to divide tasks efficiently based on our respective strengths. Often Marq would work in tissue culture while I set up PCR reactions. We made sure we switched responsibilities so we both gained valuable skills and experience. Also I learned not to talk too much during procedures because this could lead to mistakes and confusion when measuring various small amounts of clear liquids.

How did your internship affect your career plans?

My experience showed me what research science is like. I learned how the hours are not predictable and how frustrating science can be at times. It gave me a foundation in some important techniques like pipetting, cell tissue culture and sterile technique, PCR, overnight colonies, and luciferase assays. I hope to continue down this path and continue my research with Professor Summers this Fall if it is possible.

In what ways did your internship cause you to encounter people of different backgrounds from your own? What steps did you take to communicate effectively with such persons? What did you learn from such persons' perspectives?

My research took place in Spencer at Sewanee. I mainly just worked with Marq and Professor Summers. I got along well with Marq and enjoyed getting to know him and work with him. I feel we have different backgrounds but fairly similar views and work ethics. We worked with an incoming freshman named Adam for a few weeks. We taught him some of the techniques we had learned. He had more conservative views and it was good talking to him. He worked hard and learned quick so we all worked together fairly well.

Words of advice for future interns (housing, transportation, etc.)?

Buy lots of fans if they still do not have AC in the dorm. Load up on food and find rides to grocery store.

Words of thanks to your internship funding donors:

Thank you very much for this opportunity. I enjoyed my time and feel I have a better idea of what research science is and can consider it more seriously for my future. I hope I can continue to work with Professor Summers during the school year.