

Ever since I was young, I have been constantly curious about life's mysteries and the nature of the universe. Despite my incessant desire to gain knowledge about the world around me, I had only scratched the surface of exploring the field of science, until I began taking biochemistry courses in college. As someone with a propensity for thinking logically and a tendency to be meticulous and persistent in any task, my curiosity was further ignited when I was able to participate in enriching studies of observation and experimentation.

My interest in biochemistry only increased in intensity as I took advantage of opportunities to learn more about the field. My first milestone was joining the Undergraduate Biochemistry Student Org and enrolling in courses to learn about lab techniques used by biochemists. Even though these opportunities familiarized me with the field of biochemistry, the biggest influence on my curiosity about biochemistry was participating in independent research at Dr. Tom Record's lab at the UW-Madison.

For my initial project, I studied the destabilizing effect of urea on DNA and protein by quantifying the effect of urea on the solubility of DNA bases and several base analogs. Due to issues concerning incubation time and the breakdown of urea, our data became untenable; thus, we developed a new assay requiring less incubation time. The new method quantified the effect of urea on the partitioning of DNA bases/analogues between a two immiscible layers. Although a bit discouraged, I steadily collected data sets one by one until we had enough data for a more detailed analysis. Furthermore, we still had to prove that our experiment produced consistent, valid data. In order to accomplish this, I repeated the experiments using another destabilizing solute, GuHCl, instead of urea. I also reproduced the previous results using a different experiment, Vapor Pressure Osmometry (VPO), to prove the validity of my data in yet another way. After three semesters of rigorous experimentation and two summers devoted to conducting independent research on campus, I had accumulated a great deal of quantitative data, which was shown to be reproducible. As a result of my dedication and perseverance, I am now in the process of submitting and publishing a research paper with my mentor, in collaboration with another lab at St. Olaf College.

From this experience, I learned many important lessons about research in biochemistry. First, I learned about the difficult nature of research and the persistence and patience necessary for success in a career in research. I also learned about how research labs operate and about the personal skills needed in order to communicate effectively in labs. Finally, I learned about the endless possibilities that are available to biochemists from talking to others in the lab to reading literature published in scientific journals. My research also granted me the opportunity to attend a biophysics conference where I could learn about research at other schools and also present my research as a poster. Ultimately, my hands-on experiences doing research in the lab solidified my decision to pursue a career in research in biochemistry.

Biochemistry is a vast subject of knowledge that encompasses and shares domains with other fields in science. My interest in biochemistry is derived from its flexibility in having many practical applications and its capacity to incorporate knowledge from other areas of knowledge. I am especially interested in pursuing an interdisciplinary path, especially at the interface of biochemistry and physics. My specific interests range from biophysical chemistry and nanotechnology to stem cells and neurobiology. My view is that the fusion of seemingly disparate fields in science is the key to unlocking the full

potential of future research. By furthering my educational career, I believe I can truly expand my opportunities and pursue my ongoing curiosities. My ultimate goal is to earn a PhD from a leading research university, to finish a post-doc, and then to work up to become a research scientist leading my own team at a biochemical company.