

# Why Cornell?

When I was eleven, I threw myself into an experiment that tested the effects of different concentrations of ammonium nitrate on plant growth for the science fair. I was so excited when a classmate's grandfather (who was a scientist) said my efforts had exceeded his expectations of a sixth-grade science fair. I had been immersed in the process; making the solutions and feeding them to the corn plants made me feel as though I was a "real scientist". I loved seeing how plants reacted to chemical interference, and developed a fascination with how organisms can be manipulated. I continued to explore this interest when I was accepted into a veterinary science class at the Chantilly Governor's STEM Academy in eleventh grade. The unit on parasites was my favorite because I loved learning about organisms that could alter neurochemical communication. In the context of rats, the protozoan parasite *Toxoplasma gondii*, causes them to be attracted to the smell of cat urine, which they are programmed to avoid. The parasite behaves in this way to increase the chances that a cat would kill the rat and eat it, allowing the parasite to transfer to a bigger, stronger host. I was already interested in the symbiotic relationships between parasites and organisms because of my passion for veterinary medicine, but learning about the *Toxoplasma gondii* exposed me to just how intricate these organisms can be.

My interest in science continues to grow, and Cornell's Biological Sciences program is the perfect fit for my aspirations because it will allow me to explore my interest in applying biochemistry to the veterinary field. I am excited to take "Laboratory in Biochemistry and Molecular Biology" because two of the main projects (protein purification and CRISPR mediated genome editing) are related to my long-term goal of becoming a veterinarian. Protein purification is utilized in veterinary medicine in order to further the development of cures for diseases, such as sepsis, which I was exposed to during my job at a vet clinic. I also want to take "RNA in Biology and Medicine" in order to understand the chemical structure and application of RNA, so that I can identify and create cures for viral mutations that occur in animals.

Another reason I am so intent on studying at Cornell is due to the wealth of research opportunities that align with my interest in chemical communication in cells. I would love to conduct research under Dr. Jun Liu, whose area of study is developmental processes and cell signaling. Dr. Liu's labs use *C elegans* nematodes in order to observe the different processes involved in cell division and signaling. Cancer and pathogenic viruses are very prevalent issues within animals, which affect cell signaling. Doing university-level research that delves into cell division and signaling will provide me with a more experimental perspective on the different ways cells communicate under the pressure of certain diseases and viruses.

## Why Cornell? (cont'd)

Beyond the classroom, I'm excited to find a community amongst the pre-vet society. I don't have many peers with whom I can discuss interesting veterinary matters (such as the *Toxoplasma gondii* parasite). This society is a great resource to learn about the different career paths and I'd be interested in learning what motivates someone to be a zoo vet versus, say, a travelling vet. I'm excited to take part in the pre-vet mentoring program--both as a mentee and eventually as a mentor. Being able to consult a peer who has just undergone, or is in the process of, applying to veterinary school will give the type of insight that is critical to making my dream of becoming a vet real. At Cornell, I plan to delve into Biochemistry and all of the experiments and research it entails, pursuing my intellectual curiosity to the fullest extent and becoming the "real scientist" that my sixth-grade-self dreamed about.