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CHEMISTRY

Kelci Burckhardt

The School of Natural Sciences and Mathematics at UAB includes the departments of biology, chemistry, computer and information sciences, mathematics, and physics. Each department offers outstanding opportunities for undergraduates to explore and perform research. One student who has been involved in these research opportunities is UAB junior Sonja Brooks.

Sonja's path towards chemistry was established before she arrived. She was nominated during her senior year in high school to apply for the Chemistry Scholars' Program. This program offers top incoming students the opportunity to be teaching assistants in undergraduate chemistry courses and complete undergraduate research alongside faculty mentors. Sonja has been a chemistry teaching assistant since the beginning of her freshman year and continues these duties teaching students in the organic lab.

During the summer after her freshman year, Sonja began her research experiences in the lab of David Graves, Ph.D., a biophysical chemist and the chemistry department chair. In Dr. Graves's lab, she worked on a project studying the binding of the dye ethidium bromide to G-quadruplex DNA. This complex has an intramolecular structure that has been shown to inhibit telomerase activity, which has become an interesting drug target in the field of oncology.

Continuing her research in Dr. Graves's lab throughout her sophomore year, Sonja was one of 317 students nationally to be selected as a Barry M. Goldwater scholar. She is the fifth UAB student to have received this honor, which is awarded to students who have conducted extensive research and intend to pursue a career in mathematics or the sciences.

After spending Christmas break in Germany with

extended family, Sonja decided she wanted to return over the summer, but also wanted to continue to gain research experience. Remarkably, her research advisor received a letter from the American Chemical Society about the Deutscher Akademischer Austausch Dienst (DAAD) summer internship program. She applied to three research projects that had been proposed by graduate students in Germany and was matched with her top choice—a three-month internship at the Max Planck Institute for Medical Research in Heidelberg, Germany. While there, she worked on characterization studies of the proteins involved in endocytosis, she used site-directed mutagenesis to change the proteins and then studied their interactions using isothermal titration calorimetry. While working on this project extensively during the week, she was able to travel throughout Europe on the weekends.

Along with her extensive research experience, Sonja is the president of the Student Affiliates of the American Chemical Society (SAACS), co-chair of the University Honors Program Activities Committee, and plays intramural soccer.

Sonja plans to continue her research next year as she works to graduate with honors in chemistry. Her plans are to attend graduate school for biochemistry and then to work at a leading research institution or university. Her experiences in undergraduate research have helped her to narrow down which field she wants to enter and have allowed her to learn lab techniques that will help her throughout her career.

Anyone interested in applying for the Goldwater Scholarship should visit the UAB Web site of the fellowships and scholarships office. Students interested in the DAAD-RISE program should visit <http://www.daad.de/rise>.