Eduardo Miranda
Graduation Year: Sophomore
College: Science
Major(s): Biology
Minors(s): none
Scholar Group Membership: no

Did you received other funding for this project?: College of Science
Could you have completed this project without CUSE funding? No
More details on CUSE funding assistance?

Project Title: AIM: Ancestry informative, transferable, and affordable DNA markers for Chestnut
Project Location: University of Notre Dame
ND Faculty Mentor: Dr. Jeanne Romero-Severson
Project Type: Research

Why did you undertake this project/experience? Deepen your knowledge of a topic or issue, Prepare for graduate school (MA or PhD), Prepare for national fellowships, Career discernment and/or preparation

Did your funded experience help you:
[Deepen your understanding of your coursework or field of study]: Very Much
[Discern your interests and post-bac goals]: Very Much
[Become confident in your ability to set and achieve your goals]: Yes
[Gain a more nuanced view of local, national, or global communities]: A Little
[Improve your written and verbal communications skills]:Yes

Tell us about your experience.
The research I focused on this summer aimed to ascertain the ancestry of up to 300 current cultivars of chestnut trees while developing a kit of AIMs (Ancestry Informative Markers) that will permit highly reproducible, scalable, and cost-effective genotyping of future promising chestnut germplasm. This research is of significance since it would allow future chestnut growers and breeders to improve the quality of their cultivars by identifying appropriate pollen parents and superior gene pools. My responsibilities this summer mostly involved doing the bench work pertaining to the development of the Ancestry Informative Markers. The project was handed to me in its early stages of development, thus I was in charge of getting everything up and running. By no means was I able to establish the ancestry of 300 current cultivars or develop a kit of AIMs, but that was not my goal for the summer. What I had hoped to accomplish during the 8 weeks in lab was the basic skills necessary to conduct research. Through my work with the chestnut project, I learned how to properly extract DNA, perform a PCR, and run a gel electrophoresis. Besides learning the basic bench work required in a genetics lab, I also learned the significance of each process and why they are necessary. All of this has has helped me become a better and more independent scientist.

Describe the impact this project had, both on you as a student-scholar and on the people you worked with.

My research on chestnut resulted in personal gain, but it also allowed advancements in the project. My work resulted in the verification of various chestnut primers and the confirmation that the Chestnut samples that will be used in this project are in good condition. Spending around 7 hours a day inside a lab has broadened my appreciation towards everyone who works on research. It takes an intelligent, attentive, and patient person to explore the various scientific problems tackled within a lab, and I am grateful to have had the opportunity to be one of those people for the summer.

Describe how this experience is connected to your plans as a student or future professional.

Although not always exciting, research is the forefront of medicinal and scientific discoveries and that is something I find exhilarating. The excitement that comes from knowing that you are working on a problem that has no clear answer and the growing experience that my summer allowed has swayed me to pursue a career in research. Thanks to this experience, I now have a clearer view of the career path I want to take. My goal is to get a PhD in Biology and focus on research that deal with human hereditary diseases. I believe that the research I did this summer has given me a solid foundation on human genetics since all the skills I've learned this summer with plant genetics are directly applicable to human genetics.

What advice would you give other students who are planning to pursue similar projects?

My one advice for other students wishing to pursue a similar project is to not be afraid of working with something that you know nothing about and to be willing to try something new. Genetics is something that I have always been interested in, but plant genetics was something I never thought I would be working on. Although I did not find working with plants interesting at first, I soon realized there was more to plant genetics than I originally thought. All the genetic and bench skills that are applicable towards plants are also applicable towards human genetics. I still find myself wanting to work with human genetics but I am grateful for having the skill and experience that working on plant genetics provided.

I acknowledge that this form has been filled out truthfully and to the best of my ability. I understand that this information will be shared with many different CUSE constituencies. As such, I have provided as much useful information as I was able. I understand that CUSE will not complete my award disbursement until this form is successfully completed. If I have any questions or concerns, I will contact CUSE before submitting this form. To illustrate that you understand all of these points, please enter your Notre Dame email in the box below.

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