

2023-2024 Outstanding Thesis Award Winner Michelle Hernandez



Michelle Hernandez

Michelle Hernandez was awarded the Outstanding Thesis Award for her biology thesis, *Qualitative Assessment of Human Embryonic- And Induced Pluripotent Stem Cell Derived Neural Stem Cells Under CGMP Methods*. She rose to the top in the Mathematics, Computer Science, Biological Sciences, Physical Sciences, and Life Sciences category against impressive competition. Her research applies Good Manufacturing Practices (cGMP) to various stem cell production methods to identify the processes that best meet quality and safety standards for use in therapeutic products. Hernandez and other researchers hope that incorporating cGMP into stem cell research early will help accelerate FDA approval for related therapies, getting effective treatments into the hands of those who need them.

Hernandez compared neural stem cells derived from two different cell lines, human embryonic stem cells and induced pluripotent stem cells. Quality controls focused on safety, stability, purity, and the cells' ability to differentiate into various neural cell types. As researchers learn more about the differences in specific strains of stem cells, they can identify best uses for regenerative treatments, paving the way for more reliable and effective treatments for patients with neurological conditions.

Hernandez is a California Institute of Regenerative Medicine (CIRM) scholar; the award allowed her to perform her research at the Stem Cell Research Center at U.C. Irvine under the guidance of Dr. Brian Cummings.

"I had to relocate to Irvine and was working seven days a week in the lab, often from 8:00 am – 8:00 pm. It's literally a 24/7 research lab. But I really enjoyed it. I was exposed to different people's fields and how they're contributing to science, which is really awesome."

With her master's degree in hand, Hernandez is looking forward to putting her knowledge into practice. She says that while she enjoys academia, her goal is to work in the field of manufacturing cell and gene therapies. "In industry I essentially would be contributing to societal work. I want to be the one who helps get those therapies to production."

Hernandez would like to acknowledge the financial support and training she received through CIRM, as well as the individuals who helped her during her academic journey.

"I want to acknowledge Dr. Bournias-Vardiabasis for really encouraging me to go forward with my research and enter the CIRM program, and I want to give a shoutout to my whole thesis committee for their support. I also want to thank my parents. They never stressed me out about anything. Instead, they were always there to listen."