

# A Fellowship for the Future: Dr. Daniela Soto's Award-Winning Bioinformatician Researcher



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This past February, Postdoctoral Researcher Daniela C. Soto received one of the most prestigious fellowships in biomedicine: the Hannah Gray Fellows Program, provided by the [Howard Hughes Medical Institute](#) (HHMI). This award is dedicated to launching the early careers of scientists in biomedicine who demonstrate exceptional performance. This year, the fellowship has rewarded 16 fellows across the country after a strict national selection process.

Soto shared with The Bottom Line (TBL) her professional journey and details of the research that this exceptional recognition will propel.

"I have a background in biological engineering. I studied that in my home country, Chile. And, at that point, I was not doing anything related to genetics or bioinformatics," said Soto, who began working towards her career at the Pontifical Catholic University of Chile. There, she studied Biological Engineering, a branch of engineering dedicated to "the study of biological processes to develop solutions for a wide variety of technical problems through the application of engineering principles," according to the [Institute of Biological Engineering](#).

"I was missing biology [during her Biological Engineering Major]. There was not enough biology. I wanted more. I had an amazing opportunity to work with a professor at my home university in Chile ... He offered me a position to work as a post-bacc [post-baccalaureate] research position in bioinformatics," leading her to her current field of research: bioinformatics.

According to the [National Human Genome Research Institute](#) (NHGRI), bioinformatics is a scientific subdiscipline that uses computational technology to collect and analyze biological data such as DNA. It is a field of study with multiple practical applications: "So basically, all this bioinformatics is all the skills necessary to analyze biological data of all time. This could help you study questions related to basic science about cell biology, how it works, and how the cell functions," said Soto, who developed her research in this field for five years in Santiago de Chile before moving to the United States.

Currently, her research focuses on the evolution of the human brain and that of living beings most similar to our species to identify characteristics unique to the human brain. "I want to know the genetic and epigenetic changes that have happened during the last six million years of human evolution. ... All these changes have massively increased our brain's complexity. And that allows us to acquire all these characteristics, for advanced cognition or, like, capacity for language," said Dr. Soto.

However, these characteristics unique to human brain development have also led to diseases and pathologies that are exclusive to our species and do not appear in other similar species. "There is a certain neuropsychiatric disorder, which is schizophrenia, that we don't see in other animals... By studying human evolution, I study both the evolutionary questions and pinpoint regions, the very specific genes relevant for these diseases unique to humans."

The Hannah Gray Fellows Program will help Dr. Soto propel her research to the next level, since HHMI is one of the largest private institutions dedicated to funding research in the biomedical sciences.

Specifically, the fellowship that Soto has been awarded focuses on supporting careers in their earliest stages of development. "It is great to have someone funding you because they believe in your idea. And then, having funding allows you to pursue those research questions with the support of a mentor as well, which is great because it also means the transition from a graduate student...to becoming an independent researcher." However, even at this stage of career development in academia, a mentor's guidance is necessary. Soto will work in Dr. Soojin Yin's laboratory. "It is great to have a mentor who is willing to support you and help you during this process of making your research program."

The Hannah Gray Fellows Program is not only a way to boost the early careers of young researchers, but it is also a great opportunity to increase the presence of women in STEM careers, especially within academia and research. "I really strive to change that," Soto said. "There are a lot of women who would love to do this, but just because of societal reasons they decide not to go that way."

Before concluding the interview, Soto shared some motivational words for all young scientists who wish to begin in the research world: "I think we might sometimes overemphasize the hard part of it but underestimate how amazing it is and how possible it is too. ... If you are interested in it, just start looking for opportunities early to research and get the experience."