

Advancing Autism Research and Care: Meet Dr. Angélica Torres-Berrío, A Passionate Scientist Exploring Stress, Genetics, and Brain Development

Dr. Angélica Torres-Berrío, PhD, joined the Lurie Center for Autism in 2023 as a member of the research faculty. Her laboratory specializes in understanding the relationship between environmental factors, such as stress, and the development of psychiatric and behavioral conditions, such as depression and autism spectrum disorder (ASD).

Please describe your area of expertise and why you chose to specialize in this area.

I work in a few different areas, but a central theme is studying how stress affects human health through regulating our genes. Genes are like special instructions in our body that tell it how to build things like proteins, which are important for making everything work properly. Things like stress or pollution can affect where, when, and how those DNA instructions get used. Even without changing the instructions themselves, these outside influences can turn genes on or off, through a process called epigenetics. Stressful events, especially when we're very young, can lead to biological changes that contribute to conditions like autism. I'm trying to figure out exactly how and why that happens.



Who do you admire and why?

I admire [Dr. Brenda Milner](#). She is a neuropsychologist at the Montreal Neurological Institute who first described the function of the hippocampus, an important brain region involved in memory. During the 1950s, she had a patient who had undergone an experimental operation to remove portions of his brain, including the hippocampus, to relieve severe epileptic seizures. The surgery was successful with respect to treating his epilepsy; however, he suffered severe side effects, including the inability to commit new events to long-term memory. Dr. Milner was among the first women working in a male-dominated hospital, during a period where women were rarely recognized in neuroscience. She pioneered the field of Neuropsychology. I think that's really inspiring!

What is the most rewarding aspect of your job?

Generating new ideas! Sometimes experiments work, sometimes they don't. That's the nature of science. But the ability to be creative when trying to solve a problem, the possible questions you might have, the ability to exchange ideas with other people, I think that that is really rewarding.

As a PI [Principal investigator/head of a lab], I think that training new people so that they can develop their own ideas, while at the same time, growing as a mentor and as a scientist is a very rewarding process!

When you're not in your lab doing research, what do you like to do?

I like hiking and trying different types of food. I also love traveling and I try to visit as many places as I can!

Do you have a favorite place you've traveled to?

Oof, it is so hard because each place has their own magic. I would say the places that I remember most are those places where I'm completely disconnected. I love places where I can say, "Ok there's no internet, there's no phone signal or traffic, so I can relax and have a good time."

Can you talk about what you were like in high school? How have you changed since then?

When I was in high school in Colombia, I visited a children’s shelter in Bogotá. I was startled to see children who looked like 6-year-olds but who were really 12 years old. It was very clear that the deprivation and adversity they had been through had profound developmental effects. I started wondering what their early years of life were like and how that had shaped them and all that they might miss on account of it. That's one reason why I decided to study psychology and human development. During my undergraduate studies at National University of Colombia, I realized that I wanted to study human development from a neuroscientific point of view. I became fascinated by how the brain develops.

Thinking about the future, what do you hope to see in terms of breakthroughs with ASD care and related conditions?

For me, one goal is to find better intervention strategies for individuals with ASD based on their particular challenges, whether it be anxiety, ADHD, or something else. In the clinic, some individuals may respond better to certain treatments and approaches, and currently it is hard for providers to tell who will respond and who will not. Identifying biological, physiological, or behavioral predictors–biomarkers– that could aid in providing more tailored treatments would be such a help.

Do you have a motto or a mantra that you live by?

I always remind myself that no matter what, there are moments in life in which are not under my control and that it is essential to find ways to solve problems.

If you could have one superpower, what would it be and why?

I'm a good predictor. I observe a situation and say, “Hmm, I think this is going to move in this direction” and sometimes it does! So, I think seeing the future would be my superpower!

This interview has been edited for length and clarity.

Thank you to Dr. Torres-Berrio’s interviewer, Ms. Sabrina Ladiwala, a Lurie Center for Autism Summer Undergraduate Intern, Class of 2024.