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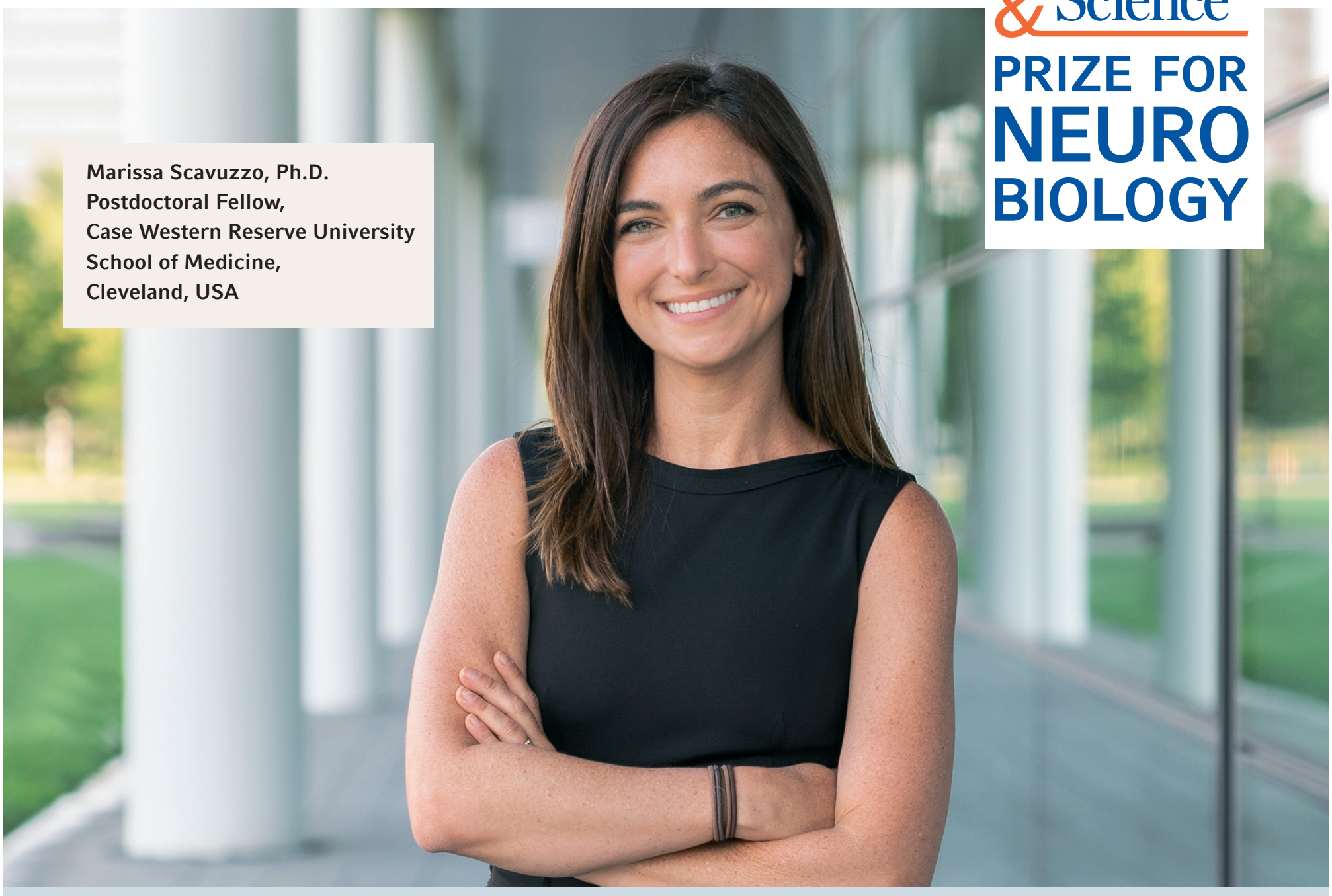
PRIZE FOR NEURO BIOLOGY



Marissa Scavuzzo, Ph.D.
Postdoctoral Fellow,
Case Western Reserve University
School of Medicine,
Cleveland, USA

2023 Winner: Marissa Scavuzzo, Ph.D.

Marissa Scavuzzo is a classically trained developmental biologist investigating glial cell diversity in the gut. Following degrees in neuroscience and biology from Baldwin Wallace University, she earned her Ph.D. with Dr. Malgorzata Borowiak at Baylor College of Medicine investigating the cellular and molecular mechanisms controlling pancreatic cell fate decisions. During her postdoctoral studies, she has combined her skills in single cell transcriptomics and gastrointestinal development with that of glial cell expert Dr. Paul Tesar at Case Western Reserve University School of Medicine. Her work, supported by the New York Stem Cell Foundation and the Howard Hughes Medical Institute, has paved the way towards an understanding of enteric glia in health and disease. Dr. Scavuzzo is passionate about equity, and aims to transform science education in public schools through the nonprofit Rise Up: Northeast Ohio.

Essay: The Way You Move

The intestine is unlike any other organ - hundreds of different cell types from every germ layer interact and respond to constant cellular turnover, nutritional stimuli, immune insults, microbiome interactions, and mechanical contractions. In the gut, a complex network of neurons and glia called the enteric nervous system, or the “second brain,” weave through every layer of gastrointestinal tissue from beginning to end. Enteric glia outnumber neurons and have recently emerged as crucial regulators of gut physiology. Do different subtypes of enteric glial cells exist, and if so, who are they and what do they do differently from one another? Working in the laboratory of Dr. Paul Tesar at Case Western Reserve University School of Medicine, Dr. Marissa Scavuzzo generated new technologies to map the diversity of enteric glia from every layer of the intestine. This revealed a functionally specialized mechanosensory subtype of enteric glia residing in the muscle layer called enteric glial “hub cells.” These results demonstrate that defined subpopulations of glia can execute unique gastrointestinal functions and emphasizes the need to understand how different subtypes of glia change in disease.

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