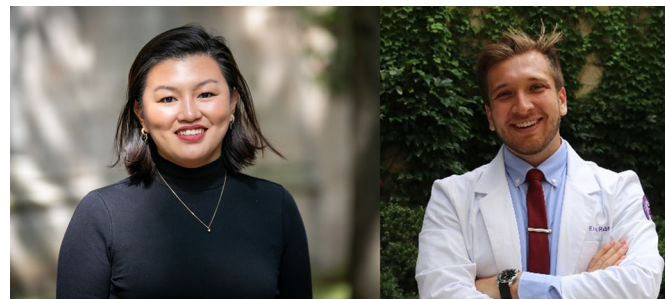


FIRST PERSON

First person – Anthea Weng and Erik Rabin

First Person is a series of interviews with the first authors of a selection of papers published in Biology Open, helping researchers promote themselves alongside their papers. Anthea Weng and Erik Rabin are co-first authors on 'Alpha-T-catenin is expressed in peripheral nerves as a constituent of Schwann cell adherens junctions', published in BiO. Anthea is a PhD student and Erik is an MD student in the lab of Dr. Cara J. Gottardi, PhD at the Feinberg School of Medicine, Northwestern University, Chicago, IL, USA, investigating the role of cell adhesion proteins in the manifestations of disease.



Anthea Weng and Erik Rabin

Describe your scientific journey and your current research focus

A. W.: I initially became interested in medical research after my grandmother's Alzheimer's disease diagnosis. Throughout my undergraduate career and first post-baccalaureate position, I worked on designing and characterizing single-chain variable fragments as therapeutic tools for models of Alzheimer's disease. These were extremely rewarding projects that helped me realize my passion for disease mechanisms and designing therapeutics. In my second post-baccalaureate position in the Gottardi lab, I studied the lung's repair mechanisms following an injury, specifically examining the lung's resident stem cell population and their regenerative capacity which I hope to continue throughout my PhD career.

E. R.: I've always been interested in science and diving deep beyond what is known on the surface. In college my academic training was in biology and biochemistry with the intent to pursue a career as a physician researcher. As an undergrad, I fell in love with bench science and I joined Dr. Cara Gottardi's lab at Northwestern University to understand the role of an understudied cell-cell adhesion component linked to asthma. As a medical student, my exposure to the study of disease within the classroom and hospital has inspired me to continue investigating the biology of disease with the goal of improving the health of the patients I see daily. My current research focuses on understanding the function of the adhesion protein alpha-T catenin and its many connections to disease.

Who or what inspired you to become a scientist?

A. W.: I was originally inspired to pursue biomedical research by my grandmother's Alzheimer's disease diagnosis. She was one of the first examples I had of a resilient, independent woman and she always encouraged me to pursue my dreams.

Additionally, throughout my research experiences, I have been fortunate to have a host of amazing mentors including Dr. Gottardi who have inspired me with their outstanding dedication and leadership. They have helped to shape me into the scientist I am

currently as well as paving the path for the scientist I hope to be in the future.

E. R.: Throughout my life and training I have been thankful for the support of my parents who have always encouraged me to keep asking questions, but also to look for answers. As an undergraduate, I was lucky to join Dr. Gottardi's lab, who has been a very inspiring mentor who understands what it means to be a student, but also taught me what it takes to be a scientist, and always inspired me to approach problems from new angles when I ran into barriers.

How would you explain the main finding of your paper?

We show that a cell connecting gene that is found in nerves and their surrounding supporting cells may play key roles in the basis of many diseases, including those of the nervous and respiratory systems.

What are the potential implications of this finding for your field of research?

A number of diseases are associated with mutations in the *CTNNA3* gene, including asthma, autism and multiple sclerosis, but it has been puzzling to rationalize these disease links through the few cell types where we know *CTNNA3* to be expressed. Our study shows α T-catenin, the protein encoded by the *CTNNA3* gene, is found in nerves, particularly the insulating component of these structures. This simple finding is exciting, because it offers a new way to think about how α T-catenin dysfunction may lead to these various diseases. Our study also opens up a new area of research for patients living with α T-catenin mutations or these diseases.

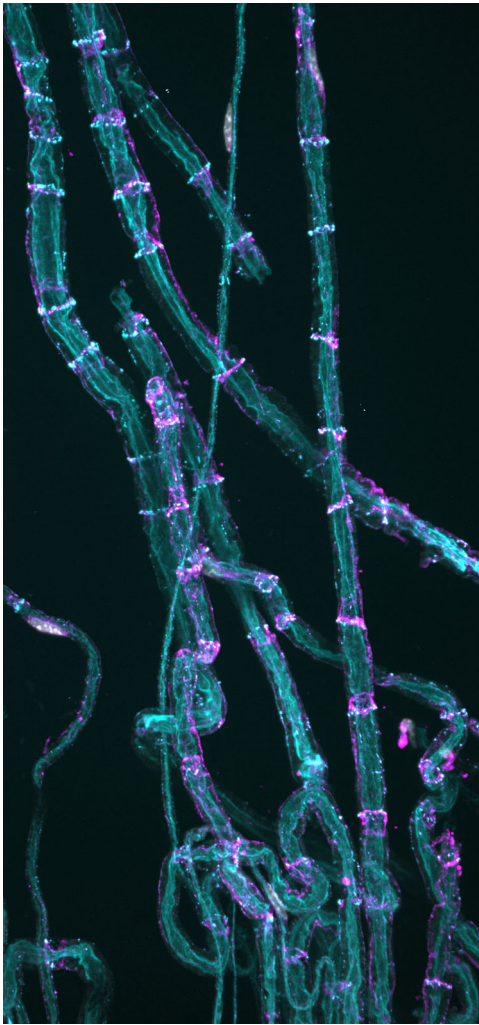
"This simple finding is exciting, because it offers a new way to think about how α T-catenin dysfunction may lead to these various diseases."

Which part of this research project was the most rewarding?

A. W.: The most rewarding part of this project was discovering the presence of α T-catenin in the Schwann cells, which validated our initial hypotheses. This also opened the door for future collaborations with other physician-scientists who reached out to us during the initial stages of the study about patients with *CTNNA3* mutations. It's been equally rewarding to know that this study might better inform physician-scientists about their patients as well as

Anthea Weng and Erik Rabin's contact details: Northwestern University Feinberg School of Medicine, 303 East Superior Street, Simpson-Querrey 5th Floor, 525, Chicago, IL 60611, USA.
E-mail: anthea.weng@northwestern.edu; erik.rabin@northwestern.edu

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Representative confocal image of sciatic nerve sections from adult 8-12 week-old *Ctnna3*^{WT} mouse.

paving the way for research regarding *CTNNA3* -associated diseases.

E. R.: In school, I was always most interested in the lab over textbook learning. There is something special about working with specimens in science. The answers to the questions are in the tissues in front of us, and it's through our techniques and problem solving that we can solve them. This project took place over many years, including large setbacks due to the Covid-19 pandemic. However, after coming back to the lab and pushing through, it was exciting when we were able to validate the presence of α T-catenin in the adherens junctions of the Schwann cells.

What do you enjoy most about being an early-career researcher?

A. W.: I enjoy getting the opportunity to learn and collaborate with a great network of researchers. No matter the discipline, I always feel like I have the opportunity to both learn from and teach other well-versed scientists at Northwestern University. I also love being able to design unique methods to scientific problems by combining my previous neuroscience experiences in a pulmonary context. It has pushed me to think more creatively and analytically about diseases and possible therapeutic tools.

E. R.: As a medical student and researcher, I have the opportunity to work with patients living with disease as well as studying that same illness. This is a very humbling experience that adds a face to the pathology and reiterates the importance of research to improve the lives of these individuals. At the same time, it's very exciting learning about current science and new therapies being developed. Every day I am equally impressed and humbled by the amount of research and knowledge being discovered. There is always something new to learn and something that needs to be solved.

What piece of advice would you give to the next generation of researchers?

A. W.: Be humble and persistent in your research. Especially a young trainee myself, it is important for myself to listen and learn from everyone I encounter, regardless of research field or position. Research is a non-linear journey with plenty of highs and lows that often requires a persistent attitude and a passion for scientific discovery.

E. R.: Find a field that you are passionate about and run with it. Think about what excites you to learn more about and start from there. Research is tough and experiments often don't go the way you expect them to. If you find a field that you care about and see the larger goal, you will learn more and contribute more to the field.

What's next for you?

A. W.: I am a first-year student in Northwestern's Driskill Graduate Program in Biomedical Sciences and I'm interested in a career in academic research as a primary investigator.

E. R.: I am currently in my third year of medical school pursuing a career in Trauma surgery or OBGYN with a goal of going into academic medicine.

Reference

Weng, A., Rabin, E. E., Flozak, A. S., Chiarella, S. E., Aillon, R. P. and Gottardi, C. J. (2022). Alpha-T-catenin is expressed in peripheral nerves as a constituent of Schwann cell adherens junctions. *Biol. Open* 11, bio059634. doi:10.1242/bio.059634