

NEWS

Spectrum Launch: What the earliest early-career researchers contribute to the autism field

BY ANGIE VOYLES ASKHAM

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When Silvia De Rubeis was offered the chance to host a high-school intern in her lab, she didn't hesitate to say yes.

De Rubeis, associate professor of psychiatry at the Seaver Autism Center for Research and Treatment in New York City, knew that early research experience can have monumental effects on a young scientist's career path. But she wondered what, exactly, someone with a high-school biology background could take on. Her lab studies how mutations to the gene **DDX3X** lead to intellectual disability, motor difficulties and autism — work that involves experimental techniques that take years to master.

Instead of starting with anything quite so hands on, when Sylvia Maxwell joined the lab as a high school sophomore in 2019 — a requirement for a course she was taking — De Rubeis focused on offering her “a glimpse into the scientific process — how challenging but also rewarding it is,” De Rubeis says.

“I don't expect them to come on board and master techniques or come up with a hypothesis,” she says. “To me, what's important is that they are genuinely engaged.”

That engagement is a two-way street, though, Maxwell says.

Maxwell excelled in science in school, but when she had dipped her toes into science competitions in the past, she had felt out of place. Her time in the De Rubeis Lab changed things, she says. “Everyone in the lab was really helpful and empowering me to get involved.”

One memory in particular sticks out, Maxwell says. She joined the group for a scientific talk at the

Seaver Center, and De Rubeis and the other lab members offered her a literal seat at the table — coaxing her to the front of the room with prominent scientists Maxwell recognized from posters hanging at the front of the building.

By the time she graduated from high school, despite pandemic interruptions, Maxwell had prepared images of brain tissue and, using measurements she had taken of mouse footprints, helped to compare gait patterns in wildtype animals and those that harbor a DDX3X mutation. Her work landed her as a co-author on the lab's **article** outlining the findings, and surpassed De Rubeis' expectations.

"I was just an intern," Maxwell says. "But I still was regarded as an important part of their study. And I think that that's something really special."

Maxwell also says her time in De Rubeis' lab changed her understanding of what research is — revealing the creativity that goes into scientific experiments. And now, in her second year at Wesleyan University in Middletown, Connecticut, she's studying neuroscience and daydreams of having her own lab one day.

High schoolers in a **supportive research environment** can continue their work as undergraduate researchers, as Maxwell plans to do.

When young researchers, particularly those from backgrounds historically underrepresented in science, are engaged at that level, they are not only jump-starting their own careers and improving their skills — they are also helping to build a new pipeline of future researchers who might not have been there otherwise, De Rubeis says.

Book of the month:

Silvia DeRubeis recommends **Neurocomic**, a graphic novel about the brain that she recently read with her children.

Jobs, trainings and funds:

- It's time to apply for summer programs! A course called **Autism Spectrum Disorders**, set to take place 26 July to 1 August 2023 at the Cold Spring Harbor Laboratory in New York, is now taking applications.
- Current undergraduate students can apply for the Autism Science Foundation's **2023 Summer Research Fellowship in Autism Spectrum Disorders**.
- Applications are also open for the **Summer Research Internship Program** at the Center for Cell and Gene Therapy at Baylor College of Medicine in Houston, Texas — a 10-week program designed to provide undergraduate and medical students with laboratory experience.

- And recent or soon-to-be college grads can apply for the Max Planck Florida Institute for Neuroscience's **Postbaccalaureate Program**, a year-long research opportunity that starts 16 July 2023.
- Recent grads can gain research experience by working as a lab technician, tweeted **Jessica Bolton**, assistant professor of neuroscience at Georgia State University in Atlanta, and her lab is hiring for that role.

Did you (or someone you know) recently graduate, or are graduating soon, and are looking to gain some more research experience before applying to grad school? ??? We are looking to hire a lab tech, to start sometime between now and May, and would love to talk to you!

Please RT! pic.twitter.com/IRBOLB7cSJ

— Dr. Jessica L. Bolton (@JessicaLBolton) **January 27, 2023**

- King's College London in the United Kingdom is planning to fund multiple **Ph.D. studentships** for researchers in a variety of fields, including neuroscience, psychology and biology.
- The Society for Neuroscience is taking applications for its **Neuroscience Scholars Program**, an online training program aimed at boosting careers and building community for underrepresented graduate and postdoctoral researchers.
- Johns Hopkins University recently updated its database of **postdoctoral funding opportunities**, including specific information for neuroscience and neurology researchers.
- **Giulia Quattrocchio**, group leader at the Kavli Institute for Systems Neuroscience in Trondheim, Norway, tweeted that she is **hiring for two positions**: a postdoctoral researcher to work on developmental neurobiology and a Ph.D. candidate to conduct research in synaptic neuroscience.

We are hiring! We have 2 open positions (1PhD and 1 postdoc). If you want to unravel the secrets of neuronal wiring, join the **#QuattrocchioLab @KISNeuro**. Info on Jobbnorge and lab website. Links in thread! pic.twitter.com/6LGFAIFwKw

— Dr. Giulia Quattrocchio (@GQuattrocchio) **January 25, 2023**

- **Paola Arlotta**, professor of stem cell and regenerative biology at Harvard University, is hiring a **research associate** to study the molecular underpinnings of brain development in her lab.
- For those looking for faculty jobs, the University of California, Riverside is hiring for a **tenure-track position** in the Division of Biomedical Sciences.
- The University of Minnesota, Twin Cities, is also hiring at the **associate/full professor** and **assistant professor** levels for its neuroscience department.

Recommended resources:

- Ph.D. training needs to be updated for the modern world — including better support for trainees and more focus on cross-disciplinary work and collaborations, according to a *Nature* **editorial** from last month.
- Another way to update that training? Engage Ph.D. students in preprint review, writes **Richard Sever**, assistant director of Cold Spring Harbor Laboratory Press in New York and co-founder of the preprint servers bioRxiv and medRxiv, in a separate *Nature* **article**.
- Some **self-reflection** can help Ph.D. candidates figure out the career that best suits them, tweeted **Julia Grzymkowski**, a toxicology Ph.D. candidate at North Carolina State University in Raleigh.

What I wish someone had told me as I started my PhD: While you're completing your various job duties (bench work, writing, teaching, etc), focus on how they make you FEEL (joy, dread, curious, etc)

(1/2)

— Julia Grzymkowski (@JKGrzymkowski) **January 26, 2023**

- And for researchers transitioning to careers outside of academia, here is a list of **mistakes to avoid**.

1. I believed in "publish or perish." I took it too literally and assumed my 17 pubs would get me a job. They didn't.

— Academic Exit (@academic_exit) **January 9, 2023**

- Early-career researchers in Australia are largely unhappy with their jobs, with more than 75 percent of respondents saying that it's a bad time to start a career in science, according to a new **survey** reported in *Nature*. Although academia has problems worldwide, Australian researchers may be facing a particularly difficult problem of supply and demand, the article suggests: The country confers a large number of Ph.D.s each year in relation to the available academic jobs, and research funding in the country is low.
- The International Society for Autism Research's Student and Trainee Committee published a special edition of its **newsletter** to highlight some of the committee's work over the past year, including insights from their Meet-the-Experts event.
- Researchers can improve their academic writing by following a few **guidelines**, including using separate paragraphs for different points and summarizing each paragraph in the opening sentence, wrote **Matteo Carandini**, professor of neuroscience at University College London in the United Kingdom, in a December commentary for *eLife*.

Lab traditions:

Brittany Lasseigne, assistant professor of cell, developmental and integrative biology at the University of Alabama at Birmingham, tweeted about a **special tradition** that she has implemented in her lab.

For preprint posting (the thing we can control), I print 1st page on heavy sparkly card stock and ask the coauthors to all sign it. We then post it on the bulletin board in the hall outside of the lab.

— Brittany '@bnlasse@genomic.social' Lasseigne, PhD (@bnlasse) **January 19, 2023**

Are you using generative artificial intelligence, such as ChatGPT, in your work? Let us know for a future newsletter!

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