

NEWS

# Community Newsletter: Sex bias; synapse formation; gene convergence

BY MICHAEL FERGENSON

4 DECEMBER 2022

Three new threads on autism research snagged a multitude of congratulatory tweets this week. Let's dive right in!

One 16-part thread, from **Alessandro Gozzi**, senior scientist at the Italian Institute of Technology in Rovereto, Italy, describes a mechanism behind autism's sex bias, presented in a **preprint** his team posted on bioRxiv this month. "Here we investigated a well-known autism-risk gene called **Ube3A**," he tweeted to kick the thread off.

Ub3A is an interesting gene because of its dual function.

Specifically, Ube3A is 1? a ubiquitin protein ligase i.e. it controls protein degradation & recycling.

But Ube3A 2? also controls gene transcription. This second role has been largely understudied...

3/n [pic.twitter.com/ijE7x8TFB0](https://pic.twitter.com/ijE7x8TFB0)

— Alessandro Gozzi (@Gozzi\_Ale) **November 14, 2022**

"Our data suggest that **Ube3a overdose** may contribute to sex-bias in neurodevelopmental conditions via influence on sex-differential mechanisms," Gozzi concluded.

Many thanks to [@HereCaterina](#) [@MarcoPagani1985](#) [@e\\_deguz](#) for leading the project [@YuriBozzi](#) [@LabPasqualetti](#) and the many twitterless coauthors for help and input. And very grateful to [@SFARlorg](#) [@ERC\\_Research](#) [@IITalk](#) for funding this research

16/16

— Alessandro Gozzi ([@Gozzi\\_Ale](#)) **November 14, 2022**

**Thomas Nickl-Jockschat**, associate professor of psychiatry at University of Iowa in Iowa City, called the results exciting and thanked Gozzi “for letting me be a **part of this collaboration.**”

Exciting new results! Thanks for letting me be a part of this collaboration, [@Gozzi\\_Ale](#)!  
<https://t.co/DRzN1BXYMY>

— Thomas Nickl-Jockschat ([@jockschat](#)) **November 23, 2022**

“Great thread and **fantastic work!**” tweeted Veera Rajagopal, a scientist at the biotechnology company Regeneron Pharmaceuticals in Tarrytown, New York.

Great thread and fantastic work! <https://t.co/MOGfTzaRv6>

— Veera M. Rajagopal ([@doctorveera](#)) **November 15, 2022**

Another multi-part thread began with a question: “Are all **synapses created equal?**” asked **Oscar Marín**, professor of neuroscience at the Centre for Developmental Neurobiology of Kings College London in the United Kingdom.

2/8 We approached this question by investigating the wiring of PV+ and SST+ interneurons

in the mouse neocortex. These cells have highly related developmental trajectories but play very different roles in adulthood, making them an attractive model for studying synapse specificity [pic.twitter.com/UJfehsMxxq](https://pic.twitter.com/UJfehsMxxq)

— Oscar Marín (@MarinLab) **November 24, 2022**

“We approached this question by **investigating the wiring** of PV+ and SST+ interneurons in the mouse neocortex,” Marín’s tweetstorm continued, explaining his **research** on parvalbumin and somatostatin cells that appeared in *Science* on 25 November.

Marín summarized the results, tweeting, “Local protein translation is regulated at the level of specific connections to **control synapse formation** in the nervous system.”

7/8 In sum, local protein translation is regulated at the level of specific connections to control synapse formation in the nervous system. Funded by [@IHIEurope](#) [@Aims2Trials](#) [@SFARlorg](#) and brought to you by the amazing talent of [@clembrnd](#) [@DExpositoAlonso](#) [@MartijnSelten](#) et al [pic.twitter.com/GmhudTDZ16](https://pic.twitter.com/GmhudTDZ16)

— Oscar Marín (@MarinLab) **November 24, 2022**

**Clémence Bernard**, a research associate in Marín’s lab, shared an illustrated “**recap of the conclusions** of the paper by the multitalented [@brainotopia](#).”

A recap of the conclusions of the paper by the multitalented [@brainotopia](#): you need to translate to connect! [pic.twitter.com/puJ13rCNKQ](https://pic.twitter.com/puJ13rCNKQ)

— Clem Bernard (@clembrnd) **November 24, 2022**

“Excitatory synapses arising from the same presynaptic neuron on sst INs and pv INs have different properties. **Now we know how!!!**” tweeted **Jai Polepalli**, assistant professor of anatomy at the National University of Singapore.

Excitatory synapses arising from the same presynaptic neuron on sst INs and pv INs have different properties. Now we know how!!! <https://t.co/F6nB6j2HSg>

— Jai Polepalli (@JaiPolepalli) **November 24, 2022**

**Liset M de la Prida**, director of the Laboratorio de Circuitos Neuronales at the Instituto Cajal in Madrid, Spain, wondered “whether **similar mechs are at play** in the dorsal CA1 hippocampus, where PV+ and SST+ interneurons connect differently with deep and superficial pyramidal cells.”

I wonder whether similar mechs are at play in the dorsal CA1 hippocampus, where PV+ and SST+ interneurons connect differently with deep and superficial pyramidal cells. Beautiful work [@MarinLab](#) [@Rico\\_lab](#)!! <https://t.co/8GUPj1gEwT>

— Liset M de la Prida (@LMPrida) **November 26, 2022**

Other scientists on Twitter lauded another autism-linked **study**, published 22 November in *Cell Reports*. Nadeem Murtaza, a postdoctoral researcher at McMaster University in Hamilton, Canada, who led the work, “used proteomics to screen 41 **autism risk genes**, finding convergence between the genes,” tweeted **Karun Singh**, associate professor of biochemistry and biomedical sciences at the university and Murtaza’s adviser.

Sharing a study led by Dr. Nadeem Murtaza [@Nadeem\\_M13](#). He used proteomics to screen 41 autism risk genes, finding convergence between the genes. Congrats to co-authors, and thank you to our long-standing collaborators. [@UHN\\_Research](#) [@LMP\\_UofT](#) <https://t.co/LBjxSWA67C>

— Karun K Singh (@karunsinghneuro) **November 22, 2022**

“Very impressive paper ... on protein-protein interaction networks for **41 autism linked proteins** showing (among many other things!) that #mitochondria are a common feature,” tweeted **Julien**

**Courchet**, a researcher at Institut NeuroMyoGene in Lyon, France.

Very impressive paper now out in **@CellReports** on protein-protein interaction networks for 41 autism linked proteins showing (among many other things!) that **#mitochondria** are a common feature. Congrats to the authors <https://t.co/JV1gYXRUR6>

— Julien Courchet (@JCourchet) **November 23, 2022**

That's it for this week's Community Newsletter! If you have any suggestions for interesting social posts you saw in the autism research sphere, feel free to send an email to [michael@spectrumnews.org](mailto:michael@spectrumnews.org).

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