NEWS

Autism gene’s loss hampers neurons’ trek through developing brain

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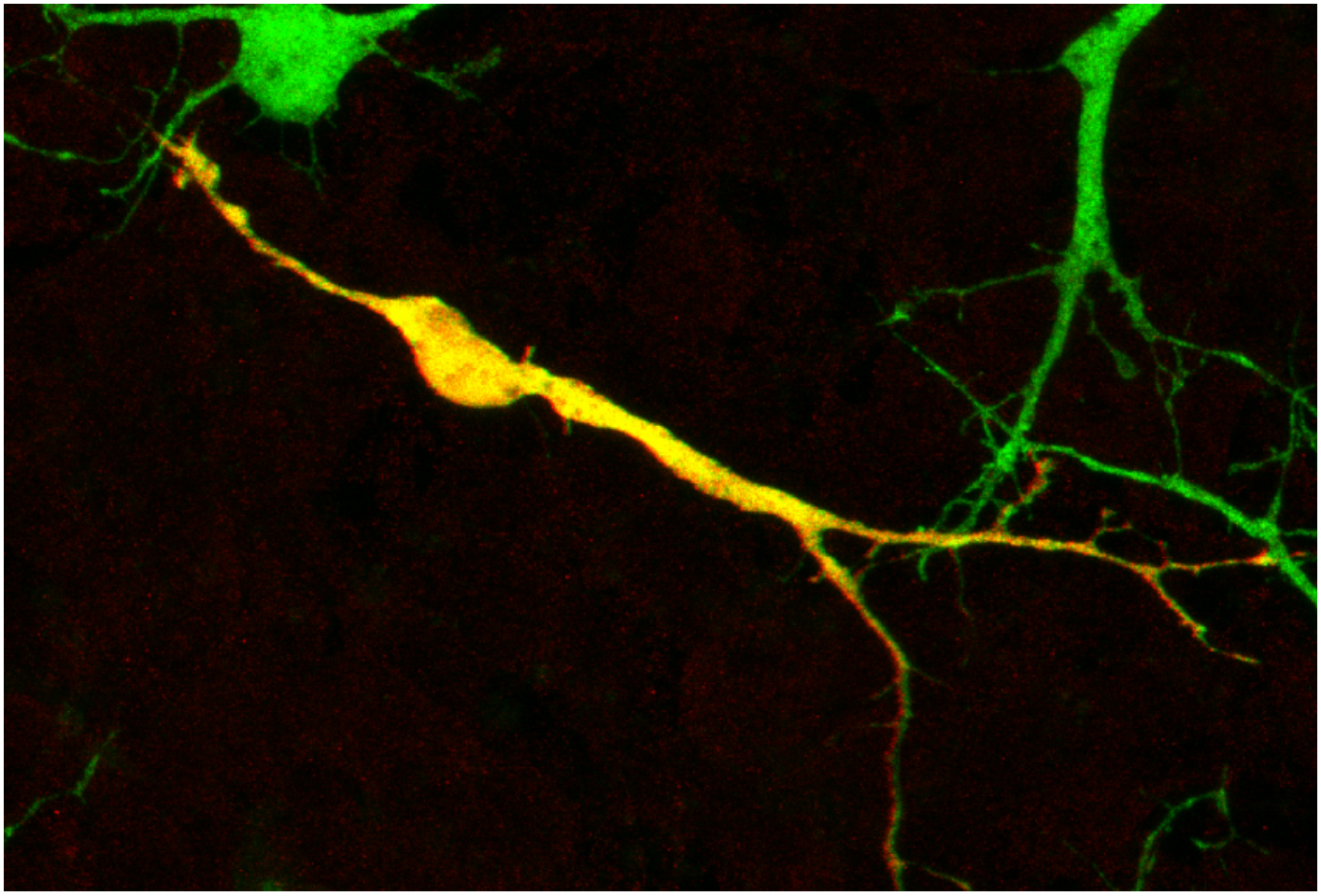

Deleting an autism gene called TRIO derails certain neurons’ journey to their destination in the brain. These neurons typically keep brain signals in check, so adolescent mice missing the gene have an excess of brain activity and experience seizures.

Researchers presented the unpublished findings today at the **2019 Society for Neuroscience annual meeting** in Chicago, Illinois.

“We have revealed a new model of genetic neurodevelopmental disorders,” says Lara Eid, a postdoctoral fellow in **Elsa Rossignol**’s lab at the University of Montreal in Canada, who presented the findings. The work paves the way for scientists to test the effects of other genetic variants seen in people with **epilepsy** and autism, Eid says.

TRIO balances the activity of two enzymes that together control how neurons grow and migrate during fetal development. Variants in the gene have turned up in people with autism, epilepsy and intellectual disability. And the enzymes TRIO regulates — RhoA and Rac1 — are **affected by multiple autism genes**.

Eid and her colleagues bred mice that lack TRIO in interneurons, a type of neuron that dampens brain signals. **Impairments in interneurons** have turned up in autistic people and several animal models of the condition.

Interneurons are born deep in the developing brain and then travel to the cortex — the brain’s outer layer. They form branches and connections with other neurons along the way. The migration and branching process is controlled in part by the activity of RhoA and Rac1.