

NEWS

New mouse brain atlas traces connections in fine detail

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A new wiring diagram of the **mouse brain** could help autism researchers better study how the brain's connections vary in mice with different genetic backgrounds.

Researchers presented the findings virtually yesterday at the **2021 Society for Neuroscience Global Connectome**. (Links to abstracts may work only for registered conference attendees.)

“This atlas — template — will let us expand our mapping of brain connectivity and how it is driven by the underlying genetics,” says **G. Allan Johnson**, professor of radiology at Duke University in Durham, North Carolina, who presented the work.

Researchers have long labored to create a map of all of the connections in the mouse brain — known as a ‘connectome.’ Studies suggest that brain regions are **connected differently** in autistic and non-autistic people, but just how they diverge is still unclear.

The new work leverages diffusion tensor imaging — which maps water molecules in the brain's white matter — to trace connective fibers in mouse brains in greater detail than was previously possible.

The researchers stained and preserved the brains inside the skulls before scanning them, reducing the distortion that can occur when brains are stained and preserved after removal.

The resolution of the resulting atlas is 15 microns — 15-millionths of a meter. Magnetic resonance imaging scans typically used in a clinical setting have a resolution of about 2 millimeters, or 2,000 microns, Johnson says.