


Autism spectrum disorder

<https://doi.org/10.1038/s41684-025-01583-8>

# Understanding the roots of social avoidance in autism

 Check for updates

People with autism can have unusual responses to 'affective touch,' which conveys social and emotional information. A study in mice provides new insights into the neural circuits involved in social touch and how they are affected in conditions like autism spectrum disorder (ASD).

To understand how mice experience and respond to social touch, the investigators used their recently developed social touch assay, in which a head-fixed test mouse is allowed to run on a polystyrene ball while being exposed to either an inanimate object (50mL plastic tube) or a stranger mouse. Analysis of behavioral responses (such as facial expressions and locomotion, monitored by cameras) indicated that mice preferred social to non-social (object) interactions,

and that forced touch was more aversive than voluntary touch.

The team also exposed TRAP2 mice—transgenic mice in which the expression of tdTomato is driven by the cFos promoter—to the social touch assay, prior to brain analysis 72h later. Histological analysis revealed that tdTom expression was higher after social touch vs object touch in several brain regions such as the vibrissal somatosensory cortex (vS1), the tail of the striatum (tSTR) and the basolateral amygdala (BLA), which are known to be involved in social behavior.

Subsequently, the researchers implanted Neuropixels probes in the brain of mice to record simultaneously from the vS1, tSTR and BLA during exposure to either social or object touch under voluntary or forced conditions.

The results showed that vS1 and tSTR neurons were mainly modulated by touch context (social vs. object), while higher tSTR neurons and BLA neurons changed their preference depending on touch choice (voluntary vs. forced).

By contrast, *Fmr1* knockout (KO) mice, a model of autism, found social and non-social interactions equally aversive, and their cortical/striatal neurons were less able to discriminate social from non-social touch during voluntary interactions.

Altogether, these results suggest that reduced ability to discriminate social from non-social touch at the circuit level might explain the reduced social interest in ASD.

**Alexandra Le Bras**

**Original reference:** Chari, T. et al. *Nat. Commun.* **16**, 4600 (2025)

## Be Brilliant.



Hilltop Lab Animals, Inc

Lab Animals

SURGICAL SERVICES

CRO SERVICES

Hilltoplabs.com

800-245-6291