Study reveals link between autism and gut microbiome in mice

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Abstract

Autism spectrum disorder is a developmental disorder for which effective pharmacological treatments are currently limited. One promising candidate for treatment, however, is the gene EphB6. which, among other things, helps regulate the gut microbiome. To explore EphB6's link to both the gut microbiome and autism, researchers deleted the gene from the genome of mice. That deletion induced autism-like behavior relative to mice retaining the EphB6 gene, including spending more time on self-grooming and showing a lower preference for mouse "strangers." Deleting EphB6 also altered the composition of the mice's gut microbiome, decreasing the abundance of certain bacteria. Interestingly, transplanting the fecal microbiota of EphB6-deficient mice into certain wild-type mice induced autism-like behavior. Meanwhile, transplanting the fecal microbiota from wild-type mice to EphB6-deficient mice seemed to reduce autism-like behavior. Further experiments linked EphB6 deletion to vitamin B6 and dopamine defects. Altogether, these findings could point to new strategies for understanding and treating autism spectrum disorder.