

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder which is characterized by several symptoms including social deficits and stereotyped or repetitive behaviors. The causes of ASD remain largely unidentified. However, many risk factors have been identified, including genetics, prenatal, perinatal and environmental factors.

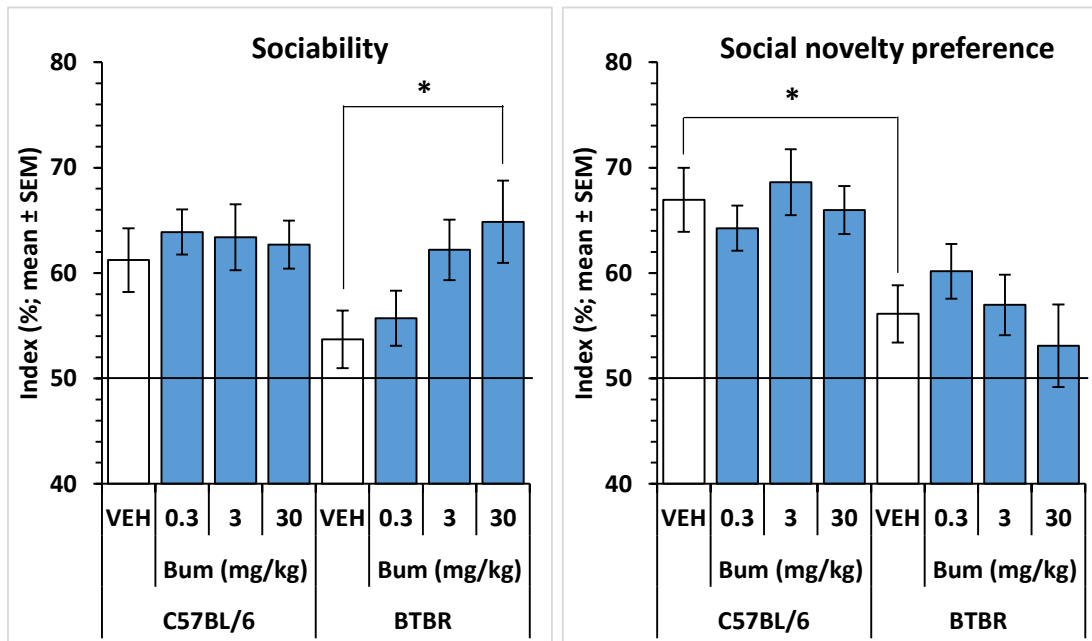
The BTBR mouse is a rodent model of ASD. BTBR mice exhibit various behavioral symptoms of ASD, such as reduced social behavior and increased repetitive behavior.

SOCIAL BEHAVIOR

The social behavior is examined using the 3-chamber test. Two types of social behavior are characterized:

- **Sociability**: preference to interact with a congener compared to an object,
- **Social novelty preference**: preference to interact with a novel congener compared to a familiar one.

BTBR mice show **impairments** of both **sociability** and **preference for social novelty**, compared with C57BL/6 mice. **Bumetanide**, a sodium potassium chloride cotransporter isoform 1 (NKCC 1) inhibitor dose-dependently improves sociability but does not reverse the social novelty preference impairment in BTBR mice.



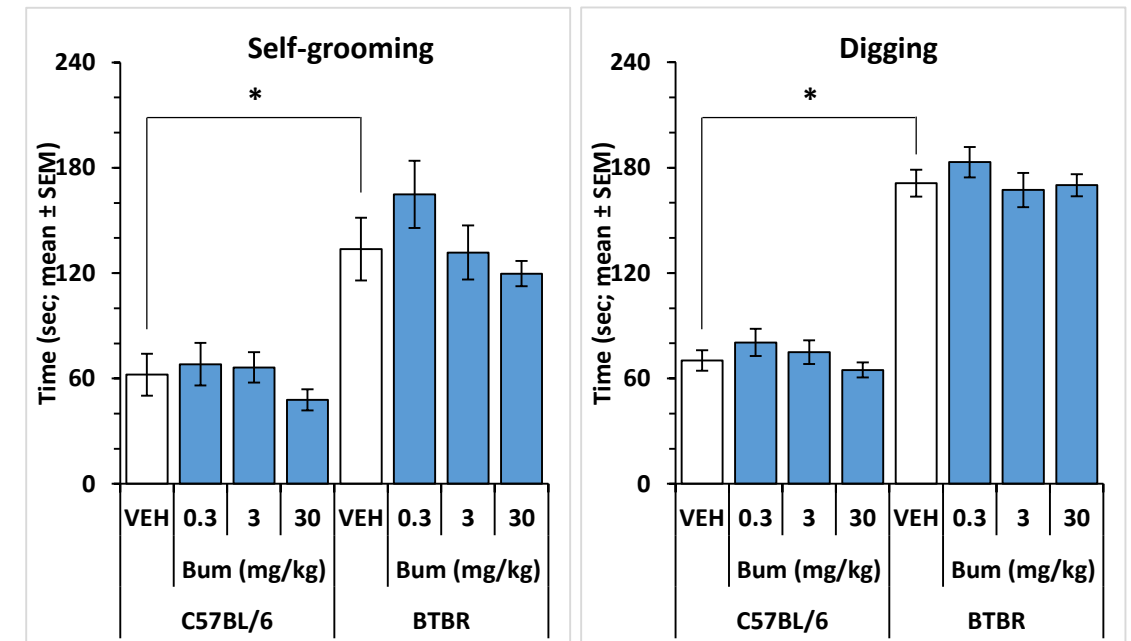
* $p \leq 0.05$

REPETITIVE BEHAVIOR

The repetitive behavior is examined using the self-grooming test and the digging test.

BTBR mice show **repetitive behavior** as shown by increases in self-grooming and digging behaviors, compared with C57BL/6 mice.

Bumetanide does not reverse the increases in self-grooming time and in digging time in BTBR mice.



* $p \leq 0.05$

BTBR mice display social interaction deficits and repetitive behaviors, two core symptoms of Autism Spectrum Disorder.