

# Prenatal Exposure to COVID-19 mRNA Vaccine BNT162b2 Induces Autism-Like Behaviors in Male Neonatal Rats: Insights into WNT and BDNF Signaling Perturbations

<https://link.springer.com/article/10.1007/s11064-023-04089-2>

---

## Abstract

The COVID-19 "*pandemic*" catalyzed the swift development and distribution of mRNA vaccines, including BNT162b2, to address the disease. Concerns have arisen about the potential neurodevelopmental implications of these vaccines, especially in susceptible groups such as pregnant women and their offspring.

This study aimed to investigate the gene expression of WNT, brain-derived neurotrophic factor (BDNF) levels, specific cytokines, m-TOR expression, neuropathology, and autism-related neurobehavioral outcomes in a rat model. Pregnant rats received the COVID-19 mRNA BNT162b2 vaccine during gestation.

**Subsequent evaluations on male and female offspring included autism-like behaviors, neuronal counts, and motor performance. Molecular techniques were applied to quantify WNT and m-TOR gene expressions, BDNF levels, and specific cytokines in brain tissue samples. The findings were then contextualized within the extant literature to identify potential mechanisms.**

**Our findings reveal that the mRNA BNT162b2 vaccine significantly alters WNT gene expression and BDNF levels in both male and female rats, suggesting a profound impact on key neurodevelopmental pathways.**

**Notably, male rats exhibited pronounced autism-like behaviors, characterized by a marked reduction in social interaction and repetitive patterns of behavior.**

**Furthermore, there was a substantial decrease in neuronal counts in critical brain regions, indicating potential neurodegeneration or altered neurodevelopment.**

Male rats also demonstrated impaired motor performance, evidenced by reduced coordination and agility.

Our research provides insights into the effects of the COVID-19 mRNA BNT162b2 vaccine on WNT gene expression, BDNF levels, and certain neurodevelopmental markers in a rat model.

More extensive studies are needed to confirm these observations in humans and to explore the exact mechanisms. A comprehensive understanding of the risks and rewards of COVID-19 vaccination, especially during pregnancy, remains essential.

**DETAILED STUDY HERE:** <https://link.springer.com/article/10.1007/s11064-023-04089-2>