In a recent study published in *Nature*, a global team of researchers utilized advanced methods to probe the developmental intricacies of autism spectrum disorder (ASD).

At the heart of their work were cerebral organoids, lab-grown, three-dimensional models of the human brain. These mini-brains closely simulate early human neurodevelopment, offering a more precise research platform than animal models or traditional two-dimensional cell cultures. Although not as complex as an actual human brain, these fabricated structures enabled the scientists to investigate the complex interplay of cells and genes during brain formation.

The team employed CRISPR, a gene-editing tool, to modify specific genes and observe their impact on brain development. They enhanced the capabilities of CRISPR with a specialized version called the CHOOSE system, which allowed them to do an in-depth analysis at the single-cell level.

The focus of the study was on 36 genes with strong ties to autism, chosen due to their high probability of contributing to the condition.

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In the U.S., the Centers for Disease Control and Prevention (CDC) estimate that 1 in 36 children has ASD. The 36 high-risk genes analyzed here are among a broader set implicated in autism. As the authors noted, the candidates they studied aren’t “autism genes” in the strict sense. However, their alteration significantly elevates autism risk.

*This is an excerpt. Read the original post here*