

## What are the genetic causes of autism? The brain is difficult to study but gene-edited organoids open avenues for research

Hundreds of genes have been linked to autism spectrum disorder (ASD), a complicated range of conditions affecting the behavior, social development, and communication of tens of millions people worldwide. But teasing out exactly what effect those genes have and how they relate to ASD has been devilishly difficult.

“Nobody can study an actual human brain as it develops,” says Paola Arlotta, a professor of stem cell and regenerative biology at Harvard University. But a new approach based on growing clumps of brain cells in the lab is now yielding promising results.

Arlotta and her colleagues at Harvard and the Broad Institute of Harvard and MIT have been working with organoids—three-dimensional clumps of brain tissue grown from stem cells—usually just a few millimeters across. When organoids are left to grow, they start to develop different types of brain cells, and begin to organize into primitive networks that mimic some, but not all, of the architecture of the human brain.

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Arlotta hopes the work with organoids will help scientists build a better picture of the processes underlying ASD, and maybe start to divide that spectrum into a smaller number of “buckets” that could inform treatments and therapies, or just help our understanding of autism more generally.

[\*\*This is an excerpt. Read the original post here.\*\*](#)