

Tiny petri dish 'organoids' aren't perfect, but show big promise

It was an otherwise normal day in November when Madeline Lancaster realized that she had accidentally grown a brain. For weeks, she had been trying to get human embryonic stem cells to form neural rosettes, clusters of cells that can become many different types of neuron. But for some reason her cells refused to stick to the bottom of the culture plate. Instead they floated, forming strange, milky-looking spheres.

"I didn't really know what they were," says Lancaster, who was then a postdoc at the Institute of Molecular Biotechnology in Vienna. That day in 2011, however, she spotted an odd dot of pigment in one of her spheres. Looking under the microscope, she realized that it was the dark cells of a developing retina, an outgrowth of the developing brain. And when she sliced one of the balls open, she could pick out a variety of neurons. Lancaster realized that the cells had assembled themselves into something unmistakably like an embryonic brain.

The current crop of organoids – bits of tissue grown in labs that mimic the real thing – isn't perfect. Some lack key cell types; others imitate only the earliest stages of organ development or vary from batch to batch. So researchers are toiling to refine their organoids — to make them more complex, more mature and more reproducible. Still, biologists have been amazed at how little encouragement cells need to self-assemble into elaborate structures.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: [The boom in mini stomachs, brains, breasts, kidneys and more](#)