

Mini 'brains' aid study of dementia and mental illness

[A] brain organoid begins as a single skin cell taken from an adult. With the right biochemical prodding, that cell can be turned into an induced pluripotent stem cell (the kind that can mature into one of several types of cells) and then into a neuron. This makes it possible to do things that were impossible before. Now scientists can directly see how networks of living human brain cells develop and function, and how they're affected by various drug compounds or genetic modifications. And because these mini-brains can be grown from a specific person's cells, organoids could serve as unprecedentedly accurate models for a wide range of diseases.

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This is just the beginning, says [researcher Madeline] Lancaster. Researchers such as Rudolph Jaenisch at MIT and Guo-li Ming at Johns Hopkins are beginning to use brain organoids to investigate autism, schizophrenia, and epilepsy. What makes cerebral organoids particularly useful is that their growth mirrors aspects of human brain development. The cells divide, take on the characteristics of, say, the cerebellum, cluster together in layers, and start to look like the discrete three-dimensional structures of a brain. If something goes wrong along the way—which is observable as the organoids grow—scientists can look for potential causes, mechanisms, and even drug treatments.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion, and analysis. Read full, original post: Brain Organoids – A new method for growing human brain cells could unlock the mysteries of dementia, mental illness, and other neurological disorders.