

Mature Brain Assembloids (Massembloids) For Modeling Neurodegeneration

Tech ID: 34406 / UC Case 2021-152-0

TECHNOLOGY DESCRIPTION

UCSF researchers have developed a novel 3D organoid-based platform called *mature brain assembloids* (mAssembloids) to model neurodegenerative diseases like ALS, FTD, Alzheimer's, and Parkinson's disease. This platform combines human-induced pluripotent stem cell (iPSC)-derived mature brain cell types, including astrocytes, neurons, microglia, and oligodendrocytes, to replicate complex neural tissue structures and disease-specific pathology.

Unlike traditional organoids, which often lack mature cell types and precise cellular ratios, mAssembloids allow researchers to control the composition and structure of neural tissues, enabling reproducible modeling of human neurodegeneration. This approach eliminates the need for complex matrices or microfluidics, making it a highly scalable and versatile tool for drug screening, patient stratification, and personalized medicine applications.

STAGE OF DEVELOPMENT

The technology is currently at the proof-of-concept stage, with validation in GRN knockout models and ongoing expansion to additional disease models, including patient-derived lines.

RELATED MATERIALS

DATA AVAILABILITY

PATENT STATUS

Country	Type	Number	Dated	Case
European Patent Office	Published Application			2021-152
Patent Cooperation Treaty	Reference for National Filings	WO 2022/183015	09/01/2022	2021-152

Additional Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- ▶ **Medical**
- ▶ Diagnostics
- ▶ Other
- ▶ Research Tools

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2021-152-0

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