

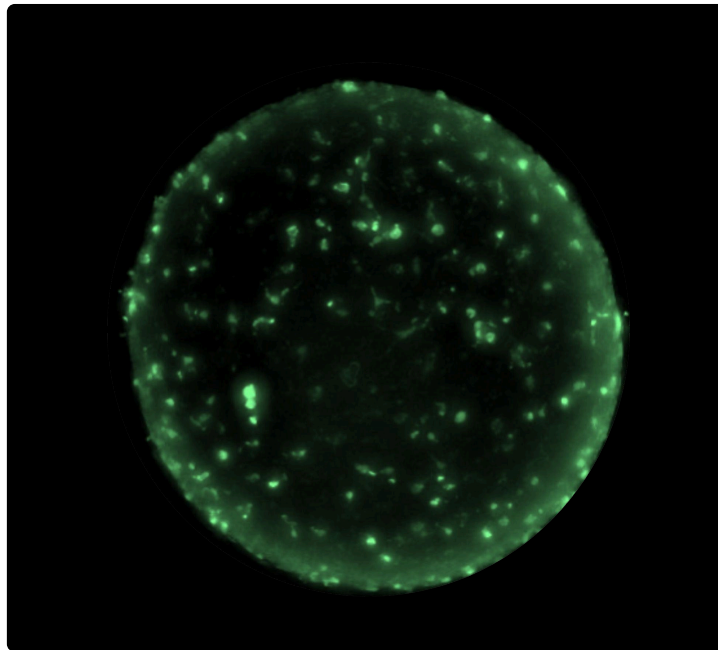
CNS-3D Inflammatory Organoids

The only assay-ready immunocompetent brain organoid model for studies of neuroinflammatory mechanisms and drug efficacy, incorporating neurons, astrocytes, and microglia.

Overview

CNS-3D Inflammatory Organoids are human iPSC-derived cortical organoids containing neurons, astrocytes, and microglia for studies of neuroinflammation, Alzheimer's disease, and drug efficacy. This immunocompetent 3D brain model enables assessment of inflammation-driven changes in neural function, microglial activation, cytokine release, and tissue-level responses in a human cellular context.

Functional calcium imaging can be combined with complementary endpoints spanning imaging, cytokine analysis, and molecular profiling to support comprehensive insights into neuroinflammatory biology. CNS-3D Inflammatory Organoids are available as assay-ready products for in-house workflows or through CNS Services for end-to-end study design, execution, and analysis.



Healthy microglia population integrated throughout organoid, confirmed by Iba staining (green) at 4 weeks post-microglia integration.

Application

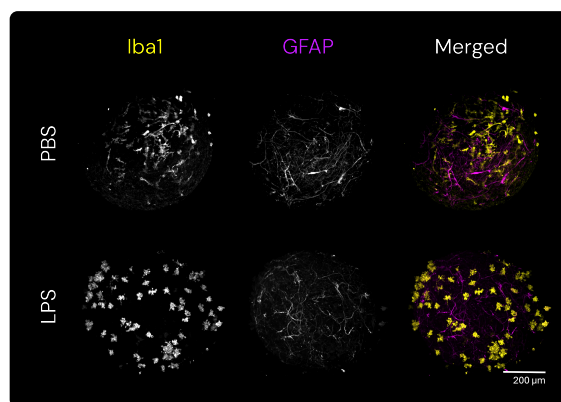
Neuroinflammation

Model neuroinflammatory mechanisms and evaluate drug efficacy in a functional human model. CNS-3D Inflammatory Organoids enable teams to investigate disease-relevant neuroimmune biology and compare anti-inflammatory candidate effects across cytokine, cell health, and neuronal network endpoints.

Use Case

Neuroinflammation Modeling

Recapitulate hallmarks of neuroinflammation—including microglial activation, pro-inflammatory cytokine release, and disruption of neuronal network activity—with CNS-3D Inflammatory Organoids. By administering pro-inflammatory stimuli such as TNF- α , LPS, or IL-6, researchers can investigate neuroinflammatory disease mechanisms to inform target pathway selection and identify endpoints for downstream anti-inflammatory efficacy testing.

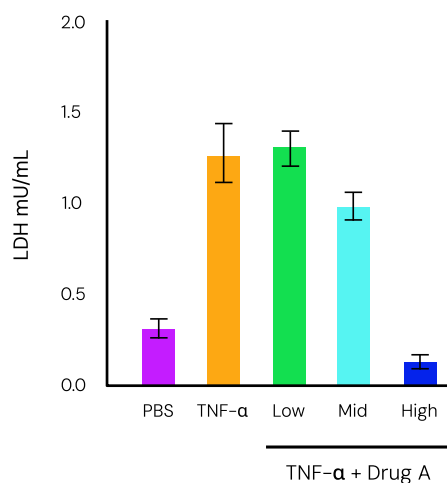


LPS stimulation increases microglial and astrocyte signal in CNS-3D Inflammatory Organoids, as shown by IBA1 and GFAP staining under control and inflammatory conditions.

Use Case

Anti-Inflammatory Efficacy

Prioritize anti-inflammatory candidates by measuring their ability to reduce inflammatory injury. By co-administering drug candidates with a pro-inflammatory stimulus, researchers can compare treatment effects on inflammatory response, cell health, and neuronal network function to identify candidates with stronger protective activity.



TNF α -induced LDH release enables comparison of anti-inflammatory candidate effects on cytotoxicity, distinguishing treatments with stronger protective activity.

Technical Specifications

Specification	Details
Cell Composition	45% neurons (~90% glutamatergic, ~10% GABAergic), 45% astrocytes, and 10% microglia
Assay	Multiplexed functional and molecular endpoints, including calcium imaging (e.g., FLIPR), viability (CellTiter-Glo), cytotoxicity (LDH-Glo), protein biomarker analysis (e.g., MSD, Ella), high-content imaging, and transcriptomic profiling.

Ordering Information

The only assay-ready immunocompetent brain organoid model to study neuroinflammatory mechanisms and drug efficacy, CNS-3D Inflammatory Organoids are available in 24-, 48-, 96-, and 384-replicate formats.

Product Name	Replicates per Plate	Plate Format	Catalog Number
CNS-3D Inflammatory Organoids	24	96-well	P-C3I-24-V1
	48	96-well	P-C3I-48-V1
	96	96-well	P-C3I-96-V1
	384	384-well	P-C3I-384-V1