



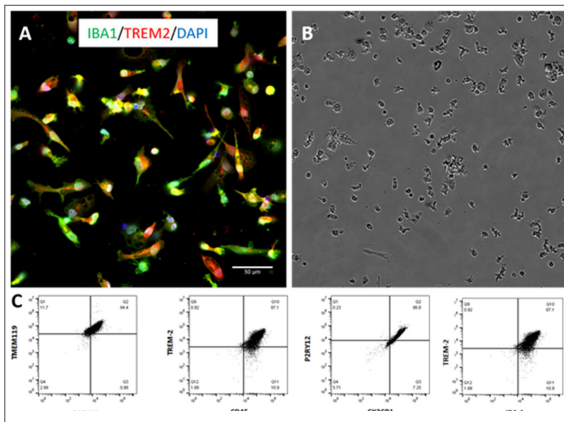
iCell® Microglia

Microglia are immune cells resident in the central nervous system (CNS). Derived from the mesoderm, they migrate to the brain where they scavenge the CNS to maintain healthy homeostasis. Microglia are responsible for phagocytosis of cells and proteins, cytokine signaling and synaptic pruning. Upon activation, microglia can react to neuronal damage by secreting cytokines.

Microglia play a crucial role in neurodegenerative disorders such as Alzheimer's and Parkinson's disease by modulating fibrils and amyloid deposits. Furthermore, neurodevelopmental models indicate the crucial role of microglia activation in response to insults such as IL-6 or Poly(I:C) leading to neurological impairments. The limited availability and health status of primary human microglia has constrained research and therapeutic progress for neurodegenerative and neurodevelopmental disorders.

FUJIFILM Cellular Dynamics Inc., (FCDI) offers iCell® Microglia, a highly pure population of human microglia derived from induced pluripotent stem (iPS) cells, to provide a readily available supply of human microglia. Starting with our iCell Hematopoietic Progenitor Cells 2.0, iCell Microglia were generated under defined conditions based on technology developed by the Blurton-Jones laboratory (Abud et al., Neuron 2017) for which FCDI has an exclusive license.

iCell Microglia offer a consistent, high-quality culture of microglia that enables investigation of cytokine signaling, synaptic transmission, and plasticity in normal CNS function and during disease progression. The ability to interrogate these mechanisms make iCell Microglia a valuable tool for neural disorders research and drug screening platforms. We now offer isogenic microglia from disease lines for neurodegenerative (TREM2, SNCA mutants) and neurodevelopment (MeCP2) disorders,



▲ Figure 1: iCell Microglia Characterization
 (A) Immunostaining shows the expression of microglia markers TREM2 and IBA1 using PEI-laminin coated plates (B) Cells exhibit both ramified and amoeboid morphology on an uncoated plate. (C) Flow cytometry measurements demonstrate a highly pure population of differentiated microglia

Advantages

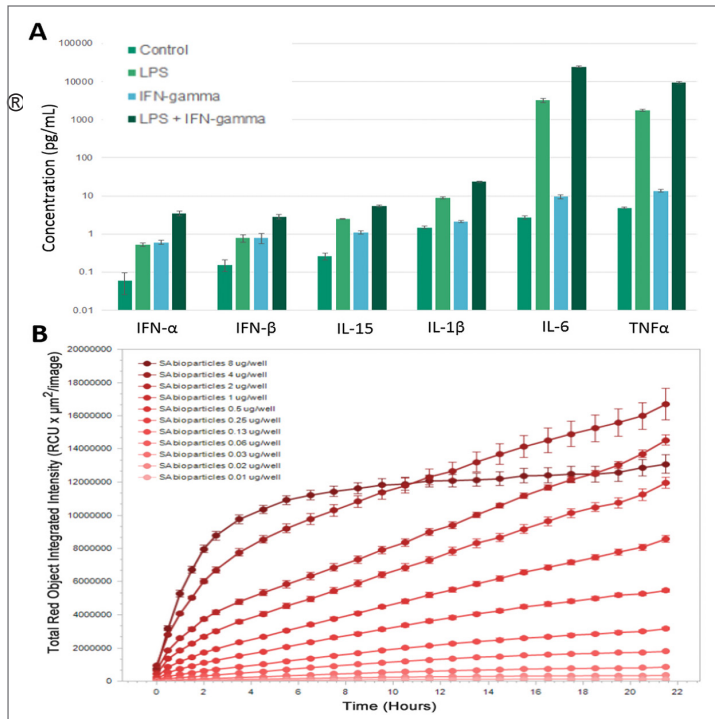
- **Human relevance:** iCell Microglia exhibit functional characteristics similar to human microglia, including phagocytosis and cytokine-mediated inflammatory responses.
- **Reproducible research:** Rigorous quality control and large-scale manufacturing capabilities ensure consistent performance from every lot of iCell Microglia (>80% TREM2+, IBA1+, CX3CR1+).
- **Rapid results:** iCell Microglia are fully differentiated cells (not precursors) allowing for more experiments in less time.
- **Disease lines available:** TREM2, SNCA and MeCP2 engineered mutants and isogenic control.

Applications

iCell Microglia are semi-adherent cells amenable to a variety of applications. iCell Microglia express key transcription factors and markers (CX3CR1, IBA1, TMEM119 and P2RY12) that are characteristically found in adult human microglia and are able to phagocytose and secrete cytokines upon stimulation.

Cell-based Assays

- Immunofluorescence
- Phagocytosis
- Amyloid-beta pHrodo™ Red labeling



▲ Figure 2: iCell Microglia Physiology
 (A) iCell Microglia secrete specific cytokines upon stimulation.
 (B) iCell Microglia phagocytose BioParticles® in a concentration-dependent manner.

Specifications

Cell Type	Microglia
Organism	Human
Source	Differentiated from an FCDI reprogrammed human iPS cell line
Quantity	≥1.0 x 10 ⁶ viable cells per vial
Shipped	Frozen
Media	Basal Media and Supplements provided with kit

Ordering Information

Kits Available	Catalog Number
iCell Microglia Kit, 01279	R1131
iCell Microglia Kit, 01279, TREM2 HT KO	R1201
iCell Microglia Kit, 01279, TREM2 HO KO	R1202
iCell Microglia Kit, 01279, SNCA (A53T)	R1200
iCell Microglia Kit, 01279, MECP2 KO	R1203

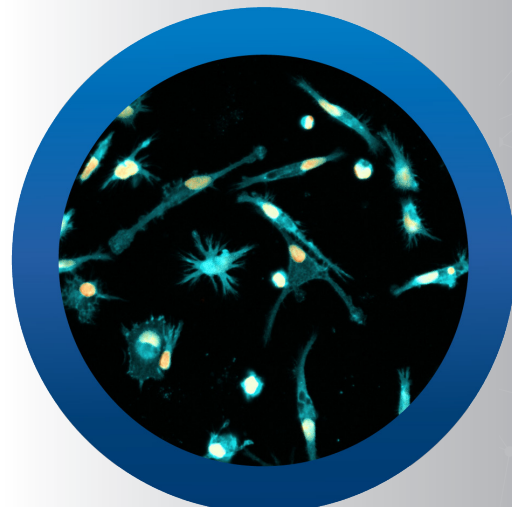
iCell Products

Provide access to biologically relevant, human iPS cells for disease modeling, drug discovery, toxicity testing, and regenerative medicine. FCDI's rapidly growing portfolio of iCell products includes human cardiomyocytes, GABAergic, glutamatergic, dopaminergic and motor neurons, hepatocytes, endothelial cells, astrocytes, hematopoietic progenitor cells, skeletal myoblasts, macrophages, and others.

Visit the FCDI website for the most current list of supported cell types.

For More Information

FUJIFILM Cellular Dynamics, Inc.
 525 Science Drive
 Madison, WI 53711 USA
 (608) 310-5100 | Toll-free US (877) 310-6688
 fcdi-sales@fujifilm.com
 fujifilmcdi.com



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