FUJIFILM

CELlular Dynamics

iCell® Retinal Pigment Epithelial Cells

iCell® Retinal Pigment Epithelial Cells from FUJIFILM Cellular Dynamics, Inc. (FCDI), are a biologically relevant model of the human retinal pigment epithelium (RPE). Derived from human induced pluripotent stem (iPS) cells, these cells provide an ideal in vitro system to facilitate ocular disease modeling, drug discovery, and gene therapy testing.
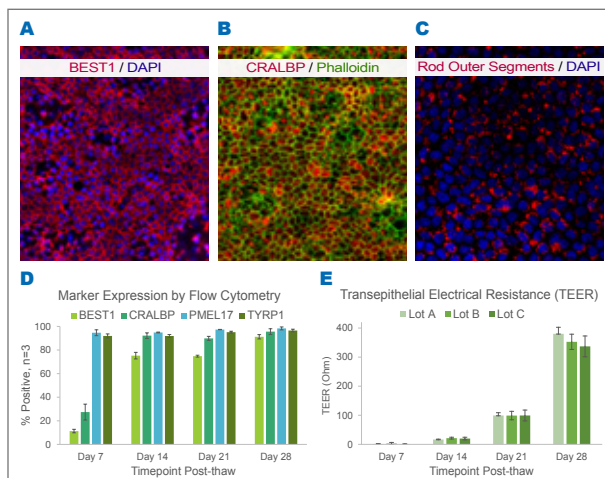
The RPE consists of the pigmented cell layer just outside the neurosensory retina that nourishes the visual photoreceptor cells. Its functions include phagocytosis of photo-damaged photoreceptor outer segments, secretion of essential factors and signaling molecules to maintain retinal homeostasis, and absorption of scattered light to protect against photo-oxidation. Ocular diseases such as age-related macular degeneration (AMD) and diabetic retinopathy are a result of progressive deterioration of eye tissue leading to loss of vision.

iCell Retinal Pigment Epithelial Cells are very pure and fully functional. They express RPE-specific markers including PMEL17, TYRP1, BEST1, CRALBP, and RPE65. They form a polarized blood-retinal barrier as evidenced by the polarized release of cytokines and transepithelial electrical resistance (TEER) values exceeding 200Ω. The cells also

▲ **Figure 1: iCell Retinal Pigment Epithelial Cells Are Pure and Functional**
(A, B) Immunostaining shows the expression of the mature RPE markers, BEST1 and CRALBP. (C) The cells phagocytose pHrodo red-labeled bovine rod outer segments (nuclei, blue). (D) Flow cytometry measurements demonstrate a highly pure, differentiated population (PMEL17, TYRP1), which expresses mature markers (BEST1, CRALBP) after a few weeks in culture. (E) TEER values exceed 200Ω.

Advantages

- **Functional:** iCell Retinal Pigment Epithelial Cells are differentiated from human iPS cells and recapitulate mature blood-retinal barrier function. These cells form tight junctions with TEER values exceeding 200Ω, become increasingly pigmented in culture, and phagocytose rod outer segments.

- **Highly pure:** At thaw, >90% of iCell Retinal Pigment Epithelial Cells express PMEL17 and TYPR1. At 4 weeks in culture, >80% express the mature RPE markers, BEST1 and CRALBP.

- **Homogenous and reproducible:** Every batch of iCell Retinal Pigment Epithelial Cells is qualified for purity and function to ensure reproducible results.

- **Easy to implement:** iCell Retinal Pigment Epithelial Cells are shipped cryopreserved with a Quick Guide to facilitate incorporating these cells into your research.

exhibit robust phagocytosis of bovine outer rod segments. In addition, iCell Retinal Pigment Epithelial Cells are cryopreserved, easy to implement, and available in large-scale quantities.

Applications

iCell Retinal Pigment Epithelial Cells are amenable to a variety of uses including:

- Cell viability
- Phagocytosis
- Barrier function
- Cytokine release

Specifications

Cell Type	Retinal pigment epithelium
Organism	Human
Source	Differentiated from an FCDI reprogrammed human iPS cell line
Quantity	$\geq 1.0 \times 10^6$ or $\geq 5.0 \times 10^6$ viable cells per vial
Shipped	Frozen

Ordering Information

Kit	Component(s)*	Catalog Number
iCell Retinal Epithelial Cells Kit, 01279	$\geq 1.0 \times 10^6$ viable cells	R1102
	$3 \times \geq 1.0 \times 10^6$ viable cells	R1113
	$\geq 5.0 \times 10^6$ viable cells	R1101

* A Quick Guide is provided in each kit.

For More Information

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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.