

PRODUCT DATASHEET



iCell® Induced Excitatory Neurons

iCell Induced Excitatory Neurons are designed to accelerate and economize your neurodegenerative and neurodevelopmental disease research programs. These cells are a highly pure population of human induced pluripotent stem cell (iPSC)-derived glutamatergic neurons, expressing characteristic excitatory neuron receptors (i.e. AMPA) and transporters (i.e. VGLUT1, VGLUT2). These neurons were generated from iPSCs engineered to overexpress neurogenin 2 (NGN2), resulting in

cryopreserved neurons that are fully differentiated at thaw and do not require further exposure to gene induction agents (doxycycline) or anti-mitotic molecules.

iCell Induced Excitatory Neurons offer a convenient and reliable source of human excitatory neuronal cells for use in life science research, early preclinical discovery, and toxicity testing.

Extended Value Per Vial

Using an optimized protocol for low plating density, one vial (6×10^6 cells/vial) of iCell Induced Excitatory Neurons will seed up to three 96-well standard tissue culture plates. This increases your throughput while decreasing your costs per experiment.

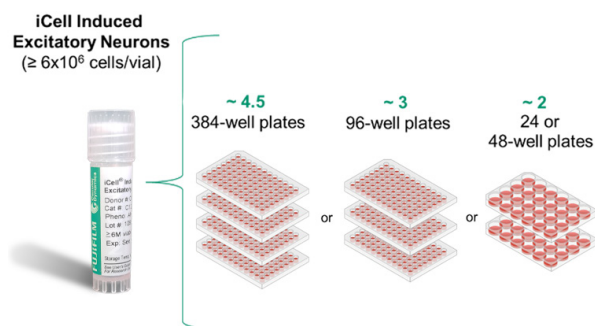


Figure 1: One vial of iCell Induced Excitatory Neurons can seed multiple tissue culture plates.

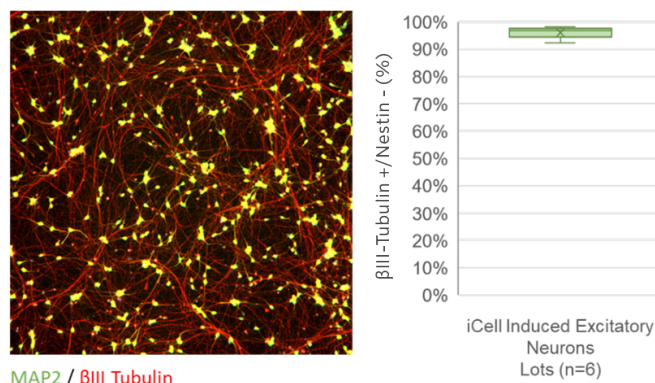
Benefits

- **High purity (>90% purity) and consistent across lots**
- **Low plating densities for economical preclinical screening experiments**
- **Fully differentiated at thaw, with no additional doxycycline required**
- **Isogenic donor with iCell Microglia and iCell Astrocytes 2.0**
- **Robust and synchronous MEA activity**
- **Academic pricing is available**

High Purity and Lot Consistency

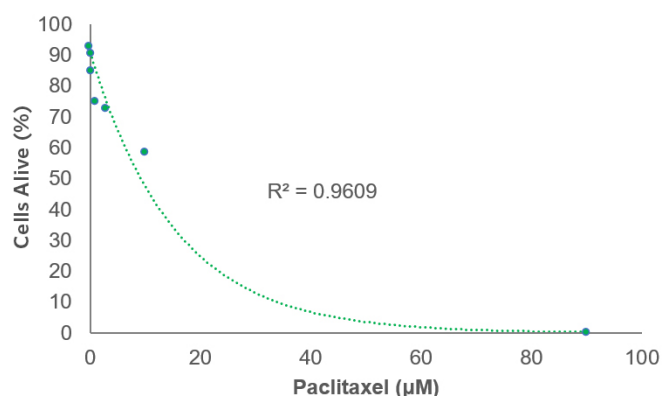
We've perfected production and cryopreservation of iCell Induced Excitatory Neurons. This means you will receive a highly pure, lot-to-lot consistent product that is ready-to-use for high throughput disease and drug discovery research.

Figure 2: (Left) iCell Induced Excitatory Neurons express β III-Tubulin (red) and microtubule-associated protein (MAP2;green). (Right) Purity analysis by flow cytometry shows that a highly pure neuronal population (β III-Tubulin+/Nestin-) is consistently achieved across production lots.



Applications

iCell Induced Excitatory Neurons are ideal for a variety of high-throughput drug discovery assays because of their reliably high purity, consistent performance, and viability at low plating densities.



Neurotoxicity

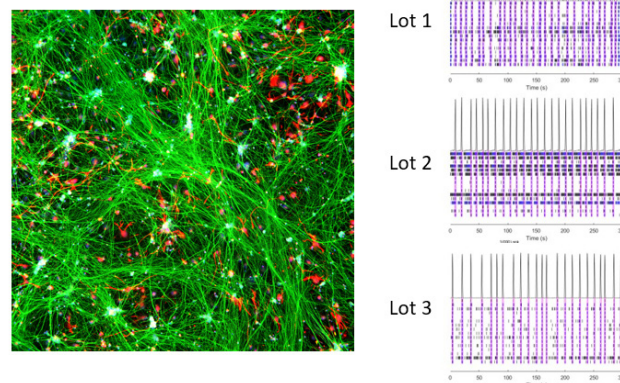
iCell Induced Excitatory Neurons have demonstrated sensitivity to neurotoxic compounds. Combine this with the low plating density of induced neurons, and you'll find these cells are perfect for increasing lab productivity and drug screening capacity.

Figure 3: iCell Induced Excitatory Neurons were cultured with or without Paclitaxel (0.03-90 μ M) for 72 hours and analyzed for cell viability. Cell viability of induced neurons is reduced with increasing concentrations of Paclitaxel.

Multielectrode Array (MEA) and Co-culture

iCell Induced Excitatory Neurons reliably develop active neural networks when co-cultured with iCell Astrocytes 2.0, facilitating high throughput compound screening using relevant neuron activity assays.

Figure 4: (Left) iCell Induced Excitatory Neurons (Tau; green) co-cultured on with iCell Astrocytes 2.0 (GFAP; red). (Right) Co-culture on MEA plates shows high reproducibility of excitatory neural network formation as depicted by raster plots from 3 different lots of neurons.



Disease Modeling

iCell Induced Excitatory Neurons are amenable to genetic engineering techniques facilitating creation of disease models within iPSC-derived glutamatergic neurons. We currently offer an off-the-shelf frontotemporal dementia (FTD) cell line, the iCell Induced Excitatory Neurons Progranulin R493X Heterozygous Knockout (GRN R493X HZ KO).

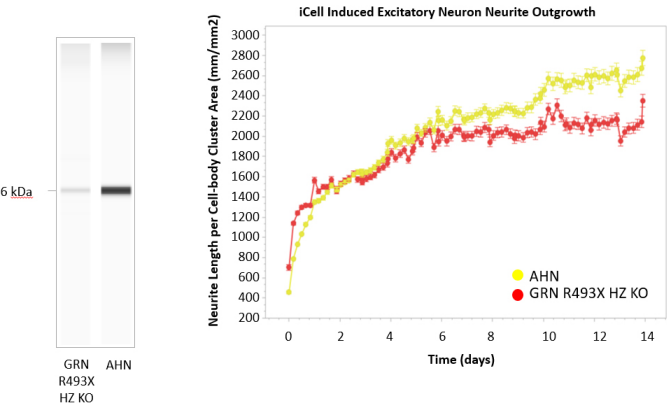


Figure 5: iCell Induced Excitatory Neurons GRN R493X HZ KO have reduced granulin expression (left) and evidence of aberrant neurite outgrowth (right) compared to healthy control neurons (AHN).

Ordering Information

Item	Component(s)*	Catalog Number
iCell Induced Excitatory Neurons Kit, 01279	1 Vial: ≥ 1 x 10 ⁶ viable cells	R1246
	1 Vial: ≥ 6 x 10 ⁶ viable cells	R1245
iCell Induced Excitatory Neurons Kit GRN R493X HZ KO Kit, 01279	1 Vial: ≥ 1 x 10 ⁶ viable cells	R1248
	1 Vial: ≥ 6 x 10 ⁶ viable cells	R1247

*Media Supplements provided with kits

**A User's Guide is provided in each iCell Induced Excitatory Neurons Kit

iCell Products

Provide access to biologically relevant, human iPSC cells for disease modeling, drug discovery, toxicity testing, and regenerative medicine. FCDI's rapidly growing portfolio of iCell products includes human cardiomyocytes, cardiac fibroblasts, cardiac progenitor cells, GABAergic, glutamatergic, dopaminergic, motor, and induced excitatory neurons, hepatocytes, endothelial cells, astrocytes, hematopoietic progenitor cells, macrophages, blood-brain barrier models and others.

Visit the [FCDI website](#) for the most current list of supported cell types.

