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Product Information

Human Cortical GABAergic Neurons (iPSC-derived, Normal)

Catalog Number	40HU-010	Cell Number	1.0 million cells/vial (Cryopreserved) 4.0 million cells/vial (Cryopreserved)
Species	*Homo sapiens*	Storage Temperature	Liquid nitrogen

Product Description

Excitation and inhibition are the two basic interactions between neurons, which utilize glutamate and γ-aminobutyric acid (GABA) as the major neurotransmitters for excitatory and inhibitory signals, respectively. Abnormal GABAergic neuron function has been associated with multiple neurodevelopmental and neurodegenerative disorders.

iXCells™ Cortical GABAergic Neurons show high neuronal purity (>90% Tuj1 positive cells) and express typical marker GABA (Figure 1 and Figure 2) after culturing in the Cortical Neuron Maintenance Medium (Cat# MD-0093) for 5 days.

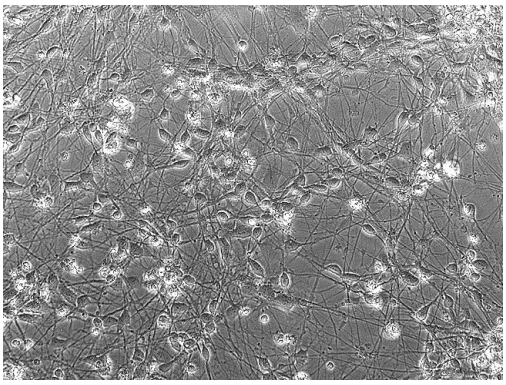

Figure 1. Phase contrast image of iPSC-GABAergic neurons cultured in the Cortical Neuron Maintenance Medium (Cat# MD-0093) for 5 days.

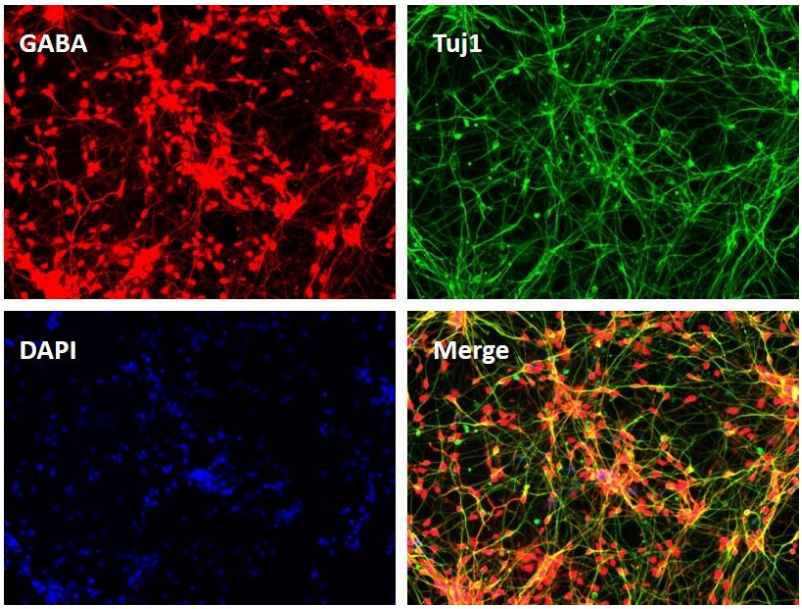

Figure 2. The cryopreserved GABAergic neurons were recovered and seeded on Matrigel-coated 96-well plate and cultured in the Cortical Neuron Maintenance Medium (Cat# MD-0093) for 5 days. The cells were fixed and stained with anti-GABA (red) and anti-TUJ1 (green) antibodies.

Product Details

Tissue Origin	Human iPSC-derived GABAergic Neurons
Package Size	1.0 million cells/vial (cryopreserved) 4.0 million cells/vial (cryopreserved)
Shipped	Frozen on dry ice
Media	Cortical Neuron Maintenance Medium (Cat# MD-0093)

Protocols

Recovery and Culture of hiPSC-Derived GABAergic Neurons

The following protocol is based on 96-well plate format

1. Upon receipt of the frozen iPSC-Derived GABAergic Neurons, it is recommended to thaw the cells and initiate the culture immediately in order to retain the highest cell viability.
2. Prepare Matrigel-coated plates using Matrigel™ (Corning™, Cat# 354230) following the manufacturer's instructions.

   Note: Thaw Corning™ Matrigel™ in a 4°C refrigerator overnight. Dilute the thawed Matrigel™ with DMEM/F12 medium into 80 µg/m. Add 100 µL diluted Matrigel™ into each well of 96-well plate to cover the surface. Coat the plates at room temperature for at least 2 hours before use. The coated plates can be stored at 4°C for a week.
3. To thaw the cells, put the vial in 37°C water bath with gentle agitation for 1-2 minutes. Keep the cap out of water to minimize the risk of contamination.
4. Pipette the cells into a 15 mL conical tube with 5 mL **Cortical Neuron Maintenance Medium (MD-0093)**.
5. Centrifuge at 200 g for 5 minutes at room temperature.
6. Remove the supernatant and re-suspend the cells in **Cortical Neuron Maintenance Medium**.
7. Seed the cells on Matrigel-coated plates at the desired density.

   Note: We recommend seeding 10,000-50,000 cells/well depending on the application.
8. Incubate in 37°C CO_2 incubator overnight.
9. Perform half medium change every 2-3 days. The cells can be cultured for more than one month in the maintenance medium.

References

[1] Yang N, Chanda S et al. (2017). “Generation of pure GABAergic neurons by transcription factor programming”. *Nat Methods*. 14(6):621-628.

Disclaimers