www.ixcellsbiotech.com
10340 Camino Santa Fe, Suite C, San Diego, CA 92121
Tel: (858)412-5988 Fax: (858)368-8716
Technical Supports: supports@ixcellsbiotech.com
Orders: orders@ixcellsbiotech.com

Product Information

Human Astrocytes (HA)

Catalog Number	10HU-035	Cell Number	0.5 x 10^6 cells/vial
Species	*Homo sapiens*	Storage Temperature	Liquid Nitrogen

Description

Astrocytes are the major cell type in the mammalian brain. They provide a variety of supportive functions to their partner neurons in the central nervous system (CNS), such as neuronal guidance during development, and nutritional and metabolic support throughout life [1]. Astrocytes have also been implicated in various pathological processes [2]. Impairment of normal astrocyte functions during stroke and other insults can critically influence neuron survival. Long-term recovery after brain injury, through neurite outgrowth, synaptic plasticity, or neuron regeneration, is also influenced by astrocyte surface molecule expression and trophic factor release [3]. Numerous studies have demonstrated that astrocytes are among the most functionally diverse group of cells in the CNS. Much of what we have learned about astrocytes is from in vitro studies and astrocyte culture is a useful tool for exploring the diverse properties of this cell type.

iXCells Biotechnologies provides high quality Human Astrocytes (HA) (Figure 1), which are isolated from human brain (cerebral cortex) and cryopreserved at P2, with >0.5 million cells in each vial. These HA express GFAP (Figure 2). They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi. HA can further expand for 10 population doublings in Astrocyte Medium (Cat# MD-0039) under the condition suggested by iXCells Biotechnologies.

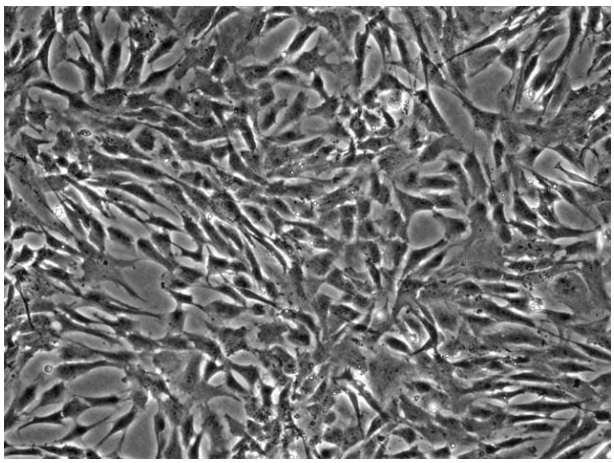

Figure 1. Human Astrocytes (phase contrast).

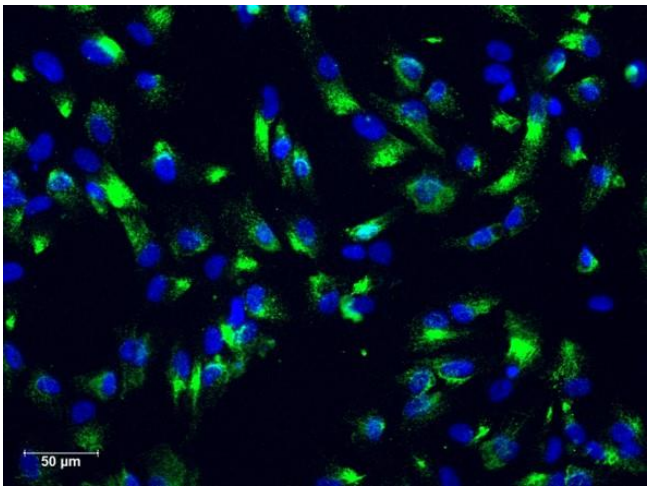

Figure 2. Immunofluorescence staining for GFAP

Product Details

Tissue	Human brain (cerebral cortex)
Package Size	0.5 x 10^6 cells/vial
Passage Number	P2
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Astrocyte Medium (Cat # MD-0039)

Protocols

Thawing of Frozen Cells

1. Pre-coat a culture vessel (2 µg/cm^2, T-75 flask is recommended) with 0.01% poly-L-lysine in a 37ºC incubator overnight (or for a minimum of one hour).
2. Rinse the poly-L-lysine-coated vessel twice with sterile water and then add 10 ml of Astrocyte Medium (Cat # MD-0039). Leave the vessel in the sterile field and proceed to thaw the cryopreserved cells.
3. Upon receipt of the frozen Human Astrocytes (HA), it is recommended to thaw the cells and initiate the culture immediately in order to retain the highest cell viability.
4. To thaw the cells, put the vial in 37°C water bath with gentle agitation for ~1 minute. Keep the cap out of water to minimize the risk of contamination.
5. Pipette the cells into a 15 ml conical tube with 5ml fresh Astrocyte Medium (Cat # MD-0039).

6. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
7. Remove the supernatant and resuspend the cells in fresh Astrocyte Medium.
8. Culture the cells in a poly-L-lysine-coated T-75 flask.

Safety Precaution: *it is highly recommended that protective gloves and clothing should be used when handling frozen vials.*

Standard Culture Procedure

1. Human Astrocytes (HA) can be cultured in Astrocyte Medium (Cat # MD-0039).
2. When the cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5 ml/T-75 flask).
3. Add 2.5 ml of 0.25% Trypsin-EDTA to the flask and incubate for 3 minutes at 37°C. Neutralize the enzyme by adding 2-3 volumes of cell culture medium.
4. Centrifuge 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
5. Seed new poly-L-lysine-coated culture vessels at 5×10^3 cells/cm^2.

References

[1] G. I. Hatton (2002) Glial-neuronal interactions in the mammalian brain. Adv. in Physiol. Edu. 26:225-237.
[2] Van der Laan, L. J. W., De Groot, C. J. A., Elices, M. J. and Dijkstran, C. D. (1997) Extracellular matrix proteins expressed by human adult astrocytes in vivo and in vitro: an astrocyte surface protein containing the CS1 domain contributes to binding of lymphoblasts. J. Neurosci. Res. 50:539-548.
[3] Chen Y., and Swanson, R. A. (2003) Astrocytes and brain injury. J. Cereb. Blood Flow Metab. 23:137-149.

Disclaimers

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