

Product Information

Human Astrocytes (HA)

Catalog Number	10HU-035	Cell Number	0.5 million cells/vial
Species	<i>Homo sapiens</i>	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), 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 1). They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi. HA can further expand no more than 3 passages in Astrocyte Medium (Cat# MD-0039) under the condition suggested by iXCells Biotechnologies. Further expansion may decrease the purity and features of human astrocytes.

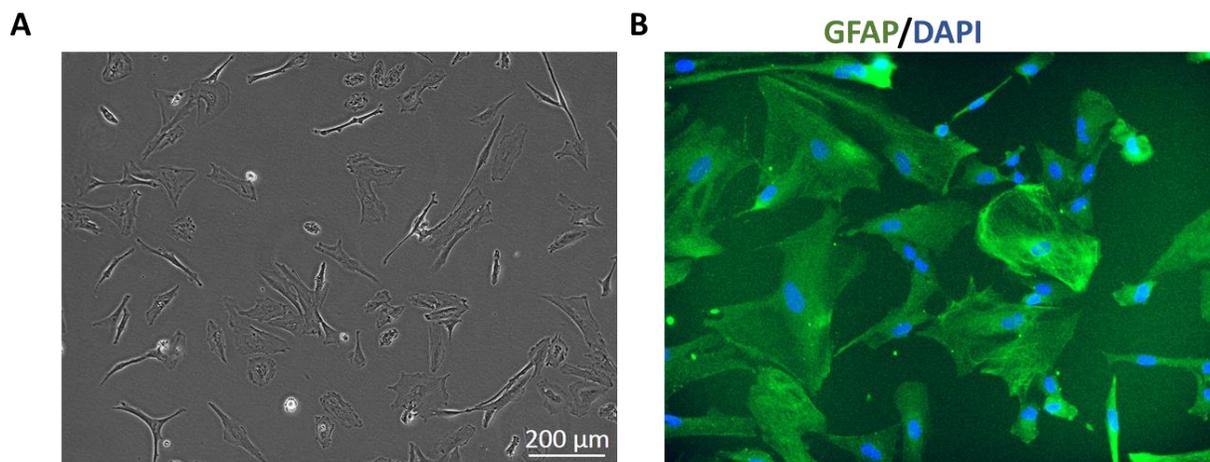


Figure 1. Human astrocytes (HA). **(A)** Phase contrast image of HA. **(B)** Immunofluorescence staining with antibody against GFAP.

Product Details

Tissue	Human brain (cerebral cortex)
Package Size	0.5 millions 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. 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.
2. 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.
3. Pipette the cells into a 15 mL conical tube with 5mL fresh **Astrocyte Medium** (Cat # MD-0039).
4. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh Astrocyte Medium.
6. Culture the cell in the T75 flask. Change the medium every other day until cells reach 80-90% confluence.

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/T75 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 the cells in the new culture vessels at 5×10^3 cells/cm². Change the medium every other day until cells reach 80-90% confluence.

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.

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