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Product Information

Rat Astrocytes-adult (RA-a)

Catalog Number	10RA-006	Cell Number	0.5 x 10^6 cells/vial
Species	*Rattus norvegicus*	Storage Temperature	Liquid Nitrogen

Description

Astrocytes are the most abundant cell type in the central nervous system (CNS) and they provide a variety of vital functions for the CNS including: establishment and regulation of the blood brain barrier, functional support for neuronal transmission, survival of neurons, anti-inflammatory responses and wound repair [1]. Astrocytes have also been implicated in various pathological processes such as reactive gliosis [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 [4]. Rat astrocytes-adult (RA-a) are a useful in vitro model for studying adult glial function and the molecular mechanisms of CNS diseases such as ischemic stroke and multiple sclerosis.

iXCells Biotechnologies provides high quality Rat Astrocytes-adult (RA-a), which are isolated from adult rat brain and cryopreserved at P1, with >0.5 million cells in each vial. RA-a express GFAP and are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi. They can further expand for 5 population doublings in Astrocyte Growth Medium-rodent (Cat# MD-0060) under the condition suggested by iXCells Biotechnologies.

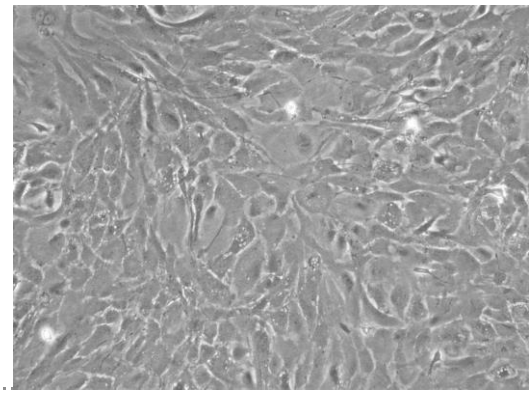

Figure 1. Rat astrocytes-adult (phase contrast).

Product Details

Tissue	Adult rat brain
Package Size	$0.5x10^6$ cells/vial
Passage Number	P1
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Astrocyte Growth Medium-rodent (Cat# MD-0060)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen Rat Astrocytes, 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 15ml conical tube with 5ml fresh Astrocyte Growth Medium-rodent (Cat# MD-0060).
4. Centrifuge at 1000rpm (~220g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh growth medium.
6. Culture the cell in T75 flask or 100mm dish.

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

Standard Culture Procedure

1. Rat Astrocytes can be cultured in Astrocyte Growth Medium-rodent (Cat# MD-0060).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5ml/T75 flask).
3. Add ~2.5ml 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 1000rpm (~220g) for 5min and resuspend the cells in desired volume of medium.
5. Seed new culture vessels at 5×10^3 cells/cm^2.

References

[1] Rudge JS. (1993) "Astrocyte-derived neurotrophic factors." In Murphy S, Astrocytes: Pharmacology and Function (pp 267-94). San Diego: Academic Press, Inc.

[2] van der Laan LJ, De Groot CJ, Elices MJ, Dijkstra CD. (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: 539-48.

[3] Chen Y, Swanson RA. (2003) "Astrocytes and brain injury." J Cereb Blood Flow Metab. 23: 137-49.

[4] Shao Y, McCarhy KD. (1994) "Plasticity of astrocytes." Glia. 11: 147-55.

Disclaimers

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