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Product Information

Human Schwann Cells (HSwC)

Catalog Number	10HU-188	Cell Number	0.5 x 10^6 cells/vial
Species	*Homo sapiens*	Storage Temperature	Liquid Nitrogen

Description

Schwann cells are neural crest derivatives that ensheathe and myelinate axons of peripheral nerves [1]. Each Schwann cell wraps around the shaft of an individual peripheral axon, forming myelin sheaths along segments of the axon. Schwann cells play important roles in the development, function, and regeneration of peripheral nerves. When an axon is dying, the Schwann cells surrounding it aid in its digestion, leaving an empty channel formed by successive Schwann cells, through which a new axon may then grow from a severed end. The number of Schwann cells in peripheral nerves is tightly regulated [2]. Their proliferation in vitro can be stimulated by various growth factors including PDGF, FGF, neuregulin, and others [3]. Schwann cells provide a relatively simple, well-defined, and accessible mammalian model for the study of a number of developmental questions. It is also of particular clinical importance to understand the biology of Schwann cells, not only in the context of neuropathies and nerve regeneration, but also because the cells or their precursors may be especially well suited for implants to facilitate repair in the CNS.

iXCells Biotechnologies provides high quality Human Schwann Cells (HSwC), which are isolated from human spinal nerve and cryopreserved at P1, with >0.5 million cells in each vial. HSwC express vimentin, S-100, GFAP and CD90. These HSwC are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fung and can further expand for 10 population doublings in Schwann Cell Growth Medium (Cat# MD-0055) under the condition suggested by iXCells Biotechnologies.

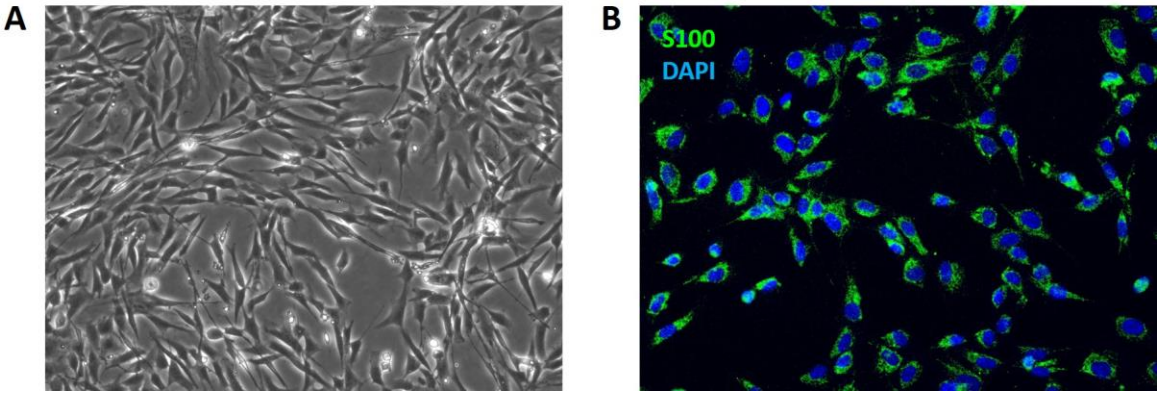

Figure 1. (A) Phase contrast image of Human Schwann Cells (HSwC).
(B) Immunofluorescence staining of Human Schwann Cells with S100 antibody.

Product Details

Tissue	Human Schwann Cells (HSwC)
Package Size	0.5 x 10^6 cells/vial
Passage Number	P1
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Schwann Cell Growth Medium (Cat# MD-0055)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen Human Schwann Cells (HSwC), it is recommended to thaw the cells and initiate the culture immediately in order to retain the highest cell viability.
2. Coat the culture vessels with 0.01% poly-L-lysine for more than 1 hours at 37^{o}C before use.
3. 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.
4. Pipette the cells into a 15ml conical tube with 5ml fresh Schwann Cell Growth Medium (Cat# MD-0055).
5. Centrifuge at 1,000rpm (~220g) for 5 minutes under room temperature.
6. Remove the supernatant and resuspend the cells in fresh culture medium.
7. Culture HSwC in 100 mm culture dish or T75 flask pre-coated with 0.01% poly-L-lysine.
8. Change the medium every three days until the culture is approximately 70% confluent. Once the culture reaches 70% confluency, change medium every other day until the culture is approximately 90% confluent.

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

Standard Culture Procedure

1. Human Schwann Cells (HSwC) can be cultured in Schwann Cell Growth Medium (Cat# MD-0055).
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 1,000rpm (~220g) for 5min and resuspend the cells in desired volume of medium.
5. Seed HSwC on the poly-L-lysine-coated new culture vessels at 5 × 10^3 cells/cm^2.

References

[1] Jessen, K. R. and Mirsky, R. (1999) Schwann cells and their precursors emerge as major regulators of nerve development. Trends Neurosci. 22:402-410.

[2] Syroid, D. E., Maycox, P. R., Burrola, P. G., Liu, N., Wen, D., Lee, K. F., Lemke, G., Kilpatrick, T. J. (1996) Cell death in the Schwann cell lineage and its regulation by neuregulin. Proc. Natl. Acad. Sci. USA 93:9229-9234.

[3] Rahmatullah, M., Schroering, A., Rothblum, K., Stahl, R. C., Urban, B and Carey, D. J. (1998) Synergistic regulation of Schwann cells proliferation by heregulin and forskolin. Mol. Cell. Biol. 18:6245-6252.

Disclaimers