

Human Schwann Cells (HSwC)

SKU: 10HU-188

PRODUCT SHEET

PRODUCT DESCRIPTION

Schwann cells are major type of glial cells in peripheral nervous system, which differentiate from cells of the neural crest during embryonic development, and they are stimulated to proliferate by some constituent of the axonal surface. Schwann cells can be either myelinating or non-myelinating. Whilst myelinating Schwann cells wrap around the axons of motor and sensory neurons to form the myelin sheath, non-myelinating Schwann cells do not wrap around the axons but still provide support and cushioning to the unmyelinated axons [1]. Each myelinating Schwann cell wraps around the shaft of an individual peripheral axon, forming myelin sheaths along segments of the axon. 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 numerous developmental diseases. It is also of 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.

Product Details

Catalog Number: 10HU-188

Organism: *Homo Sapiens*, Human

Cell Type: Glial Cell

Tissue: Human spinal nerve

Disease: Normal

Package Size: 0.5 x 10⁶ cells/vial

Passage Number: P2

Growth Properties: Adherent

Associated Media: Schwann Cell Growth Medium (Cat# MD-0055)

Storage Conditions & Shipment

Product Format/Shipped: Cryopreserved

Storage: Liquid Nitrogen

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RELATED PRODUCTS



Mouse Schwann Cells (MSC)
SKU: 10MU-029



Schwann Cell Growth Medium
SKU: MD-0055

Overview of Human Schwann Cells (HSwC)

iXCells Biotechnologies provides high quality Human Schwann Cells (HSwC), which are isolated from human spinal nerve and cryopreserved at P1. Each vial contains ≥ 0.5 million viable cells. HSwC are characterized for expression of vimentin, S100, GFAP and CD90. They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi and can further expand no more than 3 passages in Schwann Cell Growth Medium (Cat# MD-0055) under the condition suggested by iXCells Biotechnologies. Further expansion may decrease the purity.

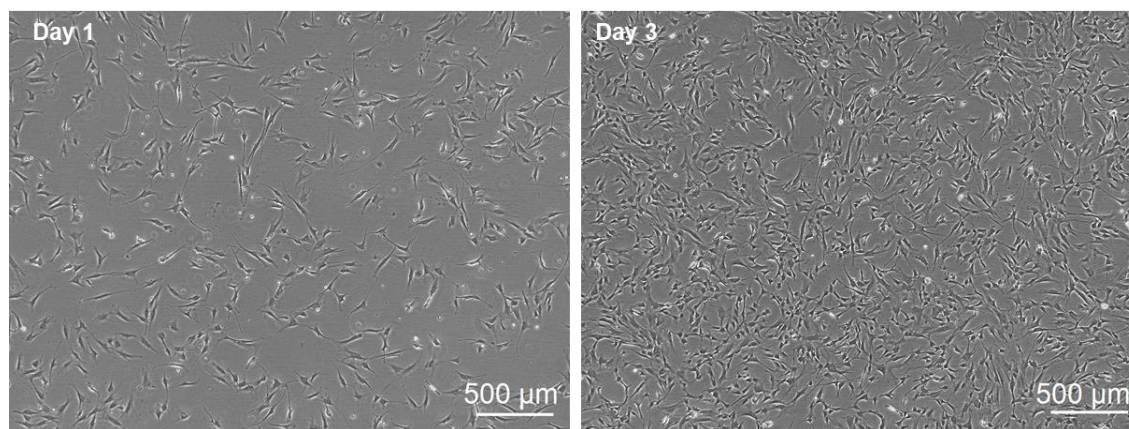


Figure 1. Human Schwann Cells (HSwC). The cells were recovered, and seeded at 10,000 cells/cm² following iXCells' protocol. Phase contrast images were taken at the indicated time post recovery.

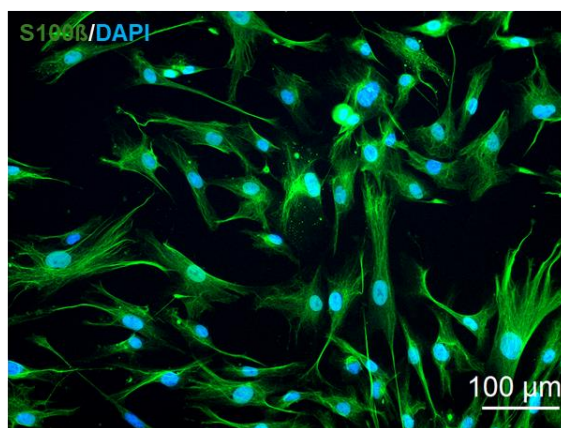


Figure 2. Immunofluorescence staining of HSwC with Antibody against S100b (Green). Nuclei was counterstained by DAPI (Blue).

QuickStart Guide – Protocols

NOTE: IXCELLS CELLS MUST BE CULTURED IN A 37°C, 5% CO₂ INCUBATOR. CELLS ARE ONLY WARRANTED IF IXCELLS MEDIA AND REAGENTS ARE USED AND THE RECOMMENDED PROTOCOLS ARE FOLLOWED.

Cell Thawing – Frozen Cells

1. Upon receipt of the frozen cells, 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 approximately 1 hour at 37°C or following manufacturer's instructions.
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 fresh Schwann Cell Growth Medium (Cat# MD-0055).
5. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
6. Remove the supernatant and resuspend the cells in fresh culture medium.
7. Seed the cells in desired culture vessel at 5,000-10,000 cells/cm². Change medium every other day until the culture is approximately 80-90% confluent.

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

Subculture Procedure

1. HSwC can be sub-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 (e.g. 5 mL/T75 flask).
3. Add ~2.5 mL of 0.05% 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 at 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
5. Seed cells in the new culture vessels at 5,000-10,000 cells/cm². Change the medium every three days until the culture is approximately 80-90% confluent.

Note: Penicillin-Streptomycin, Antibiotics and antimycotics, or other antibiotics can be optional in the culture media. iXCells in house test was performed under antibiotics free condition for ≥ 3 days by following the recommended protocol, and no bacterial or fungi contamination were observed during the culture period.

References

- [1] Britannica, T. Editors of Encyclopaedia (2020) Schwann cell. Encyclopedia Britannica.
- [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

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