Human PSC-Derived Neural Progenitor Cells

Cryopreserved human PSC-derived neural progenitor cells for expansion and differentiation

Catalog #70901	1 million cells	XCL-1, Male
Catalog #70902	1 million cells	XCL-4, Female

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Product Description

These cryopreserved neural progenitor cells (NPCs) are derived from human pluripotent stem cells (PSCs) under serum-free conditions. They are convenient, highly consistent, and allow rapid implementation of physiologically relevant human PSC-based models for drug discovery, cell therapy validation, and neuroscientific research. Each vial contains ≥ 1 x 10^6 viable cells, with ≥ 90% SOX1+/Nestin+. Using Neural Progenitor Medium 2 (Catalog #08560), these NPCs can be expanded for more than 10 passages while retaining high differentiation potential. Efficient downstream differentiation to neurons and glia is possible using STEMdiff™ differentiation and maturation kits for mixed neurons (Catalog #08500/08510), dopaminergic neurons (Catalog #08520/08530) and astrocytes (Catalog #08540/08550).

NOTE: These cells are adapted to Neural Progenitor Medium 2 (Catalog #08560). For expansion, only use Neural Progenitor Medium 2 (**not** STEMdiff™ Neural Progenitor Medium).

Stability and Storage

Stable at -135°C or colder for 2.5 years from date of manufacture (MFG) on label.

Short-term storage of cells (< 2 weeks) at -80°C is acceptable, but should be minimized to ensure maximum stability. Upon receipt, immediately transfer vials from dry ice to storage units, avoiding exposure to room temperature. Thawed samples must be used immediately.

Precautions

Storage of frozen cell products in the vapor phase of a liquid nitrogen storage tank is recommended. Storage in the liquid phase can result in cross-contamination if the vial breaks or is not sealed properly. Storage in the liquid phase also increases the potential for liquid nitrogen to penetrate the vial and cause it to explode when removed from storage. Use of a face shield is required as a safety precaution when transferring cells from one container to another. When handling this product do not use sharps such as needles and syringes.

STEMCELL cannot guarantee the biological function or any other properties associated with performance of cells in a researcher's individual assay or culture systems.

FOR IN VITRO RESEARCH USE ONLY. NOT APPROVED FOR DIAGNOSTIC, THERAPEUTIC, OR CLINICAL APPLICATIONS. NOT APPROVED FOR HUMAN OR VETERINARY USE IN VIVO.

Materials Required But Not Included

PRODUCT NAME	CATALOG #
Corning® Matrigel® hESC-Qualified Matrix	Corning 354277
DMEM/F-12 with 15 mM HEPES	36254
Neural Progenitor Medium 2	08560
Falcon® Conical Tubes, 15 mL	38009
Trypan Blue	07050

Directions for Use

For medium and cultureware preparation instructions (e.g. Corning® Matrigel® coating), refer to the Product Information Sheet (PIS) for Neural Progenitor Medium 2 (Document #DX20712), available at www.stemcell.com or contact us to request a copy.

THAWING CRYOPRESERVED CELLS

NOTE: Pre-warm cultureware and media that will come in contact with cryopreserved cells. This protocol is for a single vial (1 mL) of cryopreserved cells. If using other volumes, adjust accordingly. 1 mL of cryopreserved cells can be cultured on a 60 mm cell culture dish or a 6-well plate.

1. Warm 2 x 5 mL aliquots of Neural Progenitor Medium 2 at 37°C in 15 mL conical tubes.
2. Place warm tubes of medium and warm cultureware in a biosafety cabinet.
3. Remove the vial of cryopreserved cells from liquid nitrogen storage and immerse up to 2/3 of vial height in a 37°C water bath.
4. Remove vial from water bath when only a small piece of ice is visible; this will take approximately 1 minute for 1 mL of cells. Do not shake vial during thawing process.
5. Wipe the outside of the vial with 70% ethanol or isopropanol and immediately place inside the biosafety cabinet containing the warm medium.
6. Use a 1 mL pipettor to slowly transfer thawed cell suspension into one of the 15 mL conical tubes containing warm medium. Carefully transfer cell suspension dropwise into medium while swirling. Do not pipette cells up and down or generate bubbles, as cells are in a very fragile state.
7. Centrifuge diluted cell suspension at 300 x *g* for 5 minutes at room temperature (15 - 25°C).
8. Aspirate supernatant carefully, leaving behind a small amount of medium. Take care not to disturb the cell pellet.
9. From the second tube of warm medium, remove 1 mL and add to the cell pellet. Gently resuspend the cells by pipetting up and down slowly 4 - 6 times.
10. Perform a cell count using Trypan Blue (10 µL cell suspension + 10 µL Trypan Blue) and a hemocytometer.
11. Dilute cell suspension with an appropriate volume of the remaining Neural Progenitor Medium 2 in order to achieve the required seeding density. Seed cells onto Corning® Matrigel®-coated cultureware and culture as described in the PIS for Neural Progenitor Medium 2 (Document #DX20712), available at www.stemcell.com or contact us to request a copy.

NEURAL PROGENITOR CELL DIFFERENTIATION

For differentiation to mixed neurons, dopaminergic neurons, or astrocytes, refer to the PIS for STEMdiff™ Neuron Differentiation Kit (Document #DX20341), STEMdiff™ Dopaminergic Neuron Differentiation Kit (Document #DX20343), or STEMdiff™ Astroctye Differentiation Kit (Document #DX20345), respectively, available at www.stemcell.com or contact us to request a copy.