Neuro-2a

400394

GENERAL INFORMATION

Description

The Neuro-2a cell line, often abbreviated as N2A cells, is a mouse neuroblastoma cell line derived from the neural crest. These cells are known for their rapid proliferation and ability to differentiate into neuron-like cells under certain conditions, making them a valuable model for studying neurogenesis and neuronal differentiation. Neuro-2a cells exhibit characteristics typical of nerve cells or neuroblasts, which are precursors to fully differentiated neuronal cells.
One of the key features of mouse Neuro 2a cells is their utility in exploring the mechanisms of differentiation, particularly in the context of dopaminergic neurons. These cells can be induced to express markers characteristic of dopamine neurons, including the dopamine transporter and proteins involved in dopamine receptor localization. This makes the N2A cell line an essential tool for studies related to the normal neuroendocrine system and disorders associated with dopaminergic signaling.
The N2A cell line also provides insights into the role of various genes and proteins in neuronal function and development. For instance, the DNMT3A gene, known for its involvement in DNA methylation processes, has been studied in Neuro-2a cells to understand its impact on neuronal cells and neurodevelopmental processes. The expression of the human thyroid hormone receptor in these cells allows researchers to investigate thyroid hormone response and its influence on neurodevelopment and the differentiation of neuroblastoma cells into more mature neuronal phenotypes. Protein kinase signaling pathways are another area of intense study in N2A cells, given their critical role in mediating various cellular processes, including cell growth, differentiation, and response to extracellular signals.
In summary, the Neuro-2a (N2A) cell line, derived from mouse neuroblastoma, serves as a versatile model for studying neurogenesis, neuronal differentiation, and dopaminergic signaling, providing valuable insights into the molecular underpinnings of neurodevelopmental processes and neuroendocrine disorders.

Disease	Neuroblastoma

Synonyms

- NEURO-2A
- Neuro 2a
- Neuro2a
- Neuro2A
- N-2a
- N2a
- N2A
- Nb2a
- NB2a

CLASSIFICATION

Organism	Mouse
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Cell type	Neuronal and amoeboid stem cells

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IDENTIFIERS

Citation

Neuro-2a (Cytion catalog number 400394)

NCBI TaxID	10090
Cellosaurus	CVCL_0470

EXPRESSION AND SUSCEPTIBILITY

Antigen expression

H-2a

Viruses

Ectromelia virus (mousepox): negative

Virus resistance

Poliovirus 1

Reverse transcriptase	Negative

Products

Tubulin, acetylcholinesterase

HANDLING AND CULTURE

Culture medium

EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS and 1% NEAA

Dissociation reagent	Accutase

Subculturing

Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.

Seeding density	1 x 10^4 cells/cm^2
Fluid renewal	1 to 2 times per week
Post-thaw recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

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Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required.
For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

Sterility

Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods.
To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.

Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

Storage conditions

For long-term preservation, place vials in vapor-phase liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

Shipping conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately −78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.

DONOR

Breed / subspecies	A/J

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes

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