Product sheet

Neuro-2a Cells | 400394

Renseignements généraux

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.
Organism	Mouse
Disease	Neuroblastoma
Synonyms	NEURO-2A, Neuro 2a, Neuro2a, Neuro2A, N-2a, N2a, N2A, Nb2a, NB2a

Caractéristiques

Breed/Subspecies	A/J
Cell type	Neuronal and amoeboid stem cells
Growth properties	Adherent

Données réglementaires

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Citation	Neuro-2a (Cytion catalog number 400394)
Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_0470

Données biomoléculaires

Antigen expression	H-2a
Viruses	Ectromelia virus (mousepox): negative
Virus resistance	Poliovirus 1
Reverse transcriptase	Negative
Products	Tubulin, acetylcholinesterase

Manipulation

Culture Medium	EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)
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	1×10^4 cells/cm^2

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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.
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.
Thawing and Culturing Cells	1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 2. 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. 3. 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. 4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening. 5. 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. 6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium. 7. 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. 8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.
Incubation Atmosphere	37°C, 5% CO_2, humidified atmosphere.
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.

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.

Contrôle de la qualité et analyse moléculaire

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.