Neuro-2a-Luc

305690

GENERAL INFORMATION

Description

Neuro-2a-Luc is a luciferase-expressing derivative of the Neuro-2a (N2a) mouse neuroblastoma cell line. Neuro-2a cells originate from murine neural crest-derived neuroblastoma tissue and are widely used as an in vitro model for neuronal differentiation, neurotoxicity studies, signal transduction research, and neuro-oncology investigations. Stable expression of a luciferase reporter enables sensitive, quantitative bioluminescent detection of viable cells and cellular activity, making Neuro-2a-Luc particularly useful for longitudinal monitoring in both in vitro and in vivo experimental systems. Depending on the reporter design, luciferase expression may be constitutive or linked to pathway-specific promoter activity.

Neuro-2a-Luc cells are commonly employed in applications involving tumor growth tracking, high-throughput drug screening, neural differentiation assays, and real-time assessment of therapeutic responses. In xenograft and metastasis models, luciferase-based bioluminescence imaging allows noninvasive monitoring of tumor burden and disease progression with high sensitivity. Neuro-2a-derived systems are also extensively used to study neuronal morphology, neurite outgrowth, apoptosis, oxidative stress, and mechanisms associated with neurodegenerative disease. The luciferase modification facilitates rapid quantitative analysis of cell proliferation, cytotoxicity, transcriptional activity, or pathway modulation in response to pharmacological or genetic perturbations.

As with other engineered reporter cell lines, experimental performance of Neuro-2a-Luc may depend on factors including luciferase construct integration site, promoter configuration, substrate compatibility, and stability of reporter expression over serial passage. Additional characterization data, including details regarding the luciferase variant, selection marker, and validation assays, may be required for highly specialized experimental applications.

Tissue	Peripheral nervous system
Disease	Neuroblastoma

Synonyms

- Neuro2A-Luc

CLASSIFICATION

Organism	Mouse
Sex	Male
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: This cell line contains a stably integrated firefly luciferase reporter cassette (Luc2, codon-optimized) introduced via replication-incompetent lentiviral transduction. The resulting polyclonal cell population was maintained under puromycin selection (1–5 µg/mL). S1 containment is required. This classification applies only within Germany and may differ elsewhere.

Biosafety level	1

CHARACTERISTICS

Cell type	Neuronal and amoeboid stem cells

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IDENTIFIERS

Citation

Neuro-2a-Luc (Cytion catalog number 305690)

NCBI TaxID	10090
Cellosaurus	CVCL_K046

EXPRESSION AND SUSCEPTIBILITY

Antigen expression

Luc2 (firefly, codon-optimized)

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 to 3 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week

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 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium.
Follow the procedure described under Post-Thaw Recovery

QUALITY CONTROL AND CRYOPRESERVATION

Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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.

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.

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