NG108-15

305844

GENERAL INFORMATION

Description

The NG108-15 cell line is a well-characterized neuroblastoma × glioma hybrid cell line derived by fusing the mouse neuroblastoma clone N18TG2 with the rat glioma clone C6-BU-1. This fusion results in a cell type that robustly expresses a range of neuron-like properties, making NG108-15 a widely used model for neurobiological and neuropharmacological research. The hybrid cells exhibit a high degree of electrical excitability and express neuronal enzymes such as choline acetyltransferase, enabling the synthesis, storage, and release of acetylcholine. These cells form extensive processes and are capable of generating action potentials in response to electrical or chemical stimulation.
NG108-15 cells have been shown to form functional chemical synapses with muscle cells, including both primary mouse embryonic myotubes and clonal myotube lines such as G-8. In co-culture systems, NG108-15 cells can innervate myotubes, producing synaptic potentials in response to evoked action potentials. These responses are dependent on acetylcholine and can be blocked by d-tubocurarine, confirming the cholinergic nature of the synapses. Notably, the efficiency of synaptic transmission varies but remains physiologically meaningful, with a significant proportion of hybrid action potentials successfully inducing muscle depolarization. The postsynaptic responses are closely mimicked by iontophoretic application of acetylcholine, further supporting their cholinergic identity.
NG108-15 cells are large, neuron-like cells with processes and a neuroblastoma-like morphology. They exhibit both mouse and rat karyotypic features and display hybrid isozyme patterns consistent with their mixed genetic background. These cells maintain neuron-like phenotypes even at higher passage numbers, although some properties, such as choline acetyltransferase activity, may decline over time. Overall, NG108-15 cells are considered a robust in vitro model for studying neuronal differentiation, neurotransmission, and synaptogenesis, particularly in the context of acetylcholine-mediated signaling.

Tissue	Brain
Disease	Glioblastoma

Synonyms

- NG108-15
- NG-108-15
- NG 108-15
- NG10815

CLASSIFICATION

Organism	Mouse
Growth properties	Adherent and suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Flat; round; 10 to 100 micrometers diameter
Cell type	Somatic cell hybrid

IDENTIFIERS

Citation

NG108-15 (Cytion catalog number 305844)

NCBI TaxID	10090

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Cellosaurus	CVCL_0464

HANDLING AND CULTURE

Culture medium

Medium: The base medium for this cell line is Dulbecco's Modified Eagle's Medium (GIBCO/InVitrogen Catalog No. 12100-061, DMEM without sodium pyruvate).
To make the complete growth medium, add the following components to the base medium:
0.1 mM hypoxanthine (final concentration)
400 nM aminopterin (final concentration)
0.016 mM thymidine (final concentration)
10% fetal bovine serum (final concentration)
1.5 g/L sodium bicarbonate

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.
Dissociation reagent	Accutase
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 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.

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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