SK-N-LO

300400

GENERAL INFORMATION

Description

The SK-N-LO cell line is a human neuroblastoma cell line used in research to study neuroblastoma as well as mechanisms of apoptosis and cancer signaling pathways. It is also classified as a primitive neuroectodermal tumor (PNET) cell line and carries the EWS-FLI1 fusion gene, commonly found in Ewing's sarcoma family tumors (ESFT). This fusion gene results from a chromosomal translocation and plays a key role in the oncogenic behavior of these tumor cells.
SK-N-LO cells are particularly sensitive to certain inhibitors targeting oncogenic signaling pathways. For example, the GLI inhibitor GANT61 has been shown to induce caspase-independent apoptosis in SK-N-LO cells. GANT61 disrupts GLI1 and GLI2-mediated transcription in the Hedgehog (Hh) signaling pathway, which is critical for cell survival and proliferation in this cell line. When treated with GANT61, SK-N-LO cells exhibit morphological changes associated with apoptosis, such as chromatin condensation and nuclear fragmentation. Furthermore, GANT61 reduces the expression of proteins like GLI2 and survivin, which are important for cell cycle progression and survival, while increasing the expression of p21, a cyclin-dependent kinase inhibitor.
Additionally, SK-N-LO cells have been utilized to study opioid receptor signaling. These cells have been engineered to express the μ-opioid receptor, making them a valuable model for investigating the interaction between opioid-induced analgesia and intracellular signaling pathways. For instance, studies have shown that morphine stimulates Akt phosphorylation in SK-N-LO cells via the PI3Kγ pathway, a process that can be modulated by cAMP signaling. This highlights the versatility of SK-N-LO cells in exploring both cancer biology and neuropharmacology.

Tissue	Brain
Disease	Primitive Neuroectodermal tumor
Metastatic site	Bone marrow

Synonyms

- SK-N-L0
- SKN-LO
- SKNLO

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like

Karyotype

Phenotype Frequency Product: 0.00005

IDENTIFIERS

Citation

SK-N-LO (Cytion catalog number 300400)

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NCBI TaxID	9606
Cellosaurus	CVCL_4569

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	3 to 4 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 50% basal medium + 40% FBS + 10% DMSO, 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

Donor age	10 years
Ethnicity	Caucasian

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