Product sheet

SK-N-SH Cells | 305028

General information

Description	The SK-N-SH cell line is a human neuroblastoma model originally established from the bone marrow aspirate of a child with metastatic neuroblastoma. It is widely used in cancer research, particularly for studying neuronal differentiation, neuroblastoma biology, and therapeutic interventions. The cell line is notable for its heterogeneity and its ability to differentiate into neuronal-like and non-neuronal phenotypes under appropriate conditions, which closely mimics the cellular diversity observed in neuroblastoma tumors. Chromosome analysis of SK-N-SH revealed a near-diploid karyotype with numerical and structural abnormalities. The line consistently displays trisomy of chromosome 7, along with translocations involving chromosomes 9 and 17. Specifically, a segment of chromosome 17 translocates to chromosome 22, resulting in partial trisomy of chromosome 17. Despite these alterations, SK-N-SH cells exhibit relatively stable karyotypic features compared to other neuroblastoma models, making them suitable for studying chromosomal aberrations in neuroblastoma. Functionally, SK-N-SH cells possess neuronal properties and express neuroblastoma markers, including neurotransmitter synthesis enzymes, which are indicative of their neural crest origin. Importantly, SK-N-SH cells can be induced to differentiate into neuron-like cells with morphological and biochemical changes. Agents such as retinoic acid are commonly used to trigger this differentiation, resulting in increased neurite outgrowth and expression of neuronal markers. This property makes SK-N-SH a valuable tool for examining neuronal differentiation pathways, neurotoxicity, and neuroblastoma therapeutic targets. SK-N-SH serves as a robust and versatile model for investigating neuroblastoma progression, neuronal differentiation, and therapeutic responses. Its karyotypic stability and ability to differentiate into neuronal phenotypes provide a platform for translational research into pediatric cancers and neuronal development.
Organism	Human
Tissue	Brain
Disease	Neuroblastoma
Metastatic site	Bone marrow
Synonyms	SK N SH, SKN-SH, SK-NSH, SKNSH, NSH

Characteristics

Age	4 years
Gender	Female
Ethnicity	European

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Morphology	Epithelial
Growth properties	Adherent

Regulatory Data

Citation	SK-N-SH (Cytion catalog number 305028)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0531

Biomolecular Data

Protein expression	Plasminogen Activator, Shows Increased Expression Of M-Csf After Treatment With Amyloid-Beta Peptide.
Antigen expression	Blood Type A, Rh

Handling

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.
Fluid renewal	2 to 3 times per week

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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.
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.

Quality Control & Molecular Analysis

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.