Product sheet

NCH690 Cells | 300120

General information

Description	The NCH640 cell line is a glioblastoma stem-like cell model used in research to explore the mechanisms of tumor resistance, cellular survival under stress, and therapeutic responses. Glioblastoma, one of the most aggressive forms of brain tumors, is difficult to treat due to its resistance to therapy and adaptation to a hostile microenvironment. NCH640 is cultured in specialized media such as Neurobasal A with supplements like B27, and its growth is supported by essential growth factors like EGF and FGF-2. It is often used alongside other glioma stem cell models, such as NCH690 and NCH644, to investigate these biological phenomena. The research on NCH640 focuses heavily on its resistance mechanisms, particularly under hypoxic conditions. Glioma cells like NCH640 show significant reliance on metabolic adaptations, including altered reactive oxygen species (ROS) regulation. Studies have demonstrated that targeting pathways such as the integrated stress response (ISR) in NCH640 and related cell lines may improve their sensitivity to therapies like temozolomide, which is commonly used in glioblastoma treatment. These findings are important for devising new strategies to overcome the inherent resistance of glioma stem-like cells to standard therapeutic interventions.
Organism	Human
Tissue	Brain
Disease	Glioblastoma

Characteristics

Age	78 years
Gender	Female
Ethnicity	Caucasian
Growth properties	Spheroid culture, partly adherent

Regulatory Data

Citation	NCH690 (Cytion catalog number 300120)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_x915

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Biomolecular Data

Tumorigenic	Yes

Handling

Culture Medium	DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)
Supplements	Supplement the medium with 10% FBS, 5 mg/L Heparin, 20 ng/mL bFGF, 20 microgram/L EGF, 5 mg/L Insulin, 100 mg/L Transferrin, 5,2 microgram/L Na-selenit, 6,3 microgram/L Progesteron, 161,1 microgram/L Putrescin, 50 mg/L Hydrocortinson
Subculturing	For subculturing spheroid cultures, begin by mechanically dissociating the spheroids through pipetting up and down 5 to 10 times using an Eppendorf pipette with 1000 µl filter tips. After this, centrifuge the mixture at 300g for 5 minutes at room temperature to pellet the cells. Discard the supernatant and resuspend the cell pellet in fresh culture medium. Finally, transfer the resuspended cells into new culture vessels to promote further spheroid formation. This approach ensures efficient spheroid breakdown and readies them for continued growth in a new environment.
Seeding density	1 x 10^5 cells/mL
Fluid renewal	2 to 3 times per week
Post-Thaw Recovery	After thawing allow the cells to recover from the freezing process for at least 24 to 48 hours.
Freeze medium	As a cryopreservation medium, 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 / Genetic profile / HLA

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.