

C6 Cells | 500142

General information

Description

The C6 cell line maintains glial cell type with fibroblast morphology and originates from a glioma of a Wistar-Furth rat. The glioma was induced by exposure to N-nitrosomethylurea, following numerous cycles of alternating culture and animal passages.

The C6 glioma cell line is frequently utilized in neuro-oncology research to create animal models that closely mimic the characteristics of human glioma, aiding in the development of new therapeutic agents and strategies. It is particularly effective in 3D cell culture and high-throughput screening.

C6 cells are genetically diverse, possessing a wild-type p53 gene, increased Rb gene expression, and a mutant p16/Cdkn2a/Ink4a locus but lacking p16 and p19ARF mRNA expression. They also overexpress several genes in human gliomas, such as PDGF β , IGF-1, EGFR, and Erb3/Her3 precursor proteins.

However, the expression of IGF-2, FGF-9, and FGF-10 is reduced, while MMP-7 gene expression remains unchanged. Like human gliomas, C6 cells show increased activity of the Ras pathway genes, which is regulated by the elevated expression of the Ras guanine triphosphate activator protein.

The C6 cell line has been utilized in various studies. For instance, it was used to examine the ability of 2-(2,4-dihydroxy phenyl)thieno-1,3-thiazin-4-one (BChTT) to halt cancer cell proliferation and to investigate the mechanisms involved in this process.

In another research, the cytotoxic and antioxidant properties of the supercritical CO₂ extract (SCE) of an old man's beard (*Usnea barbata*) were studied using C6 cells. Interestingly, these cells have been reported to show increased levels of glycerol phosphate dehydrogenase activity in response to glucocorticoids.

Organism

Rat

Tissue

Brain

Disease

Glioma

Synonyms

C-6, C 6, RGC-6, RGC6, RGC6

Characteristics

Age

Unspecified

Gender

Male

Morphology

Fibroblast-like

Cell type

Glial cells

C6 Cells | 500142

Growth properties	Adherent
--------------------------	----------

Regulatory Data

Citation	C6 (Cytion catalog number 500142)
-----------------	-----------------------------------

Biosafety level	1
------------------------	---

NCBI_TaxID	10116
-------------------	-------

CellosaurusAccession	CVCL_0194
-----------------------------	-----------

Biomolecular Data

Receptors expressed	Glucocorticoid
----------------------------	----------------

Viruses	Positive for LCMV
----------------	-------------------

Virus susceptibility	Vesicular stomatitis (Indiana), vaccinia, herpes simplex
-----------------------------	--

Virus resistance	Poliovirus 3
-------------------------	--------------

Reverse transcriptase	Negative
------------------------------	----------

Products	S-100 protein, production of glyceryl phosphate dehydrogenase in response to glucocorticoids, somatotrophin.
-----------------	--

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO ₃ (Cytion article number 820700a)
-----------------------	--

Supplements	Supplement the medium with 10% FBS
--------------------	------------------------------------

Dissociation Reagent	Accutase
-----------------------------	----------

C6 Cells | 500142

Doubling time 24 hours

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 1×10^4 cells/cm² will yield in a confluent layer in about 4 days

Fluid renewal 2 to 3 times per week

Post-Thaw Recovery After thawing, plate the cells at 5×10^4 cells/cm² and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

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.

C6 Cells | 500142

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% CO₂, 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

C6 Cells | 500142

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.