T98G

305030

GENERAL INFORMATION

Description

The T98G cell line is a human glioblastoma multiforme model derived from a 61-year-old male patient. It was established to study the molecular mechanisms of tumorigenesis, cellular proliferation, and transformation. T98G cells exhibit a unique combination of both normal and transformed cellular characteristics, which makes them a valuable model for investigating cancer biology. Specifically, while T98G cells are immortal and capable of anchorage-independent growth, they retain the ability to undergo G1 phase arrest under stationary-phase conditions, a property typically associated with normal cells.
In terms of growth characteristics, T98G cells exhibit anchorage independence, as demonstrated by their ability to form colonies in methylcellulose, a semi-solid medium. However, unlike many transformed cell lines, they arrest in the G1 phase of the cell cycle when subjected to conditions of high cell density or low serum concentration. This unique ability to undergo G1 arrest under these conditions sets T98G apart from other cancer cell lines, such as HeLa or the parental T98 cells, which continue to proliferate under similar circumstances. This phenotype suggests that while T98G cells are transformed, they retain certain regulatory mechanisms that control cell cycle progression.
Cytogenetically, T98G cells are highly aneuploid, with a modal chromosome number of 124-126, indicating significant chromosomal instability. The presence of marker chromosomes and minute chromosomes in their karyotype further reflects the genetic alterations commonly associated with glioblastoma multiforme. Despite their transformed and aneuploid nature, T98G cells are non-tumorigenic when injected into nude mice, demonstrating that anchorage independence alone is insufficient for tumorigenicity.
The T98G cell line serves as an important tool for studying glioblastoma progression, cell cycle regulation, and the interplay between normal and transformed cellular behaviors. Its ability to retain aspects of normal G1 arrest makes it a particularly useful model for exploring mechanisms underlying cellular transformation, cell cycle checkpoints, and therapeutic targets for glioblastoma.

Tissue	Brain
Disease	Glioblastoma

Synonyms

- T 98 G
- T-98G
- T98 G
- T98-G

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Fibroblast
Doubling time	40 hours

IDENTIFIERS

Citation

T98G (Cytion catalog number 305030)

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NCBI TaxID	9606
Cellosaurus	CVCL_0556

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.

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	61 years
Ethnicity	European

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