NCI-H2452

300391

GENERAL INFORMATION

Description

The NCI-H2452 cell line is a human malignant pleural mesothelioma cell line, which was derived from the pleura of a patient with mesothelioma. It is frequently used in research focused on understanding mesothelioma pathophysiology and developing new therapeutic approaches. Like other mesothelioma cell lines, NCI-H2452 is associated with exposure to asbestos fibers, a well-established risk factor for mesothelioma. Studies involving NCI-H2452 have highlighted its utility in exploring mechanisms of disease progression and response to various therapies, particularly gene therapies and viral oncolysis approaches.
NCI-H2452 cells express Coxsackie and adenovirus receptor (CAR) and CD46, which makes them suitable candidates for adenovirus-based gene therapy studies. In research investigating oncolytic virotherapy, both adenovirus type 5 (Ad5) and a fiber-modified variant (Ad5F35) have been tested on NCI-H2452 cells. These adenoviruses replicate selectively within tumor cells, inducing oncolysis in a viral particle-dependent manner. It was found that both Ad5 and Ad5F35 displayed similar efficacy in inducing cell death in NCI-H2452 cells, supporting their potential in gene therapy for malignant mesothelioma.
In addition to its role in oncolytic virotherapy, NCI-H2452 cells have been used to study tumor angiogenesis, a key factor in mesothelioma progression. NCI-H2452 expresses progranulin (PGRN) and granulin-like proteins, which have been identified as novel angiogenic factors that operate independently of the VEGF pathway. This VEGF-independent angiogenesis is crucial, as it offers alternative therapeutic targets in cases where anti-VEGF therapies like bevacizumab fail to improve patient outcomes. Research indicates that these granulins contribute significantly to the formation of new blood vessels, which supports tumor growth and may be involved in the resistance to certain treatments.

Tissue	Lung
Disease	Pleural biphasic mesothelioma

Synonyms

- NCI-H2452
- H-2452
- NCIH2452

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent

CHARACTERISTICS

Morphology	Epithelial

IDENTIFIERS

Citation

NCI-H2452 (Cytion catalog number 300391)

NCBI TaxID	9606
Cellosaurus	CVCL_1553

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS

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.

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 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.

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	Adult
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

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