NCI-H2052

305836

GENERAL INFORMATION

Description

NCI-H2052 is a human mesothelioma cell line derived from a pleural biopsy specimen of an adult patient diagnosed with malignant mesothelioma. As part of the NCI-Navy Medical Oncology Branch cell line panel, it has been widely utilized in mesothelioma research due to its reproducible growth characteristics and defined histological origin. The cell line was established under IRB-approved protocols aimed at generating clinically annotated cancer models, making it particularly valuable for translational studies linking in vitro behavior with patient disease characteristics.

Phenotypically, NCI-H2052 displays epithelial morphology, a feature consistent with the epithelioid subtype of mesothelioma. The cells grow as adherent monolayers in vitro and are maintained in RPMI-1640 medium supplemented with 10% fetal bovine serum. Genomic profiling has identified alterations characteristic of mesothelioma, including dysregulation of pathways involving CDKN2A and NF2, though NCI-H2052 specifically retains wild-type BAP1 and displays relatively low mutation burden compared to other mesothelioma models. These molecular traits position NCI-H2052 as a reference model for studying mesothelioma pathogenesis and therapeutic response, especially in contexts excluding BAP1-driven phenotypes.

This cell line has been incorporated into comprehensive pharmacogenomic and transcriptomic datasets, where it contributes to the comparative analysis of mesothelioma subtypes and therapeutic sensitivities. It has shown moderate responsiveness to agents targeting the PI3K/mTOR axis and has been used in high-throughput screening platforms to identify potential synthetic lethal interactions and novel treatment approaches. Due to its molecular profile and origin, NCI-H2052 remains a cornerstone in mesothelioma drug development and molecular characterization studies.

Tissue	Pleural effusion
Disease	Pleural sarcomatoid mesothelioma

Synonyms

- H2052
- H-2052
- H2052_MM
- NCIH2052

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial
Cell type	Epithelial like
Doubling time	48 hours

IDENTIFIERS

Citation

NCI-H2052 (Cytion catalog number 305836)

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IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

NCBI TaxID	9606
Cellosaurus	CVCL_1518

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: Gene deletion, CDKN2A, Homozygous. Gene deletion, LATS2, Homozygous. Mutation, NF2, Simple, p.Arg341Ter (c.1021C>T), Homozygous, RASSF2, Simple, p.Glu294Ter (c.880G>T), Heterozygous, TERT, Simple, c.1-124C>T (c.228C>T) (C228T), Unspecified, Note=In promoter (PubMed=31068700)

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
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 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	65 years
Ethnicity	Caucasian

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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