Product sheet

NCI-H2052 Cells | 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.
Organism	Human
Tissue	Pleural effusion
Disease	Pleural sarcomatoid mesothelioma
Synonyms	H2052, H-2052, H2052_MM, NCIH2052

Characteristics

Age	65 years
Gender	Male
Ethnicity	Caucasian
Morphology	Epithelial
Cell type	Epithelial like

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Growth properties	Adherent

Regulatory Data

Citation	NCI-H2052 (Cytion catalog number 305836)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1518

Biomolecular Data

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

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	48 hours
Fluid renewal	2 to 3 times per week
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.

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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.
Flask Coating	None
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

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.