NCI-H2009

305283

GENERAL INFORMATION

Description

The NCI-H2009 cell line is derived from a human non-small cell lung carcinoma (NSCLC), specifically an adenocarcinoma. This cell line is extensively used in lung cancer research to study the molecular and cellular mechanisms underlying adenocarcinoma, the most common subtype of NSCLC. NCI-H2009 cells are valuable for investigating genetic mutations, signal transduction pathways, and therapeutic responses associated with lung adenocarcinoma.
NCI-H2009 cells exhibit an epithelial morphology and express markers characteristic of lung adenocarcinoma, including cytokeratins and carcinoembryonic antigen (CEA). They harbor genetic alterations frequently observed in NSCLC, such as mutations in the KRAS gene, which is pivotal in cell signaling, growth, and survival. Researchers utilize NCI-H2009 cells to explore key signaling pathways involved in lung cancer progression, such as the EGFR, KRAS, and PI3K/Akt pathways. These cells are also employed in high-throughput drug screening assays and preclinical testing of chemotherapeutic agents, targeted therapies, and immunotherapies. Additionally, NCI-H2009 cells are used to study mechanisms of drug resistance and to develop strategies to overcome it. The relevance of the NCI-H2009 cell line in lung adenocarcinoma research highlights its importance in advancing our understanding of lung cancer biology and in developing new and more effective treatment approaches for patients with NSCLC.

Tissue	Lung
Disease	Adenocarcinoma
Metastatic site	Lymph node

Synonyms

- H2009
- H-2009
- NCIH2009

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial

IDENTIFIERS

Citation

NCI-H2009 (Cytion catalog number 305283)

NCBI TaxID	9606
Cellosaurus	CVCL_1514

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EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: B2M, p.Met1Val (c.1A>G), heterozygous; Mutation: B2M, p.Gln28Ter (c.82C>T), heterozygous; Mutation: KRAS, p.Gly12Ala (c.35G>C), heterozygous; Mutation: TERT, c.1-124C>T (c.228C>T) (C228T); Mutation: TP53, p.Arg273Leu (c.818G>T), homozygous

Viruses

Transformant: Epstein-Barr virus (EBV)

HANDLING AND CULTURE

Culture medium

HITES medium supplemented
The base medium for this cell line is DF12. To make the complete growth medium,
add the following components to the base medium:
0.005 mg/ml Insulin
0.01 mg/ml Transferrin
30 nM Sodium selenite (final conc.)
10 nM Hydrocortisone (final conc.)
10 nM beta-estradiol (final conc.)
Extra 2 mM L-glutamine (for final conc. of 4.5 mM)
5% fetal bovine serum (final conc.)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.
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 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	68 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