NCI-H1993

305463

GENERAL INFORMATION

Description

The NCI-H1993 cell line is a human non-small cell lung cancer (NSCLC) model derived from a metastatic site in a male patient. Classified as an adenocarcinoma, this cell line is notable for its MET gene amplification, which drives tumor growth and enhances invasive characteristics. MET amplification in NCI-H1993 results in constitutive activation of the hepatocyte growth factor (HGF)/MET signaling pathway, promoting cell proliferation, survival, and metastasis. This makes NCI-H1993 a critical model for studying MET-driven oncogenesis and evaluating targeted therapeutic agents.

NCI-H1993 has been extensively utilized in the preclinical assessment of MET inhibitors such as crizotinib and tepotinib. These inhibitors have demonstrated significant efficacy in suppressing MET signaling, reducing tumor cell proliferation and inducing apoptosis. The cell line's responsiveness to MET inhibition highlights its utility in translational research aimed at developing treatments for MET-driven cancers. In addition to MET-targeted studies, NCI-H1993 has been used to explore the interplay between MET signaling and other oncogenic pathways, such as the PI3K/AKT and RAS/RAF/ERK cascades.

Recent investigations into the response of NCI-H1993 to glucocorticoid receptor (GR) agonists like dexamethasone have revealed novel insights. The cell line exhibits GR-mediated growth arrest at the G1/S phase transition, accompanied by metabolic reprogramming and reduced migration. These findings suggest potential combinatorial therapeutic strategies involving GR agonists and MET inhibitors for treating advanced NSCLC. The robust genetic and molecular characterization of NCI-H1993 continues to support its role as a pivotal tool for advancing the understanding of lung adenocarcinoma biology and therapy development.

Tissue	Lung
Disease	Adenocarcinoma
Metastatic site	Lymph node

Synonyms

- H1993
- H-1993
- NCIH1993

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like

IDENTIFIERS

Citation

NCI-H1993 (Cytion catalog number 305463)

NCBI TaxID	9606
Cellosaurus	CVCL_1512

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Banking information
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EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: TP53, p.Cys242Trp (c.726C>G), homozygous

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

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	47 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.

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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