NCI-H1373

305597

GENERAL INFORMATION

Description

The NCI-H1373 cell line is a human non-small cell lung carcinoma (NSCLC) model harboring the KRAS G12C mutation, which is frequently associated with oncogenesis in lung adenocarcinoma. This mutation results in constitutive activation of downstream signaling pathways such as the mitogen-activated protein kinase (MAPK) and phosphoinositide 3-kinase (PI3K) pathways, driving tumor proliferation and survival. NCI-H1373 is extensively used in research to evaluate the efficacy of novel therapeutic agents targeting KRAS G12C and related oncogenic pathways.

In preclinical studies, NCI-H1373 has been employed to assess the activity of emerging KRAS G12C inhibitors such as ASP2453. This inhibitor demonstrated potent, selective, and covalent binding to the mutant KRAS protein, suppressing KRAS-mediated signaling and tumor cell proliferation in vitro. The cell line was also used in xenograft models, where ASP2453 induced significant tumor regression. This activity underscores NCI-H1373's utility in understanding the therapeutic potential and mechanisms of novel KRAS inhibitors.

Additionally, NCI-H1373 has been utilized in genome-wide CRISPR knockout screens to explore mechanisms of resistance to PARP7 inhibitors. The results revealed that loss of aryl hydrocarbon receptor (AHR) signaling is associated with resistance to PARP7 inhibition, suggesting potential combination strategies. Such studies demonstrate the cell line's role in identifying resistance pathways and optimizing targeted therapies for KRAS G12C-mutated NSCLC.

Tissue	Lung
Disease	Adenocarcinoma

Synonyms

- H1373
- H-1373
- NCIH1373

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like

IDENTIFIERS

Citation

NCI-H1373 (Cytion catalog number 305597)

NCBI TaxID	9606
Cellosaurus	CVCL_1465

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: KRAS, p.Gly12Cys (c.34G>T), homozygous; Mutation: TP53, p.Pro47Leu (c.140C>T), 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

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 TrypLE Express, 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	56 years
Ethnicity	African American

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