HCC4006

305785

GENERAL INFORMATION

Description

HCC4006 is a human non-small cell lung cancer (NSCLC) cell line derived from a lung adenocarcinoma. It is characterized by an activating exon 19 deletion in the EGFR gene, which makes it particularly sensitive to EGFR tyrosine kinase inhibitors (TKIs) such as erlotinib and gefitinib. This feature has made HCC4006 a widely used model for studying EGFR-mutant NSCLC and resistance mechanisms to EGFR-targeted therapies. In the Cancer Cell Line Encyclopedia (CCLE), HCC4006 has been comprehensively profiled at the genomic, transcriptomic, and epigenetic levels, confirming its high sensitivity to EGFR inhibition and highlighting its use as a pharmacogenomic reference model.

High-resolution genomic studies have revealed that HCC4006 displays a relatively simple karyotype compared to other NSCLC models, which may facilitate clearer interpretation of drug responses and genomic alterations. It lacks common resistance mutations such as T790M in the EGFR gene, making it suitable for modeling initial treatment responses. However, resistance can be induced in vitro, allowing researchers to study mechanisms of acquired resistance. For example, resistance to EGFR TKIs in HCC4006 has been linked to epithelial-mesenchymal transition (EMT) and activation of alternative signaling pathways, such as AXL kinase overexpression.

HCC4006 has also been assessed in large-scale transcriptomic comparisons of cell lines and primary tumors. It is one of the lung adenocarcinoma cell lines that demonstrates a moderate correlation to primary tumor gene expression profiles, though the degree of correlation can vary depending on the purity of the tumor samples used for comparison. These analyses underscore the relevance of HCC4006 in modeling certain molecular aspects of lung adenocarcinoma, particularly those associated with EGFR-driven oncogenesis, while also emphasizing its limitations in fully recapitulating the heterogeneity of primary tumors.

Tissue	Metastatic
Disease	Lung adenocarcinoma
Metastatic site	Pleural effusion

Synonyms

- HCC-4006
- Hamon Cancer Center 4006

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial
Cell type	Epithelial cell
Doubling time	46 hours

IDENTIFIERS

Citation

HCC4006 (Cytion catalog number 305785)

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

NCBI TaxID	9606
Cellosaurus	CVCL_1269

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: EGFR, Simple, p.Leu747_Glu749del (c.2239_2247delTAAGAGAA), Heterozygous (ATCC=CRL-2871, TP53, Simple, p.Tyr205His (c.613T>C), Homozygous (DepMap=ACH-000066).

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	>50 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