MHCC-97H

305442

GENERAL INFORMATION

Description

The MHCC-97H cell line is a human hepatocellular carcinoma (HCC) model with a high metastatic potential. It was established from the MHCC97 parental line, derived from a male patient with HCC linked to hepatitis B virus (HBV) infection. MHCC-97H has been extensively utilized in studies focusing on cancer metastasis, particularly because it consistently demonstrates spontaneous lung metastases following orthotopic implantation in mouse models. This feature makes it a valuable resource for exploring the mechanisms of HCC progression and metastasis.
MHCC-97H cells exhibit an epithelial morphology and possess key genetic and molecular characteristics contributing to their aggressive metastatic behavior. The line is noted for its upregulation of matrix metalloproteinases (MMP-2 and MMP-9), which facilitate extracellular matrix degradation and promote invasive capabilities. Proteomic analyses have identified several differentially expressed proteins in MHCC-97H compared to its low-metastatic counterpart MHCC-97L, including elevated levels of pyruvate kinase M2 and S100 calcium-binding protein A4. These findings highlight their utility in studying the molecular pathways governing metastasis.
MHCC-97H is used in preclinical research for testing therapeutic strategies targeting metastasis. In vivo models involving this cell line allow researchers to investigate the efficacy of treatments aimed at mitigating metastatic spread, especially to the lungs. Additionally, MHCC-97H aids in the development of biomarkers for predicting HCC aggressiveness and in studying the tumor microenvironment's role in metastasis. These applications underscore its critical importance in advancing our understanding of hepatocellular carcinoma biology.

Tissue	Liver
Disease	Adult hepatocellular carcinoma

Synonyms

- MHCC 97-H
- MHCC97-H
- MHCC97H

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	2

CHARACTERISTICS

Tumourigenic	High metastatic potential

IDENTIFIERS

Citation

MHCC-97H (Cytion catalog number 305442)

NCBI TaxID	9606
Cellosaurus	CVCL_4972

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EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: BRD7, p.Glu277Glyfs*18 (c.830_831delAG); Mutation: KEAP1, p.Pro445Glnfs*13 (c.1334delC); Mutation: TP53, p.Glu51Ter (c.151G>T)

Viruses

Transformant: Hepatitis B virus (HBV)

HANDLING AND CULTURE

Culture medium

DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)

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 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.

Seeding density	1.5 to 4 x 10^4 cells/cm^2

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	39 years
Ethnicity	Chinese

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