Product sheet

HCC-LM3 Cells | 305504

General information

Description	The HCC-LM3 cell line is an established model for studying hepatocellular carcinoma (HCC), particularly due to its high metastatic potential. This cell line has been instrumental in uncovering mechanisms related to tumor proliferation, migration, and treatment resistance. Research on HCC-LM3 cells has revealed their involvement in exploring drug responses and the molecular pathways influencing cancer aggressiveness. For example, circular RNA circMRPS35 has been shown to play an oncogenic role in HCC-LM3, promoting cell proliferation, migration, invasion, and chemoresistance, particularly to cisplatin. Mechanistically, circMRPS35 functions by sponging microRNA-148a-3p, leading to the upregulation of Syntaxin 3 (STX3), which modulates phosphatase and tensin homolog (PTEN) stability through ubiquitination and degradation. In addition, studies have identified significant metabolic shifts in HCC-LM3 cells that correlate with tumor growth and survival. This cell line, along with other HCC models, demonstrates marked alterations in glucose and lipid metabolism, which support rapid tumor proliferation and are considered hallmarks of liver cancer. Research employing single-cell RNA sequencing has illuminated how metabolic heterogeneity within hepatocyte subpopulations impacts prognosis and therapeutic outcomes. Notably, metabolic pathway analyses in HCC-LM3 have been essential for identifying potential biomarkers and therapeutic targets for improved clinical strategies.
Organism	Human
Tissue	Liver
Disease	Adult hepatocellular carcinoma
Metastatic site	Lung
Synonyms	HCCLM-3, HCC-LM3, LM3, MHCC-LM3, MHCCLM3

Characteristics

Age	39 years
Gender	Male
Ethnicity	Chinese
Morphology	Epithelial-like
Cell type	Epithelial cells
Growth properties	Adherent

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Regulatory Data

Citation	HCC-LM3 (Cytion catalog number 305504)
Biosafety level	2
NCBI_TaxID	9606
CellosaurusAccession	CVCL_6832

Biomolecular Data

Protein expression	Albumin+, CK8+
Antigen expression	HBsAg-
Oncogenes	AFP+, P53-, P16+, nm23-
Viruses	Transformant: Hepatitis B virus (HBV)
Mutational profile	Mutation: BRD7, p.Glu277Glyfs*18 (c.830_831delAG); Mutation: KEAP1, p.Pro445Glnfs*13 (c.1334delC); Mutation: TP53, p.Glu51Ter (c.151G>T)
Karyotype	Hypotriploid karyotype; Average chromosome number: 55-58

Handling

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)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase

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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.
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.

Thawing and Culturing Cells

1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
2. 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.
3. 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.
4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
5. 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.
6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
7. 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.
8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

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

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.
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.

Quality Control & Molecular Analysis

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.