Product sheet

HUH-1 Cells | 305553

General information

Description	The HuH-1 cell line is derived from a human hepatocellular carcinoma (HCC) and is used extensively in liver cancer research. This cell line has shown the ability to produce and secrete various liver-specific proteins, including those typically found in human plasma. Notably, HuH-1 cells, like other human hepatoma cell lines, can express and release hepatitis B surface antigen (HBsAg) in culture, providing a model for studying hepatitis B virus-related HCC mechanisms. The ability to produce HBsAg in culture suggests that HuH-1 cells retain differentiated functions similar to those of liver cells in vivo. HuH-1 cells are also instrumental in the investigation of regulatory mechanisms in liver cancer, particularly those involving microRNAs and their targets. For example, studies have demonstrated that miR-182 upregulation can enhance the metastatic potential of HCC cells, including HuH-1, by downregulating metastasis suppressor 1 (MTSS1). This downregulation promotes invasive behavior and highlights the role of specific microRNAs in modulating gene expression and influencing cancer cell behavior. Such insights are valuable for understanding the progression of HCC and developing targeted therapeutic strategies. The HuH-1 cell line's utility extends to research on the tumor microenvironment and its interactions with viral elements, making it a suitable model for exploring the intricate relationships between oncogenes, suppressor genes, and viral proteins. This cell line aids in elucidating the multifaceted pathways of hepatocarcinogenesis and the development of anti-cancer therapies tailored to liver cancer's molecular underpinnings.
Organism	Human
Tissue	Liver
Disease	Adult hepatocellular carcinoma
Synonyms	huH-1, HuH-1, huH 1, HuH1, HUh1, HUH1, huH1

Characteristics

Age	53 years
Gender	Male
Ethnicity	Japanese
Morphology	Epithelial-like
Growth properties	Adherent

Regulatory Data

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Citation	HUH-1 (Cytion catalog number 305553)
Biosafety level	2
NCBI_TaxID	9606
CellosaurusAccession	CVCL_2956

Biomolecular Data

Viruses	Transformant: Hepatitis B virus (HBV). Cells are producing HBs-antigen continuously in culture medium.
Mutational profile	Mutation: AXIN1, p.Asn302Profs*111 (c.904_907delAACC); Mutation: TP53, p.Arg110Leu (c.329G>T), homozygous

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
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.
Seeding density	2-4*10^4/cm^2
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

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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.