Product sheet

Huh-7.5.1 Cells | 305491

General information

Description	The Huh-7.5.1 cell line is a subclone derived from the Huh-7 hepatoma cells, known for its enhanced permissiveness to hepatitis C virus (HCV) replication. Developed as an improved version of the Huh-7.5 cell line, Huh-7.5.1 cells were established from a cured HCV replicon cell line and exhibit higher susceptibility to HCV infection compared to their predecessors. They are capable of supporting robust HCV replication cycles, which makes them a favored model for studying HCV life cycles, including viral entry, RNA replication, and the production of infectious particles. The use of Huh-7.5.1 cells has been particularly valuable in HCV research due to their increased efficiency in viral RNA replication and infectious virus production. This cell line exhibits high viral titers, typically reaching 10^4 to 10^5 infectious units per milliliter in culture supernatants during HCV-JFH1 strain infections. This characteristic permits detailed analysis of viral pathogenesis and antiviral responses in vitro. Importantly, Huh-7.5.1 cells are employed in screening for antiviral compounds that target HCV, aiding the development of treatments against HCV and providing insights into resistance mechanisms. Additionally, the cells have been used in broader studies involving viral interactions with host cell machinery, lipid metabolism, and related therapeutic targets. For example, inhibition of cellular pathways such as the SKI-1/S1P protease-mediated SREBP pathway has demonstrated impacts on virus replication within Huh-7.5.1 cells, highlighting their utility for research into host-directed antiviral strategies.
Organism	Human
Tissue	Liver
Disease	Adult hepatocellular carcinoma
Synonyms	Huh 7.5.1, Huh7.5.1

Characteristics

Age	57 years
Gender	Male
Ethnicity	Japanese
Growth properties	Adherent

Regulatory Data

Citation	Huh-7.5.1 (Cytion catalog number 305491)

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Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_E049

Biomolecular Data

Virus susceptibility	Compared to the parent Huh-7 cell line, permits improved hepatitis C virus (HCV) production when infected with strain JFH-1.
Mutational profile	Mutation: KDR, p.Gln472His (c.1416A>T), homozygous; Mutation: POLD3, p.Lys109Arg (c.326A>G) (p.Lys70Arg, c.209A>G); Mutation: RIGI, p.Thr55Ile (c.164C>T); Mutation: TERT, c.1-124C>T (c.228C>T) (C228T); Mutation: TP53, p.Tyr220Cys (c.659A>G), 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
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

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.