

## HuH7 Cells | 300156

### General information

#### Description

HuH-7 cells are a type of epithelial-like, tumorigenic cell line initially taken from a liver tumor in a 57-year-old Japanese male in 1982. The human hepatoma-derived HuH-7 cell line and its derivatives have been widely used in research as a convenient experimental substitute for primary hepatocytes. In particular, they have been instrumental in hepatitis C research and used as host cells for propagating the virus in vitro. HuH-7 cells have played a crucial role in hepatitis C research, especially when it comes to drug development. Prior to 2005, researchers were unable to cultivate the hepatitis C virus in the laboratory, making it difficult to test potential drug candidates against it.

The introduction of the HuH-7 cell line changed that. These cells are highly permissive to the replication of the hepatitis C virus, making them ideal for in vitro testing. By using the HuH-7 cells, researchers were able to screen drug candidates against laboratory-grown hepatitis C, which paved the way for the development of new drugs to fight the virus. Unlike other established human hepatoma cell lines, HuH-7 cells can be propagated in a chemically defined medium containing trace amounts of selenium in place of serum. This allows for systematic studies of the in vitro effects of various compounds on their growth and metabolism.

Most HuH-7 cells have a chromosome number between 55 and 63 and typically grow as 2D monolayers. The growth medium for HuH-7 cells should be renewed 2-3 times a week or as needed according to the media pH, and cell confluency should be maintained between 30 to 90%. The doubling time of these cells is 24 to 50 hours. In comparison to HepG2 cells, which have been commonly used as a model for the study of synthesis and secretion of human apoB-100, Huh-7 cells were adopted as an alternative model with the assumption that they would be superior in some respects of lipoprotein metabolism, including VLDL secretion. However, it was found that Huh-7 cells did not offer any advantages over HepG2 cells as a general model of human apoB100-lipoprotein metabolism.

#### Organism

Human

#### Tissue

Liver

#### Disease

Hepatocellular carcinoma

#### Metastatic site

Hepatoma

#### Synonyms

HuH-7, HUH-7, Huh-7, Huh7, HUH7, HUH7.0, JTC-39, Japanese Tissue Culture-39

### Characteristics

#### Age

57 years

#### Gender

Male

#### Ethnicity

Japanese

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**Morphology** Epithelial-like

**Growth properties** Adherent

### Identifiers / Biosafety / Citation

**Citation** HuH7 (Cytion catalog number 300156)

**Biosafety level** 1

**Depositor** T. Lindl

### Expression / Mutation

**Tumorigenic** Yes, in nude mice.

**Viruses** Negative for HPV, HCV and HIV.

### Handling

**Culture Medium** RPMI 1640, w: 2.1 mM stable Glutamine, w: 2.0 g/L NaHCO<sub>3</sub> (Cytion article number 820700a)

**Medium supplements** Supplement the medium with 10% FBS

**Passaging solution** Accutase

**Doubling time** 48 hours

**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.

**Split ratio** A ratio of 1:4 to 1:6 is recommended

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**Seeding density** 1 to 2 x 10<sup>4</sup> cells/cm<sup>2</sup> during routine cell culture

**Fluid renewal** Every 3 days

**Freezing recovery** Start culture using 2 to 3 x 10<sup>4</sup> cells/cm<sup>2</sup>. The cells will recover within 24 to 48 hours.

**Freeze medium** CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

#### Handling of cryopreserved cultures

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. Optionally, skip centrifugation but remove any remaining freezing medium after 24 hours.
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.

## Quality control / Genetic profile / HLA

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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.

#### STR profile

**Amelogenin:** x,x

**CSF1PO:** 11

**D13S317:** 10

**D16S539:** 10

**D5S818:** 12

**D7S820:** 11

**TH01:** 7

**TPOX:** 8,11

**vWA:** 18

**D3S1358:** 15

**D21S11:** 30

**D18S51:** 15

**Penta E:** 11

**Penta D:** 12

**D8S1179:** 14,15

**FGA:** 22,23

**D1S1656:** 16

**D6S1043:** 13,15

**D2S1338:** 19

**D12S391:** 20

**D19S433:** 13,14

#### HLA alleles

**A\*:** 11:01:01

**B\*:** 02:01:1900 06:01

**C\*:** 01:02:01

**DRB1\*:** 08:03:02

**DQA1\*:** 01:03:01

**DQB1\*:** 06:01:01

**DPB1\*:** 02:01:02