SNU-449

305429

GENERAL INFORMATION

Description

SNU-449 is a human hepatocellular carcinoma (HCC) cell line widely used in research to study liver cancer biology, drug resistance, apoptosis, and novel therapeutic strategies. As hepatocellular carcinoma is one of the most aggressive and common liver malignancies with poor prognosis, cell lines like SNU-449 are critical for understanding the molecular mechanisms underlying cancer progression and drug responses.
SNU-449 has been particularly useful in studies involving apoptosis and ferroptosis, a regulated form of cell death associated with iron-dependent lipid peroxidation. For example, research has shown that agents like sorafenib, a standard treatment for advanced HCC, and artesunate synergize to induce ferroptosis in SNU-449 cells. This combination exacerbates lipid peroxidation and oxidative stress, leading to extensive cancer cell death. This synergy occurs because artesunate promotes lysosomal ferritin degradation (ferritinophagy), which increases free iron availability, while sorafenib impairs mitochondrial function and depletes glutathione, a critical antioxidant.
SNU-449 has also been used to explore apoptotic pathways in liver cancer. For example, genistein, a natural isoflavone, induces apoptosis in SNU-449 cells by down-regulating thioredoxin-1 (Trx1), an antioxidant protein that regulates reactive oxygen species (ROS) and inhibits apoptosis. Genistein treatment increases ROS levels and activates apoptosis-related pathways, including caspase-3 activation and DNA fragmentation. These findings highlight SNU-449 as a valuable model for studying both apoptosis and ferroptosis, aiding in the development of targeted therapies for hepatocellular carcinoma.

Tissue	Liver
Disease	Adult hepatocellular carcinoma

Synonyms

- SNU449
- NCI-SNU-449

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	2

CHARACTERISTICS

Morphology	Epithelial-like

IDENTIFIERS

Citation

SNU-449 (Cytion catalog number 305429)

NCBI TaxID	9606
Cellosaurus	CVCL_0454

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Banking information
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EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: ARID1A, p.Glu2250Argfs*28 (c.6747dupA); Mutation: AXIN1, p.Arg712Ter (c.2134C>T), homozygous; Mutation: TP53, p.Lys139Arg (c.416A>G); Mutation: TP53, p.Ala161Thr (c.481G>A), homozygous

Viruses

HBV

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

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

Supplements

Supplement the medium with 10% heat-inactivated FBS, add 2.5 g/L glucose and 25 mM HEPES

Dissociation reagent	Accutase

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	52 years
Ethnicity	Korean

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

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