HSC-3

305312

GENERAL INFORMATION

Description

HSC-3 is a human oral squamous cell carcinoma (OSCC) cell line commonly used to investigate oral cancer biology, particularly in studies focusing on apoptosis, cell cycle regulation, and cancer treatment. Oral squamous cell carcinoma is the most common type of oral cancer and is associated with poor prognosis due to its high metastatic potential and late-stage diagnosis. HSC-3 cells are derived from a primary tumor and are known for their aggressive properties, making them a relevant model for testing novel anticancer compounds and therapies.
Several studies have demonstrated that HSC-3 cells undergo apoptosis and autophagy in response to natural compounds and anticancer agents. For example, piperine, an alkaloid from black pepper, was found to reduce cell viability and induce apoptosis in a dose-dependent manner. Apoptotic bodies, DNA fragmentation, and increased expression of pro-apoptotic proteins such as Bax were observed in HSC-3 cells treated with piperine. Additionally, piperine was shown to activate both apoptosis and autophagy through inhibition of the PI3K/Akt/mTOR signaling pathway, which is critical for cancer cell proliferation and survival. Similarly, other compounds like berberine and geniposide have also been shown to induce apoptosis by disrupting mitochondrial membrane potential and activating caspase pathways.
The utility of HSC-3 cells extends to in vivo studies, where their use in mouse xenograft models has demonstrated tumor growth inhibition when treated with natural compounds like piperine. These cells serve as a robust platform for evaluating the effectiveness of both traditional and novel cancer therapies.

Tissue	Tongue
Disease	Squamous cell carcinoma
Metastatic site	Cervical lymph node

Synonyms

- HSC 3
- HSC3

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

IDENTIFIERS

Citation

HSC-3 (Cytion catalog number 305312)

NCBI TaxID	9606
Cellosaurus	CVCL_1288

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: CDKN2A, p.Glu120Ter (c.358G>T), homozygous; Mutation: PIK3CA, p.Glu545Gly (c.1634A>G); Mutation: TERT, c.1-124C>T (c.228C>T); Mutation: TP53, p.Lys305fs (c.912_913insTAAG)

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HANDLING AND CULTURE

Culture medium

EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)

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

Supplements

Supplement the medium with 10% FBS and 1% NEAA

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 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.

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	64 years
Ethnicity	Japanese

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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