Product sheet

HSC-3 Cells | 305312

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.
Organism	Human
Tissue	Tongue
Disease	Squamous cell carcinoma
Metastatic site	Cervical lymph node
Synonyms	HSC 3, HSC3

Age	64 years
Gender	Male
Ethnicity	Japanese
Growth properties	Adherent

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Citation	HSC-3 (Cytion catalog number 305312)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1288

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)

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

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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.

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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.