Product sheet

SK-MES-1 Cells | 300339

General information

Description	SK-MES-1 is a human lung squamous cell carcinoma (LSQCC) cell line extensively used in lung cancer research, particularly in studies focusing on the second most common subtype of non-small cell lung cancer (NSCLC). SK-MES-1 cells are characterized by a high mutation rate in the tumor suppressor gene p53, which is implicated in their resistance to apoptosis and various chemotherapies. This cell line serves as an important model for evaluating novel therapeutic strategies against lung squamous cell carcinoma, particularly for drugs that target the cell cycle and apoptotic pathways. Studies involving SK-MES-1 have shown that the cell line is responsive to platinum-based chemotherapy agents, such as lobaplatin, which induce apoptosis via both intrinsic and extrinsic pathways. Lobaplatin, a third-generation platinum compound, has been shown to inhibit SK-MES-1 proliferation by inducing S-phase cell cycle arrest and promoting apoptosis through upregulation of pro-apoptotic proteins like Bax and downregulation of anti-apoptotic proteins such as Bcl-2. Additionally, SK-MES-1 cells treated with lobaplatin exhibited an increase in caspase-3, -8, and -9 activation, further supporting the involvement of mitochondrial-mediated apoptosis. SK-MES-1 has also been used to study the effects of other compounds, such as costunolide, a phytochemical that induces G1/S phase cell cycle arrest and apoptosis via a mitochondria-dependent pathway. Costunolide treatment increases the expression of p53 and Bax, while reducing Bcl-2 levels and disrupting mitochondrial membrane potential, further confirming the utility of SK-MES-1 in studying apoptosis-related pathways in lung squamous carcinoma.
Organism	Human
Tissue	Lung
Disease	Squamous cell carcinoma
Metastatic site	Pleural effusion
Synonyms	SK MES 1, SKMES-1, SK-Mes-1, SK-MES1, SKMES1, SK-MES, SKMES

Characteristics

Age	65 years
Gender	Male
Ethnicity	Caucasian
Morphology	Epithelial-like

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Growth properties	Adherent

Regulatory Data

Citation	SK-MES-1 (Cytion catalog number 300339)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0630

Biomolecular Data

Protein expression	P53 negative
Isoenzymes	Me-2, 1-2, PGM3, 1, PGM1, 1-2, ES-D, 1, AK-1, 1, GLO-1, 1, G6PD, B, Phenotype Frequency Product: 0.0132
Karyotype	The stemline chromosome number is hypotriploid, with the 2S component occurring at 3.2%. Seventeen to 20 marker chromosomes were common to most S metaphases. Normal x, 13, and 19 chromosomes were absent, and chromosomes 2, 3, 14, 17 and 20 were generally monosomic. The Y chromosome was not detected using QM staining.

Handling

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.

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Seeding density	1 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
Post-Thaw Recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.
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.