

## SK-MES-1 Cells | 300339

## Renseignements généraux

## 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

## Caractéristiques

**Age** 65 years

**Gender** Male

**Ethnicity** Caucasian

**Morphology** Epithelial-like

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**Growth properties** Adherent

## Données réglementaires

**Citation** SK-MES-1 (Cytion catalog number 300339)

**Biosafety level** 1

**NCBI\_TaxID** 9606

**CellosaurusAccession** CVCL\_0630

## Données biomoléculaires

**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.

## Manipulation

**Culture Medium** EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO<sub>3</sub>, 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**       $1 \times 10^4$  cells/cm<sup>2</sup>

**Fluid renewal**      2 to 3 times per week

**Post-Thaw Recovery**      After thawing, plate the cells at  $5 \times 10^4$  cells/cm<sup>2</sup> 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<sub>2</sub>, humidified atmosphere.

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### Shipping Conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately  $-78^{\circ}\text{C}$  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  $-196^{\circ}\text{C}$ . Storage at  $-80^{\circ}\text{C}$  is acceptable only as a short interim step before transfer to liquid nitrogen.

## Contrôle de la qualité et analyse moléculaire

### 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.