MES-SA

305827

GENERAL INFORMATION

Description

MES-SA is a human uterine sarcoma cell line derived from the pleural effusion of an adult patient with high-grade uterine leiomyosarcoma. As a model of soft tissue sarcoma, MES-SA displays characteristics of mesenchymal origin, including spindle-shaped morphology and smooth muscle actin expression. Cytogenetic analysis of MES-SA reveals complex karyotypic abnormalities, including multiple numerical and structural chromosomal alterations. Importantly, this cell line is widely used in studies of multidrug resistance and chemotherapy response, due to its documented sensitivity to doxorubicin and the availability of its drug-resistant subline, MES-SA/Dx5.
MES-SA exhibits wild-type p53 and retinoblastoma protein (Rb), making it a useful tool for studying drug responses in p53-competent backgrounds. In various functional genomics and proteomics screens, MES-SA has demonstrated consistent patterns of signal transduction pathway engagement, particularly those involving PI3K/Akt and MAPK pathways. Reverse-phase protein array profiling has confirmed the activity of these pathways and revealed protein expression signatures relevant to targeted therapy exploration. Moreover, the cell line is included in large-scale pharmacogenomic resources such as the Cancer Cell Line Encyclopedia, where it has been utilized for integrative analyses of drug sensitivity, genetic dependencies, and epigenetic modifications.
Recent investigations into chromatin state and gene regulation in MES-SA have highlighted epigenetic vulnerabilities, particularly involving promoter methylation and histone modification patterns. MES-SA serves as a model system in studies of histone deacetylase inhibitors and agents targeting chromatin modifiers. Its inclusion in both reverse-phase protein array and DNA methylation databases further enhances its relevance in preclinical drug development, especially for sarcoma-focused therapeutics. Collectively, MES-SA provides a robust and well-characterized platform for investigating the molecular underpinnings of uterine sarcomas and for evaluating therapeutic strategies targeting mesenchymal tumors.

Tissue	Uterus
Disease	Uterine corpus sarcoma

Synonyms

- MESSA

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Fibroblast
Cell type	Epithelial like
Tumourigenic	Yes; Yes, readily form colonies in soft agar. Yes, tumors developed within 21 days at 100% frequency (5/5) in nude mice inoculated subcutaneously with 10(7) cells.

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IDENTIFIERS

Citation

MES-SA (Cytion catalog number 305827)

NCBI TaxID	9606
Cellosaurus	CVCL_1404

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: Gene deletion, CDKN2A, Homozygous. Mutation, ARID1A, Simple, p.Gly1610Trpfs*38 (c.4826dupC) (p.S1609fs) (c.4825_4826insC), Heterozygous (Cosmic-CLP=908127), ARID1A, Simple, p.Thr1690Asnfs*8 (c.5068dupA) (c.5067_5068insA), Heterozygous (Cosmic-CLP=908127), PTEN, Simple, p.His272Thrfs*4 (c.813delT) (p.Phe271fs) (c.811delT), Heterozygous (Cosmic-CLP=908127)

HANDLING AND CULTURE

Culture medium

McCoys 5a, w: 3.0 g/L Glucose, w: stable Glutamine, w: 2.0 mM Sodium pyruvate, w: 2.2 g/L NaHCO3 (Cytion article number 820200a)

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

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase
Fluid renewal	2 to 3 times per week

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	56 years
Ethnicity	Caucasian

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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