Product sheet

MES-SA Cells | 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.
Organism	Human
Tissue	Uterus
Disease	Uterine corpus sarcoma
Synonyms	MESSA

Characteristics

Age	56 years
Gender	Female
Ethnicity	Caucasian
Morphology	Fibroblast

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Cell type	Epithelial like
Growth properties	Adherent

Regulatory Data

Citation	MES-SA (Cytion catalog number 305827)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1404

Biomolecular Data

Tumorigenic	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.
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

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)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Fluid renewal	2 to 3 times per week
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.