Product sheet

MS1 Cells | 305162

General information

Description	The MS1 cell line retains many properties characteristic of endothelial cells, including the uptake of acetylated low-density lipoprotein (acLDL) and the expression of Factor VIII-related antigen and VEGF receptor. These features make MS1 cells particularly valuable for studying endothelial cell functions and their role in vascular biology. The uptake of acLDL is a key function of endothelial cells, involved in lipid metabolism and atherogenesis, while the expression of Factor VIII-related antigen is indicative of their endothelial origin and involvement in coagulation processes. The presence of VEGF receptors further highlights their utility in angiogenesis research, as these receptors play a critical role in mediating the effects of VEGF in promoting blood vessel formation and maintenance. Moreover, the MS1 cell line expresses high levels of the tissue inhibitor of bioreactive matrix metalloproteinases (TIMPs), which regulates the activity of matrix metalloproteinases (MMPs). This expression pattern makes the behavior of MS1 cells resemble that of normal macrophages from some commonly used strains of mice. TIMPs are crucial in maintaining extracellular matrix homeostasis by inhibiting MMPs, which are involved in tissue remodeling and degradation. This unique characteristic of MS1 cells provides a dual model for studying both endothelial and macrophage-like behaviors, offering a broader understanding of vascular biology, tissue repair, and inflammatory responses. As such, the MS1 cell line is an invaluable tool for researchers investigating the intricate interactions between endothelial cells, macrophages, and their microenvironment.
Organism	Mouse
Tissue	Pancreas, islet of langerhans, endothelium
Synonyms	MILE SVEN 1, Mile Sven 1, MILE SVEN1, MS-1

Characteristics

Breed/Subspecies	C57BL/6
Age	Adult
Morphology	Endothelial
Growth properties	Adherent

Regulatory Data

Citation	MS1 (Cytion catalog number 305162)
Biosafety level	1

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NCBI_TaxID	10090
CellosaurusAccession	CVCL_6502
GMO Status	GMO-S1: This murine pancreatic endothelial-like cell line (MS1) contains a retroviral construct encoding temperature-sensitive SV40 T-Antigen (tsA-58-3) with neomycin selection, enabling conditional immortalization. The insert is stably present. This classification applies only within Germany and may differ elsewhere.

Biomolecular Data

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
Supplements	Supplement the medium with 10% FBS
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.
Fluid renewal	2 to 3 times per week
Freeze medium	As a cryopreservation medium, 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 / Genetic profile / HLA

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.