

MV3 Cells | 305495

General information

Description

The MV3 cell line is a human melanoma model established from a metastatic lymph node of a male patient with amelanotic melanoma. This cell line is highly metastatic and tumorigenic, making it a key resource for studying melanoma progression and metastasis. MV3 cells exhibit significant invasive properties, supported by their robust ability to degrade extracellular matrix components. This capability is mediated through the urokinase-type plasminogen activator (u-PA) pathway and its regulation by plasminogen activator inhibitors (PAI-1 and PAI-2). MV3 cells are characterized by their expression of metastasis-associated markers, such as integrins (e.g., VLA-2) and growth factor receptors, which are linked to their aggressive phenotype.

In xenograft models, MV3 cells demonstrate rapid tumor formation and a high frequency of spontaneous metastases, particularly to the lungs. These traits have been pivotal in preclinical research aimed at unraveling the mechanisms underlying melanoma dissemination and therapy resistance. MV3 tumors in nude mice retain histological features of the original patient-derived tumor, including high mitotic activity and limited pigmentation. The procoagulant properties of MV3 cells further contribute to their metastatic behavior, as they exhibit tissue factor activity and can directly activate prothrombin to thrombin, enhancing interactions with the tumor microenvironment.

MV3 has also been employed in studies focused on the role of cell surface molecules and their regulation in melanoma metastasis. For instance, the cell line expresses significant levels of intercellular adhesion molecule-1 (ICAM-1) and epidermal growth factor receptor (EGFR), which are associated with enhanced metastatic potential. The model continues to be instrumental in evaluating targeted therapies and understanding the molecular drivers of melanoma malignancy.

Organism

Human

Tissue

Skin

Disease

Amelanotic melanoma

Metastatic site

Lymph node

Synonyms

MV-3, MV 3

Characteristics

Age

76 years

Gender

Male

Ethnicity

Unspecified

Morphology

Epithelial-like

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Growth properties	Adherent
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Regulatory Data

Citation	MV3 (Cytion catalog number 305495)
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Biosafety level	1
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NCBI_TaxID	9606
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CellosaurusAccession	CVCL_W280
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Biomolecular Data

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO ₃ , w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
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Supplements	Supplement the medium with 10% heat-inactivated FBS
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Dissociation Reagent	Accutase
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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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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.
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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% CO₂, 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

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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.