MDA-MB-175VII

305825

GENERAL INFORMATION

Description

MDA-MB-175-VII is a human breast cancer cell line originally derived from the pleural effusion of an adult female patient with infiltrating ductal mammary carcinoma. The cell line is part of a series established from metastatic breast tumors to provide viable, fibroblast-poor epithelial cultures. Specifically, MDA-MB-175 was isolated from six of eight thoracenteses performed on a patient who underwent mastectomy and exhibited recurrent malignant pleural effusions. The tumor cells were consistently viable and cultured successfully across samples, which provided a stable platform for in vitro studies of metastatic breast cancer biology.
MDA-MB-175-VII cells are morphologically epithelial and have a modal chromosome number of approximately 49, reflecting an aneuploid karyotype. These cells exhibit relatively slow growth in vitro but have gained scientific interest due to their unique molecular features, including the expression of neuregulin-1 (NRG1) fusion transcripts. In particular, the NRG1-DOC4 fusion observed in this line leads to constitutive activation of the HER3/HER4 receptor pathway, promoting autocrine signaling and cell proliferation. This molecular characteristic has positioned MDA-MB-175-VII as a rare but critical model for studying autocrine HER-family receptor signaling and its pharmacological targeting in breast cancer .
Further integration into large-scale datasets such as the Cancer Cell Line Encyclopedia (CCLE) has enabled deeper molecular profiling of MDA-MB-175-VII. These datasets include transcriptomic, mutational, and proteomic information that support the classification of the cell line within the luminal subtype of breast cancers, with modest sensitivity to agents targeting HER-family receptors and PI3K signaling pathways. As such, MDA-MB-175-VII serves as a valuable model for preclinical investigations of targeted therapies and the functional consequences of oncogenic gene fusions in breast cancer.

Tissue	Metastatic
Disease	Invasive breast carcinoma of no special type
Metastatic site	Pleural effusion

Synonyms

- MDA MB 175 VII
- MDA-MB-175VII
- MDAMB175VII
- MDA-MB-175
- MDAMB175
- MDA-175
- MDA175
- MD Anderson-Metastatic Breast-175-VII

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial
Cell type	Epithelial

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Tumourigenic	Yes; Yes, Tumors developed within 21 days at 100% frequency (5/5) in nude mice inoculated subcutaneously with 10(7) cells.

Karyotype

Model number = 84; range = 82 to 89

Doubling time	112 hours

IDENTIFIERS

Citation

MDA-MB-175VII (Cytion catalog number 305825)

NCBI TaxID	9606
Cellosaurus	CVCL_1400

EXPRESSION AND SUSCEPTIBILITY

Isoenzymes

AK-1, 1
ES-D, 1
G6PD, B
GLO-I, 1-2
PGM1, 2
PGM3, 1-2

Mutational profile

Mutation: Gene fusion, NRG1 + HGNC, TENM4, Name(s)=TENM4-NRG1, DOC4-NRG1, Note=In frame.

HANDLING AND CULTURE

Culture medium

DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)

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

Supplements

Supplement the medium with 10% FBS + Insulin (5 microgram/ml)

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	African American

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

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