Product sheet

MDA-MB-453 Cells | 305042

Renseignements généraux

Description	The MDA-MB-453 cell line is a widely studied human breast carcinoma cell line derived from the metastatic site of pleural effusion in a female adult patient. This cell line is known for its utility in breast cancer research due to its unique characteristics, including its androgen receptor (AR) positivity and lack of estrogen receptor (ER) and progesterone receptor (PR) expression. These features make MDA-MB-453 an invaluable model for studying triple-negative breast cancer (TNBC) and the role of androgen receptors in breast cancer progression and therapy resistance. MDA-MB-453 cells exhibit epithelial morphology and adhere to culture surfaces, forming polygonal cell shapes. The cell line is also characterized by its high proliferative capacity and ability to grow in vitro and in vivo, which is essential for preclinical studies involving drug testing and the investigation of molecular pathways. Genetic analysis of MDA-MB-453 cells reveals mutations in key oncogenes and tumor suppressors, including the PIK3CA gene, which is often implicated in cancer cell survival and growth. These cells are also utilized in the study of targeted therapies, particularly those aimed at the PI3K/AKT/mTOR signaling pathway and AR inhibitors, to develop more effective treatments for TNBC patients.
Organism	Human
Tissue	Mammary gland, breast
Disease	Adenocarcinoma
Metastatic site	Pericardial effusion
Synonyms	MDA-MB 453, MDA MB 453, MDA-MB453, MDAMB453, MDA-453, MDA453, MD Anderson-Metastatic Breast-453

Caractéristiques

Age	48 years
Gender	Female
Ethnicity	European
Morphology	Epithelial
Growth properties	Adherent

Données réglementaires

Cytion

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Citation	MDA-MB-453 (Cytion catalog number 305042)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0418

Données biomoléculaires

Receptors expressed	Fibroblast growth factor(FGF), expressed
Tumorigenic	No

Manipulation

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)
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, 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.

Contrôle de la qualité et analyse moléculaire

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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.