BCRJ Code:	0423
Cell Line:	MDA-MB-453
Species:	Homo sapiens
Vulgar Name:	Human
Tissue:	Breast; Mammary gland
Cell Type:	Epithelial
Morphology:	Epithelial
Disease:	Carcinoma; Metastatic
Growth Properties:	Adherent
Sex:	Female
Age/Ethinicity:	48 Year / White
Derivation:	MDA-MB-453 was derived in 1976 by R. Cailleau et al. from an effusion of a 48 year old female patient with metastatic carcinoma of the breast, involving the nodes, brain and both pleural and pericardial cavities.
Applications:	This cell line is a suitable transfection host.
DNA Profile:	Amelogenin: X CSF1PO: 10,12 D13S317: 12 D16S539: 9 D5S818: 11 D7S820: 10 TH01: 6 TPOX: 10 vWA: 17,18 D3S1358: 15 D21S11: 29,31 D18S51: 15,20 Penta_E: 11 Penta_D: 9,10 D8S1179: 10,12 FGA: 18,23 D19S433: 13,14 D2S1338: 23,24
Tumor Formation::	No; No, in immunosuppressed mice Yes, in semisolid medium Metastatic: Pericardial effusion
Products:	Expression markers Fibroblast growth factor (FGF), expressed Isoenzymes AK-1, 1 ES-D, 1-2 G6PD, B GLO-I, 1 PGM1, 1 PGM3, 1

Biosafety:	1
Addtional Info:	The cells overexpress FGF receptors.
Culture Medium:	Leibovitz's L-15 Medium and fetal bovine serum to a final concentration of 10%.
Subculturing:	Volumes are given for a 75 cm2 flask. Increase or decrease the amount of dissociation medium needed proportionally for culture vessels of other sizes. Corning® T-75 flasks (catalog #430641) are recommended for subculturing this product. Remove and discard culture medium. Briefly rinse the cell layer with 0.25% (w/v) Trypsin- 0.53 mM EDTA solution to remove all traces of serum that contains trypsin inhibitor. Add 2.0 to 3.0 mL of Trypsin-EDTA solution to flask and observe cells under an inverted microscope until cell layer is dispersed (usually within 5 to 15 minutes). Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal. Add 6.0 to 8.0 mL of complete growth medium and aspirate cells by gently pipetting. Add appropriate aliquots of the cell suspension to new culture vessels. Incubate cultures at 37°C without CO2.
Subculturing Medium Renewal:	2 to 3 times per week
Subculturing Subcultivation Ratio:	1:2 to 1:6 is recommended
Culture Conditions:	Atmosphere: air, 100%; carbon dioxide (CO2), 0% Temperature: 37°C
Cryopreservation:	95% FBS + 5% DMSO (Dimethyl sulfoxide)

Thawing Frozen Cells:

SAFETY PRECAUTION: It is strongly recommended to always wear protective gloves, clothing, and a full-face mask when handling frozen vials. Some vials may leak when submerged in liquid nitrogen, allowing nitrogen to slowly enter the vial. Upon thawing, the conversion of liquid nitrogen back to its gas phase may cause the vial to explode or eject its cap with significant force, creating flying debris.
1. Thaw the vial by gently agitating it in a 37°C water bath. To minimize contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
2. Remove the vial from the water bath as soon as its contents are thawed and decontaminate it by dipping in or spraying with 70% ethanol. From this point, all operations must be performed under strict aseptic conditions.
3. For cells sensitive to DMSO, it is recommended to remove the cryoprotective agent immediately. Transfer the vial contents to a centrifuge tube containing 9.0 mL of complete culture medium and centrifuge at approximately 125 × g for 5 to 7 minutes.
4. Discard the supernatant and resuspend the cell pellet in the recommended complete medium (see specific batch information for the appropriate dilution ratio).
5. Incubate the culture under appropriate atmospheric and temperature conditions (see "Culture Conditions" for this cell line).

NOTE: It is important to avoid excessive alkalinity of the medium during cell recovery. To minimize this risk, it is recommended to place the culture vessel containing the growth medium in the incubator for at least 15 minutes before adding the vial contents. This allows the medium to stabilize at its normal pH (7.0 to 7.6).

References:

Brinkley BR, et al. Variations in cell form and cytoskeleton in human breast carcinoma cells in vitro. Cancer Res. 40: 3118-3129, 1980. PubMed: 7000337 Siciliano MJ, et al. Mutually exclusive genetic signatures of human breast tumor cell lines with a common chromosomal marker. Cancer Res. 39: 919-922, 1979. PubMed: 427779 McLeskey SW, et al. MDA-MB-134 breast carcinoma cells overexpress fibroblast growth factor (FGF) receptors and are growth-inhibited by FGF ligands. Cancer Res. 54: 523-530, 1994. PubMed: 7506125 Cailleau R, et al. Long-term human breast carcinoma cell lines of metastatic origin: preliminary characterization. In Vitro 14: 911-915, 1978. PubMed: 730202 Soker S, et al. Characterization of novel vascular endothelial growth factor (VEGF) receptors on tumor cells that bind VEGF165 via its exon 7-endoded domain. J. Biol. Chem. 271: 5761-5767, 1996. PubMed: 8621443

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