

<b>Code:</b>	0165
<b>Cell Line:</b>	MDA-MB-435S
<b>Species:</b>	Homo sapiens
	<b>Vulgar Name:</b> Human
<b>Tissue:</b>	Previously Described As: Mammary Gland/Breast; Derived From Metastatic Site: Pleural Effusion
<b>Morphology:</b>	Spindle Shaped
<b>Disease:</b>	Previously Described As Ductal Carcinoma
<b>Growth Properties:</b>	Adherent
<b>Sex:</b>	Female
<b>Age Ethnicity:</b>	31 YEARS OLD; CAUCASIAN
<b>Derivation:</b>	MDA-MB-435S is a spindle shaped strain which evolved from the parent line (MDA-MB-435) isolated in 1976 (R. Cailleau et al.) from the pleural effusion of a 31 year old female with metastatic ductal adenocarcinoma of the breast. Parental cells displayed the dispersed pattern (type II) when treated with immunofluorescent stain for tubulin. However, recent studies have generated questions about the origin of the parent cell line, MDA-MB-435, and by extension MDA-MB-435S. Gene expression analysis of the cells produced microarrays in which MDA-MB-435 clustered with cell lines of melanoma origin instead of breast [PubMed ID: 10700174, PubMed ID: 15150101, PubMed ID: 15679052].
<b>DNA Profile:</b>	Amelogenin: X CSF1PO: 11 D13S317: 12 D16S539: 13 D5S818: 12 D7S820: 8,10 THO1: 6,7 TPOX: 8,11 vWA: 16,18
<b>Tumor Formation:</b>	No, in immunosuppressed mice Yes, in semisolid medium
<b>Products:</b>	Tubulin, actin
<b>Biosafety:</b>	1
<b>Culture Medium:</b>	Leibovitz's L-15 Medium contains 2 mM L-glutamine and no sodium bicarbonate, 0.01mg/mL bovine insulin, 0.01mg/mL glutathione and fetal bovine serum to a final concentration of

10%. Note: The L-15 medium formulation was devised for use in a free gas exchange with atmospheric air. A CO<sub>2</sub> and air mixture is detrimental to cells when using this medium for cultivation.

**Subculturing:**

Remove and discard culture medium. Briefly rinse the cell layer with PBS without calcium and magnesium to remove all traces of serum which 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. NOTE: For more information on enzymatic dissociation and subculturing of cell lines consult Chapter 12 in Culture of Animal Cells, a manual of Basic Technique by R. Ian Freshney, 6th edition, published by Alan R. Liss, N.Y., 2010.

**Medium Renewal:** 2 to 3 times per week

**Subcultivation ratio:** 1:3 to 1:6

**Culture Conditions:**

Atmosphere: air, 100% Temperature: 37°C

**Cryopreservation:**

95% FBS + 5% DMSO (Dimethyl sulfoxide)

**Thawing Frozen Cells:**

**SAFETY PRECAUTION:** It is highly recommended that protective gloves and clothing always be used and a full face mask always be worn when handling frozen vials. It is important to note that some vials leak when submerged in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vessel exploding or blowing off its cap with dangerous force creating flying debris.

1. Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the Oring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
2. Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions.
3. For cells that are sensitive to DMSO it is recommended that the

cryoprotective agent be removed immediately. Transfer the vial contents to a centrifuge tube containing 9.0 mL complete culture medium and spin at approximately 125 x g for 5 to 7 minutes.

4. Discard the supernatant and Resuspend cell pellet with the recommended complete medium (see the specific batch information for the culture recommended dilution ratio).

5. Incubate the culture in a appropriate atmosphere and temperature (see "Culture Conditions" for this cell line). NOTE: It is important to avoid excessive alkalinity of the medium during recovery of the cells. It is suggested that, prior to the addition of the vial contents, the culture vessel containing the growth medium be placed into the incubator for at least 15 minutes to allow the medium to reach 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

Cailleau R, et al. Long-term human breast carcinoma cell lines of metastatic origin: preliminary characterization. *In Vitro* 14: 911-915, 1978. PubMed: 730202

Sheng S, et al. Maspain acts at the cell membrane to inhibit invasion and motility of mammary and prostatic cancer cells. *Proc. Natl. Acad. Sci. USA* 93: 11669-11674, 1996. PubMed: 8876194

Zhu X, et al. Cell cycle-dependent modulation of telomerase activity in tumor cells. *Proc. Natl. Acad. Sci. USA* 93: 6091-6095, 1996. PubMed: 8650224

Ross DT, et al. Systematic variation in gene expression patterns in human cancer cell lines. *Nature Genetics* 24: 227-235, 2000. PubMed: 10700174

Ellison G, et al. Further evidence to support the melanocytic origin of MDA-MB-435. *Mol. Pathol.* 55: 294-299, 2002. PubMed: 12354931

Sellappan S, et al. Lineage infidelity of MDA-MB-435 cells: expression of melanocyte proteins in a breast cancer cell line. *Cancer Res.* 64: 3479-3485, 2004. PubMed: 15150101

Rae JM, et al. Common origins of MDA-MB-435 cells from various sources with those shown to have melanoma properties. *Clin. Exp. Metastasis* 21: 543-552, 2004. PubMed: 15679052

Rae JM, et al., MDA-MB-435 cells are derived from M14 Melanoma cells - a loss for breast cancer, but a boon for melanoma research. *Breast Cancer Res. Treat.* 104:13-19, 2007. PubMed: 17004106.

Chambers AF. MDA-MB-435 and M14 cell lines: identical but not M14 melanoma? *Cancer Res.* 69(13): 5292-5293, 2009. PubMed: 19549886.



# BANCO DE CÉLULAS DO RIO JANEIRO

Data Sheet

Página 4/4

**Depositors:** Maria da Glória da Costa Carvalho, IBCCF Universidade Federal do Rio de Janeiro.

**ATCC:** HTB-129