

Code:	0161
Cell Line:	MCF 10A
Species:	Homo sapiens
Vulgar Name:	Human
Tissue:	Mammary Gland/Breast
Morphology:	Epithelial
Disease:	Fibrocystic Disease
Growth Properties:	Adherent
Age Ethnicity:	36 YEARS OLD; CAUCASIAN
Applications:	This line is suitable as a transfection host.
DNA Profile:	Amelogenin: X CSF1PO: 10,12 D13S317: 8,9 D16S539: 11,12 D5S818: 10,13 D7S820: 10,11 THO1: 8,9.3 TPOX: 9,11 vWA: 15,17
Tumor Formation:	NO
Biosafety:	1
Additional info:	The MCF 10A cell line is a non-tumorigenic epithelial cell line. The cells are positive for epithelial sialomucins, cytokeratins and milk fat globule antigen. They exhibit three dimensional growth in collagen, and form domes in confluent cultures. Thus far, the cells have shown no signs of terminal differentiation or senescence. The line is responsive to insulin, glucocorticoids, cholera enterotoxin, and epidermal growth factor (EGF). By electron microscopy the cells display characteristics of luminal ductal cells but not of myoepithelial cells. They also express breast specific antigens as detected by positive reaction with MFA-Breast and MC-5 monoclonal antibodies. The calcium content of the medium exerts a strong effect on the morphology of the cells.
Culture Medium:	The base medium for this cell line (MEBM) along with the additives can be obtained from Lonza/Clonetics Corporation as a kit: MEGM, Kit Catalog No. CC-3150. BCRJ does not use the GA-1000 (gentamycin-amphotericin B mix) provided with kit. To

make the complete growth medium, you will need to add the following components to the kit (sold separately): 100 ng/ml cholera toxin. or Dulbecco's Modified Eagle's Medium (DMEM)/Ham's Nutrient Mixture F12 (1:1) with 2.5 mM L-glutamine, 5% horse serum, 10 µg/mL human insulin, 0.5 µg/mL hydrocortisone, 10 ng/mL EGF, and 100ng/mL cholera toxin. Note: Do not filter complete medium

Subculturing:

Remove medium and rinse monolayer with PBS without calcium and magnesium. Add 3.0 mL 0.05% trypsin, 0.53 mM EDTA and incubate at 37°C for 15 minutes. To neutralize trypsin, add 3 mL solution of 0.1% soybean trypsin inhibitor. Centrifuge cell suspension at 125 x g for 5 to 10 minutes. Resuspend cell pellet in complete culture medium. Add appropriate aliquots of cell suspension to new culture vessels. T-75 flasks are recommended for subculturing this product. 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 1:4

Culture Conditions:

Atmosphere: air, 95%; carbon dioxide (CO₂), 5% Temperature: 37°C

Cryopreservation:

95% FBS + 5% DMSO (Dimethyl sulfoxide)

Thawing Frozen Cells:

SAFETY PRECAUTION: Is highly recommend 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 submersed 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 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:

Soule H, McGrath CM. Immortal human mammary epithelial cell lines. US Patent 5,026,637 dated Jun 25 1991 Pauley RJ, et al. Immortal human mammary epithelial cell sublines. US Patent 5,206,165 dated Apr 27 1993 Soule HD, McGrath CM. A simplified method for passage and long-term growth of human mammary epithelial cells. *In Vitro Cell. Dev. Biol.* 22: 6-12, 1986. PubMed: 2418007 Soule HD, et al. Isolation and characterization of a spontaneously immortalized human breast epithelial cell line, MCF-10. *Cancer Res.* 50: 6075-6086, 1990. PubMed: 1975513 Tait L, et al. Ultrastructural and immunocytochemical characterization of an immortalized human breast epithelial cell line, MCF-10. *Cancer Res.* 50: 6087-6094, 1990. PubMed: 1697506

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ATCC:

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