BCRJ Code:	0161
Cell Line:	MCF 10A
Species:	Homo sapiens
Vulgar Name:	Human
Tissue:	Mammary Gland/Breast
Cell Type:	Epithelial
Morphology:	Epithelial
Disease:	Fibrocystic Disease
Growth Properties:	Adherent
Sex:	Female
Age/Ethinicity:	36 Year / 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

Addtional 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.
Subculturing Medium Renewal:	2 to 3 times per week
Subculturing Subcultivation Ratio:	1:3 to 1:4
Culture Conditions:	Atmosphere: air, 95%; carbon dioxide (CO_2), 5% 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:	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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