Data Sheet

BCRJ Code:	0392
Cell Line:	MDA-MB-231/ Luc
Species:	Homo sapiens
Vulgar Name:	Human
Tissue:	Breast
Morphology:	Epithelial-Like
Growth Properties:	Adherent, spindle shaped cells.
Derivation:	The MDA-MB-231 breast cancer cell line was obtained from a patient in 1973 at M. D. Anderson Cancer Center.
Tumor Formation::	Yes, in nude mice
Products:	Firefly luciferase gene and Neomycin resistant gene.
Biosafety:	1
Addtional Info:	The MDA-MB-231 breast cancer cell line was obtained from a patient in 1973 at M. D. Anderson Cancer Center. With epithelial-like morphology, the MDA-MB-231 breast cancer cells appear phenotypically as spindle shaped cells. In vitro, the MDA-MB-231 cell line has an invasive phenotype. It has abundant activity in both the Boyden chamber chemoinvasion and chemotaxis assay. The MDA-MB-231 cell line is also able to grow on agarose, an indicator of transformation and tumorigenicity, and displays a relatively high colony forming efficiency. In vivo, the MDA-MB-231 cells form mammary fat pad tumors in nude mice. IV injection of cells into the tail vein of nude mice has been shown to produce experimental metastasis. Our MDA-MB-231/Luc cell line stably expresses firefly luciferase gene and Neomycin resistant gene.
Culture Medium:	DMEM (high glucose) with 10% of fetal bovine serum (FBS), 0.1 mM MEM Non-Essential Amino Acids (NEAA).

Subculturing:	Monitor cell density daily. Cells should be passaged when the culture reaches 95% confluence. Remove medium, rinse with fresh 0.25% trypsin, 0.53 mM EDTA solution, remove trypsin and let the culture sit at 37°C for 10 to 15 minutes. Add fresh medium, aspirate and dispense into new flasks. 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.
Culture Conditions:	Atmosphere: air, 95%; carbon dioxide (CO2), 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:

1. Rangel, R. et al. (2016). Transposon mutagenesis identifies genes that cooperate with mutant Pten in breast cancer progression. PNAS 10.1073/pnas.1613859113. 2. Grandin, M. et al. (2016). Inhibition of DNA methylation promotes breast tumor sensitivity to netrin-1 interference. EMBO Mol Med. doi:10.15252/emmm.201505945. 3. Bassiouni, R. et al. (2016). Chaperonin containing-TCP-1 protein level in breast cancer cells predicts therapeutic application of a cytotoxic peptide. Clin Cancer Res. doi:10.1158/1078-0432.CCR-15-2502. 4. Wu, Y. et al. (2015). Programmable biopolymers for advancing biomedical applications of fluorescent nanodiamonds. Adv Funct Mater. doi:10.1002/adfm.201502704. 5. Kutty, R. V. et al. (2015). In vivo and ex vivo proofs of concept that cetuximab conjugated vitamin E TPGS micelles increases efficacy of delivered docetaxel against triple negative breast cancer. Biomaterials. doi:10.1016/j.biomaterials.2015.06.005. 6. Huang, F. & Mazin, A. V. (2014). A small molecule inhibitor of human RAD51 potentiates breast cancer cell killing by therapeutic agents in mouse xenografts. PLoS One. 9:e100993. 7. Graham, R. M. et al. (2014). Inhibition of the vacuolar ATPase induces Bnip3-dependent death of cancer cells and a reduction in tumor burden and metastasis. Oncotarget. 5:1162-1173.

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