

## MCF- 7/Luc Cell Line

**CATALOG NUMBER:** AKR-234

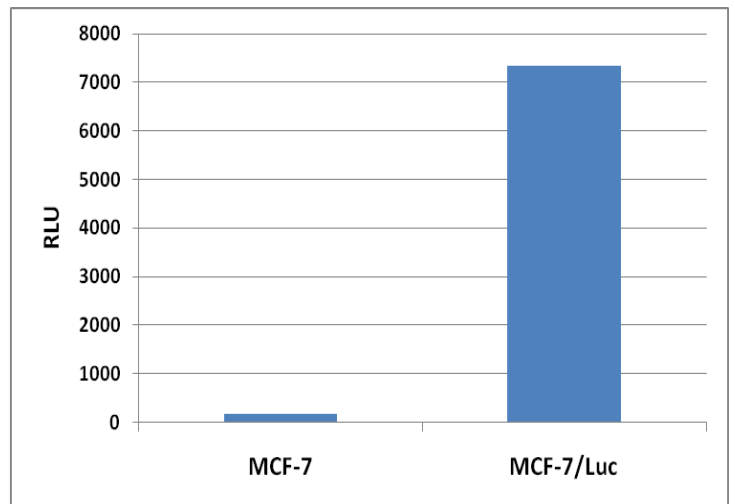
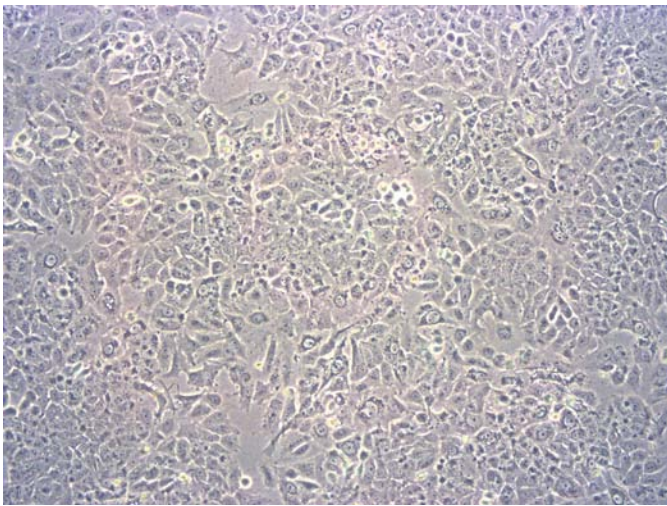
**STORAGE:** Liquid nitrogen

*Note: For best results begin culture of cells immediately upon receipt. If this is not possible, store at -80°C until first culture. Store subsequent cultured cells long term in liquid nitrogen.*

**QUANTITY & CONCENTRATION:** 1 mL,  $1 \times 10^6$  cells/mL in 70% DMEM, 20% FBS, 10% DMSO

### **Background**

MCF-7 is a human breast cancer cell line that was first isolated in 1970 from the malignant adenocarcinoma breast tissue of a 69-year old woman. MCF-7 is the acronym of Michigan Cancer Foundation - 7, referring to the institute in Detroit where the cell line was established. MCF-7 cells are useful for in vitro breast cancer studies because the cell line has retained several ideal characteristics particular to the mammary epithelium. These include the ability for MCF-7 cells to process estrogen via estrogen receptors. MCF-7 cells are also sensitive to cytokeratin. When grown in vitro, the cell line is capable of forming domes and the epithelial like cells grow in monolayers. Growth can also be inhibited using tumor necrosis factor alpha (TNF alpha). Our MCF-7/Luc cell line stably expresses firefly luciferase gene and Neomycin resistant gene.



**Figure 1.** MCF-7/Luc Cell Line. Left: Phase Contrast; Right: Luciferase Activity Assay.

### **Quality Control**

This cryovial contains at least  $1.0 \times 10^6$  MCF-7/Luc cells as determined by morphology, trypan-blue dye exclusion, and viable cell count. The MCF-7/Luc cells are tested free of microbial contamination.

## **Medium**

1. Culture Medium: D-MEM (high glucose), 10% fetal bovine serum (FBS), 0.1 mM MEM Non-Essential Amino Acids (NEAA), 2 mM L-glutamine, 1% Pen-Strep.
2. Freeze Medium: 70% DMEM, 20% FBS, 10% DMSO.

## **Methods**

### **Establishing MCF-7/Luc Cultures from Frozen Cells**

1. Place 10 mL of complete DMEM growth medium in a 50-mL conical tube. Thaw the frozen cryovial of cells within 1–2 minutes by gentle agitation in a 37°C water bath. Decontaminate the cryovial by wiping the surface of the vial with 70% (v/v) ethanol.
2. Transfer the thawed cell suspension to the conical tube containing 10 ml of growth medium.
3. Collect the cells by centrifugation at 1000 rpm for 5 minutes at room temperature. Remove the growth medium by aspiration.
4. Resuspend the cells in the conical tube in 15 mL of fresh growth medium by gently pipetting up and down.
5. Transfer the 15 mL of cell suspension to a T-75 tissue culture flask. Place the cells in a 37°C incubator at 5% CO<sub>2</sub>.
6. Monitor cell density daily. Cells should be passaged when the culture reaches 95% confluence.

## **Recent Product Citations**

1. Sridhar, S.S. et al. (2016). Tracking the dynamics of circulating tumour cell phenotypes using nanoparticle-mediated magnetic ranking. *Nature Nanotech.* doi:10.1038/nnano.2016.239.
2. Sardo, C. et al. (2016). Improvements in rational design strategies of inulin derivative polycation for siRNA delivery. *Biomacromolecules.* doi:10.1021/acs.biomac.6b00281.

## **Warranty**

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***This product is for RESEARCH USE ONLY; not for use in diagnostic procedures.***

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