

# MCF7/164R-1 Cell Line

**Catalogue number:** 152091

**Sub-type:** Continuous

**Images:**

## Contributor

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**Institute:** Danish Cancer Society

**Images:**

## Tool details

**\*FOR RESEARCH USE ONLY**

**Name:** MCF7/164R-1 Cell Line

**Alternate name:**

**Class:**

**Conjugate:**

**Description:** The MCF7/164R-1 Cell line is a breast cancer cell line resistant to fulvestrant. Treatment with the steroidal antiestrogen fulvestrant has proven effective upon progression on tamoxifen therapy and is now approved for second-line treatment after tamoxifen or aromatase inhibitors. As for tamoxifen treatment of advanced breast cancer, resistance will inevitably occur also for fulvestrant. Clarification of the molecular changes associated with the resistant growth is needed to find targeted treatments to resistant tumour cells and treatments that can inhibit or delay the emergence of resistance.

**Purpose:**

**Parental cell:** MCF7 S0.5

**Organism:** Human

**Tissue:** Breast

**Model:** Tumour line

**Gender:**

**Isotype:**

**Reactivity:**

**Selectivity:**

**Host:**

**Immunogen:**

**Immunogen UNIPROT ID:**

**Sequence:**

**Growth properties:**

**Production details:**

The MCF7/164R-1 cell line has been established from a clone of MCF7/S0.5 cells surviving long term growth with the pure steroidal antiestrogen ICI 164,384 in 100 nM concentration, see Lykkesfeldt et al 1995. The MCF7/164R-1 cells are also resistant to the pure steroidal antiestrogen fulvestrant (ICI 182,780) and can be maintained continuously in growth medium with 100 nM fulvestrant.

**Formulation:**

**Recommended controls:**

**Bacterial resistance:**

**Selectable markers:**

**Additional notes:** Upon withdrawal of fulvestrant, the cells express ER alpha, although at a reduced level compared to the parental MCF7/S0.5 cell line. The MCF7/164R-1 cells do not express progesterone receptor. The MCF7/164R-1 cells express increased level of EGFR, phosphorylated EGFR and phosphorylated ErbB3 and reduced level of ErbB4 compared to the parental MCF7/S0.5 cells.

## Target details

**Target:** Oestrogen receptor

**Target alternate names:**

**Target background:**

**Molecular weight:**

**Ic50:**

## Applications

**Application:**

**Application notes:** Upon withdrawal of fulvestrant, the cells express ER alpha, although at a reduced level compared to the parental MCF7/S0.5 cell line. The MCF7/164R-1 cells do not express progesterone receptor. The MCF7/164R-1 cells express increased level of EGFR, phosphorylated EGFR and phosphorylated ErbB3 and reduced level of ErbB4 compared to the parental MCF7/S0.5 cells. Passage 423 (AL3802, AL3803)

## Handling

**Format:** Frozen

**Concentration:**

**Passage number:** Passage 403 (AL3810, AL3811)

**Growth medium:** Phenol red free DMEM/F12 (1:1) supplemented with 1% FCS, Glutamax 2.5 mM and 6 ng/ml insulin. Supplemented with 100nM fulvestrant to maintain resistance.

**Temperature:**

**Atmosphere:**

**Volume:**

**Storage medium:**

**Storage buffer:**  
**Storage conditions:**  
**Shipping conditions:** Dry ice

## Related tools

**Related tools:**

## References

**References:** Joshi et al. 2016. Oncotarget. :. PMID: 27528030. ; Integrative analysis of miRNA and gene expression reveals regulatory networks in tamoxifen-resistant breast cancer. ; High CDK6 Protects Cells from Fulvestrant-Mediated Apoptosis and is a Predictor of Resistance to Fulvestrant in Estrogen Receptor-Positive Metastatic Breast Cancer. ; Alves et al. 2016. Clin Cancer Res. :. PMID: 27252418. ; Gene expression alterations associated with outcome in aromatase inhibitor-treated ER+ early-stage breast cancer patients. ; Thomsen et al. 2015. Breast Cancer Res Treat. :. PMID: 26585578. ; Hole et al. 2015. Int J Oncol. 46(4):1481-90. PMID: 25625755. ; New cell culture model for aromatase inhibitor-resistant breast cancer shows sensitivity to fulvestrant treatment and cross-resistance between letrozole and exemestane. ; Endogenous aromatization of testosterone results in growth stimulation of the human MCF-7 breast cancer cell line. ; Sonne-Hansen et al. 2005. J Steroid Biochem Mol Biol. 93(1):25-34. PMID: 15748829. ; Lykkesfeldt et al. 1995. Int J Cancer. 61(4):529-34. PMID: 7759159. ; Human breast cancer cell lines resistant to pure anti-estrogens are sensitive to tamoxifen treatment. ; Lykkesfeldt et al. 1994. Cancer Res. 54(6):1587-95. PMID: 8137264. ; Altered expression of estrogen-regulated genes in a tamoxifen-resistant and ICI 164,384 and ICI 182,780 sensitive human breast cancer cell line, MCF-7/TAMR-1. ; Lykkesfeldt et al. 1989. Mol Cell Endocrinol. 62(2):287-96. PMID: 2744230. ; Regulation of the secretion of proteins synthesized by the human breast cancer cell line, MCF-7. ; Indirect mechanism of oestradiol stimulation of cell proliferation of human breast cancer cell lines. ; Lykkesfeldt et al. 1986. Br J Cancer. 53(1):29-35. PMID: 3947513. ; Briand et al. 1984. Cancer Res. 44(3):1114-9. PMID: 6362856. ; Effect of estrogen and antiestrogen on the human breast cancer cell line MCF-7 adapted to growth at low serum concentration.