Product description

The MCF7/164R-4 cell line is a breast cancer cell line resistant to fulvestrant (Faslodex). The MCF7/164R-4 cell line is a human breast cancer cell line established from MCF7. The cellular classification is epithelial, and their shape is polygonal. The passage number of this cell line is 403 (AL3810, AL3811). Treatment with the steroidal antioestrogen 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.

Name: MCF7/164R-4 Cell Line

Organism: Human

Disease: Cancer

Cancer detailed: Breast cancer

Tissue: Breast

Parent cell line: MCF7/S0.5

Growth properties: Adherent

Model: Tumour line

Production details: The MCF7/164R-4 cell line has been established from a clone of MCF7/S0.5 cells surviving long term growth with the pure steroidal antioestrogen ICI 164,384 in 100 nM concentration. The MCF7/164R-4 cells are also resistant to the pure steroidal antioestrogen fulvestrant (ICI 182,780) and can be maintained continuously in growth medium with 100 nM fulvestrant.

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-4 cells do not express progesterone receptor. The MCF7/164R-4 cells express increased level of EGFR, phosphorylated EGFR and phosphorylated ErbB3 and reduced level of ErbB4 compared to the parental MCF7/S0.5 cells.

Cellosaurus ID: CVCL_1D49

Biosafety level: 1

Contributor(s)

Inventor: Anne Lykkesfeldt
Institute: Danish Cancer Society

Properties

Product format: Frozen

Unpacking and storage:

1. Check all containers for leakage or breakage.

2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

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

Subculture routine: Split sub-confluent cultures at 70-80% confluency. Subculture cells using 0.05% trypsin/EDTA solution and soya bean trypsin inhibitor or TrypLE Express™(1X), without phenol red, and wash with phosphate- buffered saline (PBS). Pellet cells by centrifugation and re-suspend in growth medium. Initiate the culture at a dilution of approximately 1:3 to 1:6 i.e. seeding at 2-4 x 10^4 cells per cm^2. Incubate cultures in 5% CO_2 in air at 37° C. Recommend media changes every 2-3 days per cm^2.

Culture conditions: 37.0°C ± 1.0°C humidified incubator with 5.0% CO_2.

Handling instructions

1. Please ensure that vials are frozen when received, and store at **<-130 °C long term**. When removing frozen cells from storage, it is important to minimize exposure to room temperature (15 - 25°C). If not proceeding directly to thawing, place the cells on dry ice or in a liquid nitrogen container.
2. **Do not thaw at room temperature.** To thaw, swirl the vial quickly in a 37 °C water bath with O-ring and cap above the water to avoid contamination. Remove from the water bath with a small ice pellet remaining (this should not take more than 2 minutes) and wipe the exterior with 70% ethanol or isopropanol before transferring to a biosafety cabinet. Further steps should be conducted under aseptic conditions.
3. We strongly recommend that the volume of cell suspension is measured, and a 20 uL aliquot be set aside at this point for a viable cell count using trypan blue or similar dye.
4. In a laminar flow hood, use a 1 or 2 mL pipette to transfer the cells to a sterile 15 mL conical tube. Be careful not to introduce any bubbles during the transfer process.
5. Using a 10 mL pipette, slowly add **dropwise** 9 mL of prewarmed serum free medium/ PBS to the 15 mL conical tube.
6. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.
7. Centrifuge the tube at **300 x g for 2-3 minutes** to pellet the cells. Decant as much of the supernatant as possible.
8. Resuspend the cells in 10-15 mL of pre-warmed to complete medium.
9. Transfer the cell mixture to a T75 tissue culture flask and incubate at 37°C in a humidified incubator with 5% CO_2.
10. Subculture following instructions above.

References

- Thrane et al. 2014. Oncogene. 34(32):4199-4210. PMID: 25362855.
- Sonne-Hansen et al. 2010. Breast Cancer Res Treat. 121(3):601-613. PMID: 19697122.
- Frogne et al. 2008. Breast Cancer Res Treat. 114(2):263-275. PMID: 18409071.
- Lykkesfeldt et al. 1995. Int J Cancer. 61(4):529-534. PMID: 7759159.

Material Citation

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