

MCF-7 / TAMR-1

Human Breast Cancer Cell Line

Cancer Cell Line

Cat. # SCC101

Pack size: $\geq 1 \times 10^6$

viable cells/vial

Store in liquid nitrogen



Data Sheet

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Background

Tamoxifen is a widely used drug for hormone receptor-positive breast cancer. While initially effective, many tumors often acquire drug resistance, which poses a major clinical challenge in the treatment of breast cancer. Tamoxifen-resistant breast cancer cell lines are thus good models for elucidating signaling pathways involved in tamoxifen-resistant growth.

MCF-7/TAMR-1 is a tamoxifen-resistant cell line derived from the MCF-7/SO.5 cell line that has been adapted to grow at low serum concentration under the long-term treatment with 1 μ M tamoxifen. MCF-7/TAMR-1 cells should be maintained in 1 μ M tamoxifen and may be compared with the parental MCF-7/SO.5 cells which are sensitive to tamoxifen.

Short tandem repeat (STR) Profile

D3S1358: 16	D16S539: 11, 12
TH01: 6	CSF1PO: 10
D21S11: 30	Penta D: 12
D18S51: 14	vWA: 14, 15
Penta E: 7, 12	D8S1179: 10, 14
D5S818: 12	TPOX: 9, 12
D13S317: 11	FGA: 23, 25
D7S820: 8, 9	Amelogenin: X

Cancer cell lines are inherently genetically unstable. Genetic instability may arise in the form of loss of heterozygosity of alleles at one or more genetic sites with increased passages.

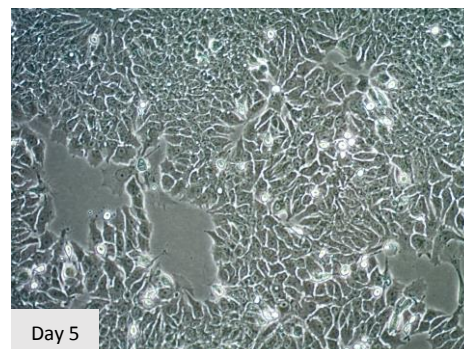
Quality Control Testing

- Each vial contains $\geq 1 \times 10^6$ viable cells.
- Cells are tested by PCR and are negative for HPV-16, HPV-18, Hepatitis A, B, C, and HIV-1 & 2 viruses.
- Cells are negative for mycoplasma contamination.
- Each lot of cells is genotyped by STR analysis to verify the unique identity of the cell line.

Storage and Handling

MCF-7/TAMR-1 cells should be stored in liquid nitrogen. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting the cell marker expression and functionality.

Data



References

- Briand, P., and Lykkesfeldt, A.E. (1984) Effect of estrogen and antiestrogen on the human breast cancer cell line MCF-7 adapted to growth at low serum concentrations. *Cancer Res.* 44(3): 1114-1119.
- Lykkesfeldt, A.E., and Briand, P. (1986) Indirect mechanism of oestradiol stimulation of cell proliferation of human breast cancer cell lines. *Br. J. Cancer* 53(1): 29-35.
- Madsen, M.W., Reiter, B.E., Lykkesfeldt, A.E. (1995) Differential expression of estrogen receptor mRNA splice variants in the tamoxifen resistant human breast cancer cell line, MCF-7/TAMR-1 compared to the parental MCF-7 cell line. *Mol. Cell Endocrinol.* 109(2): 197-207.

SPECIES LEGEND: H Human Ca Canine M Mouse R Rat Rb Rabbit B Bovine P Porcine WR Most Common Vertebrates

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Protocols

Thawing of Cells

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on normal tissue culture ware surfaces without any additional coating.

Cells are thawed and expanded in the following MCF-7/TAMR-1 Expansion Media:

DMEM/F12 medium without phenol red (Sigma Cat. No. D6434), containing 1% FBS (EMD Millipore Cat. No. ES-009-B), 2.5 mM L-Glutamine (EMD Millipore Cat. No. TMS-002-C), 6 ng/mL insulin (Sigma Cat. No. I-9278) and 1 μ M tamoxifen (Sigma Cat. No. T5648).

2. Remove the vial of frozen MCF-7/TAMR-1 cells from liquid nitrogen and incubate in a 37°C water bath. Closely monitor until the cells are completely thawed. Maximum cell viability is dependent on the rapid and complete thawing of frozen cells.

IMPORTANT: Do not vortex the cells.

3. As soon as the cells are completely thawed, disinfect the outside of the vial with 70% ethanol. Proceed immediately to the next step.
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 MCF-7/TAMR-1 Expansion Media (Step 1 above; pre-warmed to 37°C) to the 15 mL conical tube.

IMPORTANT: Do not add the entire volume of media all at once to the cells. This may result in decreased cell viability due to osmotic shock.

6. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.

IMPORTANT: Do not vortex the cells.

7. Centrifuge the tube at 300 x g for 2-3 minutes to pellet the cells.
8. Decant as much of the supernatant as possible. Steps 5-8 are necessary to remove residual cryopreservative (DMSO).
9. Resuspend the cells in 10-15 mL of MCF-7/TAMR-1 Expansion Media (pre-warmed to 37°C).
10. Transfer the cell mixture to a T75 tissue culture flask.
11. Incubate the cells at 37°C in a humidified incubator with 5% CO₂.
12. The next day, exchange the medium with 10-15 mL of fresh MCF-7/TAMR-1 Expansion Media pre-warmed to 37°C. Exchange with fresh medium every two to three days thereafter.

13. When the cells are approximately 90% confluent, they can be dissociated with Accutase (EMD Millipore Cat. No. SCR005) or trypsin-EDTA (EMD Millipore Cat. No. SM-2003-C) and further passaged or, alternatively, frozen for later use.

Subculturing of Cells

1. Carefully remove the medium from the T75 tissue culture flask containing the confluent layer of MCF-7/TAMR-1 cells.
2. Apply 3-5 mL of Accutase or trypsin-EDTA solution and incubate in a 37°C incubator for 3-5 minutes.
3. Inspect the flask and ensure the complete detachment of cells by gently tapping the side of the flask with the palm of your hand.
4. Add 8 mL of MCF-7/TAMR-1 Expansion Media (pre-warmed to 37°C) to the plate.
5. Gently rotate the flask to mix the cell suspension. Transfer the dissociated cells to a 15 mL conical tube.
6. Centrifuge the tube at 300 x g for 3-5 minutes to pellet the cells.
7. Discard the supernatant, then loosen the cell pellet by tapping the tip of the tube with a finger.
8. Apply 2 mL of MCF-7/TAMR-1 Expansion Media (pre-warmed to 37°C) to the conical tube and resuspend the cells thoroughly.

IMPORTANT: Do not vortex the cells.

9. Count the number of cells using a hemocytometer.
10. Plate the cells to the desired density (typical split ratio is 1:3 to 1:5).

Cryopreservation of Cells

MCF-7/TAMR-1 cells can be frozen in the expansion media plus 10% DMSO using a Nalgene slow freeze Mr. Frosty container.

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