# MCF-7 / S0.5
# Human Breast Cancer Cell Line

Cancer Cell Line

**Cat. # SCC100**

**Pack size: ≥1X10^6 viable cells/vial**

Store in liquid nitrogen

**Data Sheet**



## Background

MCF-7/S0.5 human breast cancer cells have been adapted to long-term growth in low serum concentration (0.5% fetal bovine serum) by a stepwise reduction of the medium serum content from 5% to 0.5% FBS. MCF-7/S0.5 cells express both oestrogen and progesterone receptors.

MCF-7/S0.5 is the parental line from which many tamoxifen-resistant cell lines have been derived and is utilized as a parental control to its derivative cell lines in parallel experiments.

## 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: 11, 12 | TPOX: 9,12 |
| D13S317: 11 | FGA: 23, 25 |
| D7S820: 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.

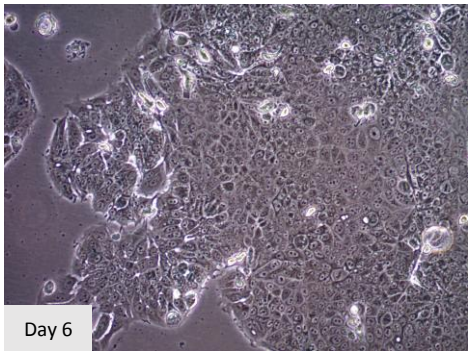
## Quality Control Testing

- Each vial contains ≥ $1X10^6$ 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/S0.5 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

1. 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.

2. 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.

3. 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.

## 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/S0.5 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), and 6 ng/mL insulin (Sigma Cat. No. I-9278)
2. Remove the vial of frozen MCF-7/S0.5 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/S0.5 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/S0.5 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/S0.5 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/S0.5 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/S0.5 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/S0.5 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/S0.5 cells can be frozen in the expansion media plus 10% DMSO using a Nalgene slow freeze Mr. Frosty container.

## ACADEMIC USE AGREEMENT
**(subject to local law)**

**THIS PRODUCT MAY ONLY BE USED BY INDIVIDUALS EMPLOYED BY AN ACADEMIC INSTITUTION AND IS INTENDED SOLELY TO BE USED FOR ACADEMIC RESEARCH, WHICH IS FURTHER DEFINED BELOW. BY OPENING THIS PRODUCT, YOU ("PURCHASER") HEREBY REPRESENT THAT YOU HAVE THE RIGHT AND AUTHORITY TO LEGALLY BIND YOURSELF AND/OR YOUR EMPLOYER INSTITUTION, AS APPLICABLE, AND CONSENT TO BE LEGALLY BOUND BY THE TERMS OF THIS ACADEMIC USE AGREEMENT. IF YOU DO NOT AGREE TO COMPLY WITH THESE TERMS, YOU MAY NOT OPEN OR USE THE PRODUCT AND YOU MUST CALL MILLIPORESIGMA ("SELLER") CUSTOMER SERVICE (1-800-645-5476) TO ARRANGE TO RETURN THE PRODUCT FOR A REFUND.**

"Product" means MCF-7 / S0.5 Human Breast Cancer Cell Line (SCC100)

"Academic Research" means any internal *in vitro* research use by individuals employed by an academic institution. Academic Research specifically excludes the following uses of whatever kind or nature:

- Re-engineering or copying the Product
- Making derivatives, modifications, or functional equivalents of the Product
- Obtaining patents or other intellectual property rights claiming use of the Product
- Using the Product in the development, testing, or manufacture of a Commercial Product
- Using the Product as a component of a Commercial Product
- Reselling or licensing the Product
- Using the Product in clinical or therapeutic applications including producing materials for clinical trials
- Administering the Product to humans
- Using the Product in collaboration with a commercial or non-academic entity

"Commercial Product" means any product intended for: (i) current or future sale; (ii) use in a fee-for-service; or (iii) any diagnostic, clinical, or therapeutic use.

Access to the Product is limited solely to those officers, employees, and students of PURCHASER's academic institution who need access to the Product to perform Academic Research. PURCHASER shall comply with all applicable laws in its use and handling of the Product and shall keep it under reasonably safe and secure conditions to prevent unauthorized use or access.

These use restrictions will remain in effect for as long as PURCHASER possesses the Product.

**COMMERCIAL OR NON-ACADEMIC ENTITIES INTERESTED IN PURCHASING OR USING THE PRODUCT MUST CONTACT licensing@emdmillipore.com AND AGREE TO SEPARATE TERMS OF USE PRIOR TO USE OR PURCHASE.**