

Product description

The T47D/TR-1 cell line is a tamoxifen-resistant derivative of the T47D human breast cancer cell line. It was developed by adapting T47D/S2 cells to 4-hydroxytamoxifen under reduced serum conditions to induce tamoxifen resistance. This adaptation results in a model that closely mimics the clinical progression of tamoxifen resistance in hormone receptor-positive breast cancer. T47D/TR-1 cells maintain estrogen receptor alpha (ER α) and progesterone receptor (PR) expression, characteristic of luminal A subtype breast cancer. They exhibit a polygonal epithelial morphology and are adherent in culture. The cell line serves as a valuable tool for investigating the molecular mechanisms underlying tamoxifen resistance, facilitating the identification of potential therapeutic targets and strategies to overcome resistance.

Name: T47D/TR-1 cell line

Organism: Human

Disease: Cancer

Cancer detailed: Breast cancer

Tissue: Breast

Parent cell line: T47D/S2

Growth properties: Adherent

Model: Cancer cell line

Donor: Female, Caucasian, 54Y

Production details: Human breast cancer cell line derived from T47D/S2 cells by long-term culture in the presence of 4-hydroxytamoxifen under reduced serum conditions to induce tamoxifen resistance.

Cellosaurus ID: (CVCL_1D36)

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 RPMI 1640 + 2% FCS + glutamax + 8ug Insulin/ml + 1 uM tamoxifen. Fetal Calf Serum (FCS) typically contains less estrogen than Fetal Bovine Serum (FBS) and is the preferred supplement for this cell line.

Culture conditions: 37.0°C ± 1.0°C humidified incubator with 5.0% CO₂

Cryopreservation medium: 10% DMSO in FCS

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.
9. Dilute the cell suspension with sufficient medium and distribute 5 mL each into T25 flasks to achieve a seeding density of 1.8 - 2.0 x 10⁴ / cm². Place in 37°C, 5% CO₂ incubator.
10. Change medium after 24 hours to remove residual DMSO and then every 2-3 days.
11. Subculture routine: Split 1:7 weekly (slow growing cell line) with Trypsin-EDTA for detachment at 37 °C for 5 minutes.

References

- Larsen et al. 2015. PLoS One. 10(2):e0118346. PMID: 25706943.
- Larsen et al. 2015. BMC Cancer. 15(1):1-15. PMID: 25885472.
- Thrane et al. 2014. Oncogene. 34(32):4199-4210. PMID: 25362855.
- Kirkegaard et al. 2014. Cancer Lett. 344(1):90-100. PMID: 24513268.

Material Citation

If use of this material results in a scientific publication, please cite the material in the following manner: T47D/TR-1 cell line, was invented by Anne Lykkesfeldt (CancerTools.org #152108).

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