Product sheet

EFM-19 Cells | 305540

General information

Description	EFM-19 is an estrogen receptor-positive (ER+) human breast cancer cell line that has been utilized to investigate the effects of estrogen and antiestrogens, such as tamoxifen, on gene expression. This cell line demonstrates robust responsiveness to estrogen stimulation, which modulates the expression of various estrogen-regulated RNAs. Notably, EFM-19 cells express higher levels of estrogen receptor mRNA compared to other breast cancer cell lines like MCF-7. Research on EFM-19 has highlighted its unique profile of estrogen-regulated RNA expression. For instance, RNAs such as pNR-1, pNR-2, pNR-25, and pNR-100 have been shown to be induced by estradiol. This induction ranges from moderate (3-fold for pNR-100) to significant (over 100-fold for pNR-2). Interestingly, the response of these RNAs to tamoxifen varies; while tamoxifen acts as a partial estrogen agonist for some RNAs (e.g., pNR-1), its efficacy is lower for others (e.g., pNR-2). This cell line is thus valuable for studying the differential effects of estrogen and antiestrogens on gene regulation. EFM-19 cells are also notable for their application in research exploring the broader roles of estrogen in breast cancer biology. Their expression profiles contribute to understanding how estrogen and estrogen receptor signaling impact tumorigenesis and treatment responses. This cell line, alongside others like MCF-7, aids in unraveling estrogen-driven mechanisms, potentially informing therapeutic strategies that include hormone-based interventions.
Organism	Human
Tissue	Breast
Disease	Breast ductal carcinoma
Metastatic site	Pleural effusion
Synonyms	EFM19

Characteristics

Age	50 years
Gender	Female
Morphology	Epithelial-like
Growth properties	Adherent

Regulatory Data

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Citation	EFM-19 (Cytion catalog number 305540)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0253

Biomolecular Data

Antigen expression	HER2 +, ER ++, AR ++, PR ++
Mutational profile	Mutation: PIK3CA, p.His1047Leu (c.3140A>T), homozygous; Mutation: TP53, p.His193Arg (c.578A>G), homozygous

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 20% FBS
Dissociation Reagent	Accutase
Subculturing	Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.
Seeding density	4-6*10^4/cm²
Fluid renewal	Split confluent culture 2 times per week.
Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

Thawing and Culturing Cells	1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 2. Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required. 3. For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains. 4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening. 5. Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently. 6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium. 7. Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth. 8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.
Incubation Atmosphere	37°C, 5% CO_2, humidified atmosphere.
Shipping Conditions	Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately −78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.
Storage Conditions	For long-term preservation, place vials in vapor-phase liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

Quality Control & Molecular Analysis

Sterility	Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods. To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.