UFH-001 Human Breast Cancer Cell Line

Cancer Cell Line

Cat. # SCC210

Pack size: ≥1x10^6 viable cells/vial

Store in liquid nitrogen

FOR RESEARCH USE ONLY.
NOT FOR USE IN DIAGNOSTIC PROCEDURES.
NOT FOR HUMAN OR ANIMAL CONSUMPTION.

Data Sheet

Background

Triple negative breast cancer (TNBC) accounts for 15-20% of breast cancer cases and is characterized by the absence of estrogen receptor (ER), progesterone receptor (PR), and human EGF receptor 2 (HER2).[1] TNBC is typically more aggressive and difficult to treat than more common types of breast cancer and is more likely to recur after treatment. Carbonic anhydrase IX (CAIX) catalyzes the reversible hydration of carbon dioxide and is a marker for hypoxic regions of breast tumors. CAIX expression is associated with poor prognosis in TNBC and hormone-resistant breast tumors. The UFH-001 triple negative CAIX+ human breast cancer cell line constitutively expresses CAIX under both hypoxic and normoxic conditions, exhibits an aggressive TNBC phenotype in vivo, and supports tumor growth in a mouse xenograft model.[2] The constitutive expression of CAIX in UFH-001 cells facilitates its evaluation as a potential therapeutic target both in vitro and in vivo. The UFH-001 cell line has been extensively validated and is suitable as a model for studying the mechanisms of TNBC progression, metastasis and migration.

Source

UFH-001 cells are derived from MCF-10A cells, a spontaneously immortalized breast cancer epithelial cell line originating from breast tissue of a healthy female patient.[3] UFH-001 cells were sorted for CAIX expression by flow cytometry.[2]

Short tandem repeat (STR) Profile

D3S1358: 14, 18	D16S539: 11, 12
TH01: 8, 9.3	CSF1PO: 10, 12
D21S11: 28, 30	Penta D: 10, 12
D18S51: 18, 19	vWA: 15, 17
Penta E: 13, 14	D8S1179: 14, 16
D5S818: 10, 13	TPOX: 11
D13S317: 8, 9	FGA: 22, 24
D7S820: 10, 11	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.

Storage & Handling

Store 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.

Quality Control Testing

- Each vial contains ≥ $1X10^6$ viable cells.
- Cells are tested negative for infectious diseases by a Human Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells are verified to be of human origin and negative for inter-species contamination from rat, mouse, chinese hamster, Golden Syrian hamster, and non-human primate (NHP) as assessed by a Contamination CLEAR panel by Charles River Animal Diagnostic Services.
- Cells are negative for mycoplasma contamination.

Representative Data

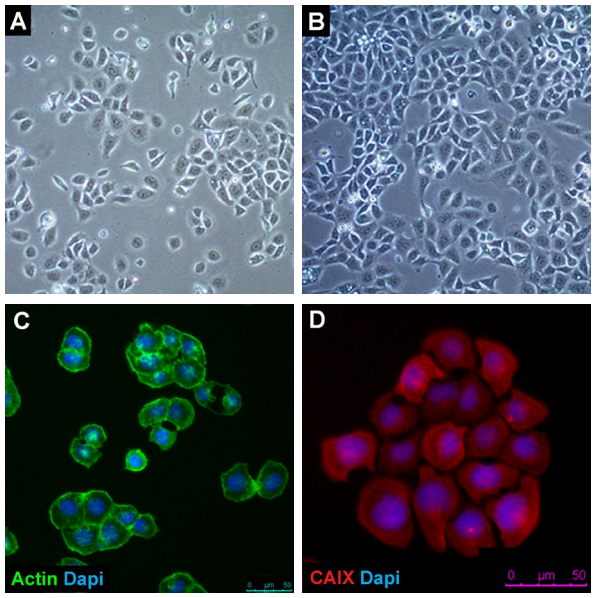

Figure 1. UFH-001 cells one (**A**, 10X magnification) and two (**B**, 10X magnification) days after thawing in a T75 flask. Cells express actin (**C**, Phalloidin-FITC; Sigma P5282) and CAIX (**D**, Sigma SAB5300133).

References

1. Sporikova Z, et al., (2018) *Clin Breast Cancer* 18(5): e841-e850.
2. Chen Z et al., (2018) *Cancer Biol Ther* 19(7): 598-608.
3. Soule HD et al., (1990) *Cancer Res* 50(18): 6075-6086.

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Protocols

Thawing Cells

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

   UFH-001 Expansion Medium: Cells are thawed and expanded in DMEM Complete (Cat. No. SLM-241-B) which contains DMEM high glucose (Sigma Cat. No. D6546) supplemented with 2 mM L-Glutamine (Cat. No. TMS-002-C) and 10% FBS (Cat. No. ES-009-B).
2. Remove the vial of frozen UFH-001 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 UFH-001 Expansion Medium (Step 1 above) 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 15 mL of UFH-001 Expansion Medium.
10. Transfer the cell mixture to a T75 tissue culture flask.
11. Incubate the cells at 37°C in a humidified incubator with 5% CO_2.

Subculturing Cells

1. Do not allow the cells to grow to confluency. UFH-001 cells should be passaged at ~80-85% confluence.
2. Carefully remove the medium from the T75 tissue culture flask containing the UFH-001 cells.
3. Rinse the flask with 10 mL 1X PBS. Aspirate after the rinse.
3. Apply 5-7 mL of Accutase and incubate in a 37°C incubator for 3-5 minutes.
4. Inspect the flask and ensure the complete detachment of cells by gently tapping the side of the flask with the palm of your hand.
5. Add 5-7 mL of UFH-001 Expansion Medium to the plate.
6. Gently rotate the flask to mix the cell suspension. Transfer the dissociated cells to a 15 mL conical tube.
7. Centrifuge the tube at 300 x g for 3-5 minutes to pellet the cells.
8. Discard the supernatant, then loosen the cell pellet by tapping the tip of the tube with a finger.
9. Apply 2-5 mL of UFH-001 Expansion Medium to the conical tube and resuspend the cells thoroughly.

   IMPORTANT: Do not vortex the cells.
10. Count the number of cells using a hemocytometer.
11. Plate the cells to the desired density. Typical split ratio is 1:6.

Cryopreservation of Cells

UFH-001 triple negative CAIX+ human breast cancer cell line may be frozen in the expansion medium plus 10% DMSO using a Nalgene slow freeze Mr. Frosty container.

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