Product sheet

BT-549 Cells | 300132

General information

Description	BT-549 cells are a human breast cancer cell line derived from the mammary gland tissue of a 56-year-old Caucasian woman with ductal carcinoma. They are commonly utilized in cancer research to study the biology and treatment of breast cancer, particularly the triple-negative subtype, which lacks estrogen receptor, progesterone receptor, and HER2 expression. BT-549 cells are characterized by their epithelial morphology and are known for their highly invasive properties, making them a valuable model for studying metastasis and tumor invasion. They exhibit several distinctive features including the presence of lipid droplets in the cytoplasm and a robust expression of the mucin-1 protein. These cells also express various oncogenes and tumor suppressor genes that are relevant to breast cancer pathology, such as TP53 and RB1. The BT-549 cell line is estrogen receptor-negative, progesterone receptor-negative, and does not amplify HER2, thus categorizing it under the triple-negative breast cancer (TNBC) subtype. Due to this classification, BT-549 cells are particularly useful for studying the unique mechanisms of progression and treatment response in TNBC, which is known for its aggressive nature and lack of targeted therapies. Furthermore, BT-549 cells are often used in drug resistance studies and for testing new chemotherapeutic agents and targeted therapies, offering insights into potential therapeutic strategies for managing and treating aggressive forms of breast cancer.
Organism	Human
Tissue	Breast, mammary gland
Disease	Invasive ductal carcinoma
Metastatic site	Ductal
Synonyms	BT 549, BT.549, BT549

Characteristics

Age	72 years
Gender	Female
Ethnicity	Caucasian
Morphology	Epithelial-like
Growth properties	Monolayer, adherent

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Identifiers / Biosafety / Citation

Citation	BT-549 (Cytion catalog number 300132)
Biosafety level	1

Expression / Mutation

Isoenzymes	G6PD, B, PGM1, 2, PGM3, 1, ES-D, 1, Me-2, 1, AK-1, 1, GLO-1, 1-2, Phenotype Frequency Product: 0.0048
Mutational profile	TP53 mut
Karyotype	mode = 74, range = 53 to 140, three marker chromosomes

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 1.5 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	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.
Split ratio	A ratio of 1:2 is recommended
Seeding density	1 x 10^4 cells/cm^2 will yield in a confluent layer in about 4 days
Fluid renewal	2 to 3 times per week
Freezing recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

Freeze medium	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

Handling of cryopreserved cultures

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. Optionally, skip centrifugation but remove any remaining freezing medium after 24 hours.
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.

Quality control / Genetic profile / HLA

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.

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STR profile	**Amelogenin**: x,x **CSF1PO**: 10,12 **D13S317**: 11 **D16S539**: 8 **D5S818**: 11 **D7S820**: 9, 10 **TH01**: 9.3 **TPOX**: 8 **vWA**: 15 **D3S1358**: 18 **D21S11**: 32.2 **D18S51**: 15 **Penta E**: 14 **Penta D**: 13 **D8S1179**: 14, 16 **FGA**: 19 **D1S1656**: 12, 17.3 **D6S1043**: 11 **D2S1338**: 17 **D12S391**: 20 **D19S433**: 15.2
HLA alleles	**A***: 01:01:01, 02:01:01 **B***: 15:17:01, 55:01:01 **C***: 03:03:01, 07:01:02 **DRB1***: 11:01:01, 13:02:01 **DQA1***: 01:02:01, 05:09 **DQB1***: 03:01:01, 06:04:01 **DPB1***: 02:01:02, 04:01:01 **E**: 01:01:01