BT-20

300130

GENERAL INFORMATION

Description

The BT-20 cell line is a human breast adenocarcinoma cell line that was established in 1958 from the malignant tissue of a 74-year-old Caucasian female patient. This cell line exhibits epithelial-like morphology and is often used in research focused on breast cancer biology, particularly in studies exploring the hormonal regulation of cancer growth, gene expression, and the efficacy of therapeutic agents against breast cancer.
BT-20 cells are characterized by their ability to form tumors when implanted in immunocompromised mice, thus serving as a useful in vivo model for breast cancer. These cells express receptors for estrogen, progesterone, and androgen, making them relevant for studies on hormone response pathways. Additionally, genetic analysis of BT-20 cells has revealed mutations in genes such as TP53 and PIK3CA, which are common in breast cancer, supporting their use in genetic and pharmacological research.
In vitro, BT-20 cells are used to study the mechanisms of cancer cell proliferation, migration, and invasion. They are also employed to assess the cytotoxicity of chemotherapy agents, making them critical for preclinical testing of anti-cancer drugs. The adaptability of BT-20 cells to various culture conditions and their robust growth in vitro make them a valuable resource for cancer research laboratories focusing on the underlying mechanisms of breast cancer and the development of new therapeutic strategies.

Tissue	Breast, mammary gland
Disease	Invasive ductal carcinoma

Synonyms

- BT 20
- BT20

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Tumourigenic	Yes, in nude mice. Forms grade II adenocarcinomas

Karyotype

Modal number = 50, many markers with large subtelocentrics most characteristic. (P87) Hyperdiploid with abnormalities including fragmented chromosomes, breaks, secondary constrictions, translocations, submetacentric and telocentric markers

IDENTIFIERS

Citation

BT-20 (Cytion catalog number 300130)

NCBI TaxID	9606
Cellosaurus	CVCL_0178

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BIC: SOLADES1HDB

EXPRESSION AND SUSCEPTIBILITY

Antigen expression

HLA A1, Bw16 (+/-)

Isoenzymes

PGM3, 1, PGM1, 1, ES-D, 1, AK-1, 1-2, G6PD, B, GLO-1, 1-2, Phenotype Frequency Product: 0.0115

Oncogenes

Wnt4 +, wnt7h +

Mutational profile

TP53 mut

Reverse transcriptase	Negative

HANDLING AND CULTURE

Culture medium

DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% 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	1 x 10^4 cells/cm^2 will yield in a confluent layer in about 6 days
Fluid renewal	2 to 3 times per week

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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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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.

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.

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.

DONOR

Donor age	74 years
Ethnicity	Caucasian

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes