Product sheet

SUM149PT Cells | 300609

General information

Description	The SUM149PT cell line is derived from a human inflammatory breast carcinoma (IBC), which represents an aggressive subtype of breast cancer. IBC is characterized by rapid progression, early metastasis, and poor prognosis. SUM149PT cells are classified as triple-negative breast cancer (TNBC), lacking expression of estrogen receptor (ER), progesterone receptor (PR), and HER2 receptor, making them unresponsive to common targeted therapies like endocrine treatments or HER2 inhibitors. Instead, treatment for such cancers typically involves cytotoxic chemotherapy, although these cancers frequently develop resistance over time. Significantly, SUM149PT cells possess a 2288delT BRCA1 mutation, leading to a loss of BRCA1 function. This mutation is a frame-shift deletion that results in premature termination of the BRCA1 protein, impairing DNA repair and promoting genomic instability, a hallmark of BRCA1-mutated cancers. The loss of BRCA1 contributes to the heightened chromosomal instability observed in SUM149PT, which displays numerous chromosomal aberrations. In addition to the mutation, the BRCA1 locus is lost in SUM149PT, further compounding the impact on genomic stability. Surprisingly, SUM149PT cells exhibit a CD44+/CD24-/Low stem-like cancer cell subpopulation, which is enriched in cancer stem cell (CSC) properties such as increased invasion, tumorigenesis, and resistance to chemotherapy. These stem-like cells are also associated with centrosome amplification and elevated cyclin E/Cdk2 activity. Inhibition of Cdk2 in SUM149PT selectively targets this CSC subpopulation, restoring some sensitivity to chemotherapy, which suggests that combined therapeutic strategies targeting Cdk2 and conventional chemotherapy might be effective in treating chemoresistant IBC.
Organism	Human
Tissue	Breast
Disease	Breast inflammatory carcinoma
Synonyms	SUM-149PT, SUM 149PT, SUM149-PT, SUM149, SUM-149, SUM 149, 149 PT, 149PT, BrCL12

Characteristics

Age	40 years
Gender	Female
Morphology	Epithelial
Growth properties	Adherent

Regulatory Data

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Citation	SUM149PT (Cytion catalog number 300609)
NCBI_TaxID	9606
CellosaurusAccession	CVCL_3422

Biomolecular Data

Protein expression	P53 positive

Handling

Culture Medium	Ham's F12, w: 1.0 mM stable Glutamine, w: 1.0 mM Sodium pyruvate, w: 1.1 g/L NaHCO3 (Cytion article number 820600a)
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.
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.