Product sheet

JIMT-1 Cells | 305433

General information

Description	The JIMT-1 cell line is derived from a HER2-positive human breast carcinoma and is known for its resistance to trastuzumab, a commonly used HER2-targeted therapy. This makes JIMT-1 a valuable model for studying mechanisms of resistance to anti-HER2 treatments and for developing new therapeutic strategies. Unlike many other HER2-positive breast cancer cell lines, JIMT-1 mimics clinical cases where initial responses to HER2-targeted therapies are observed, but resistance subsequently develops. This feature has made it instrumental in exploring the efficacy of new drugs and combination therapies aimed at overcoming trastuzumab resistance. JIMT-1 cells are also employed in studies investigating the interplay between HER2 and other signaling pathways, such as those involving the epidermal growth factor receptor (EGFR). Cross-talk between these pathways contributes to the cells' resistance to conventional therapies. Research has shown that JIMT-1 cells respond variably to different tyrosine kinase inhibitors (TKIs) and antibody-drug conjugates (ADCs). For example, while the cell line exhibits resistance to trastuzumab-emtansine (T-DM1) and shows only partial sensitivity to newer agents like trastuzumab-deruxtecan (T-DXd), it has been demonstrated that alternative ADCs such as disitamab vedotin (DV) might offer enhanced efficacy. In vitro studies highlight the versatility of JIMT-1 for screening drugs that target not only HER2 but also other molecular pathways. These studies provide critical data for evaluating the synergistic effects of combination treatments involving ADCs and TKIs or novel targeted therapies. The cell line's behavior in various drug resistance scenarios underscores its importance in preclinical drug development, particularly for HER2-positive breast cancer with acquired or intrinsic resistance.
Organism	Human
Tissue	Breast
Disease	Breast ductal carcinoma
Metastatic site	Pleural effusion
Synonyms	JIMT1, JIMT

Characteristics

Age	62 years
Gender	Female
Ethnicity	Caucasian
Morphology	Epithelial-like

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Growth properties	Adherent, monolayer

Regulatory Data

Citation	JIMT-1 (Cytion catalog number 305433)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_2077

Biomolecular Data

Oncogenes	HER-2 (insensitive to HER-2-inhibiting drugs, e.g. trastuzumab), ER-, PR-, AR-
Mutational profile	Mutation: PIK3CA, p.Cys420Arg (c.1258T>C), heterozygous; Mutation: TP53, p.Arg248Trp (c.742C>T), homozygous

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
Supplements	Supplement the medium with 10% heat-inactivated 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	1×10^4 cells/cm^2

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.