Product sheet

KTC-1 Cells | 305113

General information

Description	The KTC-1 cell line is a well-characterized human thyroid carcinoma cell model derived from an adult patient with poorly differentiated thyroid carcinoma. This cell line is particularly valuable in research focused on the aggressive forms of thyroid cancer, including anaplastic thyroid carcinoma (ATC), due to its origins from a cancer type that is known for rapid progression and resistance to conventional therapies. The KTC-1 cells exhibit a spindle-shaped morphology, consistent with epithelial-to-mesenchymal transition (EMT), which is a hallmark of highly invasive cancers. These cells are known to have mutations in key oncogenes and tumor suppressor genes, including BRAF and TP53, which contribute to their malignant phenotype. KTC-1 cells are a useful model for studying the molecular mechanisms underlying thyroid cancer progression, including signaling pathways such as MAPK/ERK and PI3K/AKT, which are often dysregulated in aggressive thyroid cancers. They are also employed in drug screening assays to evaluate the efficacy of novel therapeutic agents targeting these pathways. Additionally, KTC-1 cells have been utilized in research exploring the tumor microenvironment, particularly the interactions between cancer cells and stromal cells that may influence tumor growth and metastasis. Due to their well-documented genetic and phenotypic characteristics, KTC-1 cells provide a robust platform for translational research aimed at developing more effective treatment strategies for aggressive thyroid carcinomas.
Organism	Human
Tissue	Thyroid
Disease	Thyroid carcinoma
Metastatic site	Pleural effusion
Synonyms	KTC1, KTC1naive

Characteristics

Age	68 years
Gender	Male
Morphology	Epithelial
Growth properties	Adherent

Identifiers / Biosafety / Citation

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Citation	KTC-1 (Cytion catalog number 305113)
Biosafety level	1

Expression / Mutation

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
Doubling time	48 hours
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	1:2 to 1:5
Fluid renewal	2 to 3 times per week
Freeze medium	CM-1 (Cytion catalog number 800100)

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.
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.