Product sheet

FTC-133 Cells | 305349

General information

Description	FTC-133 is a human follicular thyroid carcinoma cell line derived from a lymph node metastasis. It is widely used to investigate the mechanisms underlying thyroid cancer progression, resistance to therapies, and gene expression changes associated with tumor biology. This cell line has been employed to study treatment responses in differentiated thyroid cancer (DTC) models, especially those linked to drug resistance and apoptosis pathways. Research involving FTC-133 has revealed its sensitivity to various inhibitors targeting DNA damage response pathways, such as the ATR inhibitor BAY 1895344, which can arrest growth, induce apoptosis, and enhance therapeutic outcomes when combined with tyrosine kinase inhibitors. FTC-133 cells have also been significant in understanding multidrug resistance mechanisms. For example, this cell line demonstrates resistance to doxorubicin, associated with the overexpression of P-glycoprotein (P-gp) and interactions with the CD47 receptor. These factors contribute to reduced drug uptake and diminished apoptosis through pathways involving the JNK signaling cascade. The modulation of these resistance mechanisms has been studied by inhibiting P-gp, which restores sensitivity to doxorubicin. Such findings underscore the role of FTC-133 in exploring targeted therapies and resistance pathways, informing the development of more effective treatment regimens for thyroid cancers.
Organism	Human
Tissue	Thyroid gland
Disease	Thyroid gland follicular carcinoma
Synonyms	FTC133

Characteristics

Age	42 years
Gender	Male
Ethnicity	Caucasian
Morphology	Polymorphic
Cell type	Endothelial cells
Growth properties	Adherent

Regulatory Data

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Citation	FTC-133 (Cytion catalog number 305349)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1219

Biomolecular Data

Protein expression	Expression of 5' - Deiodinase Type I
Mutational profile	Mutation: FLCN, p.His429Thrfs*39 (c.1285delC), homozygous
	Mutation: MSH6, p.Lys1045fs (c.3135delG), homozygous
	Mutation: NF1, p.Cys167Ter (c.501T>A), homozygous
	Mutation: PTEN, p.Arg130Ter (c.388C>T), homozygous
	Mutation: TERT, c.1-124C>T (c.228C>T) (C228T), homozygous
	Mutation: TP53, p.Arg273His (c.818G>A), homozygous

Handling

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)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase

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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 - 5 x 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.