FTC-133

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.

Tissue	Thyroid gland
Disease	Thyroid gland follicular carcinoma

Synonyms

- FTC133

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Polymorphic
Cell type	Endothelial cells

IDENTIFIERS

Citation

FTC-133 (Cytion catalog number 305349)

NCBI TaxID	9606
Cellosaurus	CVCL_1219

EXPRESSION AND SUSCEPTIBILITY

Protein expression

Expression of 5' - Deiodinase Type I

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

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 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 - 5 x 10^4 cells/cm^2

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.

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	42 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