FS-C3H

400418

GENERAL INFORMATION

Description

The FS-C3H cell line, derived from the C3H/HeJ mouse strain, plays a pivotal role in studying host responses to endotoxins, particularly in the context of cancer research. This strain is notable for its resistance to endotoxin due to a specific insensitivity to lipopolysaccharide (LPS), a major component of bacterial endotoxin. This characteristic has made FS-C3H an invaluable model for dissecting the biochemical and genetic pathways involved in immune response regulation. Researchers have extensively used this cell line to examine the dynamics of B lymphocytes and macrophages, focusing on their unique non-responsiveness to LPS, which contrasts with typical immune cell reactions to such stimuli.

The non-responsiveness of FS-C3H cells to LPS is attributed to the absence or alteration of a crucial receptor responsible for LPS signal transduction. Studies have shown that despite the non-reactivity to LPS, these cells can be activated through alternative pathways such as protein kinase C (PKC) and tyrosine kinase signaling mechanisms, similar to those activated in LPS-responsive cells. The interaction and regulatory roles of these kinases in signaling pathways highlight complex intra-cellular mechanisms, suggesting that the PKC and tyrosine kinase pathways could compensate for the defective LPS signaling. This observation opens avenues for exploring how tyrosine kinase-modulated phosphorylation affects overall cellular responses in these mice.

Continued research on FS-C3H cells is critical to understanding the molecular basis of their hyporesponsiveness to LPS, potentially linked to a genetic defect in the Lpsn gene. By delving into the phosphorylation profiles of these cells compared to LPS responders, scientists aim to unravel the specific molecular defects that lead to altered gene activation and proliferation responses. The isolation and characterization of the gene product responsible for LPS interaction could provide deeper insights into immune system dysfunctions and pave the way for novel therapeutic approaches in treating related immune and inflammatory disorders.

Tissue	Skin
Disease	Fibrosarcoma

CLASSIFICATION

Organism	Mouse
Growth properties	Adherent
Biosafety level	1

IDENTIFIERS

Citation

FS-C3H (Cytion catalog number 400418)

NCBI TaxID	10090
Cellosaurus	CVCL_5755

HANDLING AND CULTURE

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)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS

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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	2 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week

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

Breed / subspecies	C3H

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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

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