Product sheet

FS-C3H Cells | 400418

General information

Description	FS-C3H cells are a unique and extensively studied cancer cell line derived from the C3H/HeJ mouse, a strain known for its resistance to endotoxin. These cells have been instrumental in unravelling the complex mechanisms underlying host responses to endotoxin, serving as a valuable comparative model. Researchers have primarily focused on this strain's B lymphocytes and macrophages, which exhibit a remarkable inability to be activated by LPS (lipopolysaccharide), a key component of bacterial endotoxin. One intriguing aspect of FS-C3H cells is the absence or alteration of a receptor that transduces an activation signal, leading to their nonresponsiveness to LPS. While specific LPS binding proteins have been identified in lymphocytes and other cells, the elusive receptor responsible for mediating the activation signal in responder cells has yet to be isolated. This knowledge gap has driven investigations into the signal transduction pathways employed by FS-C3H B cells when stimulated by a protein mitogen, revealing striking similarities to those used by LPS responder cells. Notably, protein kinase C (PKC) and tyrosine kinase, two enzymes responsible for phosphorylating signal proteins within cells, are operational in FS-C3H B cells, akin to their LPS-responsive counterparts. DNA synthesis is inhibited in both cases upon blocking either PKC or tyrosine kinase activity. However, it is worth highlighting that inhibiting tyrosine kinase activity also hampers PKC-stimulated DNA synthesis, indicating a regulatory role for tyrosine kinase-initiated phosphorylation in the PKC signalling pathway. Further analysis of the phosphorylated proteins in both LPS responder and FS-C3H B cells are warranted to gain a deeper understanding of the underlying molecular events. This will illuminate whether the defect in FS-C3H cells lies within the signal pathway leading to gene activation and proliferation. Despite ongoing investigations, the hypothesis of a missing or defective signal receptor remains a plausible explanation for the hyporesponsiveness of FS-C3H cells to LPS. Hence, isolating the Lpsn gene and its product holds promise in providing the necessary evidence for a more unmistakable comprehension of the interactions between LPS and cells. FS-C3H cells offer a valuable research tool for scientists aiming to comprehend the intricate genetic control mechanisms governing host responses to endotoxin. By utilizing this comparative model, researchers can delve into the signal transduction pathways, phosphorylation events, and potential receptor abnormalities, paving the way for significant advancements in understanding LPS-cell interactions and associated cellular processes.
Organism	Mouse
Tissue	Skin
Disease	Fibrosarcoma

Characteristics

Growth properties	Adherent

Identifiers / Biosafety / Citation

Citation	FS-C3H (Cytion catalog number 400418)
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
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	A ratio of 1:5 to 1:20 is recommended
Seeding density	2 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
Freeze medium	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

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. Optionally, skip centrifugation but remove any remaining freezing medium after 24 hours.
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.