PAC2

305489

GENERAL INFORMATION

Description

PAC2 is a zebrafish embryonic fibroblast cell line derived from 24-hour post-fertilization (hpf) embryos. This cell line is widely utilized in developmental biology, toxicology, and gene expression studies, given the zebrafish's role as a prominent model organism for vertebrate biology. PAC2 cells are adherent and grow as a monolayer in culture, exhibiting typical fibroblast morphology under standard growth conditions. They provide a versatile platform for genetic manipulation and functional genomics in zebrafish research.
PAC2 cells have been shown to exhibit genetic stability, with nuclear DNA content consistent with that of zebrafish somatic cells. They support gene transfer through various methods, including lipid-mediated transfection and nucleofection. While transfection efficiencies are moderate, optimized protocols can achieve significant DNA uptake, enabling transient and stable genetic modifications. Transcriptome analysis has revealed unique expression profiles in PAC2 cells compared to other zebrafish cell lines, embryos, and adult tissues, highlighting their potential for studying cell-specific gene expression and signaling pathways.
This cell line is instrumental in research exploring the cellular and molecular mechanisms of vertebrate development, cancer, and response to environmental factors. It is also employed in studies involving wound healing and serum response, as PAC2 cells exhibit distinct transcriptional changes upon exposure to growth factors. The versatility and unique properties of PAC2 make it an essential tool for advancing zebrafish-based research and comparative studies across vertebrate models.

Tissue	Embryo

Synonyms

- PAC-2

CLASSIFICATION

Organism	Zebrafish
Sex	Unspecified
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Fibroblast-like
Cell type	Fibroblast
Doubling time	36 hours

IDENTIFIERS

Citation

PAC2 (Cytion catalog number 305489)

NCBI TaxID	7955
Cellosaurus	CVCL_5853

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Banking information
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HANDLING AND CULTURE

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.
Dissociation reagent	Accutase

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	2 fetal days

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

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