HPAC

305309

GENERAL INFORMATION

Description

The HPAC cell line, derived from human pancreatic ductal adenocarcinoma, serves as an essential model for studying pancreatic cancer's molecular and cellular characteristics. Known for its utility in evaluating the impact of various chemotherapeutic agents and signaling pathways, HPAC cells exhibit key features typical of pancreatic cancer, including resistance mechanisms. Recent studies involving HPAC have focused on understanding drug resistance, particularly to erlotinib, a tyrosine kinase inhibitor that targets the epidermal growth factor receptor (EGFR). Research has demonstrated that resistance to erlotinib in HPAC cells is associated with significant metabolic alterations, such as changes in phospholipid and amino acid metabolism. Specifically, increased levels of short-chain acylcarnitines and changes in glycerophospholipid profiles have been linked to an elevated metabolic state in erlotinib-resistant HPAC cells.
HPAC cells also express matrix metalloproteinases (MMPs), particularly MT1-MMP, which is crucial for their invasive behavior. The Wnt/β-catenin signaling pathway has been implicated in regulating MMP expression, contributing to the cell's migration and invasion potential. The application of compounds like matrine has been shown to inhibit HPAC cell migration by downregulating MT1-MMP through the suppression of Wnt/β-catenin signaling. These attributes highlight HPAC as a pivotal cell line for exploring therapeutic interventions aimed at mitigating pancreatic cancer's aggressive and treatment-resistant nature.

Tissue	Pancreas
Disease	Adenocarcinoma

Synonyms

- Hpac

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Cell type	Pancreatic ductal cell
Tumourigenic	Yes, in athymic mice

IDENTIFIERS

Citation

HPAC (Cytion catalog number 305309)

NCBI TaxID	9606
Cellosaurus	CVCL_3517

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EXPRESSION AND SUSCEPTIBILITY

Protein expression

Genes expressed: keratin positive, vimentin negative, chromogranin A negative
Epidermal growth factor (EGF), expressed; glucocorticoid, expressed; epidermal growth factor (EGF); glucocorticoid

Mutational profile

Mutation: CDKN2A, p.Glu120Ter (c.358G>T), homozygous; Mutation: KRAS, p.Gly12Asp (c.35G>A); Mutation: TP53

HANDLING AND CULTURE

Culture medium

DMEM:Ham's F12, 1.2 g/L sodium bicarbonate, 2.5 mM L-glutamine, 15 mM HEPES, 0.5 mM sodium pyruvate (0.002 mg/ml insulin, 0.005 mg/ml transferrin) ITS+, 40 ng/ml hydrocortisone, 10 ng/ml mouse epidermal growth factor (Fisher Scientific cat# CB-40010)

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

Supplements

Supplement the medium with 5% 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.

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

Donor age	64 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