Product sheet

CFPAC-1 Cells | 305066

General information

Description	CFPAC-1 cells, derived from a 26-year-old male with cystic fibrosis and liver metastasis of ductal adenocarcinoma, are a hyperdiploid cell line with notable features for biological research. Their adherence growth property and tumorigenic capability in nude mice make them a practical model for in vitro cancer studies. The cell line's karyotype includes a modal number of 73 chromosomes with several translocations, and importantly, two to three copies of chromosome 7, where the cystic fibrosis gene is located. These cells express cancer-related antigens and genes like CA19-9, carcinoembryonic antigen (CEA), pancreatic oncofetal antigen (POA), adenocarcinoma associated antigen (ACAA), and epithelial keratins, offering insights into cancer biology. In terms of cystic fibrosis pathology, CFPAC-1 cells demonstrate unique ion transport activities. They do not respond to cAMP agonists, adenyl cyclase stimulators, or phosphodiesterase inhibitors for chloride ion flux but show increased chloride efflux in response to calcium ionophores. CFPAC-1 cells carry the common cystic fibrosis mutation - deletion of three nucleotides leading to phenylalanine absence at position 508 in the CFTR gene. Morphologically, they exhibit epithelial features with apical microvilli, tight junctions, and gap junctions, relevant for studying epithelial tissue interactions in both cancer and cystic fibrosis.
Organism	Human
Tissue	Pancreas
Disease	Cystic fibrosis, Pancreatic ductal adenocarcinoma
Metastatic site	Liver
Synonyms	CFPac-1, CF PAC-1, CF-PAC1, CF-Pac1, CF Pac1, CFPAC1, CFPac1, CFPAC

Characteristics

Age	26 years
Gender	Male
Ethnicity	European
Morphology	Epithelial
Growth properties	Adherent

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Identifiers / Biosafety / Citation

Citation	CFPAC-1 (Cytion catalog number 305066)
Biosafety level	1

Expression / Mutation

Protein expression	Carcinoembryonic Antigen(Cea), 9Ng/Ml, Pancreatic Oncofetal Antigen(Poa), 28Ng/Ml, Adenocarcinoma Associated Antigen(Acaa), 5000Ng/Ml, Ca 19-9 Antigen, 12000 Units/Ml, Epithelial Keratins
Antigen expression	CA19-9 antigen, 12000 units/mL, epithelial keratins
Tumorigenic	Yes

Handling

Culture Medium	IMDM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 25 mM HEPES, w: 1.0 mM Sodium pyruvate, w: 3.024 g/L NaHCO3 (Cytion article number 820800a)
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	1:2 to 1:4
Fluid renewal	2 to 3 times per week
Freeze medium	CM-1 (Cytion catalog number 800100)

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.
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.

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STR profile

Amelogenin: x,y
CSF1PO: 10
D13S317: 12
D16S539: 9,11
D5S818: 10,11
D7S820: 8,1
TH01: 8
TPOX: 8
vWA: 17
D3S1358: 16
D21S11: 30,31.2
D18S51: 12
Penta E: 10,12
Penta D: 11,13
D8S1179: 11,15
FGA: 21,22
D6S1043: 20
D2S1338: 18,23
D12S391: 17
D19S433: 13,15