Product sheet

Panc-1 Cells | 300228

General information

Description	PANC-1 cells, originating from a pancreatic duct carcinoma in a 56-year-old Caucasian male, stand as a pivotal epithelial cell line in the realm of cancer research, particularly in the study of pancreatic carcinoma. Panc1 cells offer a useful model for delving into the intricacies of pancreatic cancer, including ductal adenocarcinoma cell lines and their tumorigenic potential. The cells' epithelial morphology and their capacity to exhibit diverse morphological patterns underscore their relevance in mimicking the clonal heterogeneity and complex tumor microenvironment seen in pancreatic ductal adenocarcinoma (PDAC). PANC-1 cells express markers such as vimentin and somatostatin receptors like SSTR2, which play a crucial role in neuroendocrine differentiation. This expression profile, coupled with the cells' ability to undergo epithelial-mesenchymal transition (EMT) marker expression and EMT subtype shifting, makes them an excellent platform for exploring therapeutic strategies targeting the EMT process and neuroendocrine features of pancreatic cancer. The cell line's karyotypic analysis reveals a hyperdiploid state with notable genetic alterations, including the loss of the Y chromosome and mutations in critical genes such as CDKN2A and the p53 gene. In summary, PANC-1 cells provide a multifaceted model for pancreatic cancer research, enabling detailed investigations into the phenotype and genotype of pancreatic adenocarcinoma, the efficacy of targeted therapies, and the molecular mechanisms driving cancer progression.
Organism	Human
Tissue	Pancreas
Disease	Adenocarcinoma
Synonyms	PANC-1, PANC.1, Panc 1, PanC1, Panc1, PANC1, Panc-1-P

Characteristics

Age	56 years
Gender	Male
Ethnicity	Caucasian
Growth properties	Adherent

Identifiers / Biosafety / Citation

Citation	Panc-1 (Cytion catalog number 300228)
Biosafety level	1

Expression / Mutation

Protein expression	p53 positive, CEA negative
Isoenzymes	G6PD, B
Tumorigenic	Growth in soft agar. Formation of progressively growing carcinomas in nude athymic mice.
Mutational profile	Panc-1 cells carry a heterozygous Kras mutation in codon12: GGT(Wt Gly) >GAT(Asp)
Karyotype	Three distinct marker chromosomes and one 1 ring chromosome

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 1:2 to 1:4 is recommended
Seeding density	1 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week

Freezing recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 48 hours.
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.

Panc-1 Cells | 300228

STR profile	**Amelogenin**: x,x **CSF1PO**: 10,12 **D13S317**: 11 **D16S539**: 11 **D5S818**: 11,13 **D7S820**: 8,10 **TH01**: 7,8 **TPOX**: 8,11 **vWA**: 15 **D3S1358**: 17 **D21S11**: 28 **D18S51**: 12 **D8S1179**: 14,15 **FGA**: 21 **D1S1656**: 12,14 **D2S1338**: 23,24 **D12S391**: 22 **D19S433**: 11,16
HLA alleles	**A***: 02:01:01, 11:01:01 **B***: 01.01.1900 14:01 **C***: 12:03:01 **DRB1***: 13:01:01 **DQA1***: 01:03:01 **DQB1***: 06:03:01 **DPB1***: 02:01:02G, 04:02:01G **E**: 01:01, 01:03