Product sheet

AsPC-1 Cells | 300158

General information

Description	The AsPC1 cell line was derived from a 62-year-old female patient with adenocarcinoma of the head of the pancreas and metastases to several abdominal organs. Despite receiving radiation and chemotherapy, the patient developed ascites and passed away two weeks later. The ascitic cell culture derived from this patient demonstrated abundant mucin and carcinoembryonic antigen 7 production. In genetic analysis, KRAS was found to be activated. In addition, ASPC-1 showed divergent results for SMAD4/DPC4. The status of the tumor suppressor genes TP53 and CDKN2A/p16 was also inconsistent showing variable alterations in these genes. It is suggested that these cells may have acquired additional alterations during routine culturing, and the heterogeneous populations in the original tumor could be a source of different genetic variants. A study published in Neoplasia in 2016 investigated the efficacy of the HDAC inhibitor AR-42 in suppressing tumor growth in ASPC-1 models. The results demonstrated tumor suppression and increased apoptosis, suggesting the potential of AR-42 as a treatment option. Another study featured in Nature in 2016 examined the mechanism of action of the antimitotic and STAT3 inhibitor LTP-1 using ASPC-1 cells. LTP-1 treatment induced cell cycle arrest, disrupted microtubule dynamics, and suppressed tumor growth, indicating its potential as a therapeutic agent. In a 2006 study, ASPC-1 cells were used to characterize the mTOR inhibitor CCI-779 (temsirolimus) in human pancreatic cancer. CCI-779 activated proteins involved in cell growth and exhibited antitumor effects in vivo. Temsirolimus has since been FDA-approved for advanced kidney cancer treatment. ASPC-1 cells have also played a crucial role in establishing carcinogenesis models for pancreatic ductal adenocarcinomas. By manipulating oncogenes and establishing spheroid cultures of ASPC1 cells, researchers transformed normal human pancreatic duct cells into adenocarcinomas, providing valuable insights into the process of carcinogenesis. ASPC-1 cells are a valuable resource for studying pancreatic ductal adenocarcinoma and possess specific markers associated with pancreatic cancer and have been utilized in various research studies exploring potential therapies.
Organism	Human
Tissue	Pancreas
Disease	Adenocarcinoma
Metastatic site	Ascites
Synonyms	AsPc-1, Aspc-1, ASPC-1, As-PC1, ASPC1, AsPC1, Aspc1, AsPc1

Characteristics

Age	62 years
Gender	Female
Ethnicity	Caucasian
Growth properties	Adherent

Identifiers / Biosafety / Citation

Citation	AsPC-1 (Cytion catalog number 300158)
Biosafety level	1

Expression / Mutation

Products	carcinoembryonic antigen (CEA), human pancreas associated antigen, human pancreas specific antigen, mucin
Mutational profile	AsPC-1 cells carry a homozygous Kras mutation in codon12: GGT(Gly) >GAT(Asp)

Handling

Culture Medium	RPMI 1640, w: 2.1 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	Accutase
Subculturing	Remove medium and rinse the adherent cells using PBS without calcium and magnesium (3-5 ml PBS for T25, 5-10ml for T75 cell culture flasks). Add Accutase (1-2ml per T25, 2.5ml per T75 cell culture flask), the cell sheet must be covered completely. Incubate at ambient temperature for 8-10 minutes. Carefully resuspend the cells with medium (10 ml), centrifuge for 3min at 300xg, resuspend cells in fresh medium and dispense into new flasks which contain fresh medium.
Split ratio	A ratio of 1:3 to 1:6 is recommended
Seeding density	We recommend to seed the cells at 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	AsPC-1 cells are shipped in a deep-frozen state on dry ice. Upon receipt, confirm that the vial remains frozen. For storage, place the cryovial immediately at temperatures below -150 degrees. If you plan to culture the cells immediately, swiftly thaw the vial by shaking it in a 37 degrees water bath with clean water and an antimicrobial agent for 40-60 seconds. Remove the vial once a small ice clump persists, ensuring it remains cold. Proceed with all subsequent steps under aseptic conditions. In a sterile flow hood, disinfect the cryovial with 70% ethanol. Then, gently open the vial and transfer the cell suspension into a 15 ml centrifuge tube pre-filled with 8 ml of room temperature culture medium. Gently mix the cells. For cell separation, centrifuge at 300 x g for 3 minutes and dispose of the supernatant. Skipping centrifugation is optional, although any residual freezing medium should be removed after 24 hours. Resuspend the pellet gently in 10 ml of fresh culture medium and divide between two T25 culture flasks. Follow the subculture protocol for subsequent steps.
Handling of proliferating cultures	One or two cell culture flasks come filled with cell culture medium. Collect the entire medium in a 50 ml centrifuge tube. Spin down the collected medium at 300 x g for 3 minutes to collect the cells which may have detached during transit. If a cell pellet is visible, resuspend the cells in 5 ml of cell culture medium and transfer to a T25 cell culture flask. Carefully add 5 ml of cell culture medium to each T25 cell culture flask. Examine cell morphology and confluency using a microscope. Finally, incubate the flasks at 37 degrees Celsius for at least 24 hours.

Quality control / Genetic profile / HLA

Sterility	Mycoplasma contamination is rigorously 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.
STR profile	**Amelogenin**: x,x **CSF1PO**: 10,13 **D13S317**: 9,12 **D16S539**: 11 **D5S818**: 12 **D7S820**: 12, 13 **TH01**: 7, 9.3 **TPOX**: 8, 10 **vWA**: 17 **D3S1358**: 16 **D21S11**: 28, 30 **D18S51**: 18 **Penta E**: 5, 12 **Penta D**: 9, 12 **D8S1179**: 13, 15 **FGA**: 24

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HLA alleles	**A***: 01:01:01, 02:01:01 **B***: 15:01:01 **C***: 03:03:01, 03:04:01 **DRB1***: 04:01:01, 13:02:01 **DQA1***: 01:02:01, 03:01:01 **DQB1***: 03:02:01, 06:04:01 **DPB1***: 04:01:01G, 10:01:01G **E**: 01:01, 01:03