Product sheet

Capan-1 Cells | 300143

General information

Description	The Capan-1 cell line is derived from a human pancreatic adenocarcinoma and was established from the ascitic fluid of a 40-year-old Caucasian male. It was first characterized in 1975 and is particularly noted for its ductal epithelial morphology, which closely resembles that of primary pancreatic tumors. Capan-1 cells are extensively used in research aimed at understanding pancreatic cancer biology, including studies on tumor progression, metastasis, and treatment resistance. This cell line is well-regarded for its ability to produce mucin, a characteristic feature of many pancreatic adenocarcinomas, thus serving as a model for mucinous pancreatic cancer. Genetically, Capan-1 harbors mutations in the KRAS gene, which are typical of pancreatic cancer, as well as alterations in other cancer-related genes such as TP53 and SMAD4. These mutations make the Capan-1 cell line a valuable tool for studying the molecular mechanisms underlying pancreatic cancer and for the preclinical evaluation of new therapeutic agents targeting these pathways. Furthermore, Capan-1 cells are used to study the biology of pancreatic cancer stem cells, offering insights into the behaviors that drive cancer recurrence and resistance to conventional therapies.
Organism	Human
Tissue	Pancreas
Disease	Ductal adenocarcinoma
Metastatic site	Liver
Synonyms	CaPan-1, CAPAN-1, Capan 1, CAPAN 1, Capan1, CAPAN1

Characteristics

Age	40 years
Gender	Male
Morphology	Epithelial-like
Growth properties	Adherent

Regulatory Data

Citation	Capan-1 (Cytion catalog number 300143)

Capan-1 Cells | 300143

Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0237

Biomolecular Data

Protein expression	P53 negative
Antigen expression	Blood Type A, Rh+
Isoenzymes	Me-2, 1, PGM3, 1, PGM1, 1-2, ES-D, 1, AK-1, 1, G6PD, B, GLO-1, 1-2, Phenotype Frequency Product: 0.0311
Tumorigenic	Form adenocarcinoma consistent with pancreatic duct carcinoma
Products	Mucin
Mutational profile	Capan-1 cells carry a homozygous Kras mutation in codon12: GGT(Gly) >GTT(Val)
Karyotype	(P7) hypotriploid with abnormalities including dicentrics, breaks, acrocentric fragments, large submetacentric and subtelocentric chromosomes plus minute marker

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	60 to 80 hours

Capan-1 Cells | 300143

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.
Seeding density	2 x 10^4 cells/cm^2 will result in a 90% confluent monolayer in about 7 days
Fluid renewal	Every 3 days
Post-Thaw 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	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.

Thawing and Culturing Cells	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.
Incubation Atmosphere	37°C, 5% CO_2, humidified atmosphere.
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.
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.

Quality Control & Molecular Analysis

Capan-1 Cells | 300143

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.