Product sheet

AR42J Cells | 500478

General information

Description	AR42J cells are a rat pancreatic tumor cell line derived from azaserine-induced tumors in rats. They are widely used as a model for studying pancreatic exocrine cell functions, pancreatitis, and pancreatic cancer research. AR42J cells exhibit acinar-like characteristics, making them particularly valuable for investigating the physiology and pathology of pancreatic acinar cells. One of the defining features of AR42J cells is their ability to differentiate into cell types exhibiting more pronounced pancreatic exocrine functions when treated with various agents, such as dexamethasone or activators of protein kinase C. Upon differentiation, these cells produce and secrete digestive enzymes, including amylase, lipase, and chymotrypsin, mimicking the enzyme secretion profile of normal pancreatic acinar cells. AR42J cells are also used to explore the mechanisms of acute pancreatitis. They respond to stimuli like cerulein, a cholecystokinin analog, which can induce a condition in the cells that resembles acute pancreatitis, characterized by enzyme overproduction, oxidative stress, and inflammatory responses. This makes AR42J cells a useful tool for testing potential therapeutic interventions for pancreatitis. Furthermore, the AR42J cell line is utilized in research focused on pancreatic cancer, particularly for studies on tumorigenesis and the malignant transformation of acinar cells. They are instrumental in examining the effects of oncogenes, tumor suppressor genes, and growth factors on the development and progression of pancreatic cancer. Overall, AR42J cells provide a versatile and dynamic model system for advancing our understanding of pancreatic diseases and for the development of new therapeutic strategies targeting these conditions.
Organism	Rat
Tissue	Pancreas tumor, exocrine
Disease	Neoplasia
Synonyms	AR4-2J, AR-42J

Characteristics

Morphology	Epithelial-like
Growth properties	Cells grow slowly, in clusters and appear as hollow spheroid colonies. They can pile up and attach loosely.

Regulatory Data

Citation	AR42J (Cytion catalog number 500478)

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Biosafety level	1
NCBI_TaxID	10116
CellosaurusAccession	CVCL_0143

Biomolecular Data

Receptors expressed	Insulin, glucocorticoid
Tumorigenic	Yes, in athymic mice
Products	Amylase and other exocrine enzymes

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
Supplements	Supplement the medium with 10% FBS
Subculturing	It is recommended to cover the tissue culture flasks with gelatine prior to cell cultivation. Gelatine is added to the flask, incubated for 30min at 37 degree Celsius and washed once with PBS. 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 3 min at 300xg, resuspend cells in fresh medium and dispense into new flasks which contain fresh medium.
Seeding density	1 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
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

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.