A498

300113

GENERAL INFORMATION

Description

A498 cells are a human renal cell carcinoma cell line derived from the kidney tissue of a 58-year-old Caucasian male. These cells are extensively used in research related to kidney cancer, particularly for studying clear cell renal cell carcinoma, which is the most common type of kidney cancer in adults.
The A498 cell line is characterized by its epithelial-like morphology and has been a valuable model for investigating the molecular and cellular mechanisms of renal carcinogenesis. These cells exhibit several features typical of kidney cancer, including alterations in the expression of genes involved in cell cycle regulation, apoptosis, and angiogenesis.
A498 cells are particularly useful for examining the metabolic pathways altered in kidney cancer, as they display a distinct metabolic profile that includes changes in lipid and glucose metabolism. This aspect makes them suitable for metabolic targeting studies, which explore how altering metabolic pathways can inhibit tumor growth.
Furthermore, A498 cells are employed in drug discovery and toxicology studies to test the efficacy of new chemotherapeutic agents and targeted therapies. They are also used to study the response of renal cancer cells to hypoxic conditions-a common feature of solid tumors that significantly influences tumor behavior and treatment response.
Overall, the A498 cell line serves as an essential tool in renal cancer research, facilitating the development of more effective therapeutic strategies and enhancing our understanding of kidney cancer biology.

Tissue	Kidney
Disease	Renal cell carcinoma

Synonyms

- A-498

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Tumourigenic	Yes, in nude mice. Forms undifferentiated carcinoma, also forms tumors in anti thymocyte serum treated newborn mice
Ploidy status	Bimodal, tetraploid
MSI status	Stable (MSS)
Doubling time	62 hours

IDENTIFIERS

Citation

A498 (Cytion catalog number 300113)

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NCBI TaxID	9606
Cellosaurus	CVCL_1056

EXPRESSION AND SUSCEPTIBILITY

Isoenzymes

PGM3, 1, PGM1, 1-2, ES-D, 2, Me-2, 1, AK-1, 1, GLO-1, 2, G6PD, B

HANDLING AND CULTURE

Culture medium

EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS and 1% NEAA

Dissociation reagent	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.

Seeding density	1 x 10^4 cells/cm^2 will result in a confluent monolayer within 4 days.
Fluid renewal	Every 3 days
Post-thaw recovery	After thawing, plate the cells at 2 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 to 48 hours.

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

DONOR

Donor age	52 years
Ethnicity	Caucasian

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes