769-P

300106

GENERAL INFORMATION

Description

The 769-P cell line is a human renal cell carcinoma (RCC) cell line that was derived from a nephrectomy specimen of a 63-year-old female patient with renal cell adenocarcinoma in 1975. It is widely used in renal cell cancer research, particularly clear cell renal cell carcinoma (ccRCC), which is the most common and lethal form of kidney cancer in adults.
The 769-P cell line retains many characteristics of primary RCC and harbors several mutations that are relevant to renal cell carcinoma. They exhibit a loss of function in the von Hippel-Lindau (VHL) tumor suppressor gene, which is an important kidney cancer gene in ccRCC that can activate various oncogenic pathways including angiogenesis, cell proliferation, and metabolic reprogramming.
The 769-P cell line is used to understand the molecular mechanisms of kidney cancer pathogenesis, explore the efficacy of anticancer drugs, and investigate the mechanisms of drug resistance. These cells are particularly useful for studying the response to tyrosine kinase inhibitors (TKIs), which are a class of targeted therapies used in the treatment of RCC and RCC subtypes.
The 769-P renal cancer cell line is further used to investigate the role of the tumor microenvironment in kidney cancer and to study cellular processes like apoptosis, cell cycle regulation, and metastatic potential. Their responsiveness to hypoxic conditions makes them suitable for research into how ccRCC adapts to and thrives in low-oxygen environments found within solid tumors.
In summary, the 769-P cell line and other RCC cell lines are indispensable tools in renal carcinoma research, providing insights into the pathogenesis of ccRCC, drug efficacy, and resistance mechanisms.

Tissue	Kidney
Disease	Renal cell carcinoma

Synonyms

- 769P
- 769-p

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Tumourigenic	Forms tumors in immunosuppressed hamsters and in nude mice
Ploidy status	This cell line had a high number of tetra-, hexa-, and higher-ploid cells (2s populations). The most common cell population (32% of cells) had a pseudodiploid karyotype of 46,xx,-3,-18,del(7) (q21.12,q22.3), ?t(3q?18q).

Karyotype

Hypodiploid. Modal number = 45. A large submetacentric chromosome was present in all cells.

Doubling time	35 hours

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IDENTIFIERS

Citation

769-P (Cytion catalog number 300106)

NCBI TaxID	9606
Cellosaurus	CVCL_1050

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

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

Supplements

Supplement the medium with 10% FBS

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	3 x 10^4 cells/cm^2 will result in a confluent monolayer within 4 days.
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.

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	63 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