

RenCa Cells | 400321

General information

Description

RenCa (Renal Carcinoma) cells are a murine renal adenocarcinoma cell line. They are derived from a tumor spontaneously developed in the kidney of a BALB/c mouse, a common inbred strain used in research. RenCa cells are used extensively to study renal cancer biology, tumor immunology, and cancer therapy, including the efficacy of immunotherapeutic agents. The cells are known for their aggressive tumor formation when implanted in syngeneic mice, making them a valuable model for in vivo experiments that aim to mimic cancer progression and metastasis in a controlled laboratory environment.

RenCa cells are characterized by a high mitotic index and are able to grow in an anchorage-independent manner, forming colonies in soft agar, which is a hallmark of oncogenic transformation. They display a fibroblast-like morphology and due to their origin in a BALB/c mouse, RenCa cells are particularly useful for research using immunocompetent mice, facilitating studies on the interaction between cancer cells and the immune system. This cell line has been utilized in numerous studies investigating the role of specific immune cells and molecules in tumor growth suppression and the potential for therapeutic intervention.

In addition to their use in immunotherapy research, RenCa cells have also served as a tool in the study of cancer metastasis mechanisms, particularly in the context of the renal system. They have been employed to assess the impact of various genes and proteins on tumor invasiveness and metastatic potential, offering insights into the pathways that might be targeted to inhibit cancer spread in renal carcinoma. These features make RenCa a crucial model in both fundamental and translational cancer research.

Organism

Mouse

Tissue

Kidney

Disease

Carcinoma

Synonyms

Renca, RENCA, Renal Carcinoma

Characteristics

Breed/Subspecies

BALB/c

Age

6 weeks

Gender

Male

Morphology

Epithelial-like

Growth properties

Adherent

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Regulatory Data

Citation	RenCa (Cytion catalog number 400321)
Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_2174
GMO Status	GMO-S1: This murine renal carcinoma cell line (RenCa) contains stable, undefined genetic alterations associated with spontaneous tumorigenesis. The modification renders the line GMO-classified under German rules. This classification applies only within Germany and may differ elsewhere.

Biomolecular Data

Tumorigenic	Yes, in syngeneic mice
Virus susceptibility	MAP testing negative (Sendai, Ektromelie, Polyoma, K-Virus, Kilham, LCM, M.pulmonis, MVM, Theiler`s GD VII, toolan`s H-1, MHV, RCV/SDA, M-Adenovirus)

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO ₃ (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	47 hours
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	2×10^4 cells/cm ²

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Fluid renewal 2 to 3 times per week

Post-Thaw Recovery Fast. Viability 93%. Allow cells to recover from the freezing process for 24 to 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% CO₂, 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.

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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.