Renca-Luc

305696

GENERAL INFORMATION

Description

Renca-Luc is a bioluminescent derivative of the murine Renca renal carcinoma cell line, engineered to stably express a firefly luciferase reporter gene. The parental Renca cell line was spontaneously derived from a renal cell carcinoma in a BALB/c mouse and is one of the most widely used syngeneic models for renal cell carcinoma (RCC) in immuno-oncology research. Renca tumors grow aggressively and are poorly immunogenic in BALB/c hosts, making this model valuable for evaluating immunotherapy approaches including checkpoint inhibitors, cytokine therapies, and cancer vaccines in an immunocompetent setting that recapitulates the immunosuppressive microenvironment characteristic of human RCC.

The stable luciferase integration in Renca-Luc enables sensitive, noninvasive bioluminescence imaging (BLI) of tumor burden in orthotopic subrenal capsule and subcutaneous xenograft models in syngeneic BALB/c mice. Following luciferin administration, the emitted signal correlates with viable tumor cell number, supporting longitudinal monitoring of tumor engraftment, growth kinetics, and therapeutic response without repeated invasive procedures. Renca-Luc is widely used for in vivo evaluation of anti-RCC agents, combination immunotherapy strategies, and angiogenesis inhibitors in preclinical renal cancer research.

Renca-Luc retains the established biological and immunological properties of the parental Renca line, including BALB/c syngeneic compatibility and its characteristic poorly immunogenic phenotype. The luciferase modification substantially enhances experimental sensitivity and enables real-time pharmacodynamic assessment of treatment efficacy. Researchers should verify luciferase activity, growth kinetics, and immunological characteristics under their specific experimental conditions prior to large-scale in vivo use.

Tissue	Kidney
Disease	Mouse kidney carcinoma

Synonyms

- Luciferase Reporter RenCa Cell Line

CLASSIFICATION

Organism	Mouse
Sex	Male
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: This cell line contains a stably integrated firefly luciferase reporter cassette (Luc2, codon-optimized) introduced via replication-incompetent lentiviral transduction. The resulting polyclonal cell population was maintained under puromycin selection (1–5 µg/mL). S1 containment is required. This classification applies only within Germany and may differ elsewhere.

Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Tumourigenic	Yes, in syngeneic mice
Doubling time	24-48 hours

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IDENTIFIERS

Citation

Renca-Luc (Cytion catalog number 305696)

NCBI TaxID	10090
Cellosaurus	CVCL_E3IJ

EXPRESSION AND SUSCEPTIBILITY

Antigen expression

Luc2 (firefly, codon-optimized)

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.1 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.

Split ratio	1 to 3
Seeding density	1 to 3 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week

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 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium.
Follow the procedure described under Post-Thaw Recovery

QUALITY CONTROL AND CRYOPRESERVATION

Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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	6 weeks
Ethnicity	BALB/c

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