Product sheet

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.
Organism	Mouse
Tissue	Kidney
Disease	Mouse kidney carcinoma
Synonyms	Luciferase Reporter RenCa Cell Line

Characteristics

Age	6 weeks
Gender	Male
Ethnicity	BALB/c
Morphology	Epithelial-like
Growth properties	Adherent

Renca-Luc | 305696

Regulatory Data

Citation	Renca-Luc (Cytion catalog number 305696)
Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_E3IJ
GMO Status	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.

Biomolecular Data

Antigen expression	Luc2 (firefly, codon-optimized)
Tumorigenic	Yes, in syngeneic mice

Handling

Culture Medium	RPMI 1640, w: 2.1 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	24-48 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.
Split ratio	1 to 3

Renca-Luc | 305696

Seeding density	1 to 3 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.
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 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium. 7. Follow the procedure described under Post-Thaw Recovery
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