Product sheet

Cytion

MB49-Luc Cells | 305681

General information

Description	MB49-Luc is a bioluminescent derivative of the murine MB49 bladder transitional cell carcinoma cell line, engineered to stably express a firefly luciferase reporter gene. The parental MB49 cell line was originally induced by 7,12-dimethylbenz[a]anthracene (DMBA) in a C57BL/6 mouse and is widely used as a syngeneic model of urothelial carcinoma in immunocompetent C57BL/6 hosts. MB49 cells exhibit epithelial morphology and express MHC class I antigens, making them immunologically recognizable by the host immune system and therefore a valuable model for studying tumor-immune interactions, immunotherapy approaches, and immune escape mechanisms in bladder cancer. The stable luciferase integration in MB49-Luc enables sensitive, noninvasive bioluminescence imaging (BLI) of tumor burden in orthotopic intravesical and subcutaneous models in syngeneic C57BL/6 mice. The emitted signal correlates with viable tumor cell number, supporting longitudinal assessment of tumor engraftment, bladder tumor progression, and therapeutic response without repeated invasive procedures. MB49-Luc is particularly valuable for evaluating intravesical immunotherapy regimens, systemic checkpoint inhibitors, and novel therapeutic modalities for muscle-invasive and non-muscle-invasive bladder cancer in immunocompetent preclinical models. MB49-Luc retains the core biological and immunological features of the parental MB49 line, including its C57BL/6 syngeneic compatibility and characteristic karyotypic feature of chromosome Y loss. The luciferase reporter enhances experimental sensitivity and enables real-time tumor tracking. Researchers should confirm luciferase activity, growth kinetics, and immunological phenotype under their specific experimental conditions prior to large-scale in vivo use.
Organism	Mouse
Tissue	Urinary bladder
Disease	Mouse bladder transitional cell carcinoma
Synonyms	MB49-luciferase, MB49 LucSH+

Characteristics

Age	Adult
Gender	Male
Ethnicity	Inbred mouse strain (C57BL/6)
Morphology	Epithelial
Growth properties	Adherent

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Regulatory Data

Citation	MB49-Luc (Cytion catalog number 305681)
Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_E8D4
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)
Karyotype	Has lost chromosome Y

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase 10 min at RT
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

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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