Product sheet

GL261-Luc Cells | 305662

General information

Description	GL261-Luc cells are a bioluminescent derivative of the murine GL261 glioma cell line engineered to stably express a luciferase reporter gene. Following administration of the luciferin substrate, these cells emit a quantifiable luminescent signal proportional to viable tumor cell number, enabling sensitive and non-invasive monitoring of tumor growth and therapeutic response. GL261-Luc cells retain many of the biological and immunogenic properties of the parental GL261 glioma model, including aggressive growth behavior and compatibility with syngeneic immunocompetent mouse models. Because the parental GL261 line originates from murine glioma, GL261-Luc cells are particularly valuable for studying glioblastoma biology in the context of an intact immune system. GL261-Luc cells are extensively used in orthotopic intracranial and subcutaneous glioma models for longitudinal in vivo bioluminescence imaging. The stable luciferase expression enables real-time assessment of tumor establishment, progression, invasion, recurrence, and response to therapy without requiring invasive procedures at multiple time points. These cells are widely applied in preclinical neuro-oncology research evaluating chemotherapeutics, radiation therapy, immune checkpoint blockade, CAR-T cell therapies, cancer vaccines, oncolytic viruses, and nanoparticle-based drug delivery systems. In vitro, GL261-Luc cells are also suitable for viability assays, cytotoxicity testing, migration and invasion studies, and high-throughput therapeutic screening workflows using luminescence-based readouts. As a syngeneic glioma model, GL261-Luc cells are particularly important for investigating tumor-immune interactions, neuroinflammation, and mechanisms of immune evasion within the glioblastoma microenvironment. However, luciferase vector systems, promoter configurations, and selection strategies may differ between independently generated variants, potentially affecting signal intensity and long-term reporter stability. Researchers should therefore validate luciferase activity, growth kinetics, and immunologic characteristics under their specific experimental conditions prior to use in quantitative imaging studies or therapeutic evaluation.
Organism	Mouse
Tissue	Brain
Disease	Glioblastoma

Characteristics

Breed/Subspecies	C57BL/6
Growth properties	Adherent

Regulatory Data

Citation	GL-261-Luc (Cytion catalog number 305662)

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Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_C9CB
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)

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
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	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