Product sheet

Cytion

U-87 MG-Luc Cells | 305707

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Description	U-87 MG-Luc cells are a bioluminescent derivative of the human U-87 MG glioblastoma cell line that have been genetically modified to stably express the firefly luciferase reporter gene. Upon exposure to luciferin substrate, these cells generate a luminescent signal proportional to viable cell number, enabling sensitive and quantitative monitoring of tumor growth, proliferation, and therapeutic response. U-87 MG-Luc cells retain many of the morphological and biological properties of the parental glioblastoma model, including adherent growth, rapid proliferation, and expression of markers commonly associated with astrocytic tumor cells. The luciferase reporter system makes U-87 MG-Luc cells particularly valuable for orthotopic and subcutaneous xenograft studies in immunocompromised animal models. Bioluminescence imaging enables non-invasive longitudinal assessment of intracranial tumor establishment, invasion, recurrence, and response to experimental therapies, reducing the need for invasive procedures or large animal cohorts. These cells are widely used in preclinical neuro-oncology research for evaluating chemotherapeutics, targeted inhibitors, immunotherapies, radiation response, nanoparticle-based drug delivery systems, and gene therapy approaches. In vitro, U-87 MG-Luc cells are also suitable for high-throughput viability assays, migration and invasion studies, and real-time analysis of glioblastoma cell dynamics. Like the parental U-87 MG line, U-87 MG-Luc cells exhibit characteristics associated with high-grade glioma biology, including altered signaling pathways involved in proliferation, apoptosis resistance, angiogenesis, and metabolic adaptation. Researchers should note that different repositories and laboratories may use independently generated luciferase-expressing variants with differences in vector integration sites, promoter systems, reporter intensity, and selection markers. Authentication and validation of luciferase stability, growth behavior, and molecular characteristics are therefore recommended prior to experimental use, particularly in studies involving long-term in vivo imaging or therapeutic screening.
Organism	Human
Tissue	Brain
Disease	Glioblastoma
Synonyms	U-87MG, U87 MG, U-87-MG, U87-MG, U-87 MG, U-87, U87, 87 MG, 87MG

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Age	44 years
Gender	Male
Ethnicity	Caucasian
Morphology	Epithelial-like

Growth properties	Adherent

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Citation	U87MG-Luc (Cytion catalog number 305707)
Biosafety level	1
NCBI_TaxID	9606
GMO Status	GMO-S1: This human glioblastoma reporter cell line (U-87 MG-Luc) contains a lentiviral firefly-Luc construct, allowing bioluminescent readouts in tumor biology studies. The insert is stably integrated. This classification applies only within Germany and may differ elsewhere.

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Protein expression	Luc
Isoenzymes	Me-2, 1, PGM3, 1, PGM1, 2, ES-D, 1, AK-1, 1, GLO-1, 1, G6PD, B
Tumorigenic	Yes, in nude mice inoculated subcutaneously with 107 cells

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Culture Medium	EMEM (MEM Eagle), w: 2 mM L-Glutamine, w: 2.2 g/L NaHCO3, w: EBSS (Cytion article number 820100a)
Supplements	Supplement the medium with 10% FBS and 1% NEAA
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.

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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.

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