Product sheet

U-87 MG-RFP Cells | 305702

General information

Description	U-87 MG-RFP cells are a fluorescently labeled variant of the human glioblastoma astrocytoma cell line U-87 MG, which was originally derived from a malignant glioma tumor of an adult patient. The parental U-87 MG line is widely used as an in vitro model for glioblastoma due to its well-characterized growth properties, tumorigenic potential, and relevance to high-grade astrocytic tumors. These cells exhibit adherent growth with epithelial-like morphology and are commonly employed to study processes such as cell proliferation, invasion, angiogenesis, and response to hypoxic conditions. In U-87 MG-RFP cells, stable expression of red fluorescent protein (RFP) enables real-time visualization of tumor cell behavior in both in vitro and in vivo systems. This modification facilitates applications such as live-cell imaging, tumor tracking in orthotopic xenograft models, and analysis of invasive growth patterns within brain tissue. U-87 MG-RFP cells are particularly valuable for studying glioblastoma progression, tumor–microenvironment interactions, and evaluating therapeutic strategies using fluorescence-based imaging approaches. **Genetic modification:** Stably modified by replication-incompetent lentiviral transduction to express a red fluorescent protein (RFP) reporter; maintained as a polyclonal population under puromycin selection (1–5 µg/mL). S1/BSL-1 containment.
Organism	Human
Tissue	Brain
Disease	Glioblastoma
Metastatic site	Primary tumor site (brain)
Applications	Glioblastoma research; RFP-based live-cell and in vivo fluorescence imaging; orthotopic xenograft tumor tracking; tumor-microenvironment interaction studies; angiogenesis; invasion and migration assays; puromycin-selected stable reporter cells for drug evaluation
Synonyms	U-87MG, U87 MG, U-87-MG, U87-MG, U-87 MG, U-87, U87, 87 MG, 87MG

Characteristics

Age	44 years
Gender	Male
Ethnicity	Caucasian
Morphology	Epithelial-like

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Cell type	Glial cells (astrocytic)
Growth properties	Adherent

Regulatory Data

Citation	U87MG-RFP (Cytion catalog number 305702)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	Not assigned (U87MG-RFP is a lentiviral RFP derivative; parental U-87 MG CVCL_0022)
GMO Status	GMO-S1: This cell line contains a stably integrated red fluorescent protein (RFP) reporter 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	RFP (red fluorescent protein)
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

Handling

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
Dissociation Reagent	Accutase
Doubling time	approx. 24 to 36 hours

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Split ratio	1 to 3
Seeding density	1.5 to 2 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