K7M2 wt-Luc

305684

GENERAL INFORMATION

Description

K7M2 wt-Luc is a bioluminescent derivative of the murine K7M2 osteosarcoma cell line, engineered to stably express a firefly luciferase reporter gene. The parental K7M2 cell line was established from ascites of a spontaneous osteosarcoma in a BALB/c mouse and is characterized by osteoblastic morphology and high metastatic potential, particularly to the lungs. K7M2 is one of the few syngeneic osteosarcoma models available in the BALB/c background, making it a valuable tool for studying osteosarcoma biology, tumor-immune interactions, and the evaluation of immunotherapy strategies in an immunocompetent host.
The stable luciferase integration in K7M2 wt-Luc enables sensitive, noninvasive bioluminescence imaging (BLI) of primary tumor growth and pulmonary metastatic spread in syngeneic BALB/c mice. Following administration of the luciferin substrate, the emitted signal correlates with viable tumor cell number, supporting longitudinal monitoring of tumor engraftment, metastatic colonization, and therapeutic response without invasive procedures at each time point. This makes K7M2 wt-Luc particularly suited for preclinical studies evaluating anti-tumor and anti-metastatic agents, checkpoint inhibitors, and combination treatment strategies in osteosarcoma.
K7M2 wt-Luc retains the biological and immunological properties of the parental K7M2 line, including expression of complement component C3 and Fc gamma receptor I (FcgRI), features that may influence interactions with the innate immune compartment. The luciferase reporter substantially enhances experimental flexibility and sensitivity for real-time tracking of tumor progression. Researchers should validate luciferase activity, growth kinetics, and metastatic behavior under their specific experimental conditions prior to large-scale in vivo use.

Tissue	Ascites
Disease	Mouse osteosarcoma
Metastatic site	Lung

Applications

Osteosarcoma research; syngeneic BALB/c tumor model; pulmonary metastasis imaging via bioluminescence; anti-tumor and anti-metastatic drug evaluation; checkpoint inhibitor testing; innate immune interaction studies (C3, FcgRI); pediatric bone cancer immunotherapy

Synonyms

- K7M2-WT
- K7M2

CLASSIFICATION

Organism	Mouse
Sex	Female
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

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.

Biosafety level	1

CHARACTERISTICS

Cell type	Osteoblast

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Tumourigenic	Yes

IDENTIFIERS

Citation

K7M2 wt-Luc (Cytion catalog number 305684)

NCBI TaxID	10090
Cellosaurus	Not assigned (K7M2 wt-Luc reporter derivative; parental K7M2 syngeneic BALB/c osteosarcoma)

EXPRESSION AND SUSCEPTIBILITY

Receptors expressed

Complement(C3), expressed, Fc receptor, IgG, high affinity I(Fcgr1), expressed

Antigen expression

Luc2 (firefly, codon-optimized)

HANDLING AND CULTURE

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)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

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.

Split ratio	1 to 3
Seeding density	1-3*10^4/cm²
Fluid renewal	2 to 3 times per week

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium.
Follow the procedure described under Post-Thaw Recovery

QUALITY CONTROL AND CRYOPRESERVATION

Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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.

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.

DONOR

Breed / subspecies	BALB/c
Donor age	895 days

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes