Product description

MB49-luc is an aggressive, bioluminescent orthotopic bladder cancer model stably expressing luciferase, derived from the well-established MB49 cell line. The bioluminescence can be detected by in vivo imaging and offers a readout for tumour take, growth and reduction. Similarly to its parental cell line MB49 (Cat. #: 153368), it forms tumours when injected subcutaneously or orthotopically into mouse bladders. Specifically, the orthotopic intravesical bladder tumour model based on MB49-luc offers a system to study immune-related factors involved in non-muscle invasive, non-metastatic bladder tumour growth, including anti-tumour effects of treatments such as immune checkpoint inhibitors. It also provides a bladder cancer model to study mechanisms of immunotherapy non-responders, to help identifying effective immune-based combination therapies and PD-L1 function within a tumour microenvironment devoid of T cells.

Name: MB49- Luc Cell Line

Parental Cell line: MB49 bladder carcinoma cell line

Organism: Mouse

Gender: Male

Tissue: Bladder

Disease: Cancer

Cancer Type: Bladder cancer

Cancers detailed: Bladder carcinoma; Urinary bladder neoplasms

Growth properties: Adherent

Production details: Parental MB49 cells transfected with a pSELECT-zeo-LucSh plasmid using Lipofectamine (InvivoGen) for luciferase expression detected by in vivo imaging.

Model: Tumourigenic line

CRISPR: No

Conditional: No

Biosafety level: 1

Mycoplasma free: Yes

Cellosaurus id: CVCL_E8D4

Contributor(s)

Inventor: Jeffrey Schlom
Institute: National Cancer Institute

Properties

Product format: Frozen

Unpacking and storage:

1. Check all containers for leakage or breakage.

2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

Recommended growth medium: DMEM with 1 mM sodium pyruvate, 2 mM glutamine, 10% FBS and 1x Penicillin/Streptomycin (optional). Zeocin (200 µg/ml) may be added to confirm stable expression and retention of the transfected plasmid.

Cryopreservation medium: Growth medium/ FBS +10% DMSO

Subculture: Split sub-confluent cultures (80-85%) 1:6 to 1:10 using Accutase or trypsin-EDTA solution; 5% CO2; 37°C.

Culture conditions: 37.0°C ± 1.0°C incubator with 5.0% ± 1.0% CO_2

Handling instructions

1. Please ensure that vials are frozen when received, and store at **<-130 °C long term**. When removing frozen cells from storage, it is important to minimise exposure to room temperature (15 - 25°C). If not proceeding directly to thawing, place the cells on dry ice or in a liquid nitrogen container.
2. **Do not thaw at room temperature.** To thaw, swirl the vial quickly in a 37 °C water bath with O-ring and cap above the water to avoid contamination. Remove from the water bath with a small ice pellet remaining (this should not take more than 2 minutes) and wipe the exterior with 70% ethanol or isopropanol before transferring to a biosafety cabinet. **Do not vortex.** Further steps should be conducted under aseptic conditions.
3. We strongly recommend that the volume of cell suspension is measured at this point, and a 20 uL aliquot be removed for a **viable cell count** using trypan blue or similar dye. This ensures that provided cells are viable, and the cell count can be used to determine volume of growth medium to be added to the cell suspension.
4. Transfer the remaining cell suspension to a sterile 15 mL conical tube using a pipette. Be careful not to introduce bubbles.
5. Rinse the vial with 1 mL of medium and add it dropwise to the cells.
6. Wash by adding 9 mL of medium **dropwise**, while gently swirling the tube.
7. Centrifuge the cell suspension at **300 x g for 2-3 minutes** at room temperature.
8. Carefully remove the supernatant with a pipette, leaving a small amount of medium to ensure the cell pellet is not disturbed. Resuspend the cell pellet by gently flicking the tube.
9. Gently add 10-15 mL culture medium and transfer to T75 tissue culture flask and incubate.
10. Exchange with 10-15 mL of fresh medium after 24 hours.
11. When cells are approximately 80-85% confluent, they can be passaged or frozen following recommendations in the previous section.

References

- Domingos-Pereira et al. Int J Mol Sci. 2022. 24(1):123. PMID: 36613562.
- Vandeveer et al. Cancer Immunol Res. 2016. 4(5):452-462. PMID: 26921031.

Material Citation

If use of this material results in a scientific publication, please cite the material in the following manner: MB49-luc cell line, was invented by Jeffrey Schlom at National Cancer Institute (CancerTools.org #161579).

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