Product description

The MB49 tumour model is a urothelial carcinoma cell line derived from an adult C57BL/ICRF-a(t) mouse bladder epithelium transformed by chemical carcinogen in culture. It is one of the most-established tumour cell line from mouse (*mus musculus*) to study human bladder cancer, widely used by scientists for more than 45 years after its original publication by Cancer Research UK researcher - Leonard Franks. MB49 cell line can be used both as an in vitro and in vivo murine model for bladder cancer, thanks to its clinically relevant metastatic potential. MB49 cells also shares pivotal tumour characteristics with human bladder cancer. MB49 cell line key features: (1) Rapidly generates tumours with subcutaneous or orthotopic injections into syngeneic mice (Summerhayes et al. 1979; Kasman et al. 2013). (2) Recapitulates key features of sex differences in bladder tumour growth (White-Gilbertson S, et al. 2016). (3) Loss of the Y-chromosome and expression of male-specific antigens, a frequent feature observed in human bladder cancer (Fabris et al. 2012). (4) Dose-dependent enhanced proliferation to dihydrotestosterone and lack of proliferation to human chorionic gonadotrophin (White-Gilbertson S, et al. 2016). (5) Responsiveness to immune checkpoint inhibitors (Vandeveer et al. 2016) and other agents undergoing clinical investigation (Shingo et al. 2022), making it ideal for testing novel treatment combinations. (6) Model to explore immunogene therapy, such as adenoviral vectors (Loskog et al. 2005). Further accelerate bladder cancer research, with our luminescent derivative of MB49, MB49-luc Cell Line (Cat. #: 161579). The bioluminescence can be detected by in vivo imaging and offers a readout for tumour take, growth and reduction.

Name: MB49 Murine Bladder Carcinoma Cell Line

Organism: Mouse

Gender: Male

Tissue: Bladder

Disease: Cancer

Cancer Type: Bladder cancer

Cancers detailed: Bladder carcinoma; Urinary bladder neoplasms

Tool subtype: Primary

Growth properties: Adherent

Production details: Derived from adult C57BL/Icrf-a' mouse bladder epithelial cells via single 24 h treatment with a chemical carcinogen on the second day of primary culture

Model: Tumourigenic line

CRISPR: No

Conditional: No

Biosafety level: 1

Cellosaurus id: CVCL_7076

Mycoplasma free: Yes

Contributor(s)

Inventor: Leonard Franks
Institute: Cancer Research UK, London Research Institute: Lincoln's Inn Fields

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 Complete Medium or in DMEM-High Glucose with 10% FBS and 1x Penicillin/Streptomycin (optional).

Cryopreservation medium: Growth medium +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, while gently swirling the 50 mL tube.
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. Collect floating cells, centrifuge, aspirate and resuspend floaters in 2 mL of fresh medium and add back into the flask. Exchange with fresh medium every 2-3 days.

11. When cells are approximately 80-85% confluent, they can be passaged or frozen following recommendations in the previous section.

References

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Material Citation

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