Product sheet

MB49 Cells | 305240

General information

Description	The MB49 cell line is a murine model derived from the C57BL/6 mouse bladder epithelial cells. It was originally developed to study bladder cancer, providing a platform for examining the biological and molecular characteristics of urothelial carcinoma. The cell line was established through the chemical induction of bladder tumors using the carcinogen 7,12-dimethylbenz[a]anthracene (DMBA), as detailed in early research studies. MB49 cells exhibit a tumorigenic phenotype when transplanted into syngeneic mice, forming urothelial carcinomas. These tumors are often poorly differentiated and can display mixed morphologies, including spindle-shaped cells and adenocarcinomatous areas, which resemble aggressive bladder cancer subtypes seen in human pathology. Further research has led to the development of MB49-I, a more invasive subline of MB49. This subline was generated after 13 consecutive in vivo passages, enhancing its invasive and metastatic potential. MB49-I cells exhibit increased proteolytic activity, particularly in enzymes such as cathepsin B, matrix metalloproteinase 9 (MMP-9), and urokinase-type plasminogen activator (uPA). These enzymes contribute to the breakdown of extracellular matrix components, facilitating the invasion and metastasis of tumor cells. The MB49-I subline, when inoculated orthotopically into the bladder of syngeneic mice, leads to the formation of highly invasive bladder tumors, making it a valuable model for studying tumor progression and testing anti-cancer therapeutics aimed at preventing invasion and metastasis. This MB49 model, including the MB49-I variant, is instrumental in understanding the molecular mechanisms underlying bladder cancer progression and in developing new therapeutic strategies. The model closely mimics human bladder cancer, particularly in its ability to simulate the invasive and metastatic characteristics of the disease, thereby providing a robust system for preclinical studies.
Organism	Mouse
Tissue	Urinary bladder
Disease	Mouse bladder transitional cell carcinoma
Synonyms	MB-49

Characteristics

Breed/Subspecies	C57BL/ICRF-a(t)
Age	Adult
Gender	Male
Morphology	Epithelial

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Growth properties	Adherent

Regulatory Data

Citation	MB49 (Cytion catalog number 305240)
Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_7076

Biomolecular Data

Karyotype	Has lost chromosome Y

Handling

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)
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.
Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

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 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium. 7. Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth. 8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.
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

Sterility	Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods. To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.