Product sheet

MC38 Cells | 305223

General information

Description	The MC38 cell line is a murine model extensively utilized in colorectal carcinoma research. Originating from a colon adenocarcinoma in a C57BL/6 mouse, these cells exhibit a high mutational rate, particularly in the mutanome and neoantigen expression, making them highly sensitive to immune checkpoint inhibitor therapy. Their responsiveness to endogenous CD8+ T cell attacks against neoantigens underscores their value in studying immune interactions within tumor environments, positioning the MC38 model as a pivotal immunoresponsive murine tumor model. MC38 cells form tumors and metastases in syngeneic C57BL6 murine hosts or immunocompromised mice. The MC38 colon adenocarcinoma model, especially when used in orthotopic mouse models, is recognized for its immunological responsiveness, rendering it an effective platform for evaluating immunotherapies, including radiation, checkpoint inhibitors, and other novel treatments. MC38 cells express colon markers such as claudin-1 and SATB2, critical for investigating the genomic and epigenomic underpinnings of colorectal adenocarcinoma and for identifying potential treatments. The immunological characteristics of the MC38 xenograft model make it a versatile tool for cancer research, especially in the context of colorectal adenocarcinoma. The MC38 colon carcinoma model, with its high mutanome and neoantigen load, serves as an exemplary immunoresponsive murine model, facilitating the exploration of the complex dynamics between colorectal tumor cell lines and the host's immune system.
Organism	Mouse
Tissue	Colon
Disease	Adenocarcinoma
Synonyms	MC-38, MCA-38, MCA 38, MCA38, Mouse Colon 38, Murine Carcinoma-38, Colon 38, Colon-38, Colon38; C38

Characteristics

Breed/Subspecies	C57BL/6
Gender	Female
Growth properties	Adherent

Regulatory Data

Citation	MC38 (Cytion catalog number 305223)
Biosafety level	1

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NCBI_TaxID	10090
CellosaurusAccession	CVCL_B288

Biomolecular Data

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, 10 mM HEPES, NEAA
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.