MH-3924A

500286

GENERAL INFORMATION

Description

The MH3924A cell line is a well-characterized model derived from Morris rat hepatoma 3924A, which is frequently used in research to study hepatocellular carcinoma (HCC). These cells have been extensively employed to investigate the mechanisms underlying HCC growth, metastasis, and therapeutic responses. In particular, MH3924A cells are noted for their robust proliferative capacity and their ability to invade surrounding tissues, making them a suitable in vitro and in vivo model for exploring cancer progression and potential treatments.
Studies have demonstrated that the proliferation and invasiveness of MH3924A cells can be significantly influenced by various factors. For instance, treatment with the immunosuppressive drug tacrolimus (FK506) has been shown to promote the proliferation of these cells, enhance their invasive potential, and increase the expression of key molecules involved in metastasis, such as CXCR4 and its ligand SDF-1α. FK506's effect on these cells underscores its potential to exacerbate cancer progression, particularly in the context of post-transplantation immunosuppression, where its use is common to prevent organ rejection but may inadvertently promote tumor growth.
Additionally, MH3924A cells have been genetically modified to express the human sodium/iodide symporter (hNIS), which significantly enhances their iodide uptake capability. This modification has facilitated the use of these cells in radioiodine therapy studies, providing insights into the potential application of gene therapy for targeting HCC. However, despite the increased uptake, the rapid efflux of iodide from the cells suggests that further modifications or combined treatments are necessary to retain the radioactivity within the tumor cells for effective therapy. The MH3924A cell line thus remains a pivotal model in both basic and applied cancer research, particularly in the study of HCC's molecular underpinnings and therapeutic strategies.

Tissue	Liver
Disease	Hepatocellular carcinoma

Synonyms

- MH 3924A
- MH3924A
- MH-3924 A
- MH 3924 A
- 3924A
- Morris hepatoma 3924A
- MH-3924
- MH3924
- MH 3924

CLASSIFICATION

Organism	Rat
Sex	Unspecified
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like
Tumourigenic	Yes, in ACI-rat
Doubling time	25 to 35 hours

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IDENTIFIERS

Citation

MH-3924A (Cytion catalog number 500286)

NCBI TaxID	10116
Cellosaurus	CVCL_5799

EXPRESSION AND SUSCEPTIBILITY

Viruses

RAP-test negative by PCR for: Adenovirus FL, Adenovirus K87, Hantavirus, Kilham rat virus, Lmyfocytair choriomeningitis virus, Mycoplasma pulmonis, Pneumonia virus of mice, Rat corona virus / Sialoacryoadenitis virus, Rat parvo virus, Reovirus type 3, Sendai virus, Theiler-s encephalomyelitis virus, Toolan-s H-1 virus.

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.

Seeding density	2 x 10^4 cells/cm^2
Fluid renewal	Every 3 to 5 days
Post-thaw recovery	Start culture using the complete contents of the cryovial in 2xT25 cell culture flasks. The cells will recover within 24 to 48 hours.

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 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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	ACI
Donor age	16 months

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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