MH7A

305036

GENERAL INFORMATION

Description

MH7A is a human synovial fibroblast cell line immortalized by stable SV40 large T antigen expression, established from synovial tissue of a female Japanese patient. MH7A grows as an adherent culture with fibroblast-like morphology and retains key functional characteristics of rheumatoid arthritis synovial fibroblasts (RASFs), including responsiveness to pro-inflammatory cytokines (IL-1β, TNF-α), expression of matrix metalloproteinases (MMPs), and the ability to invade cartilage matrix. It is one of the most widely used in vitro models for studying synoviocyte biology and RA pathogenesis.
MH7A is applicable in rheumatoid arthritis research, synoviocyte activation, MMP and TIMP regulation, cytokine signalling (NF-κB, JAK-STAT, MAPK), anti-rheumatic drug evaluation (DMARDs, biologics, JAK inhibitors), and co-culture models of joint destruction. The line provides a consistent, reproducible RA synoviocyte model that circumvents the variability and limited availability of primary patient-derived RASFs.

Tissue	Synovium
Disease	Synovial fibroblast (SV40-immortalized; models rheumatoid arthritis synoviocyte)
Metastatic site	Not applicable (non-tumorigenic synovial fibroblast model)

Applications

Rheumatoid arthritis research; synoviocyte activation; MMP/TIMP regulation; NF-κB/JAK-STAT/MAPK signalling; anti-rheumatic drug evaluation; joint destruction co-culture models; cytokine signalling

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: MH7A was immortalized by stable integration of SV40 large T antigen. This classification applies only within Germany and may differ elsewhere.

Biosafety level	1

CHARACTERISTICS

Morphology	fibroblast-like
Cell type	Fibroblast-like synoviocyte
Doubling time	approx. 24 to 36 hours

IDENTIFIERS

Citation

MH7A (Cytion catalog number 305036)

NCBI TaxID	9606

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Cellosaurus	CVCL_0427

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase, 5 min., 37°C

Subculturing

Remove medium, wash with PBS without calcium and magnesium, cover with 0.25% trypsin, incubate at 37°C for 3–5 minutes, resuspend in medium, centrifuge 300×g 3 min, discard supernatant, reseed.

Split ratio	1 : 8 split
Seeding density	1 to 3 × 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
Post-thaw recovery	After thawing, plate the cells at 2 to 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 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

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

Donor age	Age unspecified
Ethnicity	Japanese

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.

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