Product sheet

MH7A Cells | 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.
Organism	Human
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

Characteristics

Age	Age unspecified
Gender	Female
Ethnicity	Japanese
Morphology	fibroblast-like
Cell type	Fibroblast-like synoviocyte
Growth properties	Adherent

Regulatory Data

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Citation	MH7A (Cytion catalog number 305036)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0427
GMO Status	GMO-S1: MH7A was immortalized by stable integration of SV40 large T antigen. This classification applies only within Germany and may differ elsewhere.

Biomolecular Data

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase, 5 min., 37°C
Doubling time	approx. 24 to 36 hours
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.
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