MM.1R

305435

GENERAL INFORMATION

Description

The MM1.R cell line is a derivative of the MM1 cell line, originally established from a patient with multiple myeloma (MM). MM1.R was specifically developed to study resistance to dexamethasone, a corticosteroid used in the treatment of MM. The cell line provides a robust model for exploring mechanisms of glucocorticoid resistance and testing potential therapeutic strategies to overcome this challenge in MM treatment. Like MM1.S, MM1.R cells are characterized by high expression of interleukin-6 (IL-6)-dependent signaling pathways, which are pivotal in MM biology. However, MM1.R differs significantly in its resistance profile, making it a key tool for studying disease progression and drug resistance mechanisms.
MM1.R cells exhibit transcriptional and signaling alterations compared to MM1.S, including differences in glucocorticoid receptor activity and NF-kB pathway modulation. The resistance phenotype has been linked to aberrations in apoptotic pathways, with a noted decrease in pro-apoptotic signaling upon treatment with dexamethasone. Importantly, studies on MM1.R have highlighted the role of these pathways in therapeutic resistance, paving the way for novel approaches targeting the microenvironment and cellular signaling dependencies in MM.
MM1.R's utility extends beyond the study of dexamethasone resistance. It is a valuable model for evaluating combination therapies, including proteasome inhibitors and immunomodulatory drugs. The cell line's well-documented genetic and molecular landscape, including its response to various pharmacological agents, makes it an indispensable tool for preclinical MM research. Further transcriptomic studies on MM1.R have revealed that while it retains some similarity to patient-derived tumor profiles, its resistance mechanisms highlight critical deviations from non-resistant MM models, underscoring its relevance in therapeutic development.

Tissue	Peripheral blood
Disease	Multiple myeloma

Synonyms

- MM1.r
- MM.1R
- MM1-R
- MM-1R
- MM1R
- MM1.R(L)
- MM1.RL

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent and suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Lymphoblast-like
Cell type	B cell

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IDENTIFIERS

Citation

MM.1R (Cytion catalog number 305435)

NCBI TaxID	9606
Cellosaurus	CVCL_8794

EXPRESSION AND SUSCEPTIBILITY

Receptors expressed

Glucocorticoid receptor, not expressed

Protein expression

IgA lambda

Antigen expression

CD25-, CD38+, CD52+, CD59+

Mutational profile

Mutation: TRAF3, p.Val536_Asn545delValPheValAlaGlnThrValLeuGluAsninsAsp (c.1604-1630delTCTTTGTGGCCCAAACTGTTCTAGAAA), homozygous

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
Seeding density	4-5*10^5/ml

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

Donor age	45 years
Ethnicity	African American

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