Product sheet

MM.1R Cells | 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.
Organism	Human
Tissue	Peripheral blood
Disease	Multiple myeloma
Synonyms	MM1.r, MM.1R, MM1-R, MM-1R, MM1R, MM1.R(L), MM1.RL

Characteristics

Age	45 years
Gender	Female
Ethnicity	African American
Morphology	Lymphoblast-like
Cell type	B cell

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Growth properties	Adherent/suspension

Regulatory Data

Citation	MM.1R (Cytion catalog number 305435)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_8794

Biomolecular Data

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

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
Seeding density	4-5*10^5/ml

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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.