Product sheet

Z-138 Cells | 305516

General information

Description	Z-138 is a human mantle cell lymphoma (MCL) cell line derived from a patient who initially presented with chronic lymphocytic leukemia (CLL) that later transformed into an aggressive B-cell leukemia. Z-138 cells exhibit a mature B-cell phenotype, expressing markers such as CD19, CD20, and surface immunoglobulin, while also maintaining CD5 positivity, a characteristic feature of mantle cell lymphoma. These cells have been extensively studied for their response to therapeutic agents, particularly in the context of BCL-2 inhibition. Studies have shown that Z-138 cells are sensitive to venetoclax, a selective BCL-2 inhibitor, which induces apoptosis through mitochondrial pathway activation. However, mechanisms of resistance to venetoclax have been identified, including upregulation of the PI3K/AKT pathway, highlighting the potential for combination therapies targeting both BCL-2 and PI3K/AKT signaling. Z-138 cells have been utilized in research examining cytokine-mediated cytotoxicity, such as interleukin-21 (IL-21)-induced apoptosis. While some MCL cell lines are responsive to IL-21 treatment, Z-138 has demonstrated resistance, likely due to intrinsic differences in apoptotic signaling pathways. This resistance pattern provides insights into the heterogeneity of MCL and underscores the need for personalized therapeutic approaches. Z-138 serves as an important preclinical model for studying MCL pathogenesis and testing novel therapeutic strategies.
Organism	Human
Tissue	Bone marrow
Disease	Mantle cell lymphoma
Applications	Immunology
Synonyms	Z138

Characteristics

Age	70 years
Gender	Male
Ethnicity	Caucasian
Morphology	Lymphoblast
Cell type	Lymphoblast
Growth properties	Suspension

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Regulatory Data

Citation	Z-138 (Cytion catalog number 305516)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_B077

Biomolecular Data

Antigen expression	CD3-, CD5-, CD10-, CD19+, CD20+, CD23+, FMC7-
Mutational profile	Mutation: TRAF2, Simple, p.Trp114Ter (c.341G>A), Unspecified

Handling

Culture Medium	IMDM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 25 mM HEPES, w: 1.0 mM Sodium pyruvate, w: 3.024 g/L NaHCO3
Supplements	Supplement the medium with 10% horse serum
Doubling time	24 hours
Subculturing	Maintain cultures by periodically adding or replacing the medium. Initiate cultures with a density of 5 x 10^5 cells/ml and keep the cell concentration within the range of 3 x 10^5 to 1 x 10^6 cells/ml for optimal growth.
Seeding density	3-5*10^5/ml
Fluid renewal	2 to 3 times per week
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

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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.