Data Sheet

MO-91 Human Acute Myeloid Leukemia with Minimal Differentiation Cell Line

Human Acute Myeloid Leukemia Cell Line

SCC618

Pack Size: ≥ $1x10^6$ viable cells/vial

Store in liquid nitrogen.

FOR RESEARCH USE ONLY

Not for use in diagnostic procedures. Not for human or animal consumption.

Background

Acute myeloid Leukemia (AML) is the most prevalent leukemia among the adult population and accounts for about 80% of all cases. AML is a malignancy of the stem cell precursors of the myeloid lineage such as red blood cells, platelets, monocytes, and neutrophils. AML is caused by mutations of the genes involved in hematopoiesis and these mutations result in clonal expansion of myeloid progenitors known as blasts in the bone marrow and peripheral blood. This leads to ineffective erythropoiesis and bone marrow dysfunction. Prognosis remains very poor in the elderly population despite recent advancement in the management of this disease.

Acute myeloid leukemia with minimal differentiation (MO-1) is a rare subtype of leukemia in which myeloid blasts fail to show morphologic differentiation. MO-91 is the first cell line identified to express the TEL-TRKC fusion gene from its endogenous promoter. Thus, it is a valuable cell model for the screening of TRKC inhibitor and for the study of hematological and non-hematological diseases associated with TEL-TRKC fusion gene.

Source

The MO-91 cell line was established from a patient with acute myeloid leukemia with minimal differentiation (AML-M0).

Short Tandem Repeat

D3S1358:	15, 17	D8S1179:	13	D13S317:	8, 12	CSF1PO:	11, 12	Mouse:	NA
D7S820:	10, 12	D21S11:	31.2, 32.2	D16S539:	9, 10	AMEL:	X		
vWA:	17, 19	D18S51:	13, 19	TH01:	8, 9	Penta D:	11, 12		
FGA:	20, 21, 23	D5S818:	10, 12	TPOX:	8	Penta E:	11		

Quality Control Testing

- The MO-91 cell line is verified to be of human origin and negative for Mouse, Rat, Non-human primate (NHP), Chinese Hamster and Golden Syrian Hamster interspecies contamination as assessed by a Contamination CLEAR panel by Charles River Animal Diagnostic Services.
- Cells tested negative for infectious diseases against a Human Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells tested negative for mycoplasma.

Storage and Handling

The MO-91 cells should be stored in liquid nitrogen until use. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting the cell marker expression and functionality.

Representative Data

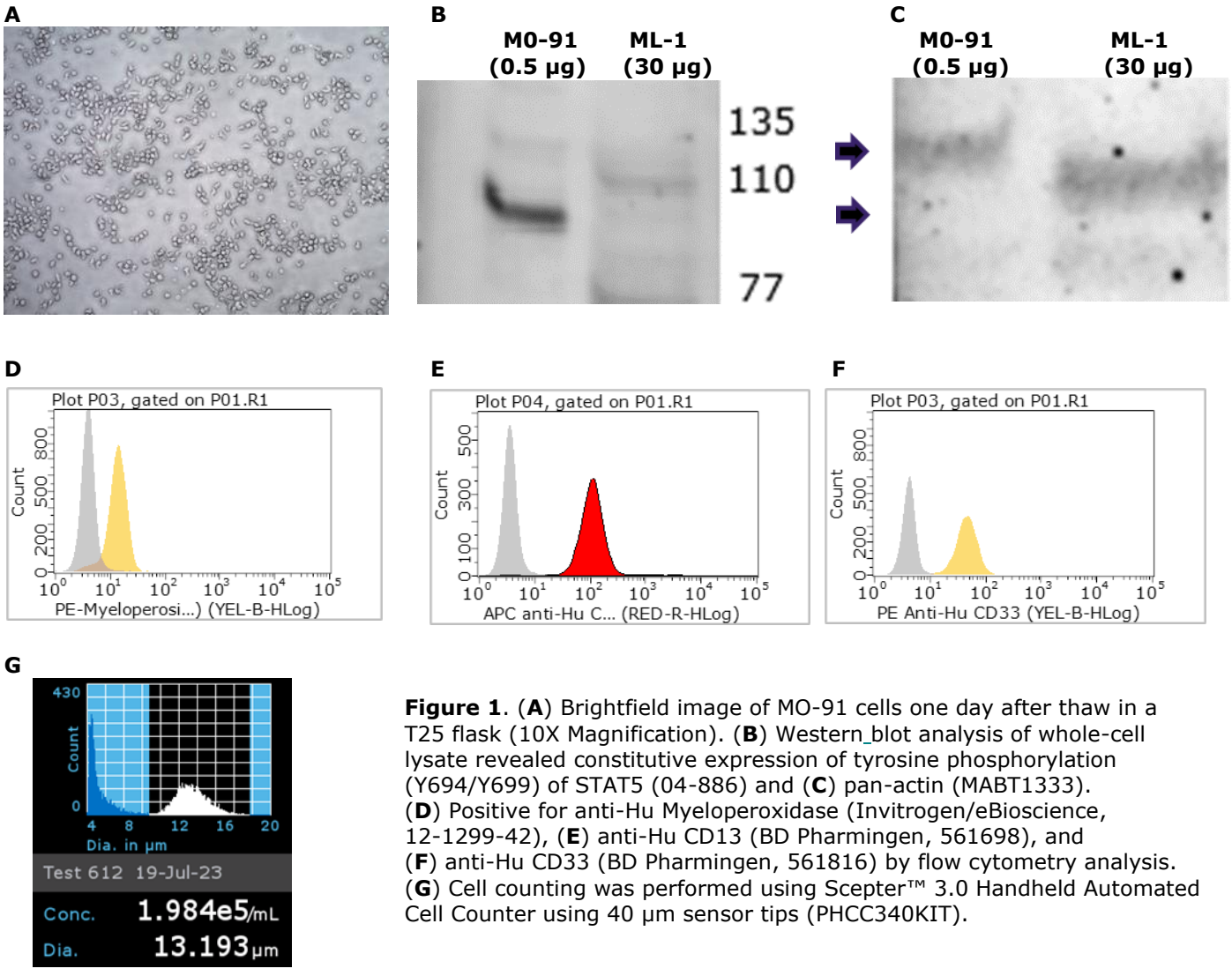

Figure 1. (**A**) Brightfield image of MO-91 cells one day after thaw in a T25 flask (10X Magnification). (**B**) Western blot analysis of whole-cell lysate revealed constitutive expression of tyrosine phosphorylation (Y694/Y699) of STAT5 (04-886) and (**C**) pan-actin (MABT1333). (**D**) Positive for anti-Hu Myeloperoxidase (Invitrogen/eBioscience, 12-1299-42), (**E**) anti-Hu CD13 (BD Pharmingen, 561698), and (**F**) anti-Hu CD33 (BD Pharmingen, 561816) by flow cytometry analysis. (**G**) Cell counting was performed using Scepter™ 3.0 Handheld Automated Cell Counter using 40 µm sensor tips (PHCC340KIT).

Protocols

Thawing the Cells

1. Do not thaw the cells until the recommended medium is on hand. Cells can grow on standard tissue cultureware surfaces without any additional coating. Cells are thawed and expanded in MO-91 Expansion Medium comprising of RPMI-1640 medium (DF-042-B) containing 10% FBS (ES-009-B) and 1X Penicillin/Streptomycin (P4333-100 mL). The addition of Penicillin/Streptomycin is optional.
2. Remove the vial of frozen MO-91 cells from liquid nitrogen and incubate in a 37 °C water bath. Closely monitor until the cells are completely thawed. Maximum cell viability is dependent on the rapid and complete thawing of frozen cells.

   Important: Do not vortex the cells.
3. As soon as the cells are completely thawed, disinfect the outside of the vial with 70% ethanol. Proceed immediately to the next step.
4. In a laminar flow hood, use a 1 or 2 mL pipette to transfer the cells to a sterile 15 mL conical tube. Be careful not to introduce any bubbles during the transfer process.
5. Using a 10 mL pipette, slowly add dropwise 9 mL of MO-91 Expansion Medium (Step 1 above) to the 15 mL conical tube.

   Important: Do not add the entire volume of media all at once to the cells. This may result in decreased cell viability due to osmotic shock.
6. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.

   Important: Do not vortex the cells.
7. Centrifuge the tube at 300 x *g* for 5 minutes to pellet the cells.
8. Aspirate off as much of the supernatant as possible. Steps 5-8 are necessary to remove residual cryopreservative (DMSO).
9. Resuspend the cells in 15 mL of MO-91 Expansion Medium and transfer the cell mixture to a T25 tissue culture flask.
10. Incubate the cells at 37 °C in a humidified incubator with 5% CO_2 with the flask standing up.

Subculturing the Cells

1. Do not allow the cells to grow to confluency. Passage when cell density reaches between 1 million to 1.5 million cells/mL.
2. Dislodge any cells that may adhere to the flask by pipetting up and down with a 10 mL pipet.

   Note: When flask is cultured by lying flat on its bottom surface, dislodging cells from the surface by pipetting up and down is necessary.
3. Transfer cell suspension to a 15 mL conical tube and centrifuge at 300 x *g* for 5 minutes to pellet the cells.
4. Aspirate as much of the supernatant as possible without disturbing the cell pellet.
5. Resuspend the cell pellet in 3-5 mL of MO-91 Expansion Medium.

   Important: Do not vortex the cells.
6. Count cells with a hemocytometer or a Scepter™ 3.0 Handheld Automated Cell Counter.
7. Seed the cells to the desired density in the size of flask desired. Typical seeding density is 250,000 cells/mL.

Cryopreservation of the Cells

The MO-91 cells may be frozen in MO-91 Expansion Medium supplemented with 10% DMSO using a Nalgene® slow freeze Mr. Frosty® container.

References

1. Vakiti A, Mewawalla P. Acute Myeloid Leukemia. [Updated 2023 Aug 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-.Available from: https://www.ncbi.nlm.nih.gov/books/NBK507875/
2. Gu, TL., Popova, L., Reeves, C.et al. Phosphoproteomic analysis identifies the M0-91 cell line as a cellular model for the study of TEL-TRKC fusion-associated leukemia. Leukemia 21, 563–566 (2007). https://doi.org/10.1038/sj.leu.2404555.
3. Venditti, A et al. “Minimally differentiated acute myeloid leukemia (AML-M0): comparison of 25 cases with other French-American-British subtypes”. Blood vol. 89,2 (1997): 621-9.

Academic Use Agreement

Subject to local law

THIS PRODUCT MAY ONLY BE USED BY INDIVIDUALS EMPLOYED BY AN ACADEMIC INSTITUTION AND IS INTENDED SOLELY TO BE USED FOR ACADEMIC RESEARCH, WHICH IS FURTHER DEFINED BELOW. BY OPENING THIS PRODUCT, YOU ("PURCHASER") HEREBY REPRESENT THAT YOU HAVE THE RIGHT AND AUTHORITY TO LEGALLY BIND YOURSELF AND/OR YOUR EMPLOYER INSTITUTION, AS APPLICABLE, AND CONSENT TO BE LEGALLY BOUND BY THE TERMS OF THIS ACADEMIC USE AGREEMENT. IF YOU DO NOT AGREE TO COMPLY WITH THESE TERMS, YOU MAY NOT OPEN OR USE THE PRODUCT AND YOU MUST CALL CUSTOMER SERVICE (1-800-645-5476) TO ARRANGE TO RETURN THE PRODUCT FOR A REFUND.

"Product" means MO-91 Human Acute Myeloid Leukemia with Minimal Differentiation Cell Line (SCC618).

"Academic Research" means any internal in vitro research use by individuals employed by an academic institution. Academic Research specifically excludes the following uses of whatever kind or nature:

- Re-engineering or copying the Product
- Making derivatives, modifications, or functional equivalents of the Product
- Obtaining patents or other intellectual property rights claiming use of the Product
- Using the Product in the development, testing, or manufacture of a Commercial Product
- Using the Product as a component of a Commercial Product
- Reselling or licensing the Product
- Using the Product in clinical or therapeutic applications including producing materials for clinical trials
- Administering the Product to humans
- Using the Product in collaboration with a commercial or non-academic entity

"Commercial Product" means any product intended for: (i) current or future sale; (ii) use in a fee-for-service; or (iii) any diagnostic, clinical, or therapeutic use.

Access to the Product is limited solely to those officers, employees, and students of PURCHASER's academic institution who need access to the Product to perform Academic Research. PURCHASER shall comply with all applicable laws in its use and handling of the Product and shall keep it under reasonably safe and secure conditions to prevent unauthorized use or access.

These use restrictions will remain in effect for as long as PURCHASER possesses the Product.

COMMERCIAL OR NON-ACADEMIC ENTITIES INTERESTED IN PURCHASING OR USING THE PRODUCT MUST CONTACT licensing@emdmillipore.com AND AGREE TO SEPARATE TERMS OF USE PRIOR TO USE OR PURCHASE.

Genetically Modified Organisms (GMO)

This product contains genetically modified organisms.
Este producto contiene organismos genéticamente modificados.
Questo prodotto contiene degli organismi geneticamente modificati.
Dieses Produkt enthält genetisch modifizierte Organismen.
Ce produit contient des organismes génétiquement modifiés.
Dit product bevat genetisch gewijzigde organismen.
Tämä tuote sisältää geneettisesti muutettuja organismeja.
Denna produkt innehåller genetiskt ändrade organismer.

Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

Technical Assistance

Visit the tech service page at SigmaAldrich.com/techservice.

Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at SigmaAldrich.com/terms.

Contact Information

For the location of the office nearest you, go to SigmaAldrich.com/offices.

Document Template 20306518 Ver 6.0

23060980 Ver 1.0, Rev 26APR2024, AB, DP