

Product Sheet

GM-CSF Reporter Cell Line

Catalog number: GM-C15752

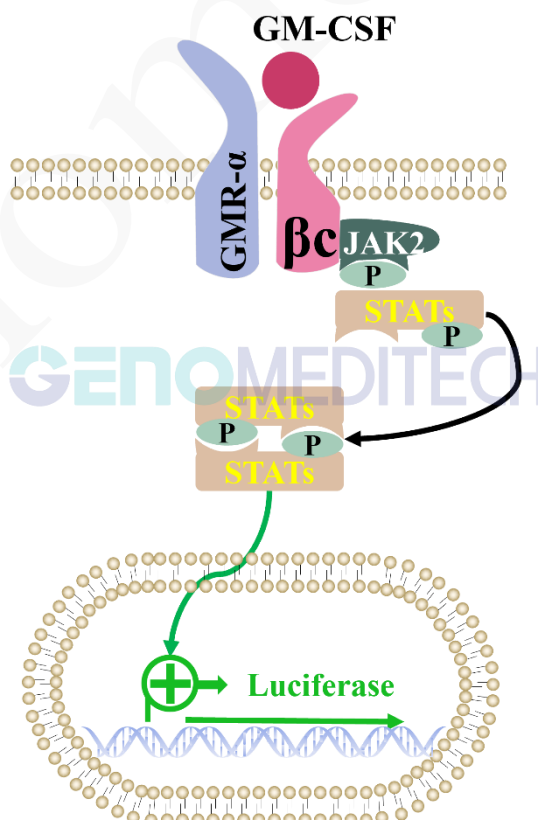
Version 4.0.26.1012



Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF) is a key cytokine produced by T cells, macrophages, fibroblasts, and endothelial cells. It is vital for hematopoiesis and immune responses, stimulating the proliferation and differentiation of hematopoietic stem cells in the bone marrow to produce granulocytes (like neutrophils) and macrophages.

GM-CSF signaling is activated when it binds to its receptor, which consists of two subunits: the alpha (GM-CSF-R α) and beta (β c) subunits. This binding activates JAK (Janus kinase), leading to the phosphorylation of STAT (signal transducer and activator of transcription) proteins, particularly STAT5. The GM-CSF pathway can also activate other pathways, such as PI3K/Akt and MAPK, enhancing cell survival and function.

GM-CSF Reporter Cell Line is a clonal stable cell line constructed using lentiviral technology, endogenously expresses GMR- α and β c chain, along with signal-dependent expression of a luciferase reporter gene. When GM-CSF binds to its receptor, it activates downstream signaling pathways, leading to the expression of luciferase. The luciferase activity measurement indicates the activation level of the signaling pathway and can thus be used to evaluate the in vitro effects of drugs related to GM-CSF.



Specifications

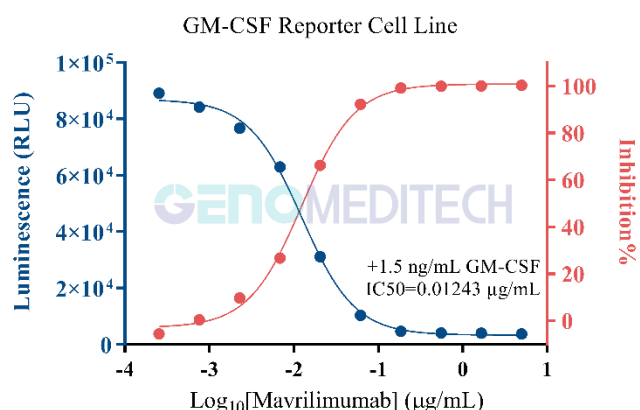
Quantity	3E6 Cells per vial, 1 mL
Product Format	1 vial of frozen cells
Shipping	Shipped on dry ice
Storage Conditions	Liquid nitrogen immediately upon receipt
Recovery Medium	RPMI 1640+10% FBS+1% P.S+2 ng/mL GM-CSF
Growth medium	RPMI 1640+10% FBS+1% P.S+2 ng/mL GM-CSF+3 µg/mL Blasticidin
Note	None
Freezing Medium	90% FBS+10% DMSO
Growth properties	Suspension
Growth Conditions	37°C, 5% CO ₂
Mycoplasma Testing	The cell line has been screened to confirm the absence of Mycoplasma species.
Safety considerations	Biosafety Level 2
Note	It is recommended to expand the cell culture and store a minimum of 10 vials at an early passage for potential future use.

Materials

Reagent	Manufacturer/Catalogue No.
RPMI 1640	gibco/C11875500BT
Fetal Bovine Serum	ExCell/FSP500
Pen/Strep	Thermo/15140-122
Blasticidin	Genomeditech/ GM-040404
Human GM-CSF Protein; His Tag	Genomeditech/ GM-88383RP
Anti-GM-CSFRA hIgG4 Antibody (Mavrilimumab)	Genomeditech/GM-88545AB
ABflo® 647 Rabbit anti-Human CD116 mAb	Abclonal/A23356
ABflo® 647 Rabbit anti-Human CD131 mAb	Abclonal/A25075
GMOne-Step 2.0 Luciferase Reporter Gene Assay Kit	Genomeditech/ GM-040513
96 well round cell culture plate	PakGent/CL-PT096
96-well White Opaque Plate	Thermo/236108
96-well U-bottom Plate	Saining/1014010

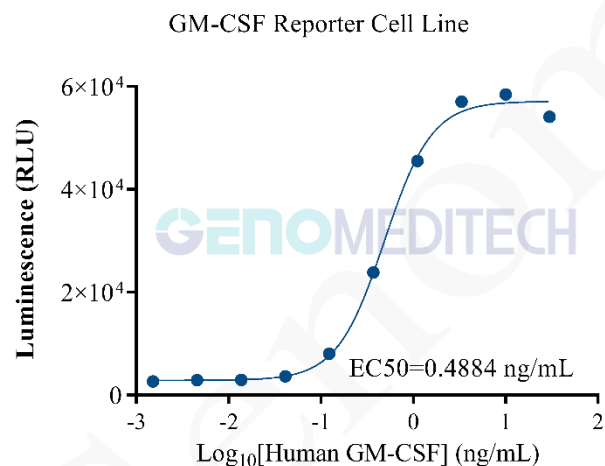
Data

Applications

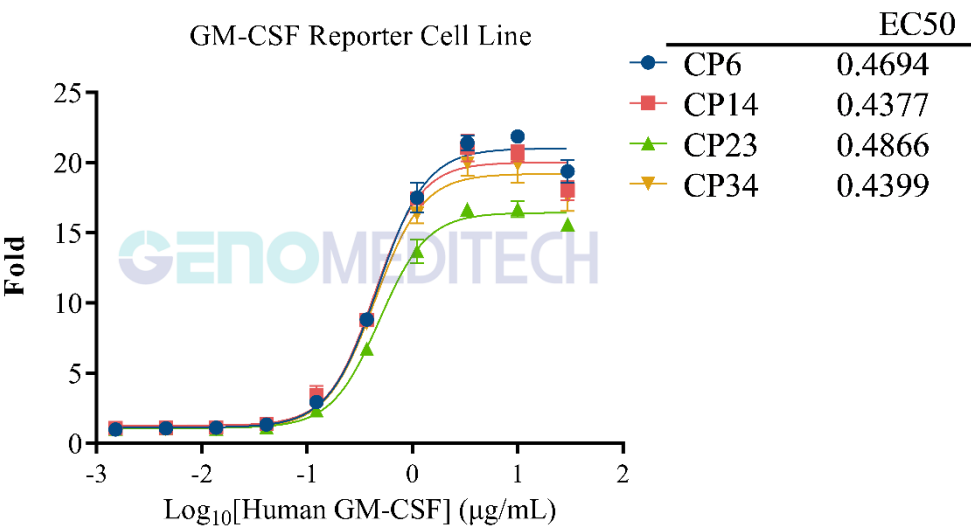


Inhibition of GM-CSF protein-induced reporter activity by Anti-GM-CSFR α hIgG4 Antibody (Mavrilimumab). Serial dilutions of the Anti-GM-CSFR α hIgG4 Antibody (Mavrilimumab) (Cat. GM-88545AB) were incubated with 4E4 cells/well of the GM-CSF Reporter Cell Line (Cat. GM-C15752) in a 96-well plate for 1 hour in assay buffer (RPMI 1640+1% FBS+1% P.S). Subsequently, the Human GM-CSF Protein (Cat. [GM-88383RP](#)) at a density of 0.15 ng/well was added, and the coculture proceeded for an additional 24 hours. Firefly luciferase activity was then measured using the Luciferase Reporter Assay Kit (Genomeditech) (left Y-axis, relative luminescence units), with inhibition percentages shown on the right Y-axis. Data are shown by drug mass concentration.

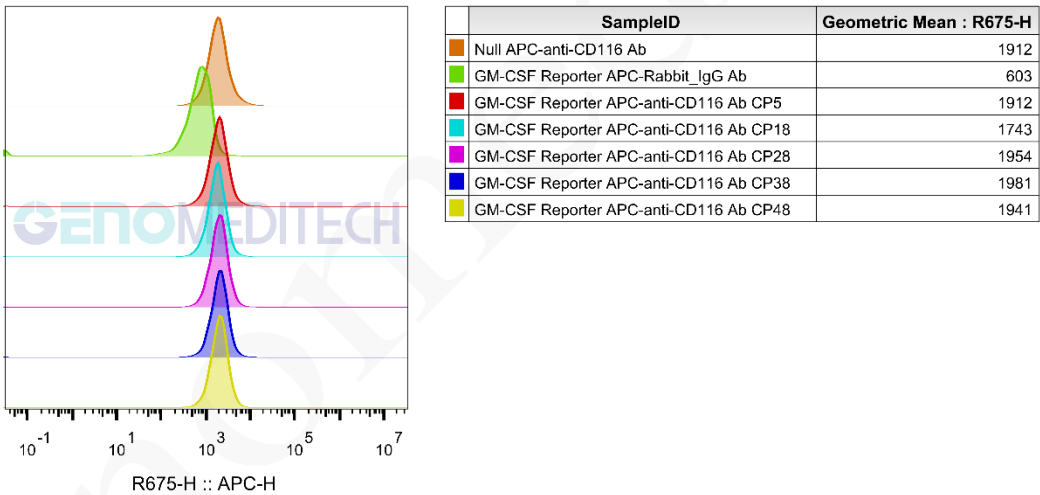
Signaling Pathway



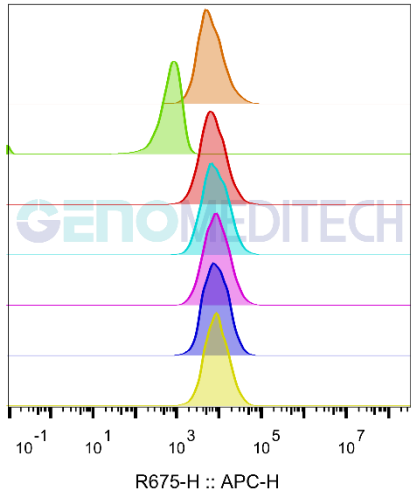
Response to Recombinant Human GM-CSF Protein; His Tag. The GM-CSF Reporter Cell Line (Cat. GM-C15752) at a concentration of 4E4 cells/well (96-well format) was stimulated with serial dilutions of Human GM-CSF Protein; His Tag (Cat. [GM-88383RP](#)) in assay buffer (RPMI 1640+1% FBS+1% P.S) for 24 hours. The firefly luciferase activity was measured using the Luciferase Reporter Assay Kit (Genomeditech). The maximum induction fold was approximately [20.3]. Data are shown by drug mass concentration.



The passage stability of response to Human GM-CSF. The passages 6, 14, 23 and 34 of GM-CSF Reporter Cell Line (Cat. GM-C15752) at a density of 4E4 cells/well (96-well format) were stimulated with serial dilutions of Human GM-CSF Protein; His Tag (Cat. [GM-88383RP](#)) in assay buffer (RPMI 1640 + 1% FBS + 1% P.S) for 24 hours. The firefly luciferase activity was measured using the Luciferase Reporter Assay Kit (Genomeditech). Data are shown by drug mass concentration.



GM-CSF Reporter Cell Line (Cat. GM-C15752) was determined by flow cytometry using ABflo® 647 Rabbit anti-Human CD116 mAb (Abclonal/A23356).



	SampleID	Geometric Mean : R675-H
	Null APC-anti-CD131 Ab	6304
	GM-CSF Reporter APC-Rabbit_IgG Ab	591
	GM-CSF Reporter APC-anti-CD131 Ab CP5	7083
	GM-CSF Reporter APC-anti-CD131 Ab CP18	8059
	GM-CSF Reporter APC-anti-CD131 Ab CP28	8626
	GM-CSF Reporter APC-anti-CD131 Ab CP38	8384
	GM-CSF Reporter APC-anti-CD131 Ab CP48	8634

GM-CSF Reporter Cell Line (Cat. GM-C15752) was determined by flow cytometry using ABflo® 647 Rabbit anti-Human CD131 mAb (Abclonal/A25075)

Cell Recovery

Recovery Medium: RPMI 1640+10% FBS+1% P.S+2 ng/mL GM-CSF

To insure the highest level of viability, thaw the vial and initiate the culture as soon as possible upon receipt. If upon arrival, continued storage of the frozen culture is necessary, it should be stored in liquid nitrogen vapor phase and not at -70°C. Storage at -70°C will result in loss of viability.

- a) Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 - 3 minutes).
- b) Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions.
- c) Transfer the vial contents to a centrifuge tube containing 5.0 mL complete culture medium. And spin at approximately 176 x g for 5 minutes. Discard supernatant.
- d) Resuspend the cell pellet using the recommended complete medium and adjust the viable cell density to 4-6E5 cells/mL. Then dispense the suspension into an appropriate culture flask and initially place the flask in an upright position after thawing.
- e) Incubate the culture at 37°C in a suitable incubator. A 5% CO₂ in air atmosphere is recommended if using the medium described on this product sheet.

Cell Freezing

Freezing Medium: 90% FBS+10% DMSO

- a) Centrifuge at 176 x g for 3 minutes to collect cells.
- b) Resuspend the cells in pre-cooled freezing medium and adjust the cell density to 3E6 cells/mL.
- c) Aliquot 1 mL into each vial.
- d) Place the vial in a controlled-rate freezing container and store at -80°C for at least 1 day, then transfer to liquid nitrogen as soon as possible.

Cell passage

Growth medium: RPMI 1640+10% FBS+1% P.S+2 ng/mL GM-CSF+3 µg/mL Blastincidin

Approximately 48 - 72 hours after the initial thawing, the cells can be passaged for the first time. After this initial passage, the culture medium can be adjusted to growth medium supplemented with antibiotics.

- a) This cell is a human erythroid leukemia cell, lymphoblast, growing in suspension.
- b) In the suspension, they appear as large, single, round cells. Cells shed a large accumulation of cytoplasmic granules in the culture, which should not be confused with bacteria!
- c) When the cell density reaches 1-1.2E6 cells/mL, perform a 1:2 to 1:3 split, ensuring subculturing every other day. It is essential to perform a full-volume centrifugation and medium replacement during passaging. Do not let the density exceed 1.2E6 cells/mL. It is recommended to use T-25 flasks for subculturing, and you can control the cell density for subculturing by counting.

Subcultivation Ratio: Maintain cultures at a cell concentraion between 4E5 and 6E5 viable cells/mL.

Medium Renewal: Every other day

Notes

- a) To minimize the presence of cytoplasmic granules, it is essential to passage the cells every other day when the cell density reaches 1-1.2E6 cells/mL. During passaging, perform a complete centrifugation and replace the culture medium to ensure appropriate cell density and cytokine concentration. Failure to do so may promote the growth of factor-independent subclones.

Related Products

GM-CSF	
Anti-GM-CSFRA hIgG4 Antibody (Mavrilimumab)	Anti-CSF2(GM-CSF) hIgG1 Antibody(otilimab)
Human GM-CSF Protein; His Tag	Human GM-CSFRA Protein; His Tag

License Agreement

By purchasing and using this cell line product, the user voluntarily agrees to accept and abide by the following policies:

- This cell line product is restricted to research use only and shall not be used for any commercial purposes.
- This product is strictly prohibited from being used in the diagnosis or treatment of human or animal diseases, and shall not be directly used in experiments involving humans.
- Users and their contractors engaged for their benefit may use this material and its derivatives only within the agreed research scope; modification of the material is not permitted, nor may it be distributed, sold, transferred, or otherwise provided to any other entity (including affiliates).
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