

Technical Data Sheet

Recombinant Human GM-CSF

Product Information

Material Number:	550068
Size:	10 µg
Concentration:	200 µg/ml
Reactivity:	QC Testing: Human
Storage Buffer:	Frozen aqueous buffered solution containing BSA.

Description

Granulocyte macrophage colony stimulating factor (GM-CSF) is a potent species-specific stimulator of bone marrow cells. GM-CSF stimulates precursor cells of granulocytes, macrophages, and eosinophils. Human GM-CSF is a 14 - 17 kD multiple glycosylated protein containing 123 amino acid residues. Recombinant human GM-CSF (Cat. No. 550068) is supplied as a frozen liquid comprised of 0.22 µm sterile-filtered aqueous buffered solution containing bovine serum albumin with no preservatives. Recombinant human GM-CSF is ≥ 95% pure as determined by SDS-PAGE, and an absorbance assay based on the Beers-Lambert law. The endotoxin level is ≤ 0.1 ng per µg of human GM-CSF, as measured in a chromogenic LAL assay.

Preparation and Storage

Store product at -80°C prior to use or for long term storage of stock solutions.

Rapidly thaw and quick-spin product prior to use.

Avoid multiple freeze-thaws of product.

This preparation contains no preservatives, thus it should be handled under aseptic conditions.

Application Notes

Application

ELISA Standard	Routinely Tested
Bioassay	Tested During Development
Blocking	Tested During Development

Recommended Assay Procedure:

Upon initial thawing, recombinant human GM-CSF (Cat. No. 550068) should be aliquoted into polypropylene microtubes and frozen at -80°C for future use. Alternatively, the product can be diluted in sterile neutral buffer containing not less than 0.5-10 mg/mL carrier protein, such as human or bovine serum albumin, aliquoted and stored at -80°C. For *in vitro* biological assay use, carrier-protein concentrations of 0.5– 1 mg/mL are recommended. For use as an ELISA standard, carrier-protein concentrations of 5– 10 mg/mL are recommended. Failure to add carrier protein or store at indicated temperatures may result in a loss of activity. The product should not be diluted to less than 5 µg/mL for long term storage. Carrier proteins should be pre-screened for possible effects in each investigator's experimental system. Carrier proteins may have an undesired influence on experimental results due to toxicity, high endotoxin levels or possible blocking activity.

ELISA Standard: Recombinant human GM-CSF (Cat. No. 550068) can be useful as a quantitative standard for measuring human GM-CSF protein levels using sandwich ELISA with the purified BVD2-23B6 antibody (Cat. No. 554502) as a capture antibody and biotinylated BVD2-21C11 (Cat. No. 554505) as the detection antibody. To obtain linear standard curves, investigators may want to consider using doubling dilutions of recombinant human GM-CSF from 2,000 - 15 pg/mL to be included for each ELISA plate. For measuring human GM-CSF in serum or plasma, investigators are highly encouraged to use the BD OptEIA™ Human GM-CSF ELISA Set (Cat. No. 555126).

Bioassay: Investigators are advised that the Bioassay application is not routinely tested for this material and are highly encouraged to both titrate this material and include appropriate controls in relevant experiments. An activity range of 0.1 - 1.0 x 10⁹ units/mg, encompassing an ED50= 10 - 90 pg/mL, has previously been reported using TF-1 as indicator cells for proliferation, with a unit defined as the amount of material needed to stimulate a half-maximal response at cytokine saturation.

Blocking: Recombinant human GM-CSF (Cat. No. 550068) can be useful as a blocking control for flow cytometric analysis when used with PE-conjugated BVD2-21C11 (Cat. No. 554507). Investigators are advised that the blocking application is not routinely tested for this material. Intracellular cytokine staining techniques and the use of blocking controls are described in detail by C. Prussin and D. Metcalfe.

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Suggested Companion Products

<u>Catalog Number</u>	<u>Name</u>	<u>Size</u>	<u>Clone</u>
554502	Purified Rat Anti-Human GM-CSF	0.5 mg	BVD2-23B6
554505	Biotin Rat Anti-Human GM-CSF	0.5 mg	BVD2-21C11
555126	Human GM-CSF ELISA Set	20 plates	(none)

Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
3. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.

References

Gasson JC. Molecular physiology of granulocyte-macrophage colony-stimulating factor. *Blood*. 1991; 77(6):1131-1145. (Biology)

Kitamura T, Tange T, Terasawa T, et al. Establishment and characterization of a unique human cell line that proliferates dependently on GM-CSF, IL-3, or erythropoietin. *J Cell Physiol*. 1989; 140(2):323-334. (Biology)

Miyatake S, Otsuka T, Yokota T, Lee F, Arai K. Structure of the chromosomal gene for granulocyte-macrophage colony stimulating factor: comparison of the mouse and human genes. *EMBO J*. 1985; 4(10):2561-2568. (Biology)

Prussin C, Metcalfe DD. Detection of intracytoplasmic cytokine using flow cytometry and directly conjugated anti-cytokine antibodies. *J Immunol Methods*. 1995; 188(1):117-128. (Methodology)

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