Human GM-CSF / CSF2 Protein

Catalog Number: 10015-HNAH

Sino Biological
Biological Solution Specialist

General Information

Gene Name Synonym:

CSF2; GM-CSF; GMCSF

Protein Construction:

A DNA sequence encoding human GMCSF (NP_000749.2) (Met1-Glu144) was expressed.

Source: Human

Expression Host: HEK293 Cells

QC Testing

Purity: ≥ 95 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.

Bio Activity:

Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. The ED_{50} for this effect is typically 0.06-0.3 ng/mL.

Endotoxin:

< 10 EU per mg of the protein.

Predicted N terminal: Ala 18

Molecular Mass:

The recombinant human GMCSF consists of 127 amino acids and predicts a molecular mass of 14.5 kDa. As a result of glycosylation, it migrates as an approximately 19-29 kDa band in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile PBS, pH 7.4.

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Stability & Storage:
Samples are stable for twelve months from date of receipt at -20℃ to -80℃.

Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:

Protein Description

Granulocyte-macrophage colony-stimulating factor (GM-CSF) is one of an array of cytokines with pivotal roles in embryo implantation and subsequent development. Several cell lineages in the reproductive tract and gestational tissues synthesise GM-CSF under direction by ovarian steroid hormones and signalling agents originating in male seminal fluid and the conceptus. The pre-implantation embryo, invading placental trophoblast cells and the abundant populations of leukocytes controlling maternal immune tolerance are all subject to GM-CSF regulation. GM-CSF stimulates the differentiation of hematopoietic progenitors to monocytes and neutrophils, and reduces the risk for febrile neutropenia in cancer patients. GM-CSF also has been shown to induce the differentiation of myeloid dendritic cells (DCs) that promote the development of T-helper type 1 (cellular) immune responses in cognate T cells. The active form of the protein is found extracellularly as a homodimer, and the encoding gene is localized to a related gene cluster at chromosome region 5q31 which is known to be associated with 5q-syndrome and acute myelogenous leukemia. As a part of the immune/inflammatory cascade, GM-CSF promotes Th1 biased immune response, angiogenesis, allergic inflammation, and the development of autoimmunity, and thus worthy of consideration for therapeutic target. GM-CSF has been utilized in the clinical management of multiple disease processes. Most recently, GM-CSF has been incorporated into the treatment of malignancies as a sole therapy, as well as a vaccine adjuvant. While the benefits of GM-CSF in this arena have been promising, recent reports have suggested the potential for GM-CSF to induce immune suppression and, thus, negatively impact outcomes in the management of cancer patients. GM-CSF deficiency in pregnancy adversely impacts fetal and placental development, as well as progeny viability and growth after birth, highlighting this cytokine as a central maternal determinant of pregnancy outcome with clinical relevance in human fertility.

References

1.Robertson SA. (2007) GM-CSF regulation of embryo development and pregnancy. Cytokine Growth Factor Rev. 18(3-4): 287-98. 2.Waller EK. (2007) The role of sargramostim (rhGM-CSF) as immunotherapy. Oncologist. 12 Suppl 2: 22-6. 3.Clive KS, *et al.* (2010) Use of GM-CSF as an adjuvant with cancer vaccines: beneficial or detrimental? Expert Rev Vaccines. 9(5): 519-25.