Human GM-CSF / CSF2 Protein

Catalog Number: 10015-HNAY

General Information

Gene Name Synonym:
GM-CSF; GMCSF

Protein Construction:
A DNA sequence encoding human GMCSF (NP_000749.2) (Ala18-Glu144) was expressed.

Source: Human

Expression Host: Yeast

QC Testing
Purity: > 95 % as determined by SDS-PAGE

Bio Activity:
Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. The ED₅₀ for this effect is typically 0.1-0.6 ng/ml.

Endotoxin:
Please contact us for more information.

Stability:
Samples are stable for up to twelve months from date of receipt at -70 °C

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. It migrates as an approximately 28-32 kDa band in SDS-PAGE under reducing conditions.

Formulation:
Lyophilized from sterile PBS, pH 7.4.

Usage Guide

Storage:
Store it under sterile conditions at -20°C to -80°C 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.

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