

M CSF Mouse

Macrophage-Colony Stimulating Factor Mouse Recombinant

GRF0253

Product Overview

Name	M CSF Mouse
Accession(Primary)	P07141
Description	Macrophage-Colony Stimulating Factor Mouse Recombinant

Target information (P07141)

Gene Name

About Gene Symbol

Background

Macrophage-Colony Stimulating Factor Mouse Recombinant: An In-Depth Analysis Abstract :

Macrophage-Colony Stimulating Factor (M-CSF) is a crucial cytokine involved in the regulation of macrophage biology, including their differentiation, survival, and function. This research paper provides an in-depth analysis of M-CSF Mouse Recombinant, focusing on its structure, signaling pathways, and diverse functions in the context of human research. Additionally, the paper explores the therapeutic potential of M-CSF modulation in various diseases.

Introduction : M-CSF plays a vital role in the development and maintenance of macrophages, key immune cells involved in innate immunity and tissue homeostasis. This paper aims to provide a comprehensive analysis of M-CSF Mouse Recombinant, highlighting its importance in human macrophage biology and its potential therapeutic applications.

Structure and Function of M-CSF : M-CSF is a homodimeric protein that binds to its receptor, CSF-1R, leading to the activation of downstream signaling pathways. It regulates the proliferation, survival, and activation of macrophages, influencing immune responses and tissue remodeling processes.

Signaling Pathways : Upon binding to CSF-1R, M-CSF triggers various intracellular signaling pathways, including

the MAPK pathway, PI3K/Akt pathway, and JAK/STAT pathway. These pathways regulate gene expression and mediate cellular responses, impacting macrophage functions.

Role in Macrophage Development and Function : M-CSF is essential for the differentiation and maturation of macrophages from hematopoietic progenitor cells. It promotes the survival, proliferation, and activation of macrophages, enhancing their phagocytic activity, cytokine production, and antigen presentation capabilities.

Therapeutic Potential : Given its crucial role in macrophage biology, M-CSF modulation has emerged as a potential therapeutic strategy. M-CSF inhibitors and CSF-1R antagonists have shown promise in the treatment of inflammatory and autoimmune diseases, as well as certain cancers.

Targeting M-CSF signaling can modulate immune responses and affect disease progression.

Clinical Applications and Future Directions: The therapeutic potential of M-CSF modulation is being explored in various clinical settings. Clinical trials investigating M-CSF inhibitors as monotherapy or combination therapy are underway in diseases such as rheumatoid arthritis and cancer. Future research should focus on understanding the intricate mechanisms of M-CSF signaling, optimizing therapeutic strategies, and developing personalized treatment approaches.