Human IL-9 / Interleukin-9 Protein (His Tag)

Catalog Number: **11844-H08B**

Sino Biological
Biological Solution Specialist

General Information

Gene Name Synonym:

HP40; IL-9; P40

Protein Construction:

A DNA sequence encoding the human IL9 (NP_000581.1) (Gln 19-Il4 144) was expressed and purified, fused with a polyhistidine tag at the C-terminus.

Source: Human

Expression Host: Baculovirus-Insect Cells

QC Testing

Purity: > 97 % as determined by SDS-PAGE

Bio Activity:

Measured in a cell proliferation assay using MO7e human megakaryocytic leukemic cells in the presence of 10 ng/mL of recombinant human SCF. The ED_{50} for this effect is typically 0.5-2 ng/mL.

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 ℃

Predicted N terminal: Gln 19

Molecular Mass:

The recombinant human IL9 consists of 136 amino acids and predicts a molecular mass of 15.5 kDa. rhIL9 migrates as multiple bands with the molecular mass of 18-25 kDa band in SDS-PAGE under reducing conditions due to different glycosylation.

Formulation:

Lyophilized from sterile 20mM Tris, 500mM NaCl, 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

Storage:

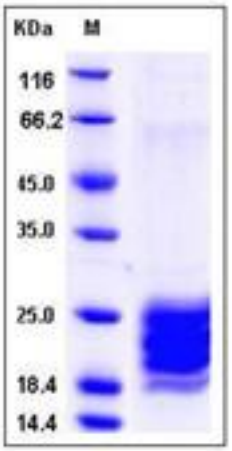
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Interleukin 9, also known as IL-9, is a cytokine (cell signalling molecule) belonging to the group of interleukins. IL-9 is a cytokine that acts as a regulator of a variety of hematopoietic cells. This cytokine stimulates cell proliferation and prevents apoptosis. It functions through the interleukin 9 receptor (IL-9R), which activates different signal transducer and activator (STAT) proteins and thus connects this cytokine to various biological processes. Genetic studies on a mouse model of asthma demonstrated that this cytokine is a determining factor in the pathogenesis of bronchial hyperresponsiveness. IL-9 is a key molecule that affects differentiation of TH17 cells and Treg function. IL-9 predominantly produced by TH17 cells, synergizes with TGF-β1 to differentiate naïve CD4+ T cells into TH17 cells, while IL-9 secretion by TH17 cells is regulated by IL-23. Interestingly, IL-9 enhances the suppressive functions of FoxP3+ CD4+ Treg cells in vitro, and absence of IL-9 signaling weakens the suppressive activity of nTregs in vivo, leading to an increase in effector cells and worsening of experimental autoimmune encephalomyelitis. The mechanism of IL-9 effects on TH17 and Tregs is through activation of STAT3 and STAT5 signaling. Our findings highlight a role of IL-9 as a regulator of pathogenic versus protective mechanisms of immune responses.

References

1.Elyaman W, *et al*. (2009) IL-9 induces differentiation of TH17 cells and enhances function of FoxP3+ natural regulatory T cells. Proc Natl Acad Sci U S A. 106(31): 12885-90. 2.Dong Q, *et al*. (1999) IL-9 induces chemokine expression in lung epithelial cells and baseline airway eosinophilia in transgenic mice. Eur J Immunol. 29(7): 2130-9. 3.Kimura Y, *et al*. (1995) Sharing of the IL-2 receptor gamma chain with the functional IL-9 receptor complex. Int Immunol. 7(1): 115-20.