

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



Sino Biological  
Biological Solution Specialist

Catalog Number: 11844-H08B

## General Information

### Gene Name Synonym:

HP40; IL-9; P40

### Protein Construction:

A DNA sequence encoding the human IL9 (NP\_000581.1) (Met1-Ile144) 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<sub>50</sub> 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

**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 19-26 kDa band in SDS-PAGE under reducing conditions due to different glycosylation.

### Formulation:

Lyophilized from sterile 50mM Tris, 150mM NaCl, 10% Glycerol, pH 7.5.

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°C to -80°C.

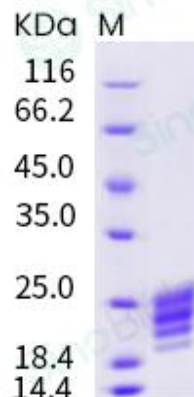
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

**Avoid repeated freeze-thaw cycles.**

### Reconstitution:

Detailed reconstitution instructions are sent along with the products.

## SDS-PAGE:



## Protein Description

Interleukin 9, also known as IL-9, is a cytokine (cell signaling 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 the differentiation of TH17 cells and Treg function. IL-9 predominantly produced by TH17 cells synergizes with TGF-β1 to differentiate naive 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 the 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 the 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.