

Product datasheet

Recombinant Human STAT1 protein (BSA and azide free) ab173079

Overview

Product name	Recombinant Human STAT1 protein (BSA and azide free)
Protein length	Full length protein

Description

Nature	Recombinant
Source	Escherichia coli
Amino Acid Sequence	
Accession	P42224-2
Species	Human

Sequence

GSHMSQWYELQQLDSKFLEQVHQLYDDSFPMIEIRQYL
 AQWLEKQDWEHAA
 NDVSFATIRFHDLLSQLDDQYSRFSLENNFLLQHNIRKS
 KRNLQDNFQED
 PIQMSMIYSCLKEERKILENAQRFNQAQSGNIQSTVML
 DKQKELDSKVR
 NVKDKVMCIEHEIKSLEDLQDEYDFKCKTLQNREHETN
 GVAKSDQKQEQL
 LLKKMYLMLDNKRKEVVKIIELLNVTETLQNALINDELV
 EWKRRQQSAC
 IGGPPNACLDQLQNWFTVAESLQQVRQQLKLEELE
 QKYTYEHDPITKN
 KQVLWDRTFSLFQQLIQSSFVVERQPCMPHPQRPLV
 LKTGVQFTVKLRL
 LVKLQELNYNLKVKVLFDKDVNERNTVKGFRKFNLGT
 HTKVMNMEESTN
 GSLAAEFRHLQLKEQKNAGTRTNEGPLIVTEELHSLSF
 ETQLCQPLVID
 LETTSLPVVVISNVSQPSGWASILWYNMLVAEPRNLS
 FFLTPPCARWAQ
 LSEVLSWQFSSVTKRGLNVDQLNMLGEKLLGPNASP
 DGLIPWTRFCKENI
 NDKNFPFWLWIESILELIKHLPLWNDGCIMGFISKER
 ERALLKDQQPG

TFLLRFSESSREGAITFTWVERSQNGGEPDFHAVEPY
TKKELSAVTFPDI
IRNYKVMAAENIPENPLKYL PNIKDHDHAFGKYYSRPKE
APEPEMELDGPK GTGYKTELISVSEV

Molecular weight	83 kDa
Amino acids	1 to 712
Additional sequence information	Isoform beta

Specifications

Our [Abpromise guarantee](#) covers the use of **ab173079** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	HPLC SDS-PAGE
Endotoxin level	< 1.000 Eu/ μ g
Purity	>95% by SDS-PAGE . Greater than 95% as determined by SEC-HPLC and reducing SDS-PAGE.
Form	Lyophilised

Preparation and Storage

Stability and Storage	Shipped on Dry Ice. Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle. pH: 7.40 Constituent: 100% PBS Supplied as a 0.2 μ M filtered solution
Reconstitution	Dissolve the lyophilized protein in ddH ₂ O.

General Info

Function	Signal transducer and activator of transcription that mediates signaling by interferons (IFNs). Following type I IFN (IFN-alpha and IFN-beta) binding to cell surface receptors, Jak kinases (TYK2 and JAK1) are activated, leading to tyrosine phosphorylation of STAT1 and STAT2. The phosphorylated STATs dimerize, associate with ISGF3G/IRF-9 to form a complex termed ISGF3 transcription factor, that enters the nucleus. ISGF3 binds to the IFN stimulated response element (ISRE) to activate the transcription of interferon stimulated genes, which drive the cell in an antiviral state. In response to type II IFN (IFN-gamma), STAT1 is tyrosine- and serine-phosphorylated. It then forms a homodimer termed IFN-gamma-activated factor (GAF), migrates into the nucleus and binds to the IFN gamma activated sequence (GAS) to drive the expression of the target genes, inducing a cellular antiviral state.
Involvement in disease	Note=STAT1 deficiency results in impaired immune response leading to severe mycobacterial and viral diseases. In the case of complete deficiency, patients can die of viral disease. Defects in STAT1 are a cause of mendelian susceptibility to mycobacterial disease (MSMD) [MIM:209950]; also known as familial disseminated atypical mycobacterial infection. This rare condition confers predisposition to illness caused by moderately virulent mycobacterial species, such as Bacillus Calmette-Guerin (BCG) vaccine and environmental non-tuberculous

mycobacteria, and by the more virulent *Mycobacterium tuberculosis*. Other microorganisms rarely cause severe clinical disease in individuals with susceptibility to mycobacterial infections, with the exception of *Salmonella* which infects less than 50% of these individuals. The pathogenic mechanism underlying MSMD is the impairment of interferon-gamma mediated immunity whose severity determines the clinical outcome. Some patients die of overwhelming mycobacterial disease with lepromatous-like lesions in early childhood, whereas others develop, later in life, disseminated but curable infections with tuberculoid granulomas. MSMD is a genetically heterogeneous disease with autosomal recessive, autosomal dominant or X-linked inheritance.

Sequence similarities

Belongs to the transcription factor STAT family.
Contains 1 SH2 domain.

Post-translational modifications

Phosphorylated on tyrosine and serine residues in response to IFN-alpha, IFN-gamma, PDGF and EGF. Phosphorylation on Tyr-701 (lacking in beta form) by JAK promotes dimerization and subsequent translocation to the nucleus. Phosphorylation on Ser-727 by several kinases including MAPK14, ERK1/2 and CAMKII on IFN-gamma stimulation, regulates STAT1 transcriptional activity. Phosphorylation on Ser-727 promotes sumoylation though increasing interaction with PIAS. Phosphorylation on Ser-727 by PKCdelta induces apoptosis in response to DNA-damaging agents.

Sumoylated by SUMO1, SUMO2 and SUMO3. Sumoylation is enhanced by IFN-gamma-induced phosphorylation on Ser-727, and by interaction with PIAS proteins. Enhances the transactivation activity.

ISGylated.

Cellular localization

Cytoplasm. Nucleus. Translocated into the nucleus in response to IFN-gamma-induced tyrosine phosphorylation and dimerization.

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