abcam

Product datasheet

Anti-STAT1 alpha antibody ab2071

7 References 6 Images

Overview

Product name	Anti-STAT1 alpha antibody
Description	Rabbit polyclonal to STAT1 alpha
Host species	Rabbit
Tested applications	**Suitable for:** IHC-P, ICC/IF, WB
Species reactivity	**Reacts with:** Mouse, Rat, Human
Immunogen	Synthetic peptide corresponding to Human STAT1 alpha aa 712-750. The sequences differ from the murine corresponding sequences by four amino acids.
General notes	The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C or -80°C. Avoid repeated freeze / thaw cycles.
Storage buffer	pH: 7.2 Preservative: 0.02% Sodium azide
Purity	Affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab2071 in the following tested applications.

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

Application	Abreviews	Notes
IHC-P		Use a concentration of 2.5 µg/ml.
ICC/IF		Use a concentration of 10 µg/ml.
WB		1/1000 - 1/2000. Detects a band of approximately 200 kDa (predicted molecular weight: 100 kDa).

Target

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

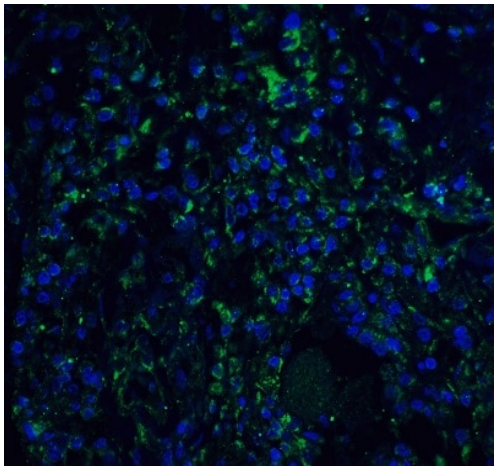
Belongs to the transcription factor STAT family.
Contains 1 SH2 domain.

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.

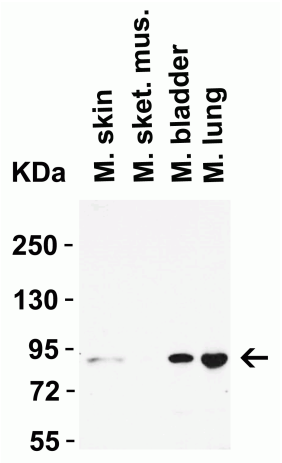
Cellular localization	Cytoplasm. Nucleus. Translocated into the nucleus in response to IFN-gamma-induced tyrosine phosphorylation and dimerization.

Images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STAT1 alpha antibody (ab2071)

Immunofluorescence of STAT1 in human colon tissue with ab2071 at 20 µg/mL.



Western blot - Anti-STAT1 alpha antibody (ab2071)

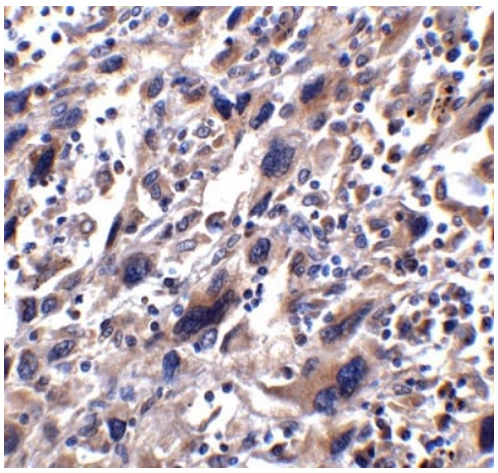
All lanes : Anti-STAT1 alpha antibody (ab2071) at 0.5 µg/ml

Lane 1 : Mouse skin
Lane 2 : Mouse skeletal muscle
Lane 3 : Mouse bladder
Lane 4 : Mouse lung

Lysates/proteins at 15 µg per lane.

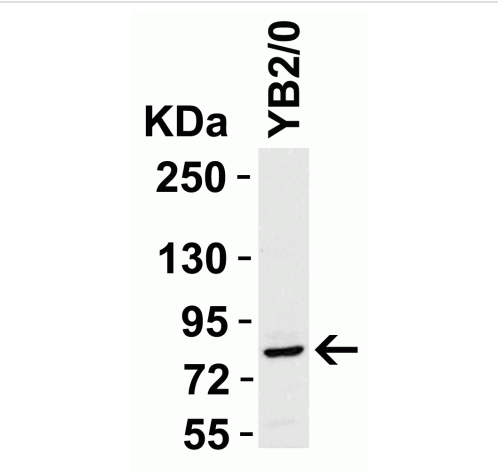
Secondary
All lanes : Goat anti-rabbit IgG HRP conjugate at 1/10000 dilution

Predicted band size: 100 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STAT1 alpha antibody (ab2071)

Immunohistochemistry of STAT1 in human colon tissue with ab2071 at 2.5 µg/ml.



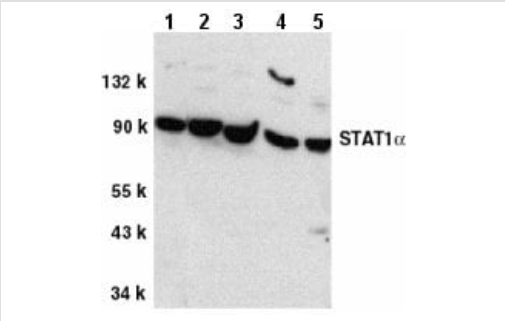
Western blot - Anti-STAT1 alpha antibody (ab2071)

Anti-STAT1 alpha antibody (ab2071) at 1 µg/ml + YB2/0 at 15 µg

Secondary

Goat anti-rabbit IgG HRP conjugate at 1/10000 dilution

Predicted band size: 100 kDa

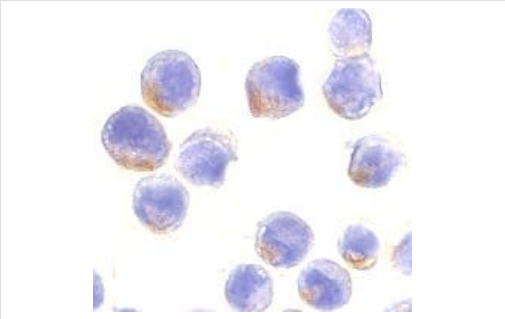


Western blot - Anti-STAT1 alpha antibody (ab2071)

All lanes : Anti-STAT1 alpha antibody (ab2071) at 1 µg/ml

Lane 1 : HeLa whole cell lysate
Lane 2 : Jurkat whole cell lysate
Lane 3 : A431 whole cell lysate
Lane 4 : K562 whole cell lysate
Lane 5 : NIH3T3 whole cell lysate

Predicted band size: 100 kDa
Observed band size: 91 kDa



Immunocytochemistry/ Immunofluorescence - Anti-STAT1 alpha antibody (ab2071)

Immunocytochemistry of STAT1a in HeLa cells with STAT1a antibody at 10 µg/ml.

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