Overview

Product name: Anti-STAT1 alpha antibody [EPYR2154] ab92506
Description: Rabbit monoclonal [EPYR2154] to STAT1 alpha
Host species: Rabbit
Specificity: Based on Blast results using the immunogen sequence, this antibody should recognise the alpha but not the beta form (only 30% homology) of Stat1.

Tested applications:
- Suitable for: WB, IP, Flow Cyt
- Unsuitable for: ICC or IHC-P

Species reactivity: Reacts with: Mouse, Human

Immunogen: Synthetic peptide (the amino acid sequence is considered to be commercially sensitive) corresponding to Human STAT1 alpha aa 700 to the C-terminus.
Database link: P42224

Positive control: HeLa, 293, NIH-3T3 and A431 cell lysates

General notes:
- A trial size is available to purchase for this antibody.
- Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.
- Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents
- This product is a recombinant rabbit monoclonal antibody.

Properties

Form: Liquid

Storage instructions: Shipped at 4°C. Store at -20°C. Stable for 12 months at -20°C.

Storage buffer:
- pH: 7.20
- Preservative: 0.05% Sodium azide
- Constituents: 0.1% BSA, 40% Glycerol, 9.85% Tris glycine, 50% Tissue culture supernatant

Purity: Tissue culture supernatant

Clonality: Monoclonal

Clone number: EPYR2154
Isotype

**IgG**

**Applications**

Our **Abpromise guarantee** covers the use of **ab92506** in the following tested applications.

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

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<th>Abreviews</th>
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<td>IP</td>
<td>1/50.</td>
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<tr>
<td>Flow Cyt</td>
<td>1/50. <strong>ab172730</strong> - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.</td>
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**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**

Lane 1: Wild type HAP1 whole cell lysate (20 µg)
Lane 2: STAT1 alpha knockout HAP1 whole cell lysate (20 µg)
Lane 3: HeLa whole cell lysate (20 µg)
Lane 4: A431 whole cell lysate (20 µg)

Lanes 1 - 4: Merged signal (red and green). Green - ab92506 observed at 90 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab92506 was shown to specifically react with STAT1 alpha when STAT1 alpha knockout samples were used. Wild-type and STAT1 alpha knockout samples were subjected to SDS-PAGE. Ab92506 and ab8245 (Mouse anti GAPDH loading control) were incubated overnight at 4°C at 1/500 dilution and 1/10000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging.
Western blot - Anti-STAT1 alpha antibody [EPYR2154] (ab92506)

**All lanes:** Anti-STAT1 alpha antibody [EPYR2154] (ab92506) at 1/2000 dilution

**Lane 1:** Untreated HeLa (human cervix adenocarcinoma) membrane

**Lane 2:** HeLa (human cervix adenocarcinoma) membrane treated with Alkaline Phosphatase

Lysates/proteins at 10 µg per lane.

**Secondary**

**All lanes:** Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1500 dilution

Developed using the ECL technique.

**Predicted band size:** 87 kDa

**Exposure time:** 3 minutes

Phospho STAT1 protein is revealed by ab109461, anti-STAT1 (phospho S727) antibody. ab92506 is used as pan control which detects total STAT1.

Blocking and dilution buffer: 5% NFDM/TBST.

Western blot - Anti-STAT1 alpha antibody [EPYR2154] (ab92506)

**All lanes:** Anti-STAT1 alpha antibody [EPYR2154] (ab92506) at 1/1000 dilution

**Lane 1:** HeLa cell lysate

**Lane 2:** 293 cell lysate

**Lane 3:** NIH-3T3 cell lysate

**Lane 4:** A431 cell lysate

Lysates/proteins at 10 µg per lane.

**Secondary**

**All lanes:** HRP labelled goat anti-rabbit IgG at 1/2000 dilution

**Predicted band size:** 87 kDa

**Observed band size:** 91 kDa

why is the actual band size different from the predicted?
Please note: All products are “FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE”

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