abcam

ab313630

Anti-STAT4 (phospho Y693) antibody [EPR27081-49]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR27081-49
Purification technique	Affinity purification Protein A
Concentration	0.476 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Transfected cell lysate - Human

Dilution info	1/1000
Notes	-

Not recommended

Species	Synthetic peptide, Mouse, Rat
Dilution info	-
Notes	-

Dot

Tested

Species	Synthetic peptide
Dilution info	1/1000
Notes	-

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Transfected cell lysate - Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Transfected cell lysate - Human, Synthetic peptide, Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Not recommended

Species	Transfected cell lysate - Human, Synthetic peptide, Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Mouse, Rat, Transfected cell lysate - Human, Synthetic peptide
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human, Transfected cell lysate - Human, Synthetic peptide, Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information STAT4 pY693

Function	Transcriptional regulator mainly expressed in hematopoietic cells that plays a critical role in cellular growth, differentiation and immune response (PubMed:10961885, PubMed:37256972, PubMed:8943379). Plays a key role in the differentiation of T-helper 1 cells and the production of interferon-gamma (PubMed:12213961, PubMed:35614130). Also participates in multiple neutrophil functions including chemotaxis and production of the neutrophil extracellular traps (By similarity). After IL12 binding to its receptor IL12RB2, STAT4 interacts with the intracellular domain of IL12RB2 and becomes tyrosine phosphorylated (PubMed:10415122, PubMed:7638186). Phosphorylated STAT4 then homodimerizes and migrates to the nucleus where it can recognize STAT target sequences present in IL12 responsive genes. Although IL12 appears to be the predominant activating signal, STAT4 can also be phosphorylated and activated in response to IFN-gamma stimulation via JAK1 and TYK2 and in response to different interleukins including IL23, IL2 and IL35 (PubMed:11114383, PubMed:34508746). Transcription activation of IFN-gamma gene is mediated by interaction with JUN that forms a complex that efficiently interacts with the AP-1-related sequence of the IFN-gamma promoter (By similarity). In response to IFN-alpha/beta signaling, acts as a transcriptional repressor and suppresses IL5 and IL13 mRNA expression during response to T-cell receptor (TCR) activation (PubMed:26990433).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	The Signal Transducer and Activator of Transcription 4 (STAT4) is a critical member of the STAT protein family. It weighs approximately 85 kDa. STAT4 primarily functions as a transcription factor activated by phosphorylation through Janus kinases (JAKs) in response to cytokine signaling. This protein facilitates the translocation into the nucleus where it promotes the transcription of specific genes. STAT4 expression occurs mainly in T cells and natural killer (NK) cells indicating its role in the immune response.
Biological function summary	STAT4 is integral to the differentiation of naïve T cells into T helper 1 (Th1) cells. These Th1 cells play a central role in orchestrating immune responses against intracellular pathogens. STAT4 activation requires two distinct steps involving JAK kinases and subsequent binding to DNA regulatory elements of target genes. STAT4 does not function as part of a large protein complex but rather operates as a dimer following phosphorylation.
Pathways	STAT4 participates strongly in the JAK-STAT signaling pathway fundamental for immune cell maturation and response. The JAK-STAT pathway regulates several biological processes including proliferation and inflammation. STAT4 works closely with STAT1 in promoting Th1 differentiation while also interacting with other proteins like IL-12 to modulate immune activity. These interactions emphasize its influence in immune responses and could affect inflammatory pathways.
Associated diseases and disorders	STAT4 exhibits associations with autoimmune diseases such as rheumatoid arthritis and systemic lupus erythematosus. Aberrant STAT4 activity can lead to dysregulated immune responses making it a significant target in these disorders. In the context of rheumatoid arthritis altered STAT4 signaling enhances inflammation through its connection with other immune proteins like IL-23. Understanding STAT4's role in these diseases may offer avenues for therapeutic interventions and better management of immune-related conditions.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

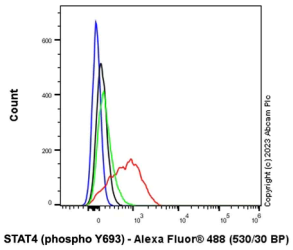
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In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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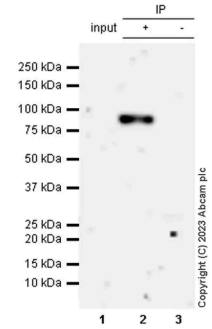
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5 product images



Flow Cytometry (Intracellular) - Anti-STAT4 (phospho Y693) antibody [EPR27081-49] (ab313630)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized No-GFP-CD16.NK-92 (CD16 ectopically expressed natural killer(NK-92®) cell with no GFP tag) treated with 50ng/ml IL-12 for 5h (Red) / Untreated No-GFP-CD16.NK-92 (Green) cells labelling STAT4 (phospho Y693) with ab313630 at 1/500 dilution (0.1 ug)/Red (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-STAT4 (phospho Y693) antibody [EPR27081-49] (ab313630)

STAT4 (phospho Y693) was immunoprecipitated from 0.35 mg No-GFP-CD16.NK-92 (CD16 ectopically expressed natural killer(NK-92®) cell with no GFP tag) treated with 50 ng/mL IL-12 for 5 hours whole cell lysate with ab313630 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab313630 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution. Lane 1: No-GFP-CD16.NK-92 (CD16 ectopically expressed natural killer(NK-92®) cell with no GFP tag) treated with 50 ng/mL IL-12 for 5 hours whole cell lysate Lane 2: ab313630 IP in No-GFP-CD16.NK-92 (CD16 ectopically expressed natural killer(NK-92®) cell with no GFP tag) treated with 50 ng/mL IL-12 for 5 hours whole cell lysate Lane 3:Rabbit monoclonal IgG (ab172730) instead of ab313630 in No-GFP-CD16.NK-92 treated with 50 ng/mL IL-12 for 5 hours whole cell lysate Blocking and dilution buffer and concentration: 5% NFDM/TBST. Exposure time: 180 seconds
All lanes:
Immunoprecipitation - Anti-STAT4 (phospho Y693) antibody [EPR27081-49] (ab313630) at 1/30 dilution

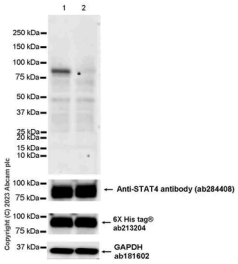
All lanes:

No-GFP-CD16.NK-92 (CD16 ectopically expressed natural killer(NK-92®) cell with no GFP tag) treated with 50 ng/mL IL-12 for 5 hours whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/1000 dilution

Exposure time: 180s



Western blot - Anti-STAT4 (phospho Y693) antibody [EPR27081-49] (ab313630)

STAT4 (phospho Y693) Western blot staining using rabbit Anti-STAT4 (phospho Y693) antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
The antibody detects Human STAT4 (phospho Y693).

This blot was developed using a high sensitivity ECL substrate. The high-sensitivity ECL substrate used allows for the detection of proteins in the mid-femtogram range.

In Western blot, anti-STAT4 antibody (ab284408) staining at 1/1000 dilution.

In Western blot, anti-His antibody (ab213204) staining at 1/5000 dilution.

In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution.

All lanes:
Western blot - Anti-STAT4 (phospho Y693) antibody [EPR27081-49] (ab313630) at 1/1000 dilution

Lane 1:
293T cells transfected with a Human STAT4 expression vector containing a His-tag were treated with treated with 100 mM Calyculin A for 30 minutes whole cell lysate at 20 µg

Lane 2:
293T cells transfected with a Human STAT4 (Y693F mutation) expression vector containing a His-tag were treated with 100 mM Calyculin A for 30 minutes whole cell lysate at 20 µg

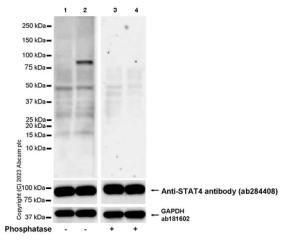
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Developed using the ECL technique.

Observed band size: 85 kDa

Exposure time: 180s



Western blot - Anti-STAT4 (phospho Y693) antibody [EPR27081-49] (ab313630)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
This blot was developed using a high sensitivity ECL substrate. The high-sensitivity ECL substrate used allows for the detection of proteins in the mid-femtogram range.

In Western blot, anti-STAT4 antibody (ab284408) staining at 1/1000 dilution.

In Western blot, anti-GAPDH antibody (ab181602) loading control staining at 1/200000 dilution.
All lanes:
Western blot - Anti-STAT4 (phospho Y693) antibody [EPR27081-49] (ab313630) at 1/1000 dilution

Lane 1:
Untreated No-GFP-CD16.NK-92 (CD16 ectopically expressed natural killer(NK-92®) cell with no GFP tag) whole cell lysate (untreated membrane) at 20 µg

Lane 2:
No-GFP-CD16.NK-92 treated with /mL IL-12 for 5 hours whole cell lysate (untreated membrane) at 20 µg

Lane 3:
Untreated No-GFP-CD16.NK-92 whole cell lysate (phosphatase treated membrane) at 20 µg

Lane 4:
No-GFP-CD16.NK-92 treated with /mL IL-12 for 5 hours whole cell lysate (phosphatase treated membrane) at 20 µg

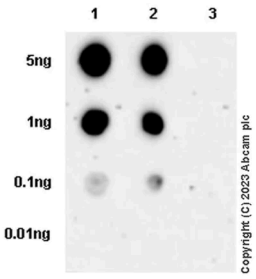
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Developed using the ECL technique.

Observed band size: 85 kDa

Exposure time: 180s



Dot Blot - Anti-STAT4 (phospho Y693) antibody [EPR27081-49] (ab313630)

Dot blot analysis of STAT4 (phospho Y693) using ab313630 at 1:1000 (0.476 ug/ml) followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1:100,000 dilution. Lane 1: STAT4 (phospho Y693) peptide a Lane 2: STAT4 (phospho Y693) peptide b Lane 3: STAT4 non-phospho peptide c Exposure time: 180 seconds Blocking and diluting buffer and concentration: 5% NFDM/TBST

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.