abcam

ab171361

Anti-STAT3 antibody [E121-21] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	E121-21
Purification technique	Affinity purification Protein A
Specificity	This antibody only detects Stat3 without phosphorylation on Serine 727. It does not detect S727-phosphorylated Stat3.
Concentration	0.967 - 0.989 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human

Dilution info	-
Notes	-

Predicted

Species	Horse, Cow
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Horse, Cow
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Horse, Cow
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-

Notes	For unpurified use at 1/250 dilution.

Predicted

Species	Horse, Cow
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG (Low endotoxin, Azide free), is suitable for use as an isotype control with this antibody. For unpurified use at 1/100 dilution.

Predicted

Species	Horse, Cow
Dilution info	-
Notes	-

Target data

See full target information STAT3

Function	Signal transducer and transcription activator that mediates cellular responses to interleukins, KITLG/SCF, LEP and other growth factors (PubMed:10688651, PubMed:12359225, PubMed:12873986, PubMed:15194700, PubMed:15653507, PubMed:16285960, PubMed:17344214, PubMed:18242580, PubMed:18782771, PubMed:22306293, PubMed:23084476, PubMed:28262505, PubMed:32929201, PubMed:38404237). Once activated, recruits coactivators, such as NCOA1 or MED1, to the promoter region of the target gene (PubMed:15653507, PubMed:16285960, PubMed:17344214, PubMed:18782771, PubMed:28262505, PubMed:32929201). May mediate cellular responses to activated FGFR1, FGFR2, FGFR3 and FGFR4 (PubMed:12873986). Upon activation of IL6ST/gp130 signaling by interleukin-6 (IL6), binds to the IL6-responsive elements identified in the promoters of various acute-phase protein genes (PubMed:12359225). Activated by IL31 through IL31RA (PubMed:15194700). Acts as a regulator of inflammatory response by regulating differentiation of naive CD4(+) T-cells into T-helper Th17 or regulatory T-cells

(Treg): acetylation promotes its transcription activity and cell differentiation while deacetylation and oxidation of lysine residues by LOXL3 inhibits differentiation (PubMed:28065600, PubMed:28262505). Involved in cell cycle regulation by inducing the expression of key genes for the progression from G1 to S phase, such as CCND1 (PubMed:17344214). Mediates the effects of LEP on melanocortin production, body energy homeostasis and lactation (By similarity). May play an apoptotic role by transctivating BIRC5 expression under LEP activation (PubMed:18242580). Cytoplasmic STAT3 represses macroautophagy by inhibiting EIF2AK2/PKR activity (PubMed:23084476). Plays a crucial role in basal beta cell functions, such as regulation of insulin secretion (By similarity). Following JAK/STAT signaling activation and as part of a complex with NFATC3 and NFATC4, binds to the alpha-beta E4 promoter region of CRYAB and activates transcription in cardiomyocytes (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab171361 is the carrier-free version of ab32500.

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.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	Signal Transducer and Activator of Transcription 3 (STAT3) also called p-stat3 or phospho-STAT3 is a critical transcription factor involved in various cellular processes. The molecular weight of STAT3 is approximately 92 kDa. This protein is expressed broadly across many tissues and cell types. Mechanically upon cytokine or growth factor stimulation STAT3 undergoes phosphorylation resulting in dimerization. This phosphorylated form often referred to as phospho-Stat3 or p-STAT3 translocates to the nucleus where it binds specific DNA sequences to modulate gene transcription.
Biological function summary	STAT3 is an important player in regulating cell growth and apoptosis. It functions not only as a transcription factor but also as part of a larger protein complex that operates within the cell nucleus to influence gene expression. This multifaceted role enables STAT3 to control the expression of genes related to cell proliferation survival and differentiation impacting various biological processes. These functions highlight its importance in tissue homeostasis and response to extracellular signals.
Pathways	STAT3 is actively involved in the JAK-STAT signaling pathway a principal route for many cytokines and growth factors and the MAPK pathway. STAT3 interacts with proteins such as JAK kinases which phosphorylate Stat3 and initiate the STAT3 signaling cascade. Additionally it closely associates with the protein Raf1 in the MAPK pathway linking external signals to transcriptional responses. These pathways play a significant role in immune response inflammation and growth signaling.
Associated diseases and disorders	Researchers have implicated STAT3 in cancer and autoimmune diseases. Persistent activation of STAT3 is often observed in various cancers including breast and lung cancer promoting oncogenesis through altered gene expression. Additionally abnormal STAT3 signaling is associated with autoimmune conditions such as rheumatoid arthritis. The interplay between STAT3 and proteins like IL-6 in these diseases highlights its potential as a therapeutic target for intervention.

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.

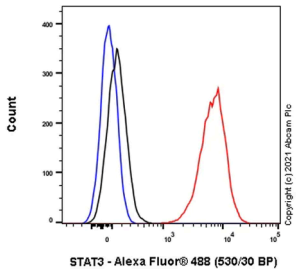
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

Full details and terms and conditions can be found here:
Terms & Conditions.

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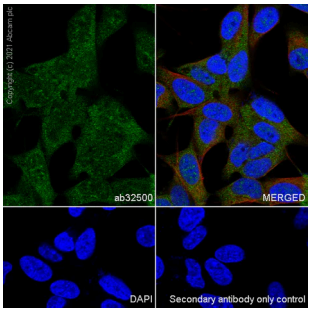
5 product images



Flow Cytometry (Intracellular) - Anti-STAT3 antibody [E121-21] - BSA and Azide free (ab171361)

STAT3 Flow Cytometry (Intracellular) staining using rabbit Anti-STAT3 antibody

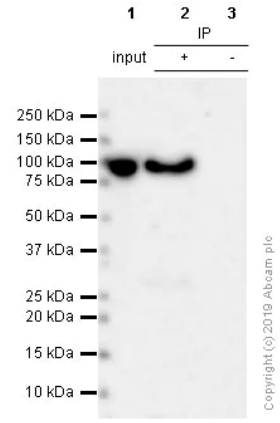
This data was developed using ab171361, the same antibody clone in a different buffer formulation.
Flow Cytometry analysis of A431 (Human epidermoid carcinoma epithelial cell) cells labelling STAT3 with Purified ab171361 at 1:20 dilution (5 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150081) secondary antibody was used at 1:2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabelled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunocytochemistry/ Immunofluorescence - Anti-STAT3 antibody [E121-21] - BSA and Azide free (ab171361)

STAT3 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-STAT3 antibody

This data was developed using ab171361, the same antibody clone in a different buffer formulation.
Immunocytochemistry analysis of SH-SY5Y (Human neuroblastoma epithelial cell) cells labeling STAT3 with Purified ab171361 at 1:50 dilution (2.1 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunoprecipitation - Anti-STAT3 antibody [E121-21] - BSA and Azide free (ab171361)

ab32500 (purified) at 1/500 dilution (2.594 µg/ml) immunoprecipitating STAT3 in HeLa whole cell lysate.

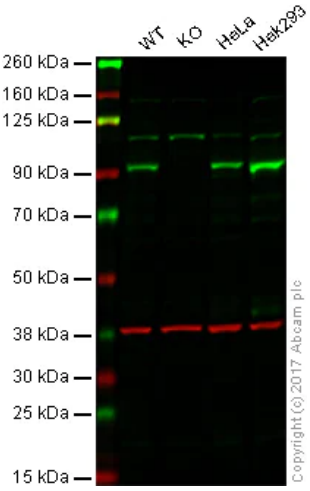
Lane 1 (input): HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab32500 & HeLa whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab32500 in HeLa whole cell lysate

For western blotting, VeriBlot for IP secondary antibody (HRP) (ab131366) was used at 1/1000 dilution.

Blocking and diluting buffer: 5% NFDM /TBST.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32500).
All lanes:
Immunoprecipitation - Anti-STAT3 antibody [E121-21] - BSA and Azide free (ab171361)

Predicted band size: 88 kDa



Western blot - Anti-STAT3 antibody [E121-21] - BSA and Azide free (ab171361)

STAT3 Western blot staining using rabbit Anti-STAT3 antibody

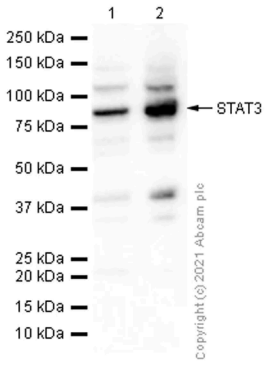
This WB data was generated using the same anti-STAT3 antibody clone, E121-21, in a different buffer formulation (cat# ab32500).
Lane 1: Wild type HAP1 whole cell lysate (20 µg)
Lane 2: STAT3 knockout HAP1 whole cell lysate (20 µg)
Lane 3: HeLa whole cell lysate (20 µg)
Lane 4: HEK293 whole cell lysate (20 µg)

Lanes 1 - 4: Merged signal (red and green). Green - ab32500 observed at 92 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab32500 detected the expected band for STAT3 in wild-type cells along with additional cross-reactive bands. The band was not seen in STAT3 knockout HAP1 cells. Wild-type and STAT3 knockout samples were subjected to SDS-PAGE. ab32500 and ab8245 (Mouse anti GAPDH loading control) were incubated overnight at 4°C at 1/1000 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.

All lanes:
Western blot - Anti-STAT3 antibody [E121-21] (ab32500)

Predicted band size: 88 kDa



Western blot - Anti-STAT3 antibody [E121-21] - BSA and Azide free (ab171361)

All lanes:
Western blot - Anti-STAT3 antibody [E121-21] (ab32500) at 1/1000 dilution

Lane 1:
A431 (Human epidermoid carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
HaCaT (Human skin keratinocyte) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 88 kDa

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