abcam

ab76315

Anti-STAT3 (phospho Y705) antibody [EP2147Y]

Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315) is a rabbit monoclonal antibody detecting STAT3 in Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF, ELISA, Dot Blot. Suitable for Human, Mouse. - Biophysical QC for unrivalled batch-batch consistency - Over 590 publications - Trusted since 2009

Lab Essentials | 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	EP2147Y
Purification technique	Affinity purification Protein A
Concentration	1.08 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ELISA

Not recommended

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

Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/50 - 1/100
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Human
Dilution info	1/50 - 1/100
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Predicted

Species	Rat
Dilution info	-
Notes	-

Not recommended

Species	Synthetic peptide - Human
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/20
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

Not recommended

Species	Synthetic peptide - Human
Dilution info	-
Notes	-

Dot

Tested

Species	Synthetic peptide - Human
Dilution info	1/1000
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/2000 - 1/20000
Notes	Stimulation may be required to allow detection of the phosphorylated protein. Please see images below for recommended treatment conditions and positive controls.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Synthetic peptide - Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

Not recommended

Species	Synthetic peptide - Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

Not recommended

Species	Synthetic peptide - Human
Dilution info	-
Notes	-

Target data

See full target information STAT3 pY705

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	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

Product Specifications
Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in Dot blot, ELISA, Flow Cyt (Intra), ICC/IF, IHC-P, IP, WB in human, mouse samples.
Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315) specifically detects STAT3 Phospho-Y705 (UniProt ID: P40763; Molecular weight: 88kDa) and is sold in a convenient trial size to enable initial testing (20 µL) and larger sizes for subsequent scaling up experiments (100 µL and 1 mL).

Quality and Validation
Abcam's high quality manufacturing and validation processes ensure Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.
Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315) has been cited over 598 times in peer reviewed journals and is trusted by the scientific community.
Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315) has 19 independent reviews from customers.

Related Products
Antibody clone EP2147Y is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 555 (ab202876).

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	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

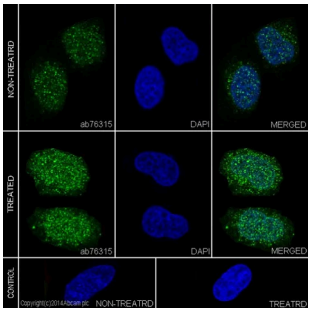
We do not recommend this combination. It is not covered by our product promise.

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.

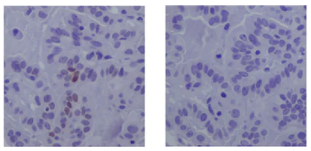
12 product images



Immunocytochemistry/ Immunofluorescence - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

STAT3 (phospho Y705) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-STAT3 (phospho Y705) antibody

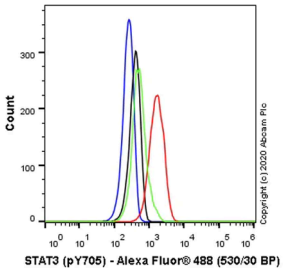
Immunocytochemistry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) +/- IFN-α (50 ng/mL, 5 minutes) cells labelling STAT3 (phospho Y705) with ab76315 at 1/500 (4.3 µg/mL). Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1500) was used as the secondary antibody. DAPI (blue) was used as a nuclear counterstain.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

STAT3 (phospho Y705) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-STAT3 (phospho Y705) antibody

Immunohistochemical analysis of paraffin-embedded human thyroid carcinoma tissue using untreated (left) or alkaline phosphatase-treated (right) labeling STAT3 (phospho Y705) with ab76315 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H& L (HRP) (ab97051) at 1/500 dilution. Counter stained with Hematoxylin. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9.



Flow Cytometry (Intracellular) - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized A431 (Human epidermoid carcinoma epithelial cell) treated with 100ng/mL EGF for 10min (Red) / Untreated control (Green) cells labelling STAT3 with ab76315 at 1/500 dilution (0.1µg) (Red) and Green 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, ab150077) at 1/2000 dilution was used as the secondary antibody.

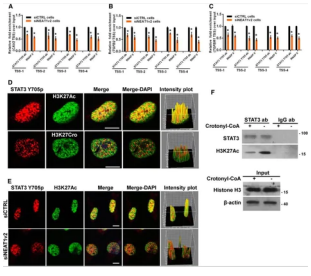


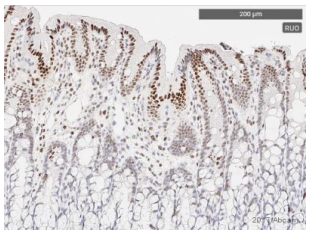
Image from Wang Z et al., Cell Mol Life Sci. 76(15), Fig 8. Doi: 10.1007/s00018-019-03074-9. Reproduced under the Creative Commons license http://creativecommons.org/licenses/by/4.0/.

Immunocytochemistry/ Immunofluorescence - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

STAT3 (phospho Y705) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-STAT3 (phospho Y705) antibody

NEAT1 influences STAT3 binding to endocytosis-related genes. The siNEAT1 and siCTRL cells were collected for ChIP assays to analyse the relative fold enrichment of the *CAV2* (**a**), *TGFB2* (**b**), or *TGFBR1* promoter (**c**) with anti-STAT3 or RNAP II antibodies. The data points represent the mean values determined from three independent experiments. The data are presented as the mean ± SD. **d** The U251 cells were fixed and incubated with anti-STAT3 (red), anti-H3K27Ac (green) or anti-H3K27Cro antibodies (green) before the confocal analysis. The intensity plots for the red and green channels were analysed with the ImageJ software. Scale bars 10 µm. **e** After transfection with the siNEAT1v2 or negative control siRNA, the U251 cells were fixed and incubated with anti-STAT3 (red) or anti-H3K27Ac antibodies (green) before the confocal analysis. The intensity plots for the red and green channels were analysed with the ImageJ software. Scale bars 10 µm. **f** After 24 h of incubation with 80 µm crotonyl-CoA or the mock control, the U251 cell lysates were harvested and subjected to an immunoprecipitation assay with anti-STAT3 or anti-IgG antibodies.

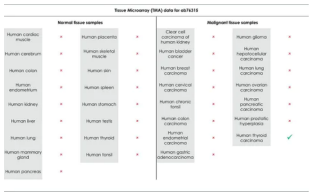
The retrieval of STAT3, H3K27Ac, H3K27Cro+ and Histone H3 by endogenous STAT3 and IgG was measured by western blotting. *$p < 0.001$



This image was courtesy of an anonymous customer review

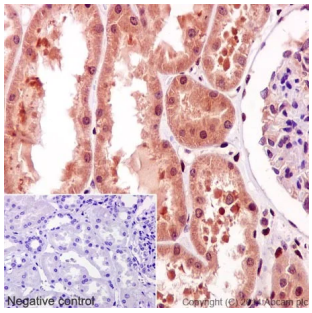
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

Immunohistochemical analysis of formalin-fixed, paraffin-embedded rat colon tissue stained for STAT3 using ab76315 at 1/1000 dilution followed by a Horse radish peroxidase conjugated Goat anti-Rabbit secondary antibody at 1/400 dilution.
Antigen Retrieval: Heat mediated - Heat mediated - Buffer/Enzyme Used: pH 9.0 EDTA



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

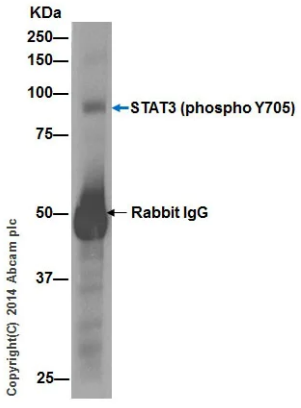
Tissue Microarrays stained for "Anti-STAT3 (phospho Y705) antibody [EP2147Y]" using "ab76315"in immunohistochemical analysis. This table provides a detailed overview of positive (tick mark) and negative (cross mark) staining per sample type tested. The sections were pre-treated using Heat mediated antigen retrieval using ab97051 (Tris/EDTA buffer, pH 9.0). The sections were incubated with ab76315 at +4°C overnight followed by Goat Anti-Rabbit IgG H&L (HRP) ab97051 at 1/500.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

STAT3 (phospho Y705) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-STAT3 (phospho Y705) antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human kidney tissue labeling STAT3 (phospho Y705) with purified ab76315 at 1/100. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. ab97051, a HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/500). Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.

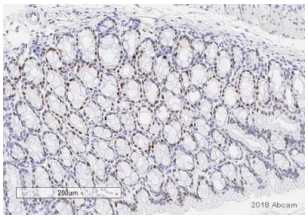


Immunoprecipitation - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

ab76315 (purified) at 1/30 immunoprecipitating STAT3 (phospho Y705) in A431 (Human epidermoid carcinoma cell line) cell lysate treated with EGF. For western blotting, a peroxidase-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/1000). Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

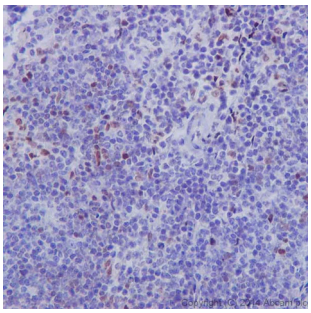
Predicted band size: 88 kDa



This image was courtesy on an anonymous customer review

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

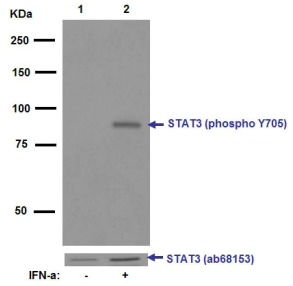
Immunohistochemical analysis of formalin-fixed, paraffin-embedded mouse colon tissue stained for STAT3 using ab76315 at 1/1000 dilution followed by a Horse radish peroxidase conjugated Goat anti-Rabbit secondary antibody at 1/400 dilution.
Antigen Retrieval: Heat mediated - Buffer/Enzyme Used: pH 9.0 EDTA 70C 2hr.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

STAT3 (phospho Y705) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-STAT3 (phospho Y705) antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse spleen tissue labeling STAT3 (phospho Y705) with ab76315 at 1/100 (nuclear staining). Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. A HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody. Counterstained with hematoxylin.



Western blot - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

STAT3 (phospho Y705) Western blot staining using rabbit Anti-STAT3 (phospho Y705) antibody

Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315) at 1/20000 dilution

Lane 1:
Un-treated HeLa (Human epithelial cell line from cervix adenocarcinoma)cell lysate at 10 µg

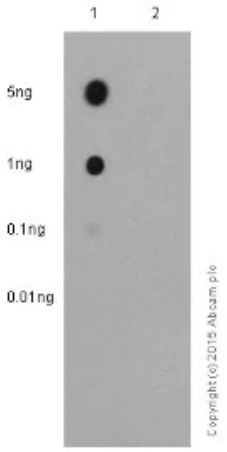
Lane 2:
IFN-a-treated HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysate at 10 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 88 kDa

Observed band size: 88 kDa



Dot Blot - Anti-STAT3 (phospho Y705) antibody [EP2147Y] (ab76315)

Dot blot analysis of STAT3 single phospho peptide pY705 (lane 1) and STAT3 non-phospho peptide (lane 2) with ab76315 at 1/1000. Blocking and dilution buffer was 5% NFDM/TBST. The secondary antibody used was ab97051 peroxidase conjugated Goat Anti-Rabbit IgG, (H+L) at 1/100,000.

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