abcam

ab181125

Anti-STING antibody [EPR13130]

Anti-STING antibody [EPR13130] (ab181125) is a rabbit monoclonal antibody detecting STING in **Western Blot, Flow Cytometry (Intra), IP, ICC/IF**. Suitable for **Human**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 10 publications

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	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	EPR13130
Purification technique	Affinity purification Protein A
Concentration	0.3 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000 - 1/2000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/2000
Notes	**For unpurified, use 1/50 - 1/100.**

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/10 - 1/20
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

IP

Tested

Species	Human
Dilution info	1/1000
Notes	-

Target data

See full target information STING1

Function Facilitator of innate immune signaling that acts as a sensor of cytosolic DNA from bacteria and viruses and promotes the production of type I interferon (IFN-alpha and IFN-beta) (PubMed:18724357, PubMed:18818105, PubMed:19433799, PubMed:19776740, PubMed:23027953, PubMed:23747010, PubMed:23910378, PubMed:27801882, PubMed:29973723, PubMed:30842659, PubMed:35045565, PubMed:35388221, PubMed:36808561, PubMed:37832545, PubMed:25704810, PubMed:39255680). Innate immune response is triggered in response to non-CpG

double-stranded DNA from viruses and bacteria delivered to the cytoplasm (PubMed:26300263). Acts by binding cyclic dinucleotides: recognizes and binds cyclic di-GMP (c-di-GMP), a second messenger produced by bacteria, cyclic UMP-AMP (2',3'-cUAMP), and cyclic GMP-AMP (cGAMP), a messenger produced by CGAS in response to DNA virus in the cytosol (PubMed:21947006, PubMed:23258412, PubMed:23707065, PubMed:23722158, PubMed:23747010, PubMed:23910378, PubMed:26229117, PubMed:30842659, PubMed:35388221, PubMed:37379839). Upon binding to c-di-GMP, cUAMP or cGAMP, STING1 oligomerizes, translocates from the endoplasmic reticulum and is phosphorylated by TBK1 on the pLxIS motif, leading to recruitment and subsequent activation of the transcription factor IRF3 to induce expression of type I interferon and exert a potent anti-viral state (PubMed:22394562, PubMed:25636800, PubMed:29973723, PubMed:30842653, PubMed:35045565, PubMed:35388221). Exhibits 2',3' phosphodiester linkage-specific ligand recognition: can bind both 2'-3' linked cGAMP (2'-3'-cGAMP) and 3'-3' linked cGAMP but is preferentially activated by 2'-3' linked cGAMP (PubMed:23747010, PubMed:23910378, PubMed:26300263). The preference for 2'-3'-cGAMP, compared to other linkage isomers is probably due to the ligand itself, whichs adopts an organized free-ligand conformation that resembles the STING1-bound conformation and pays low energy costs in changing into the active conformation (PubMed:26150511). In addition to promote the production of type I interferons, plays a direct role in autophagy (PubMed:30568238, PubMed:30842662). Following cGAMP-binding, STING1 buds from the endoplasmic reticulum into COPII vesicles, which then form the endoplasmic reticulum-Golgi intermediate compartment (ERGIC) (PubMed:30842662). The ERGIC serves as the membrane source for WIPI2 recruitment and LC3 lipidation, leading to formation of autophagosomes that target cytosolic DNA or DNA viruses for degradation by the lysosome (PubMed:30842662). Promotes autophagy by acting as a proton channel that directs proton efflux from the Golgi to facilitate MAP1LC3B/LC3B lipidation (PubMed:37535724). The autophagy- and interferon-inducing activities can be uncoupled and autophagy induction is independent of TBK1 phosphorylation (PubMed:30568238, PubMed:30842662). Autophagy is also triggered upon infection by bacteria: following c-di-GMP-binding, which is produced by live Gram-positive bacteria, promotes reticulophagy (By similarity). May be involved in translocon function, the translocon possibly being able to influence the induction of type I interferons (PubMed:18724357). May be involved in transduction of apoptotic signals via its association with the major histocompatibility complex class II (MHC-II) (By similarity). Involved in intercellular immune signaling. Cross-activated by 2',3'-cGAMP previously generated in virus-infected cells, triggers type I interferon signaling in macrophages and uninfected neighboring cells to propagate and amplify the antiviral immune response. (Microbial infection) Antiviral activity is antagonized by oncoproteins, such as papillomavirus (HPV) protein E7 and adenovirus early E1A protein (PubMed:26405230). Such oncoproteins prevent the ability to sense cytosolic DNA (PubMed:26405230).

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

What is this antibody validated in?
Anti-STING antibody [EPR13130] (ab181125) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

Trusted by the scientific community
Anti-STING [EPR13130] (ab181125) was first used in a scientific publication in 2013 and has been cited over 10 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-STING antibody [EPR13130] (ab181125) has been confirmed by Western blot testing in STING1 Knockout THP-1 cell line, ab270493.

Other related products
We have a range of other formats of antibody clone [EPR13130] also available for your convenience: ab181125, Alexa Fluor® 488 - ab198950, HRP - ab198951, Alexa Fluor® 647 - ab198952, Alexa Fluor® 594 - ab207288, PE - ab208874, Carrier free - ab227128

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	The stimulator of interferon genes (STING) also known as TMEM173 or MPYS is a critical transmembrane protein with a molecular weight of approximately 42 kDa. It is primarily expressed in the endoplasmic reticulum of various cell types including immune cells where it plays a central role in sensing cytosolic DNA. STING binds to cyclic dinucleotides produced by the enzyme cGAS upon recognition of aberrant DNA in the cytosol. This binding initiates activation and translocation of STING to the Golgi apparatus facilitating further signaling events.
Biological function summary	STING serves as a pivotal regulator in the innate immune response to viral and bacterial infections. It operates by forming a signaling complex with kinases and other effector proteins which subsequently leads to the activation of transcription factors such as IRF3 and NF-kB. These transcription factors then induce the expression of type I interferons and other cytokines important for mounting an effective antiviral response. The STING pathway therefore enhances the immune system's ability to detect and respond to pathogens.
Pathways	The activity of STING is integral to the cGAS-STING pathway a significant cytosolic DNA-sensing pathway involved in innate immunity. Upon activation STING interacts with TBK1 a kinase that further phosphorylates IRF3 promoting its nuclear translocation and activation. Beyond this STING also intersects with pathways involving autophagy a cellular process necessary for clearing pathogens and damaged cellular components. Through these pathways STING critically contributes to upholding cellular homeostasis and immune defense.
Associated diseases and disorders	The dysregulation of STING is linked to autoinflammatory diseases and certain cancers. Abnormal STING activation can lead to chronic inflammation a feature observed in diseases such as STING-associated vasculopathy with onset in infancy (SAVI). STING's role in cancer is also notable where its ability to activate immune cells can be harnessed in immunotherapy yet its chronic activation may promote tumorigenesis. In cancer STING often interacts with proteins like K-Ras influencing tumor growth and response to therapies.

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

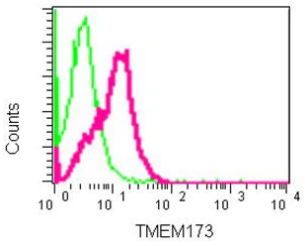
We do not recommend this combination. It is not covered by our product promise.

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.

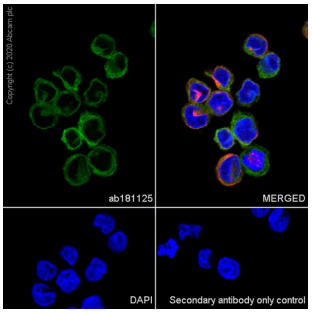
9 product images



Flow Cytometry (Intracellular) - Anti-STING antibody [EPR13130] (ab181125)

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

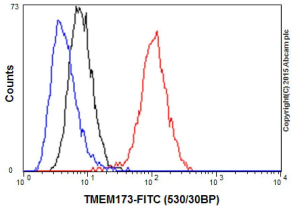
Intracellular Flow Cytometry analysis of THP1 cells using unpurified ab181125at a 1/10 dilution (red) or a Rabbit monoclonal IgG (negative) (green). Goat anti rabbit IgG (FITC) secondary used at a 1/150 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-STING antibody [EPR13130] (ab181125)

STING Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-STING antibody

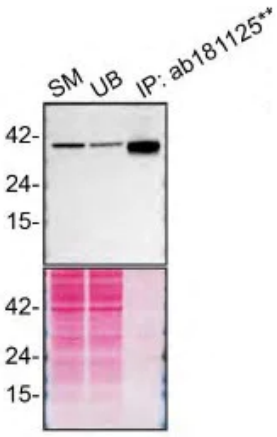
Immunocytochemistry/immunofluorescence analysis of THP-1 (human monocytic leukemia monocyte) cells labelling TMEM173 with ab181125 at 10 µg/mL. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/1000 was used as the secondary antibody (green). Cells were counterstained with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red). Nuclear DNA was labelled with DAPI (blue).
Confocal image showing cytoplasmic staining in THP-1 cells.



Flow Cytometry (Intracellular) - Anti-STING antibody [EPR13130] (ab181125)

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

Overlay histogram showing THP-1 cells fixed in 4% PFA and stained with purified ab181125 at a dilution of 1 in 20 (red line). The secondary antibody used was FITC goat anti-rabbit at a dilution of 1 in 500. Rabbit monoclonal IgG was used as an isotype control (black line) and cells incubated in the absence of both primary and secondary antibody were used as a negative control (blue line). Alexa Fluor® 488 (ab198950) and R-PE (ab208874) conjugated versions are available for this clone.

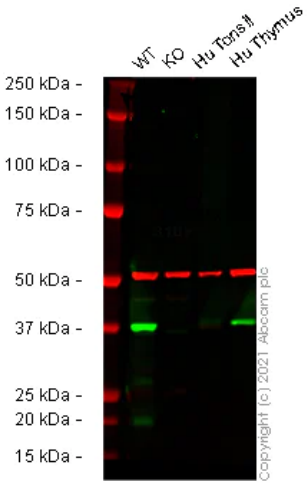


Immunoprecipitation - Anti-STING antibody [EPR13130] (ab181125)

Immunoprecipitation of STING1 in THP-1 cells. Lysates were prepared and immunoprecipitation was performed using 2 µg of ab181125 pre-coupled to Protein A beads. Samples were then washed and processed for western blot.

These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Immunoprecipitation - Anti-STING antibody [EPR13130] (ab181125) at 2 µg

All lanes:
THP-1 cells



Western blot - Anti-STING antibody [EPR13130] (ab181125)

STING Western blot staining using rabbit Anti-STING antibody

False colour image of Western blot: Anti-STING antibody [EPR13130] staining at 1/1000 dilution, shown in green; loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) staining at 1/20000 dilution, shown in red. In Western blot, ab181125 was shown to bind specifically to STING. A band was observed at 37 kDa in wild-type THP-1 cell lysates with no signal observed at this size in TMEM173 knockout cell line ab270493 (knockout cell lysate ab270516). To generate this image, wild-type and TMEM173 knockout THP-1 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in fluorescent western blot (TBS-based) blocking solution before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) at 1/20000 dilution.
All lanes:
Western blot - Anti-STING antibody [EPR13130] (ab181125) at 1/1000 dilution

Lane 1:
Wild-type THP-1 cell lysate at 20 µg

Lane 2:
TMEM173 knockout THP-1 cell lysate at 20 µg

Lane 2:
Western blot - Human TMEM173 knockout THP-1 cell line (ab270493)

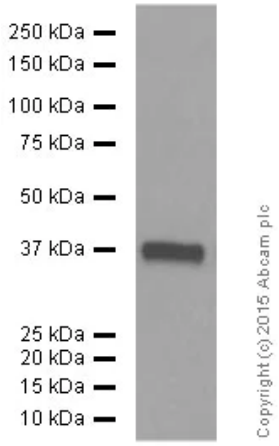
Lane 3:
Human Tonsil cell lysate at 20 µg

Lane 4:
Human Thymus cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 42 kDa

Observed band size: 37 kDa



Western blot - Anti-STING antibody [EPR13130] (ab181125)

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST

All lanes:
Western blot - Anti-STING antibody [EPR13130] (ab181125) at 1/2000 dilution

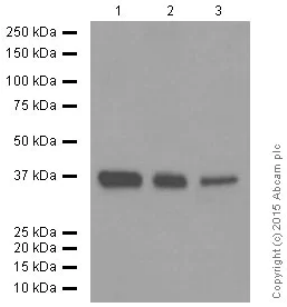
All lanes:
HEK293 cell lysate at 20 µg

Secondary

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

Predicted band size: 42 kDa

Observed band size: 37 kDa



Western blot - Anti-STING antibody [EPR13130] (ab181125)

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST

All lanes:
Western blot - Anti-STING antibody [EPR13130] (ab181125) at 1/10000 dilution

Lane 1:
THP-1 cell lysate at 20 µg

Lane 2:
HACAT cell lysate at 20 µg

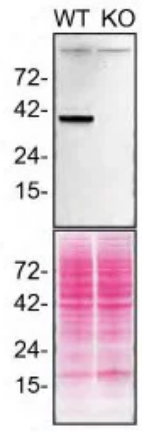
Lane 3:
human spleen lysate at 20 µg

Secondary

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

Predicted band size: 42 kDa

Observed band size: 37 kDa



Western blot - Anti-STING antibody [EPR13130] (ab181125)

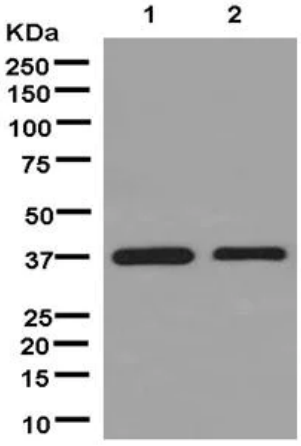
STING Western blot staining using rabbit Anti-STING antibody

ab181125 was shown to react with STING1 in wild-type THP-1 cells in Western blot with loss of signal observed in STING1 knockout cell line ab270493. Wild-type THP-1 and STING1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab181125 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-STING antibody [EPR13130] (ab181125) at 1/1000 dilution

Lane 1:
Wild-type THP-1 lysate at 40 µg

Lane 2:
STING1 knock-out THP-1 lysate at 40 µg



Western blot - Anti-STING antibody [EPR13130] (ab181125)

All lanes:
Western blot - Anti-STING antibody [EPR13130] (ab181125) at 1/2000 dilution

Lane 1:
THP1 lysate at 20 µg

Lane 2:
HACAT lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 42 kDa

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