abcam

ab238443

Anti-TDP43 antibody [EPR18554] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR18554
Purification technique	Affinity purification Protein A
Concentration	1.01 - 1.052 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

WB

Tested

Species	Zebrafish, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Target data

See full target information TARDBP

Function

RNA-binding protein that is involved in various steps of RNA biogenesis and processing (PubMed:23519609). Preferentially binds, via its two RNA recognition motifs RRM1 and RRM2, to GU-repeats on RNA molecules predominantly localized within long introns and in the 3'UTR of mRNAs (PubMed:23519609, PubMed:24240615, PubMed:24464995). In turn, regulates the splicing of many non-coding and protein-coding RNAs including proteins involved in neuronal survival, as well as mRNAs that encode proteins relevant for neurodegenerative diseases (PubMed:21358640, PubMed:29438978). Plays a role in maintaining mitochondrial homeostasis by regulating the processing of mitochondrial transcripts (PubMed:28794432). Also regulates mRNA stability by recruiting CNOT7/CAF1 deadenylase on mRNA 3'UTR leading to poly(A) tail deadenylation and thus shortening (PubMed:30520513). In response to oxidative insult, associates with stalled ribosomes localized to stress granules (SGs) and contributes to cell survival (PubMed:19765185, PubMed:23398327). Also participates in the normal skeletal muscle formation and regeneration, forming cytoplasmic myo-granules and binding mRNAs that encode sarcomeric proteins (PubMed:30464263). Plays a role in the maintenance of the circadian clock periodicity via stabilization of the CRY1 and CRY2 proteins in a FBXL3-dependent

manner (PubMed:27123980). Negatively regulates the expression of CDK6 (PubMed:19760257). Regulates the expression of HDAC6, ATG7 and VCP in a PPIA/CYPA-dependent manner (PubMed:25678563).

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

ab238443 is the carrier-free version of ab190963.

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	TDP43 also known as TAR DNA-binding protein 43 is a protein of approximately 43 kDa. It plays a role in various cellular processes primarily by binding to DNA and RNA. Researchers find TDP43 expressed mainly in neuronal tissues but it is present in other cell types as well. Known for its involvement in regulating gene expression and mRNA stability TDP43 interacts with other proteins within the nuclear compartment. The full function and activities of TDP43 are still under exploration but its importance in normal cellular functions is well recognized.
Biological function summary	TDP43 acts as a regulator of RNA splicing and transcription by forming ribonucleoprotein complexes. The protein can bind to specific sequences in RNA helping in the proper processing and transport of mRNA. Furthermore TDP43 has a role in stress granule formation a cell response to stress. Researchers have identified that the protein undergoes various post-translational modifications which could influence its behavior and function within the cellular environment.
Pathways	Several important pathways include TDP43 due to its functions in RNA metabolism. This protein contributes to the spliceosomal cycle and other pathways involved in mRNA processing. TDP43 interacts with proteins such as FUS and hnRNP which are also involved in RNA splicing and are essential for maintaining mRNA integrity. These relations make TDP43 an important player in regulating gene expression and protein synthesis.
Associated diseases and disorders	The association of TDP43 with neurodegenerative diseases is significant. Its abnormal aggregation is linked to amyotrophic lateral sclerosis (ALS) and frontotemporal lobar degeneration (FTLD). In these diseases TDP43 forms insoluble inclusions within neurons and glial cells. This mislocalization and aggregation can disrupt normal cellular function leading to cell death. In the context of ALS TDP43 often associates with proteins like SOD1 which are implicated in disease pathogenesis highlighting its role in neurodegeneration.

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

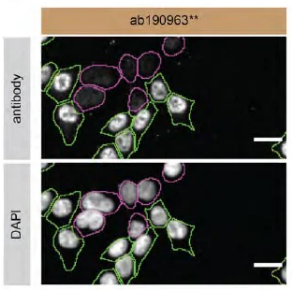
We do not recommend this combination. It is not covered by our product promise.

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



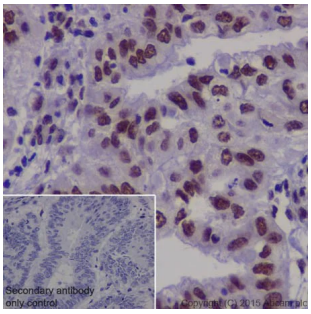
Immunocytochemistry/ Immunofluorescence - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

TDP43 Immunocytochemistry/ Immunofluorescence staining of HAP1 cells using rabbit Anti-TDP43 antibody

This data was developed using ab190963, the same antibody clone in a different buffer formulation.

ab190963 was shown to react with TARDBP in wild-type HAP1 cells in immunocytochemistry with loss of signal observed in a TARDBP knockout cell line. Wild-type and knockout cells were mixed and pelleted at a 1:1 ratio on coverslips. The cells were fixed with 4% paraformaldehyde (15 min) then permeabilized with 0.1% Triton X-100 (10min) and then blocked with 1x PBS, 0.01% Triton X-100, 5% BSA, 5% NGS. The cells were then incubated with ab190963 at 1/1000 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat anti-rabbit secondary antibody to (Alexa Fluor® 555) at 0.5 µg/ml. Acquisition of the green (wild-type), red (antibody staining) and far-red (knockout) channels was performed. Representative grayscale images of the red channel are shown. Wild-type and knockout cells are outlined with yellow and magenta dashed line, respectively. Schematic representation of the mosaic strategy used is shown on the bottom-right panel. Image was acquired with a Zeiss(LSM-880).

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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

TDP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-TDP43 antibody

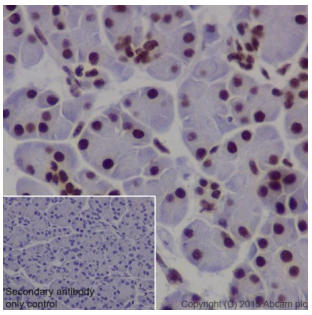
Immunohistochemical analysis of paraffin-embedded Human endometrium carcinoma tissue labeling TDP43 with ab190963 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.
Nucleus staining on tumor cells of the endometrium carcinoma is observed.

Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is ab97051 at 1/500 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab190963).

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

TDP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-TDP43 antibody

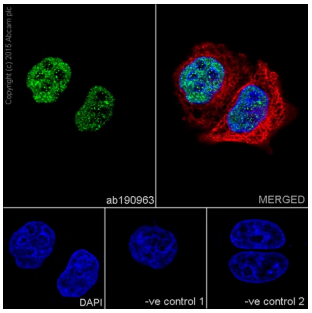
Immunohistochemical analysis of paraffin-embedded Human pancreas tissue labeling TDP43 with ab190963 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution.
Nucleus staining on normal Human pancreas is observed.

Counter stained with Hematoxylin.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is ab97051 at 1/500 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab190963).

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

TDP43 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-TDP43 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling TDP43 with ab190963 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green).
Confocal image showing nuclear staining on HeLa cell line.

The nuclear counterstain is DAPI (blue).

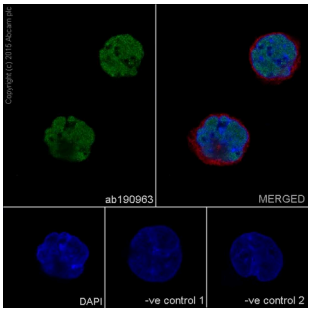
Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) at 1/1000 dilution and Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed (ab150120) at 1/1000 dilution (red).

The negative controls are as follows:-

-ve control 1: ab190963 at 1/2000 dilution followed by ab150120 at 1/1000 dilution.

-ve control 2: ab7291 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab190963).



Immunocytochemistry/ Immunofluorescence - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

TDP43 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-TDP43 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized K562 (Human chronic myelogenous leukemia cell line from bone marrow) cells labeling TDP43 with ab190963 at 1/1000 dilution, followed by Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green).
Confocal image showing nuclear staining on K562 cell line.

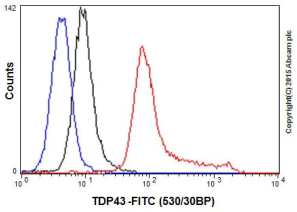
Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) at 1/1000 dilution and Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed (ab150120) at 1/1000 dilution (red).

The negative controls are as follows:-

-ve control 1: ab190963 at 1/2000 dilution followed by ab150120 at 1/1000 dilution.

-ve control 2: ab7291 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.

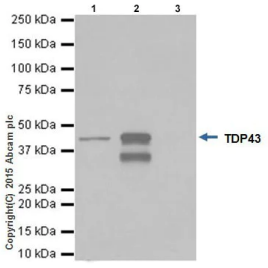
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab190963).



Flow Cytometry (Intracellular) - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

TDP43 Flow Cytometry (Intracellular) staining using rabbit Anti-TDP43 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed K562 (Human chronic myelogenous leukemia cell line from bone marrow) cells labeling TDP43 with ab190963 at 1/1000 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] -Isotype control (ab172730) (black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat anti Rabbit IgG (FITC) at 1/500 dilution was used as the secondary antibody. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab190963).



Immunoprecipitation - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

TDP43 was immunoprecipitated from 1mg of HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab190963 at 1/40 dilution.
Western blot was performed from the immunoprecipitate using ab190963 at 1/1000 dilution.

VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.

Lane 1: HeLa whole cell lysate, 10µg (Input).

Lane 2: ab190963 IP in HeLa whole cell lysate.

Lane 3: Rabbit IgG,monoclonal [EPR25A] - Isotype Control (ab172730) instead of ab190963 in HeLa whole cell lysate.

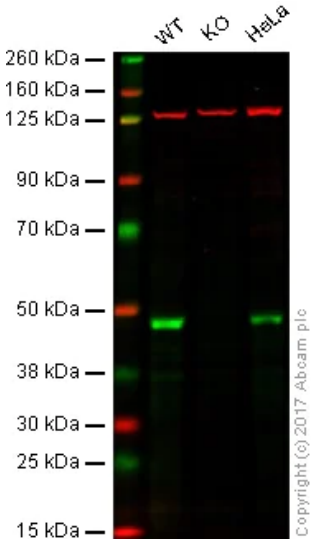
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 1 second.

The band of ~35 kDa is the cleavage product from caspase activity (PMID:22659571, PMID:20736350).

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab190963).
All lanes:
Immunoprecipitation - Anti-TDP43 antibody [EPR18554] (ab190963)

Predicted band size: 44 kDa



Western blot - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

TDP43 Western blot staining using rabbit Anti-TDP43 antibody

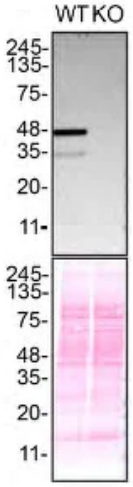
Lane 1: Wild type HAP1 whole cell lysate (20 µg)
Lane 2: TDP43 knockout HAP1 whole cell lysate (20 µg)
Lane 3: HeLa whole cell lysate (20 µg)
Lanes 1 - 3: Merged signal (red and green). Green - ab190963 observed at 48 kDa. Red - loading control, ab18058, observed at 130 kDa.

ab190963 was shown to specifically react with TDP43 in wild type cells as signal was lost in TDP43 knockout cells. Wild-type and TDP43 knockout samples were subjected to SDS-PAGE. ab190963 and ab18058 (Mouse anti-Vinculin loading control) were incubated overnight at 4°C at 1/1000 dilution and 1/20000 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 1/20000 dilution for 1 hour at room temperature before imaging.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab190963).

All lanes:
Western blot - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

Predicted band size: 44 kDa



Western blot - Anti-TDP43 antibody [EPR18554] - BSA and Azide free (ab238443)

This data was developed using ab190963, the same antibody clone in a different buffer formulation.

ab190963 was shown to react with TARDBP in wild-type HAP1 cells in Western blot with loss of signal observed in a TARDBP knockout cell line. Wild-type HAP1 and TARDBP knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab190963 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-TDP43 antibody [EPR18554] (ab190963) at 1/1000 dilution

Lane 1:
Wild-type HAP1 lysate at 50 µg

Lane 2:
TARDBP knock-out HAP1 lysate at 50 µg

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