abcam

ab133547

Anti-TDP43 antibody [EPR5811]

Recombinant | RabMAb | KO Validated | 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	EPR5811
Purification technique	Affinity purification Protein A
Concentration	0.703 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/350
Notes	**For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/350
Notes	**For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/350
Notes	**For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	**For unpurified use at 1 µg/mL.**

Expected

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

WB

Tested

Species	Human
Dilution info	1/1000
Notes	**For unpurified use at 1/10000 - 1/50000.**

Expected

Species	Mouse, Rat

Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/70
Notes	-

Expected

Species	Mouse, Rat
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	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	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

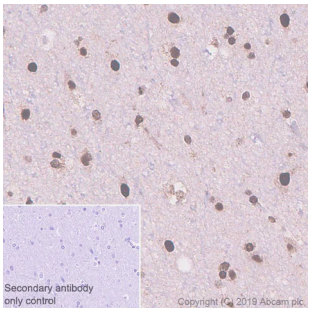
We do not recommend this combination. It is not covered by our product promise.

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.

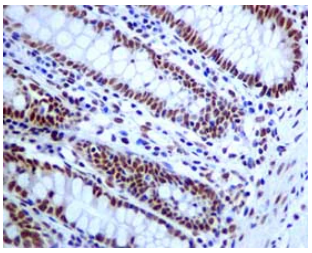
11 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TDP43 antibody [EPR5811] (ab133547)

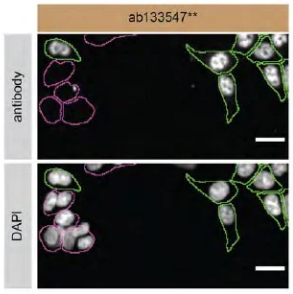
TDP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-TDP43 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cerebrum tissue sections labeling TDP43 with purified ab133547 at 1/350 dilution (1.92 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TDP43 antibody [EPR5811] (ab133547)

Immunohistochemical analysis of paraffin-embedded Human colon tissue labelling TARDBP with unpurified ab133547 at 1/100 dilution.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

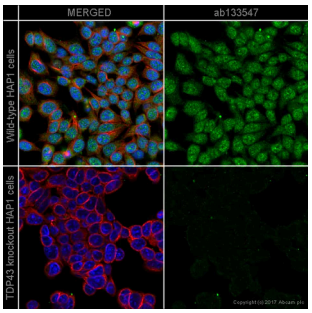


Immunocytochemistry/ Immunofluorescence - Anti-TDP43 antibody [EPR5811] (ab133547)

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

ab133547 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 ab133547 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.

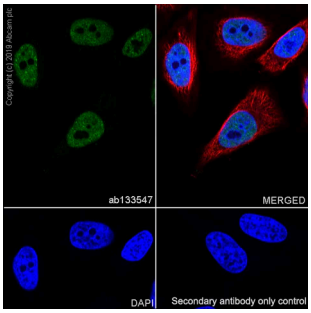


Immunocytochemistry/ Immunofluorescence - Anti-TDP43 antibody [EPR5811] (ab133547)

TDP43 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-TDP43 antibody

Unpurified ab133547 staining TDP43 in wild-type HAP1 cells (top panel) and TARDBP knockout HAP1 cells (bottom panel). The cells were fixed with 100% methanol (5min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with unpurified ab133547 at 1 µg/mL and ab195889 at 1/250 dilution (shown in pseudocolour red) overnight at +4°C, followed by

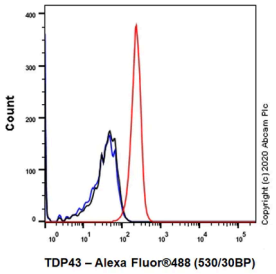
a further incubation at room temperature for 1h with a goat secondary antibody to Rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/mL (shown in green). Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunocytochemistry/ Immunofluorescence - Anti-TDP43 antibody [EPR5811] (ab133547)

TDP43 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-TDP43 antibody

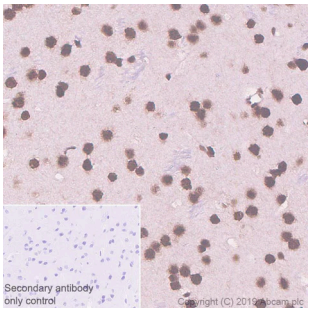
Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling TDP43 with purified ab133547 at 1/100 dilution (10 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% TritonX-100. Cells were counterstained with ab195889 Anti-alpha 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.



Flow Cytometry (Intracellular) - Anti-TDP43 antibody [EPR5811] (ab133547)

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

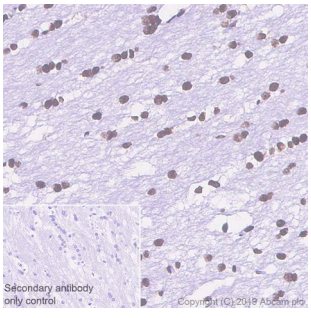
Intracellular Flow Cytometry analysis of K-562 (Human chronic myelogenous leukemia lymphoblast) cells labeling TDP43 with purified ab133547 at 1/70 dilution (10µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluorr® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TDP43 antibody [EPR5811] (ab133547)

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

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse cerebrum tissue sections labeling TDP43 with purified ab133547 at 1/350 dilution (1.92 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.

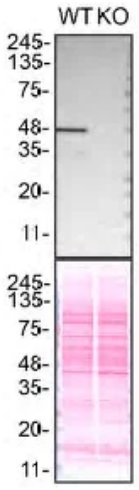


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-TDP43 antibody [EPR5811] (ab133547)

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

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat cerebrum tissue sections labeling TDP43 with purified ab133547 at 1/350 dilution (1.92 µg/mL). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC

polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



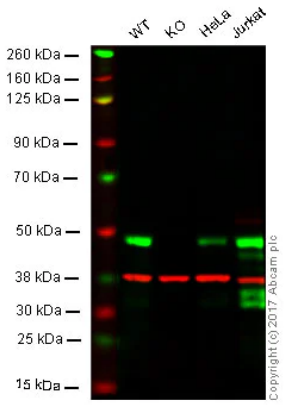
Western blot - Anti-TDP43 antibody [EPR5811] (ab133547)

ab133547 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 ab133547 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 [EPR5811] (ab133547) at 1/1000 dilution

Lane 1:
Wild-type HAP1 lysate at 50 µg

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



Western blot - Anti-TDP43 antibody [EPR5811] (ab133547)

TDP43 Western blot staining using rabbit Anti-TDP43 antibody

Lane 1: Wild-type HAP1 whole cell lysate (20 µg)
Lane 2: TARDBP knockout HAP1 whole cell lysate (20 µg)
Lane 3: HeLa whole cell lysate (20 µg)
Lane 4: Jurkat whole cell lysate (20 µg)

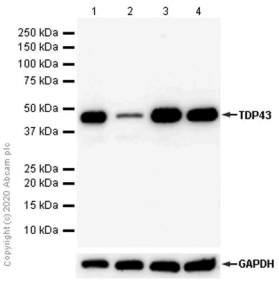
Lanes 1 - 4: Merged signal (red and green). Green - unpurified ab133547 observed at 44 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab133547 was shown to specifically react with TARDBP in wild-type HAP1 cells. No band was observed when TARDBP knockout samples were examined. Wild-type and TARDBP knockout samples were subjected to SDS-PAGE. ab133547 and ab8245 (Mouse anti GAPDH loading control) were incubated overnight at 4°C at 1/10,000 dilution and 1/10,000 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 1/10,000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-TDP43 antibody [EPR5811] (ab133547)

Predicted band size: 44 kDa

Observed band size: 44 kDa



Western blot - Anti-TDP43 antibody [EPR5811] (ab133547)

TDP43 Western blot staining using rabbit Anti-TDP43 antibody

All lanes:
Western blot - Anti-TDP43 antibody [EPR5811] (ab133547) at 1/1000 dilution

Lane 1:
HepG2 (Human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
Human brain lysate at 20 µg

Lane 3:
Mouse brain lysate at 20 µg

Lane 4:
Rat brain lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 44 kDa

Observed band size: 44 kDa

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