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TDP43 Antibody

Catalog # ASC10563

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q13148
Other Accession	ABO32290, 130750552
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	44740
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	TDP43 antibody can be used for detection of TDP43 by Western blot at 0.5 - 2 g/mL. Antibody can also be used for immunocytochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	23435
Other Names	TAR DNA-binding protein 43, TDP-43, TARDBP, TDP43
Target/Specificity	TARDBP; At least two isoforms are known to exist for this protein; this TDP43 antibody only recongizes the longer of the two isoforms.
Reconstitution & Storage	TDP43 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	TDP43 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	TARDBP {ECO:0000303|PubMed:18396105, ECO:0000312|HGNC:HGNC:11571}
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).
Cellular Location	Nucleus. Cytoplasm. Cytoplasm, Stress granule Mitochondrion. Note=Continuously travels in and out of the nucleus (PubMed:18957508). Localizes to stress granules in response to oxidative stress (PubMed:19765185). A small subset localizes in mitochondria (PubMed:28794432).
Tissue Location	Ubiquitously expressed. In particular, expression is high in pancreas, placenta, lung, genital tract and spleen

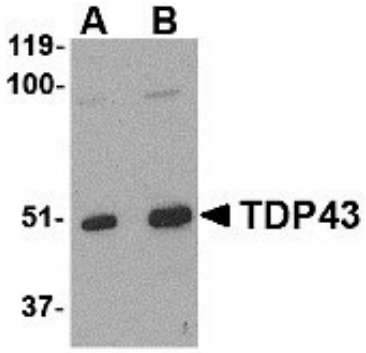
Background

TDP43 Antibody: TDP43 was initially identified as a novel cellular protein that bound to HIV-1 virus TAR DNA sequence motifs and acts a transcriptional repressor to the HIV-1 LTR. Later experiments revealed that TDP43 also regulates the splicing of exon 9 of the cystic fibrosis transmembrane conductance regular (CFTR), most likely through the association with the UG repeats at the 3'splice site. A hyperphosphorylated, ubiquitinated, and cleaved form of TDP43 known as pathologic TDP43 is the major disease protein in ubiquitin-positive, tau-, and alpha-synuclein-negative frontotemporal dementia (FLTD-U). TDP43 is not related to TRBP1, and RNA binding protein that binds HIV-1 TAR RNA sequences.

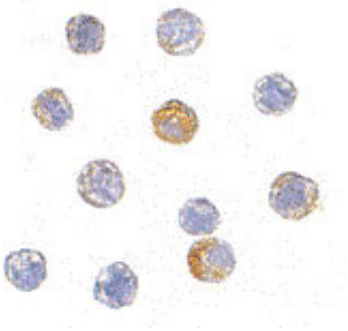
References

Ou SH, Wu F, Garcia-Martinez LF, et al. Cloning and characterization of a novel cellular protein, TDP-43, that binds to human immunodeficiency virus type 1 TAR DNA sequence motifs. J. Virol.1995; 69:3584-96.
Buratti E, Dork T, Zuccato E, et al. Nuclear factor TDP-43 and SR proteins promote in vitro and in vivo CFTR exon 9 skipping. EMBO J.2001; 20:1774-84.
Neumann M, Sampathu DM, Kwong LK, et al. Ubiquitinated TDP-43 in frontotemporal lobar degeneration and amyotrophic lateral sclerosis. Science2006; 314:42-3.

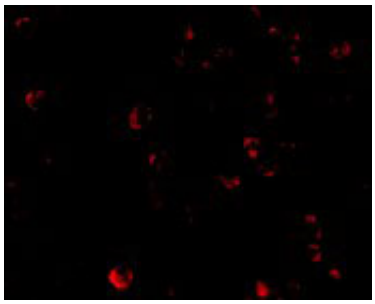
Images



Western blot analysis of TDP43 in L1210 cell lysate with TDP43 antibody at (A) 0.5, (B) 1 and (C) 2 µg/mL.



Immunocytochemistry of TDP43 in HeLa cells with TDP43 antibody at 5 µg/mL.



Immunofluorescence of TDP43 in Hela cells with TDP43 antibody at 20 µg/mL.