abcam

ab259990

Anti-YTHDC1 antibody [EPR21821-213]

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	EPR21821-213
Purification technique	Affinity purification Protein A
Concentration	0.517 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Species	Human

Dilution info	1/50
Notes	-

Expected

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

Predicted

Species	Cat, Dog, Pig, Zebrafish, Cynomolgus monkey, Rhesus monkey, Common marmoset, Xenopus tropicalis
Dilution info	-
Notes	-

IP

Not recommended

Species	Mouse, Human, Rat, Cat, Dog, Pig, Zebrafish, Cynomolgus monkey, Rhesus monkey, Common marmoset, Xenopus tropicalis
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

Predicted

Species	Cat, Dog, Pig, Zebrafish, Cynomolgus monkey, Rhesus monkey, Common marmoset, Xenopus tropicalis
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Expected

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

Predicted

Species	Cat, Dog, Pig, Zebrafish, Cynomolgus monkey, Rhesus monkey, Common marmoset, Xenopus tropicalis
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Predicted

Species	Cat, Dog, Pig, Zebrafish, Cynomolgus monkey, Rhesus monkey, Common marmoset, Xenopus tropicalis
Dilution info	-
Notes	-

Target data

See full target information YTHDC1

Function

Regulator of alternative splicing that specifically recognizes and binds N6-methyladenosine (m6A)-containing RNAs (PubMed:25242552, PubMed:26318451, PubMed:26876937, PubMed:28984244). M6A is a modification present at internal sites of mRNAs and some non-coding RNAs and plays a role in the efficiency of mRNA splicing, processing and stability (PubMed:25242552, PubMed:26318451). Acts as a key regulator of exon-inclusion or exon-skipping during alternative splicing via interaction with mRNA splicing factors SRSF3 and SRSF10 (PubMed:26876937). Specifically binds m6A-containing mRNAs and promotes recruitment of SRSF3 to its mRNA-binding elements adjacent to m6A sites, leading to exon-inclusion during alternative splicing (PubMed:26876937). In contrast, interaction with SRSF3 prevents interaction with SRSF10, a splicing factor that promotes exon skipping: this prevents SRSF10 from binding to its mRNA-binding sites close to m6A-containing regions, leading to inhibit exon skipping during alternative splicing (PubMed:26876937). May also regulate alternative splice site selection (PubMed:20167602). Also involved in nuclear export of m6A-containing

mRNAs via interaction with SRSF3: interaction with SRSF3 facilitates m6A-containing mRNA-binding to both SRSF3 and NXF1, promoting mRNA nuclear export (PubMed:28984244). Involved in S-adenosyl-L-methionine homeostasis by regulating expression of MAT2A transcripts, probably by binding m6A-containing MAT2A mRNAs (By similarity). Also recognizes and binds m6A on other RNA molecules (PubMed:27602518). Involved in random X inactivation mediated by Xist RNA: recognizes and binds m6A-containing Xist and promotes transcription repression activity of Xist (PubMed:27602518). Also recognizes and binds m6A-containing single-stranded DNA (PubMed:32663306). Involved in germline development: required for spermatogonial development in males and oocyte growth and maturation in females, probably via its role in alternative splicing (By similarity). Independently of its N6-methyladenosine-containing RNA reader activity, it regulates PPARG stability by preventing its interaction with the E3 ubiquitin ligase ARIH2, thereby protecting it from ubiquitin-mediated proteasomal degradation and contributing to brown adipose tissue (BAT) development and energy homeostasis (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

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	YTHDC1 also known as YT521-B is a nuclear protein involved in mRNA processing. It belongs to the YTH domain family recognized for binding m6A-modified RNA. The protein has a mass of approximately 82 kDa. Expression of YTHDC1 occurs mainly in the nucleus but may also be found in other cellular compartments. Its widespread presence includes tissues such as the brain and liver suggesting its diverse functional roles.
Biological function summary	YTHDC1 operates in the regulation of mRNA splicing and transportation. It associates with spliceosome components to influence alternative splicing decisions. YTHDC1 part of the m6A reader complex recognizes the m6A methylation mark on RNA aiding in the control of mRNA fate. Additionally its interactions with certain proteins affect RNA stability and translation essential for proper gene expression regulation.
Pathways	YTHDC1 plays a significant role in RNA metabolism and the cellular response to stress. Involvement in the mRNA splicing pathway highlights its contribution to gene expression regulation. YTHDC1 interacts with proteins like SRSF3 and SRFS10 which modulate RNA splicing and stability. Another pathway includes its role in the cellular stress response where YTHDC1 helps maintain RNA integrity linking it to adaptive responses in cells.
Associated diseases and disorders	YTHDC1 captures interest regarding cancer and neurodegenerative diseases. Abnormal expression levels or mutations in YTHDC1 have associations with various cancer types hinting at its role in tumorigenesis. Alterations in YTHDC1 expression impact splicing patterns and gene expression potentially influencing cancer progression. Additionally YTHDC1's connection to neurodegeneration involves proteins such as FUS and TDP-43 which are associated with disorders like amyotrophic lateral sclerosis (ALS) suggesting that YTHDC1 may play a role in RNA metabolism dysregulation observed in these diseases.

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

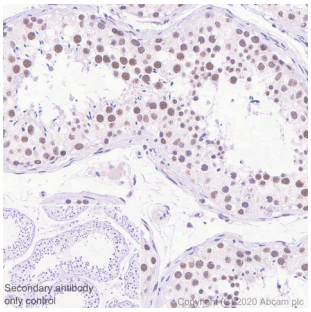
We do not recommend this combination. It is not covered by our product promise.

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

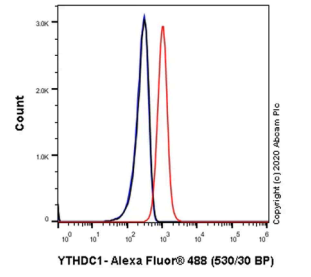


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-YTHDC1 antibody [EPR21821-213] (ab259990)

YTHDC1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-YTHDC1 antibody

Immunohistochemical analysis of paraffin-embedded Human testis tissue labelling YTHDC1 with ab259990 at 1/500 (1.152 ug/ml) dilution followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Nuclear staining on human testis. The section was incubated with ab220159 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

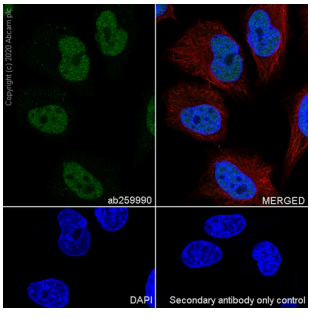
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins



Flow Cytometry (Intracellular) - Anti-YTHDC1 antibody [EPR21821-213] (ab259990)

YTHDC1 Flow Cytometry (Intracellular) staining using rabbit Anti-YTHDC1 antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cells labelling YTHDC1 with ab259990 at 1/500 dilution (0.1ug) (Red) 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.



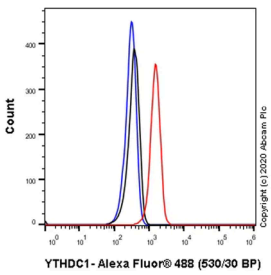
Immunocytochemistry/ Immunofluorescence - Anti-YTHDC1 antibody [EPR21821-213] (ab259990)

YTHDC1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-YTHDC1 antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa cells labelling YTHDC1 with ab259990 at 1/50 (11.52 ug/ml) dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing mainly nuclear staining in HeLa cells (PMID: 18669619) is observed.

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).

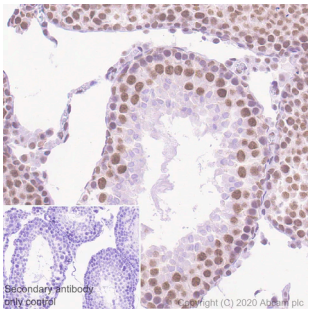
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Flow Cytometry (Intracellular) - Anti-YTHDC1 antibody [EPR21821-213] (ab259990)

YTHDC1 Flow Cytometry (Intracellular) staining using rabbit Anti-YTHDC1 antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized NIH/3T3 (mouse embryonic fibroblast) cells labelling YTHDC1 with ab259990 at 1/500 dilution (0.1ug) (Red) 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.

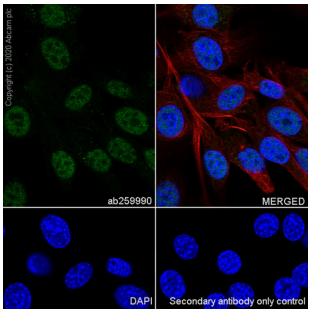


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Immunohistochemical analysis of paraffin-embedded Rat testis tissue labelling YTHDC1 with ab259990 at 1/500 (1.152 ug/ml) dilution followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Nuclear staining on rat testis. The section was incubated with ab220159 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin.
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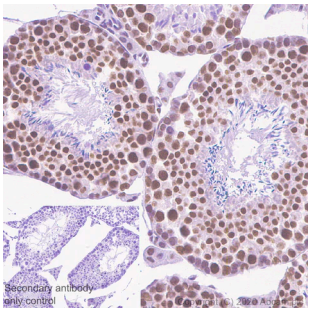


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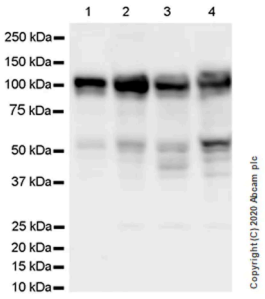


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Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins



Western blot - Anti-YTHDC1 antibody [EPR21821-213] (ab259990)

YTHDC1 Western blot staining using rabbit Anti-YTHDC1 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
Lysates were made freshly and used in WB test immediately to minimize protein degradation.

Exposure time: 15 seconds

All lanes:
Western blot - Anti-YTHDC1 antibody [EPR21821-213] (ab259990) at 1/1000 dilution

Lane 1:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
HEK-293 (human embryonic kidney epithelial cell) whole cell lysate at 20 µg

Lane 3:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 20 µg

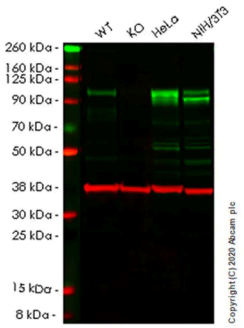
Lane 4:
PC-12 (rat adrenal gland pheochromocytoma) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 85 kDa

Observed band size: 100 kDa



Western blot - Anti-YTHDC1 antibody [EPR21821-213] (ab259990)

YTHDC1 Western blot staining using rabbit Anti-YTHDC1 antibody

Blocking and diluting buffer and concentration: Intercept® (TBS) Blocking Buffer diluted with an equal volume of 0.1% TBS
Lanes 1-4: Merged signal (red and green). Green - ab259990 observed at 100 kDa. Red - loading control ab8245 observed at 36 kDa.

ab259990 Anti-YTHDC1 antibody [EPR21821-213] was shown to specifically react with YTHDC1 in wild-type ES-D3 cells. Loss of signal was observed when a knockout cell line was used. Wild-type and YTHDC1 knockout samples were subjected to SDS-PAGE. ab259990 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated at room temperature for 2. 5 hours at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

The wild-type and YTHDC1 knockout ES-D3 lysates were kindly provided by an anonymous collaborator.

All lanes:
Western blot - Anti-YTHDC1 antibody [EPR21821-213] (ab259990) at 1/1000 dilution

Lane 1:
Wild-type ES-D3 (mouse embryonic pluripotent stem Cell) whole cell lysate at 20 µg

Lane 2:
YTHDC1 knockout ES-D3 cell lysate at 20 µg

Lane 3:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG H&L (IRDye® 800CW) (ab216773) and Goat Anti-Mouse IgG H&L (IRDye® 680RD) (ab216776) at 1/10000 dilution

Predicted band size: 85 kDa

Observed band size: 100 kDa

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