abcam

ab252346

Anti-YTHDF1 antibody [EPR22349-16]

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	EPR22349-16
Purification technique	Affinity purification Protein A
Concentration	0.367 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/100
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/100
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

IP

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

ICC/IF

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse

Dilution info	1/40
Notes	-

Expected

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

Target data

See full target information YTHDF1

Function	Specifically recognizes and binds N6-methyladenosine (m6A)-containing mRNAs, and regulates their stability (PubMed:24284625, PubMed:26318451, PubMed:32492408, PubMed:39900921). M6A is a modification present at internal sites of mRNAs and some non-coding RNAs and plays a role in mRNA stability and processing (PubMed:24284625, PubMed:32492408). Acts as a regulator of mRNA stability by promoting degradation of m6A-containing mRNAs via interaction with the CCR4-NOT complex (PubMed:32492408). The YTHDF paralogs (YTHDF1, YTHDF2 and YTHDF3) shares m6A-containing mRNAs targets and act redundantly to mediate mRNA degradation and cellular differentiation (PubMed:28106072, PubMed:32492408). Required to facilitate learning and memory formation in the hippocampus by binding to m6A-containing neuronal mRNAs (By similarity). Acts as a regulator of axon guidance by binding to m6A-containing ROBO3 transcripts (By similarity). Acts as a negative regulator of antigen cross-presentation in myeloid dendritic cells (By similarity). In the context of tumorigenesis, negative regulation of antigen cross-presentation limits the anti-tumor response by reducing efficiency of tumor-antigen cross-presentation (By similarity). Promotes formation of phase-separated membraneless compartments, such as P-bodies or stress granules, by undergoing liquid-liquid phase separation upon binding to mRNAs containing multiple m6A-modified residues: polymethylated mRNAs act as a multivalent scaffold for the binding of YTHDF proteins, juxtaposing their disordered regions and thereby leading to phase separation (PubMed:31292544, PubMed:31388144, PubMed:32451507). The resulting mRNA-YTHDF complexes then partition into different endogenous phase-separated membraneless compartments, such as P-bodies, stress granules or neuronal RNA granules (PubMed:31292544).

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	YTHDF1 also known as YTH domain family protein 1 is a reader protein of N6-methyladenosine (m6A) a common RNA modification. Its mass is approximately 64 kDa. YTHDF1 binds to m6A-modified mRNA and enhances its translation efficiency by recruiting ribosomes. This protein is present in various tissues showing higher expression in brain spleen and lymphoid tissues suggesting a role in development and immunity.
Biological function summary	YTHDF1 affects mRNA stability and translation providing a mechanism for regulating protein synthesis. It operates as part of a complex with other m6A readers like YTHDF2 and YTHDF3 which determine mRNA fate. By promoting translation YTHDF1 impacts cellular responses and adaptation to environmental changes especially during stress and division.
Pathways	YTHDF1 integrates into the mRNA surveillance pathway and translation regulation. It interacts closely with other components such as eukaryotic initiation factors (eIFs) to modulate protein synthesis dynamics. This allows cells to rapidly adjust protein levels in response to cues and maintain homeostasis. Its role is critical in link to ribosomal function and stability of gene expression networks.

Associated diseases and disorders	YTHDF1 has connections to cancer and neurological disorders. In cancer abnormal YTHDF1 expression associates with tumor progression and metastasis and interacts with proteins like METTL3 involved in m6A deposition. In neurological disorders dysregulation of YTHDF1 influences mRNA translation tied to cognitive functions possibly interacting with neurotransmitter pathways. Understanding these roles shows potential for YTHDF1 as a therapeutic target.

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

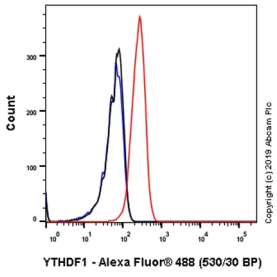
We do not recommend this combination. It is not covered by our product promise.

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.

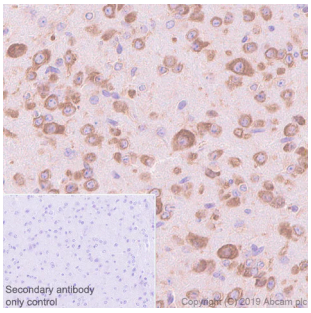
5 product images



Flow Cytometry (Intracellular) - Anti-YTHDF1 antibody [EPR22349-16] (ab252346)

YTHDF1 Flow Cytometry (Intracellular) staining using rabbit Anti-YTHDF1 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized NIH/3T3 (mouse embryonic fibroblast) cell line labeling YTHDF1 with ab252346 at 1/40 (red) compared with a Rabbit monoclonal IgG (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody.

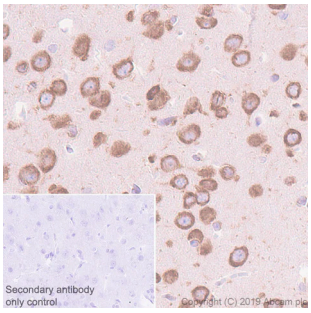


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-YTHDF1 antibody [EPR22349-16] (ab252346)

YTHDF1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-YTHDF1 antibody

Immunohistochemical analysis of paraffin-embedded mouse cerebrum tissue labeling YTHDF1 with ab252346 at 1/100 dilution, followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Cytoplasmic staining on mouse cerebrum (PMID:29103884; 26046440) is observed. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Perform heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) before commencing with IHC staining protocol.

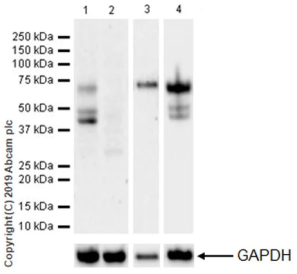


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-YTHDF1 antibody [EPR22349-16] (ab252346)

YTHDF1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-YTHDF1 antibody

Immunohistochemical analysis of paraffin-embedded rat cerebrum tissue labeling YTHDF1 with ab252346 at 1/100 dilution, followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Cytoplasmic staining on rat cerebrum (PMID:29103884; 26046440) is observed. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Perform heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) before commencing with IHC staining protocol.



Western blot - Anti-YTHDF1 antibody [EPR22349-16] (ab252346)

YTHDF1 Western blot staining using rabbit Anti-YTHDF1 antibody

The wild-type and YTHDF1 knockout cell lysates were kindly provided by an anonymous collaborator.
ab252346 was shown to specifically react with YTHDF1 in wild-type mESC cells as signal was lost in YTHDF1 knockout cells. Wild-type and YTHDF1 knockout samples were subjected to SDS-PAGE. ab252346 and ab181602 (Rabbit anti-GAPDH loading control) were incubated 1 hour at room temperature at 1/1000 dilution and 1/200,000 dilution respectively. Blots were developed with Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) secondary antibody at 1/100,000 dilution for 1 hour at room temperature before imaging. The blot was developed on a BIO-RAD® ChemiDoc™ MP instrument using the ECL technique.

Exposure times: Lanes 1-3: 3 minutes; Lane 4: 20 seconds.

Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-YTHDF1 antibody [EPR22349-16] (ab252346) at 1/1000 dilution

Lane 1:
Wild-type mESC (mouse embryo stem cell) whole cell lysate at 20 µg

Lane 2:
YTHDF1 knockout mESC whole cell lysate at 20 µg

Lane 3:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 10 µg

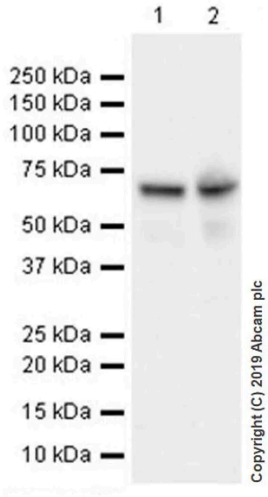
Lane 4:
PC-12 (rat adrenal gland pheochromocytoma) whole cell lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 61 kDa

Observed band size: 61 kDa



Western blot - Anti-YTHDF1 antibody [EPR22349-16] (ab252346)

Recommended to use fresh lysate to avoid target protein being degraded.
Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-YTHDF1 antibody [EPR22349-16] (ab252346) at 1/1000 dilution

Lane 1:
Mouse testis lysate at 20 µg

Lane 2:
Rat testis lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 61 kDa

Observed band size: 61 kDa

Exposure time: 48s

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