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YTHD2 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP16373b

Product Information

Application	WB, E
Primary Accession	Q9Y5A9
Other Accession	Q4R5D9, Q0VCZ3, NP_001166299.1, NP_001166599.1
Reactivity	Human
Predicted	Bovine, Monkey, Mouse, Rat, Canine, Rabbit, Chicken
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB35427
Calculated MW	62334
Antigen Region	551-579

Additional Information

Gene ID	51441
Other Names	YTH domain-containing family protein 2, CLL-associated antigen KW-14, High-glucose-regulated protein 8, Renal carcinoma antigen NY-REN-2, YTHDF2, HGRG8
Target/Specificity	This YTHD2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 551-579 amino acids from the C-terminal region of human YTHD2.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	YTHD2 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	YTHDF2 {ECO:0000303|PubMed:24284625, ECO:0000312|HGNC:HGNC:31675}

Function

Specifically recognizes and binds N6-methyladenosine (m6A)- containing RNAs, and regulates their stability (PubMed:24284625, PubMed:26046440, PubMed:26318451, PubMed:32492408). 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:22575960, PubMed:24284625, PubMed:25412658, PubMed:25412661, PubMed:32492408). Acts as a regulator of mRNA stability by promoting degradation of m6A-containing mRNAs via interaction with the CCR4-NOT and ribonuclease P/MRP complexes, depending on the context (PubMed:24284625, PubMed:26046440, PubMed:27558897, PubMed:30930054, PubMed:32492408). The YTHDF paralogs (YTHDF1, YTHDF2 and YTHDF3) share m6A-containing mRNAs targets and act redundantly to mediate mRNA degradation and cellular differentiation (PubMed:28106072, PubMed:32492408). M6A-containing mRNAs containing a binding site for RIDA/HRSP12 (5'-GGUUC-3') are preferentially degraded by endoribonucleolytic cleavage: cooperative binding of RIDA/HRSP12 and YTHDF2 to transcripts leads to recruitment of the ribonuclease P/MRP complex (PubMed:30930054). Other m6A-containing mRNAs undergo deadenylation via direct interaction between YTHDF2 and CNOT1, leading to recruitment of the CCR4-NOT and subsequent deadenylation of m6A- containing mRNAs (PubMed:27558897). Required maternally to regulate oocyte maturation: probably acts by binding to m6A-containing mRNAs, thereby regulating maternal transcript dosage during oocyte maturation, which is essential for the competence of oocytes to sustain early zygotic development (By similarity). Also required during spermatogenesis: regulates spermagonial adhesion by promoting degradation of m6A-containing transcripts coding for matrix metallopeptidases (By similarity). Also involved in hematopoietic stem cells specification by binding to m6A-containing mRNAs, leading to promote their degradation (PubMed:30065315). Also acts as a regulator of neural development by promoting m6A-dependent degradation of neural development-related mRNA targets (By similarity). Inhibits neural specification of induced pluripotent stem cells by binding to methylated neural-specific mRNAs and promoting their degradation, thereby restraining neural differentiation (PubMed:32169943). Regulates circadian regulation of hepatic lipid metabolism: acts by promoting m6A-dependent degradation of PPARA transcripts (PubMed:30428350). Regulates the innate immune response to infection by inhibiting the type I interferon response: acts by binding to m6A-containing IFNB transcripts and promoting their degradation (PubMed:30559377). May also act as a promoter of cap-independent mRNA translation following heat shock stress: upon stress, relocalizes to the nucleus and specifically binds mRNAs with some m6A methylation mark at their 5'-UTR, protecting demethylation of mRNAs by FTO, thereby promoting cap-independent mRNA translation (PubMed:26458103). Regulates mitotic entry by promoting the phase-specific m6A-dependent degradation of WEE1 transcripts (PubMed:32267835). 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:31642031, 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). May also recognize and bind RNAs modified by C5-methylcytosine (m5C) and act as a regulator of rRNA processing (PubMed:31815440).

Cellular Location

Cytoplasm, cytosol. Cytoplasm, P-body. Cytoplasm, Stress granule. Nucleus. Note=Localizes to the cytosol and relocates to the nucleus following heat shock stress (PubMed:26458103) Can partition into different structures: into

	P-bodies in unstressed cells, and into stress granules during stress (PubMed:31292544)
Tissue Location	Highly expressed in induced pluripotent stem cells (iPSCs) and down-regulated during neural differentiation

Background

YTHDF2 is a member of the YTH (YT521-B homology) superfamily containing YTH domain. The YTH domain is typical for the eukaryotes and is particularly abundant in plants. The YTH domain is usually located in the middle of the protein sequence and may function in binding to RNA. In addition to a YTH domain, this protein has a proline rich region which may be involved in signal transduction. An Alu-rich domain has been identified in one of the introns of this gene, which is thought to be associated with human longevity. In addition, reciprocal translocations between this gene and the Runx1 (AML1) gene on chromosme 21 has been observed in patients with acute myeloid leukemia. This gene was initially mapped to chromosome 14, which was later turned out to be a pseudogene.

References

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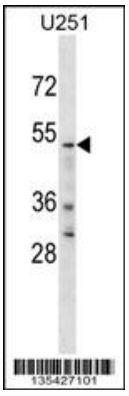
Images



YTHD2 Antibody (C-term) (Cat. #AP16373b) western blot analysis in U251 cell line lysates (35ug/lane).This demonstrates the YTHD2 antibody detected the YTHD2 protein (arrow).

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