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NSUN2 Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP10813c

Product Information

Application	WB, E
Primary Accession	Q08J23
Other Accession	NP_060225.4
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB28701
Calculated MW	86471
Antigen Region	423-451

Additional Information

Gene ID	54888
Other Names	tRNA (cytosine(34)-C(5))-methyltransferase, Myc-induced SUN domain-containing protein, Misu, NOL1/NOP2/Sun domain family member 2, Substrate of AIM1/Aurora kinase B, tRNA (cytosine-5-)-methyltransferase, tRNA methyltransferase 4 homolog, hTrm4, NSUN2, SAKI, TRM4
Target/Specificity	This NSUN2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 423-451 amino acids from the Central region of human NSUN2.
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	NSUN2 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NSUN2 {ECO:0000303|PubMed:17215513, ECO:0000312|HGNC:HGNC:25994}

Function	RNA cytosine C(5)-methyltransferase that methylates cytosine to 5-methylcytosine (m5C) in various RNAs, such as tRNAs, mRNAs and some long non-coding RNAs (lncRNAs) (PubMed:17071714, PubMed:22995836, PubMed:31199786, PubMed:31358969). Involved in various processes, such as epidermal stem cell differentiation, testis differentiation and maternal to zygotic transition during early development: acts by increasing protein synthesis; cytosine C(5)-methylation promoting tRNA stability and preventing mRNA decay (PubMed:31199786). Methylates cytosine to 5-methylcytosine (m5C) at positions 34 and 48 of intron- containing tRNA(Leu)(CAA) precursors, and at positions 48, 49 and 50 of tRNA(Gly)(GCC) precursors (PubMed:17071714, PubMed:22995836, PubMed:31199786). tRNA methylation is required generation of RNA fragments derived from tRNAs (tRFs) (PubMed:31199786). Also mediates C(5)-methylation of mitochondrial tRNAs (PubMed:31276587). Catalyzes cytosine C(5)-methylation of mRNAs, leading to stabilize them and prevent mRNA decay: mRNA stabilization involves YBX1 that specifically recognizes and binds m5C-modified transcripts (PubMed:22395603, PubMed:31358969, PubMed:34556860). Cytosine C(5)-methylation of mRNAs also regulates mRNA export: methylated transcripts are specifically recognized by THOC4/ALYREF, which mediates mRNA nucleo-cytoplasmic shuttling (PubMed:28418038). Also mediates cytosine C(5)-methylation of non-coding RNAs, such as vault RNAs (vtRNAs), promoting their processing into regulatory small RNAs (PubMed:23871666). Cytosine C(5)- methylation of vtRNA VTRNA1.1 promotes its processing into small-vault RNA4 (svRNA4) and regulates epidermal differentiation (PubMed:31186410). May act downstream of Myc to regulate epidermal cell growth and proliferation (By similarity). Required for proper spindle assembly and chromosome segregation, independently of its methyltransferase activity (PubMed:19596847).
Cellular Location	Nucleus, nucleolus. Cytoplasm Mitochondrion. Cytoplasm, cytoskeleton, spindle. Secreted, extracellular exosome {ECO:0000250|UniProtKB:Q1HFZ0}. Note=Concentrated in the nucleolus during interphase and translocates to the spindle during mitosis as an RNA-protein complex that includes 18S ribosomal RNA (PubMed:19596847) In testis, localizes to the chromatoid body (By similarity) {ECO:0000250|UniProtKB:Q1HFZ0, ECO:0000269|PubMed:19596847}
Tissue Location	Expressed in adult and fetal brain and in lymphoblastoid cells.

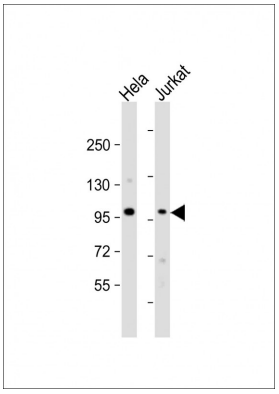
Background

Maturation of cytoplasmic tRNAs includes splicing of introns, which are located 1 nucleotide 3-prime from the anticodon in all intron-containing tRNA genes. In tRNA-leu(CAA), the first position of the anticodon, C34, is converted to 5-methylcytosine, a modification necessary to stabilize the anticodon-codon pairing and correctly translate the mRNA. NSUN2 encodes a methyltransferase that catalyzes the intron-dependent formation of 5-methylcytosine at C34 of tRNA-leu(CAA) (Brzezicha et al., 2006 [PubMed 17071714]).

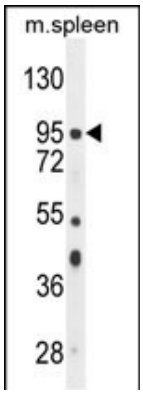
References

Bailey, S.D., et al. Diabetes Care (2010) In press :
Rose, J.E., et al. Mol. Med. 16 (7-8), 247-253 (2010) :
Frye, M., et al. Cancer Lett. 289(1):71-80(2010)
Talmud, P.J., et al. Am. J. Hum. Genet. 85(5):628-642(2009)
Hussain, S., et al. J. Cell Biol. 186(1):27-40(2009)

Images



All lanes : Anti-NSUN2 Antibody (Center) at 1:1000 dilution Lane 1: Hela whole cell lysate Lane 2: Jurkat whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 86 kDa Blocking/Dilution buffer: 5% NFDM/TBST.



NSUN2 Antibody (Center) (Cat. #AP10813c) western blot analysis in mouse spleen tissue lysates (35ug/lane).This demonstrates the NSUN2 antibody detected the NSUN2 protein (arrow).