abcam

ab183731

Anti-RNA Helicase A antibody [EPR13521]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 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	EPR13521
Purification technique	Affinity purification Protein A
Concentration	0.11 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/10000 - 1/50000
Notes	-

Species	Mouse

Dilution info	1/10000 - 1/50000
Notes	-

Species	Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	**For unpurified use at 1/250.**

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/10 - 1/20
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/400
Notes	**For unpurified use at 1/50 - 1/100.**

Species	Mouse
Dilution info	1/400
Notes	**For unpurified use at 1/50 - 1/100.**

Species	Rat
Dilution info	1/400
Notes	**For unpurified use at 1/50 - 1/100.**

Target data

See full target information DHX9

Function

Multifunctional ATP-dependent nucleic acid helicase that unwinds DNA and RNA in a 3' to 5' direction and that plays important roles in many processes, such as DNA replication, transcriptional activation, post-transcriptional RNA regulation, mRNA translation and RNA-mediated gene silencing (PubMed:11416126, PubMed:12711669, PubMed:15355351, PubMed:16680162, PubMed:17531811, PubMed:20669935, PubMed:21561811, PubMed:24049074, PubMed:24990949, PubMed:25062910, PubMed:28221134, PubMed:9111062, PubMed:37467750). Requires a 3'-single-stranded tail as entry site for acid nuclei unwinding activities as well as the binding and hydrolyzing of any of the four ribo- or deoxyribo-nucleotide triphosphates (NTPs) (PubMed:1537828). Unwinds numerous nucleic acid substrates such as double-stranded (ds) DNA and RNA, DNA:RNA hybrids, DNA and RNA forks composed of either partially complementary DNA duplexes or DNA:RNA hybrids, respectively, and also DNA and RNA displacement loops (D- and R-loops), triplex-helical DNA (H-DNA) structure and DNA and RNA-based G-quadruplexes (PubMed:20669935, PubMed:21561811, PubMed:24049074). Binds dsDNA, single-stranded DNA (ssDNA), dsRNA, ssRNA and poly(A)-containing RNA (PubMed:10198287, PubMed:9111062). Also binds to circular dsDNA or dsRNA of either linear and/or circular forms and stimulates the relaxation of supercoiled DNAs catalyzed by topoisomerase TOP2A (PubMed:12711669). Plays a role in DNA replication at origins of replication and cell cycle progression (PubMed:24990949). Plays a role as a transcriptional coactivator acting as a bridging factor between polymerase II holoenzyme and transcription factors or cofactors, such as BRCA1, CREBBP, RELA and SMN1 (PubMed:11038348, PubMed:11149922, PubMed:11416126, PubMed:15355351, PubMed:28221134, PubMed:9323138, PubMed:9662397). Binds to the CDKN2A promoter (PubMed:11038348). Plays several roles in post-transcriptional regulation of gene expression (PubMed:28221134, PubMed:28355180). In cooperation with NUP98, promotes

pre-mRNA alternative splicing activities of a subset of genes (PubMed:11402034, PubMed:16680162, PubMed:28221134, PubMed:28355180). As component of a large PER complex, is involved in the negative regulation of 3' transcriptional termination of circadian target genes such as PER1 and NR1D1 and the control of the circadian rhythms (By similarity). Also acts as a nuclear resolvase that is able to bind and neutralize harmful massive secondary double-stranded RNA structures formed by inverted-repeat Alu retrotransposon elements that are inserted and transcribed as parts of genes during the process of gene transposition (PubMed:28355180). Involved in the positive regulation of nuclear export of constitutive transport element (CTE)-containing unspliced mRNA (PubMed:10924507, PubMed:11402034, PubMed:9162007). Component of the coding region determinant (CRD)-mediated complex that promotes cytoplasmic MYC mRNA stability (PubMed:19029303). Plays a role in mRNA translation (PubMed:28355180). Positively regulates translation of selected mRNAs through its binding to post-transcriptional control element (PCE) in the 5'-untranslated region (UTR) (PubMed:16680162). Involved with LARP6 in the translation stimulation of type I collagen mRNAs for CO1A1 and CO1A2 through binding of a specific stem-loop structure in their 5'-UTRs (PubMed:22190748). Stimulates LIN28A-dependent mRNA translation probably by facilitating ribonucleoprotein remodeling during the process of translation (PubMed:21247876). Plays also a role as a small interfering (siRNA)-loading factor involved in the RNA-induced silencing complex (RISC) loading complex (RLC) assembly, and hence functions in the RISC-mediated gene silencing process (PubMed:17531811). Binds preferentially to short double-stranded RNA, such as those produced during rotavirus intestinal infection (PubMed:28636595). This interaction may mediate NLRP9 inflammasome activation and trigger inflammatory response, including IL18 release and pyroptosis (PubMed:28636595). Finally, mediates the attachment of heterogeneous nuclear ribonucleoproteins (hnRNPs) to actin filaments in the nucleus (PubMed:11687588). (Microbial infection) Plays a role in HIV-1 replication and virion infectivity (PubMed:11096080, PubMed:19229320, PubMed:25149208, PubMed:27107641). Enhances HIV-1 transcription by facilitating the binding of RNA polymerase II holoenzyme to the proviral DNA (PubMed:11096080, PubMed:25149208). Binds (via DRBM domain 2) to the HIV-1 TAR RNA and stimulates HIV-1 transcription of transactivation response element (TAR)-containing mRNAs (PubMed:11096080, PubMed:9892698). Involved also in HIV-1 mRNA splicing and transport (PubMed:25149208). Positively regulates HIV-1 gag mRNA translation, through its binding to post-transcriptional control element (PCE) in the 5'-untranslated region (UTR) (PubMed:16680162). Binds (via DRBM domains) to a HIV-1 double-stranded RNA region of the primer binding site (PBS)-segment of the 5'-UTR, and hence stimulates DHX9 incorporation into virions and virion infectivity (PubMed:27107641). Also plays a role as a cytosolic viral MyD88-dependent DNA and RNA sensors in plasmacytoid dendritic cells (pDCs), and hence induce antiviral innate immune responses (PubMed:20696886, PubMed:21957149). Binds (via the OB-fold region) to viral single-stranded DNA unmethylated C-phosphate-G (CpG) oligonucleotide (PubMed:20696886).

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	RNA Helicase A also known as DHX9 is a protein essential for various cellular processes. This helicase protein belongs to the DEXH-box family and facilitates the unwinding of RNA structures which is critical for RNA metabolism. The molecular weight of RNA Helicase A is approximately 141 kDa. It is expressed in a variety of human tissues including the nucleus cytoplasm and sometimes nucleoli. The protein's helicase activity is central to its mechanical role in cellular functioning.
Biological function summary	RNA Helicase A is involved in numerous processes such as transcription RNA processing and the assembly of ribonucleoprotein complexes. The protein plays an important role in facilitating RNA polymerase II transcription and also has functions in RNA splicing through its association with spliceosomal components. RNA Helicase A does not function in isolation; instead it forms part of multi-protein complexes that are necessary for its diverse cellular roles. It interacts with various proteins to achieve its functions impacting both RNA and DNA substrates.
Pathways	RNA Helicase A influences the regulation of gene expression and is a significant player in the innate immune response. It participates in the Toll-like receptor (TLR) signaling pathway where it helps detect viral RNA and triggers immune responses. It also interacts with proteins like TLR3 and TRIF which are involved in the

	signaling cascade essential for producing type I interferons and pro-inflammatory cytokines.
Associated diseases and disorders	RNA Helicase A has associations with cancer and viral infections. Abnormal regulation of RNA Helicase A has been linked with tumorigenesis where its altered expression contributes to oncogenic processes. It also plays a part in the host response to viral infections where the protein aids in recognizing viral nucleic acids. RNA Helicase A interacts with viral proteins thereby influencing viral replication and host antiviral responses. These connections highlight the protein's relevance in both cancer biology and infectious disease pathogenesis.

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

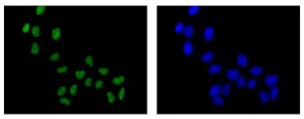
We do not recommend this combination. It is not covered by our product promise.

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.

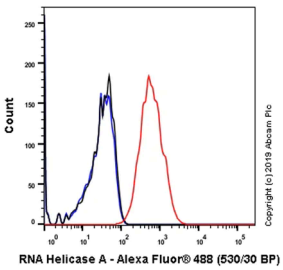
13 product images



Immunocytochemistry/ Immunofluorescence - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

RNA Helicase A Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RNA Helicase A antibody

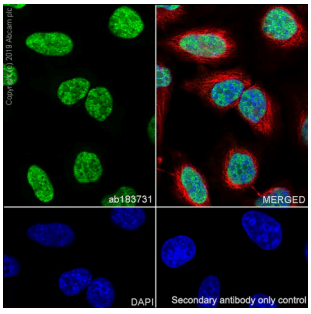
Immunocytochemistry analysis of HeLa cells (fixative -20☒ Acetone) labeling RNA Helicase A with ab183731 (unpurified) at a 1/250 dilution. Goat anti rabbit IgG (Alexa Fluor® 488) secondary used at a 1/200 diution.



Flow Cytometry (Intracellular) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

RNA Helicase A Flow Cytometry (Intracellular) staining using rabbit Anti-RNA Helicase A antibody

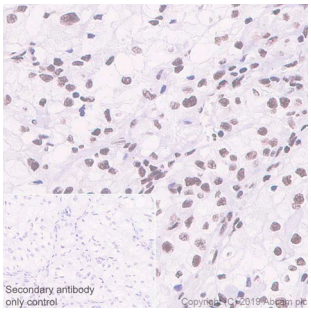
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling RNA Helicase A with purified ab183731 at 1/20 dilution (5µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunocytochemistry/ Immunofluorescence - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

RNA Helicase A Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RNA Helicase A antibody

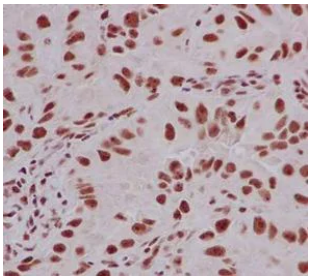
Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling RNA Helicase A with purified ab183731 at 1/50 dilution (2.2 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

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

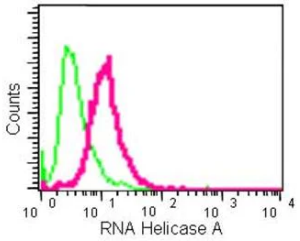
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human kidney carcinoma tissue sections labeling RNA Helicase A with purified ab183731 at 1/400 dilution (0.28 µg/mL). Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). ImmunoHistoProbe one step HRP Polymer (ready to use) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

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

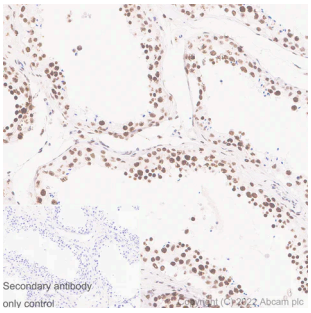
Immunohistochemical analysis of paraffin embedded Human lung adenocarcinoma tissue labeling RNA Helicase A with ab183731 (unpurified) at a 1/100 dilution. Prediluted HRP conjugated Rabbit IgG secondary used. Counterstained with Hematoxylin. Heat mediated antigen retrieval was performed with EDTA buffer pH 9 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

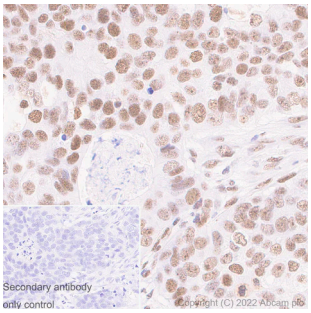
RNA Helicase A Flow Cytometry (Intracellular) staining using rabbit Anti-RNA Helicase A antibody

Intracellular Flow Cytometry analysis of HeLa cells using ab183731 (unpurified) at a 1/10 dilution (red) or a Rabbit monoclonal IgG (negative) (green). Goat anti rabbit IgG (FITC) secondary used at a 1/150 dilution.



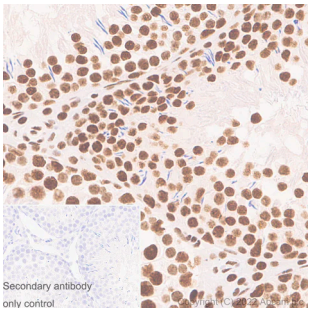
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

Immunohistochemical analysis of paraffin-embedded Human testis tissue labeling RNA Helicase A with ab183731 at 1/1000 (0.11 µg/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). This section was counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins. Nuclear staining on human testis. The section was incubated with ab183731 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



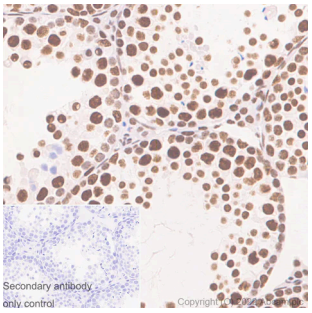
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

Immunohistochemical analysis of paraffin-embedded Human breast carcinoma tissue labeling RNA Helicase A with ab183731 at 1/1000 (0.11 µg/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). This section was counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins. Nuclear staining on human breast carcinoma. The section was incubated with ab183731 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



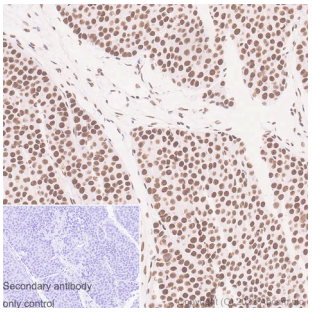
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

Immunohistochemical analysis of paraffin-embedded Rat testis tissue labeling RNA Helicase A with ab183731 at 1/1000 (0.11 µg/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). This section was counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins. Nuclear staining on rat testis. The section was incubated with ab183731 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



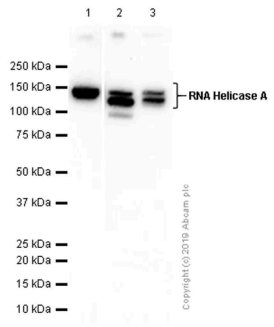
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

Immunohistochemical analysis of paraffin-embedded Mouse testis tissue labeling RNA Helicase A with ab183731 at 1/1000 (0.11 µg/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). This section was counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins. Nuclear staining on mouse testis. The section was incubated with ab183731 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

Immunohistochemical analysis of paraffin-embedded Mouse breast carcinoma tissue labeling RNA Helicase A with ab183731 at 1/1000 (0.11 µg/ml) dilution followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). This section was counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins. Nuclear staining on mouse breast carcinoma. The section was incubated with ab183731 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Western blot - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

Blocking/Diluting Buffer and concentration: 5% NFDM/TBST
The observed bands are consistent with what are described in PMID: 28337295

All lanes:
Western blot - Anti-RNA Helicase A antibody [EPR13521] (ab183731) at 1/10000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysates at 20 µg

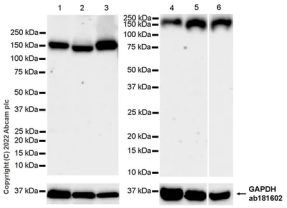
Lane 3:
THP-1 (Human monocytic leukemia monocyte) whole cell lysates at 20 µg

Secondary

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

Predicted band size: 141 kDa

Observed band size: 128 kDa, 141 kDa



Western blot - Anti-RNA Helicase A antibody [EPR13521] (ab183731)

Blocking and diluting buffer and concentration: 5% NFDM/TBST. ab181602 was used as a GAPDH loading control. Exposure time: Lanes 1-5: 103 seconds, Lane 6: 26 seconds. Lysates were freshly made and used immediately to minimize protein degradation.
All lanes:
Western blot - Anti-RNA Helicase A antibody [EPR13521] (ab183731) at 1/1000 dilution

Lane 1:
Rat brain tissue lysate at 20 µg

Lane 2:
Rat liver tissue lysate at 20 µg

Lane 3:
Rat testis tissue lysate at 20 µg

Lane 4:
Mouse brain tissue lysate at 20 µg

Lane 5:
Mouse liver tissue lysate at 20 µg

Lane 6:
Mouse testis tissue lysate at 20 µg

Secondary

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

Predicted band size: 141 kDa

Observed band size: 150 kDa

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