abcam

ab182156

Anti-DDX21 antibody [EPR14495]

Recombinant | RabMAb

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	EPR14495
Purification technique	Affinity purification Protein A
Concentration	0.435 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/200
Notes	For unpurified use at 1/50 - 1/100

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/60
Notes	-

Target data

See full target information Nucleolar RNA helicase 2

Function

RNA helicase that acts as a sensor of the transcriptional status of both RNA polymerase (Pol) I and II: promotes ribosomal RNA (rRNA) processing and transcription from polymerase II (Pol II) (PubMed:25470060, PubMed:28790157). Binds various RNAs, such as rRNAs, snoRNAs, 7SK and, at lower extent, mRNAs (PubMed:25470060). In the nucleolus, localizes to rDNA locus, where it directly binds rRNAs and snoRNAs, and promotes rRNA transcription, processing and modification. Required for rRNA 2'-O-methylation, possibly by promoting the recruitment of late-acting snoRNAs SNORD56 and SNORD58 with pre-ribosomal complexes (PubMed:25470060, PubMed:25477391). In the nucleoplasm, binds 7SK RNA and is recruited to the promoters of Pol II-transcribed genes: acts by facilitating the release of P-TEFb from inhibitory 7SK snRNP in a manner that is dependent on its helicase activity, thereby promoting transcription of its target genes (PubMed:25470060). Functions as a cofactor for JUN-activated transcription: required for phosphorylation of JUN at 'Ser-77' (PubMed:11823437, PubMed:25260534). Can unwind double-stranded RNA (helicase) and can fold or introduce a secondary structure to a single-stranded RNA (foldase)

(PubMed:9461305). Together with SIRT7, required to prevent R-loop-associated DNA damage and transcription-associated genomic instability: deacetylation by SIRT7 activates the helicase activity, thereby overcoming R-loop-mediated stalling of RNA polymerases (PubMed:28790157). Involved in rRNA processing (PubMed:14559904, PubMed:18180292). May bind to specific miRNA hairpins (PubMed:28431233). Component of a multi-helicase-TICAM1 complex that acts as a cytoplasmic sensor of viral double-stranded RNA (dsRNA) and plays a role in the activation of a cascade of antiviral responses including the induction of pro-inflammatory cytokines via the adapter molecule TICAM1 (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	DDX21 also known as RH-II/Gu is a member of the DEAD-box RNA helicase family. It weighs approximately 87 kDa and is expressed prominently in the nucleus. DEAD-box proteins are known for unwinding RNA secondary structures essential for various cellular processes. DDX21 plays an important role in ribosome biogenesis and transcriptional regulation. Its nuclear localization is critical for its function and it is detected in various cell types indicating a broad role in cellular mechanisms.
Biological function summary	DDX21 is involved in multiple fundamental cellular processes beyond just transcription and ribosomal RNA processing. It participates in the synthesis of rRNA and plays an active role in the regulation of ribosome assembly. Additionally DDX21 interacts with other members of the DEAD-box family forming a complex which is necessary for efficient RNA processing and modification. Its activity has influence over protein synthesis by regulating the availability of ribosomal components.
Pathways	DDX21 fits into the larger RNA processing and ribosome biogenesis pathways. It interacts with proteins like nucleolin and fibrillarin contributing to the assembly and maturation of ribosomes. In the ribosome biogenesis pathway DDX21 controls the processing of pre-rRNA together with other ribosomal proteins ensuring proper formation of functional ribosomes. DDX21 also participates in the stress response pathways indicating its integral role in adapting to cellular stress conditions.
Associated diseases and disorders	DDX21's function is implicated in cancer and viral infections. High levels of DDX21 have been associated with tumorigenesis connecting it with oncogenic pathways. It interacts with proteins like p53 in the regulation of cellular growth and apoptosis. Additionally DDX21 plays a part in the replication of certain viruses suggesting a role in the viral life cycle and potential as a therapeutic target. Understanding DDX21’s involvement in these conditions may offer insights into novel diagnostic and treatment strategies.

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

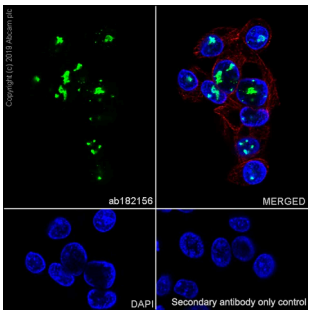
We do not recommend this combination. It is not covered by our product promise.

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.

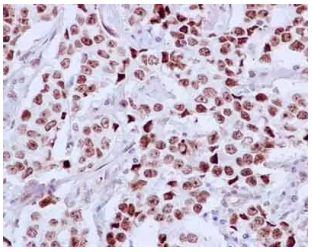
7 product images



Immunocytochemistry/ Immunofluorescence - Anti-DDX21 antibody [EPR14495] (ab182156)

DDX21 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DDX21 antibody

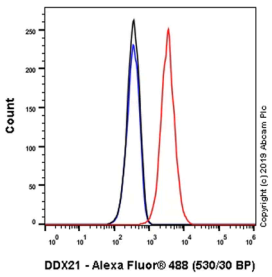
Immunocytochemistry/ Immunofluorescence analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling DDX21 with Purified ab182156 at 1:200 dilution (2.88 µg/ml). Cells were fixed in 100% Methanol and permeabilized with None. Cells were counterstained with ab195889 Anti-alpha Tubulin 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-DDX21 antibody [EPR14495] (ab182156)

DDX21 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-DDX21 antibody

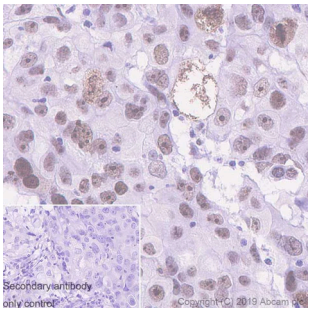
Immunohistochemical analysis of paraffin-embedded Human infiltrating duct carcinoma of breast tissue, staining DDX21 with ab182156 at 1/100 dilution. Hematoxylin was used as a counterstain. Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-DDX21 antibody [EPR14495] (ab182156)

DDX21 Flow Cytometry (Intracellular) staining using rabbit Anti-DDX21 antibody

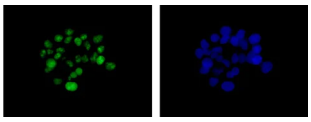
Intracellular Flow Cytometry analysis of HepG2 (Human hepatocellular carcinoma epithelial cell) cells labeling DDX21 with Purified ab182156 at 1/60 dilution (10 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) 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).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DDX21 antibody [EPR14495] (ab182156)

DDX21 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-DDX21 antibody

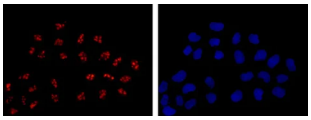
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma tissue sections labeling DDX21 with Purified ab182156 at 1:200 dilution (2.89 µg/ml). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used for detection. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunocytochemistry/ Immunofluorescence - Anti-DDX21 antibody [EPR14495] (ab182156)

DDX21 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DDX21 antibody

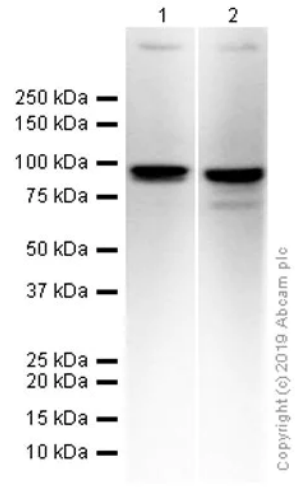
Immunofluorescence analysis of HepG2 cells, staining DDX21 (green) with ab182156 at 1/100 dilution. An Alexa Fluor®488 goat anti rabbit IgG was used as a secondary antibody. Cells were fixed in 4% paraformaldehyde. Nuclei were counterstained with DAPI (blue).



Immunocytochemistry/ Immunofluorescence - Anti-DDX21 antibody [EPR14495] (ab182156)

DDX21 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DDX21 antibody

Immunofluorescence analysis of HeLa cells, staining DDX21 (red) with ab182156 at 1/100 dilution. An Alexa Fluor®555 goat anti rabbit IgG was used as a secondary antibody. Cells were fixed with -20☒ Acetone. Nuclei were counterstained with DAPI (blue).



Western blot - Anti-DDX21 antibody [EPR14495] (ab182156)

All lanes:
Western blot - Anti-DDX21 antibody [EPR14495] (ab182156) at 1/10000 dilution

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

Lane 2:
Jurkat (Human Tcellleukemia Tlymphocyte) 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: 87 kDa

Observed band size: 87 kDa

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