abcam

ab137114

Anti-RRM1 antibody [EPR8483]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	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	EPR8483
Purification technique	Affinity purification Protein A
Concentration	0.83 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	**For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

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

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

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

ICC/IF

Tested

Species	Human
Dilution info	1/100 - 1/250
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Target data

See full target information RRM1

Function	Provides the precursors necessary for DNA synthesis. Catalyzes the biosynthesis of deoxyribonucleotides from the corresponding ribonucleotides.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C

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	RRM1 also known as ribonucleotide reductase large subunit or RNR1 plays an important role in DNA synthesis and repair converting ribonucleotides to deoxyribonucleotides. This enzyme has a mass of approximately 90 kDa. RRM1 is found in multiple tissues exhibiting especially high expression levels in proliferative tissues and tumors. Its activity is tightly regulated through the cell cycle and it is essential during DNA replication and cell division.
Biological function summary	The large subunit of ribonucleotide reductase contributes to the enzymatic function through binding and activation of smaller subunits including RRM2 and RRM2B forming a complex. This complex is important for maintaining balanced deoxyribonucleotide pools during the S-phase of the cell cycle. Proper RRM1 function ensures the fidelity of DNA synthesis impacting genomic stability and cell viability.
Pathways	RRM1 acts within the DNA replication and repair pathways. It interacts with the tumor suppressor protein p53 which modulates its activities in response to DNA damage. Through pathways like the p53-dependent checkpoint RRM1 contributes to DNA damage response mechanisms. This interaction with p53 and involvement in the DNA replication pathway highlight its centrality in maintaining genomic integrity.
Associated diseases and disorders	RRM1 has connections with cancer and chemoresistance. Overexpression of RRM1 often correlates with increased tumor aggressiveness and poor prognosis in several cancers including lung and pancreatic cancers. In the context of chemoresistance RRM1 interplays with the excision repair cross-complementation group 1 protein (ERCC1) impacting the effectiveness of certain chemotherapies. Its role in these conditions makes it a target for cancer diagnosis 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.

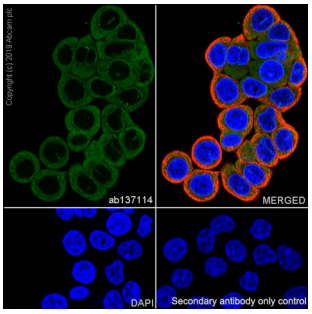
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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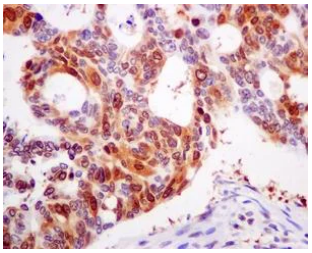
11 product images



Immunocytochemistry/ Immunofluorescence - Anti-RRM1 antibody [EPR8483] (ab137114)

RRM1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RRM1 antibody

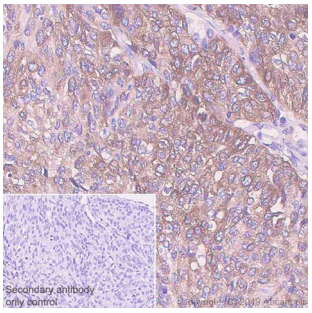
Immunocytochemistry/ Immunofluorescence analysis of HT-29 (Human colorectal adenocarcinoma epithelial cell) cells labeling RRM1 with purified ab137114 at 1/100 dilution (9.5 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 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-RRM1 antibody [EPR8483] (ab137114)

RRM1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-RRM1 antibody

Immunohistochemical analysis of paraffin-embedded Human colon carcinoma tissue labelling RRM1 with ab137114 at 1/100 dilution.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RRM1 antibody [EPR8483] (ab137114)

RRM1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-RRM1 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human lung carcinoma tissue sections labeling RRM1 with purified ab137114 at 1/1000 dilution (0.95 µg/ml). Perform heat mediated antigen retrieval 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.

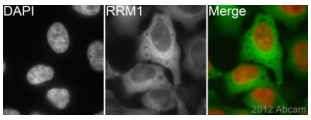
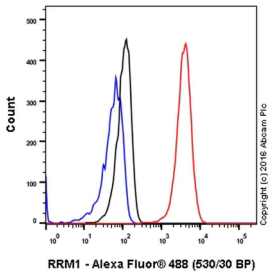


Image courtesy of a customer review submitted by Dr. Kirk McManus, Univ. of Manitoba/Cancer Care MICB, Canada

Immunocytochemistry/ Immunofluorescence - Anti-RRM1 antibody [EPR8483] (ab137114)

RRM1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RRM1 antibody

Unpurified ab137114 (1/200) staining RRM1 in Hela cells (green). Cells were fixed in paraformaldehyde, permeabilised in 0.5%Triton X-100/PBS and counterstained with DAPI in order to highlight the nucleus (red). For further experimental details please refer to Abreview.

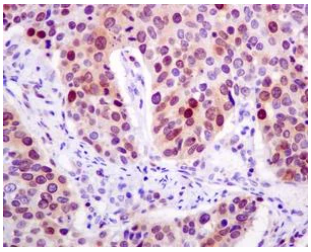


Flow Cytometry (Intracellular) - Anti-RRM1 antibody [EPR8483] (ab137114)

RRM1 Flow Cytometry (Intracellular) staining using rabbit Anti-RRM1 antibody

unpurified ab137114 staining RRM1 in the human cell line HeLa (human cervix adenocarcinoma) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde, permiabilised with 90% methanol and the sample was incubated with the primary antibody at a dilution of 1/100. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody. Isoytype control: Rabbit monoclonal IgG (Black)

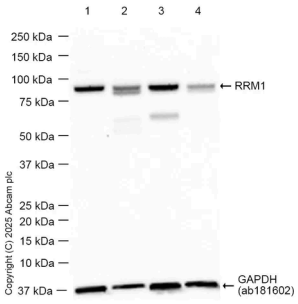
Unlabelled control: Cell without incubation with primary antibody and secondary antibody (Blue)



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RRM1 antibody [EPR8483] (ab137114)

RRM1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-RRM1 antibody

Immunohistochemical analysis of paraffin-embedded Human lung carcinoma tissue labelling RRM1 with unpurified ab137114 at 1/100 dilution.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Western blot - Anti-RRM1 antibody [EPR8483] (ab137114)

RRM1 Western blot staining using rabbit Anti-RRM1 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/1000,000 dilution.

All lanes:
Western blot - Anti-RRM1 antibody [EPR8483] (ab137114) at 1/10000 dilution

Lane 1:
MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:

A549 (human lung carcinoma epithelial cell) whole cell lysate, at 20 µg

Lane 3:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 20 µg

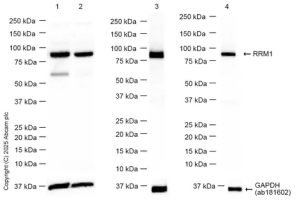
Lane 4:
Rat colon tissue lysate at 20 µg

Secondary

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

Observed band size: 90 kDa, 36 kDa

Exposure time: 10s



Western blot - Anti-RRM1 antibody [EPR8483] (ab137114)

RRM1 Western blot staining using rabbit Anti-RRM1 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/1000,000 dilution.

All lanes:
Western blot - Anti-RRM1 antibody [EPR8483] (ab137114) at 1/10000 dilution

Lane 1:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
HEK-293 (human embryonic kidney epithelial cell) whole cell lysate at 20 µg

Lane 3:
Freshly made HeLa whole cell lysate at 20 µg

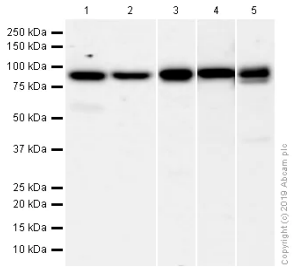
Lane 4:
Freshly made HEK-293 whole cell lysate at 20 µg

Secondary

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

Observed band size: 90 kDa, 36 kDa

Exposure time: 10s



Western blot - Anti-RRM1 antibody [EPR8483] (ab137114)

All lanes:
Western blot - Anti-RRM1 antibody [EPR8483] (ab137114) at 1/10000 dilution

Lane 1:
HT-29 (Human colorectal adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
A549 (Human lung carcinoma epithelial cell) whole cell lysates at 20 µg

Lane 3:
Mouse colon lysates at 20 µg

Lane 4:
Rat brain lysates at 20 µg

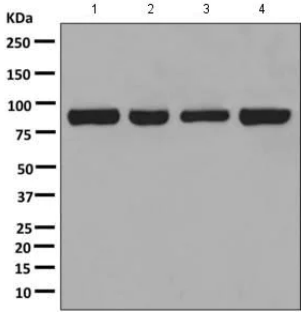
Lane 5:
Rat colon lysates at 20 µg

Secondary

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

Predicted band size: 90 kDa

Observed band size: 90 kDa



Western blot - Anti-RRM1 antibody [EPR8483] (ab137114)

All lanes:
Western blot - Anti-RRM1 antibody [EPR8483] (ab137114) at 1/10000 dilution

Lane 1:
HT29 cell lysate at 10 µg

Lane 2:
A549 cell lysate at 10 µg

Lane 3:
MCF7 cell lysate at 10 µg

Lane 4:
HeLa cell lysate at 10 µg

Secondary

All lanes:
Standard HRP-labeled goat anti-rabbit at 1/2000 dilution

Developed using the ECL technique.

Predicted band size: 90 kDa

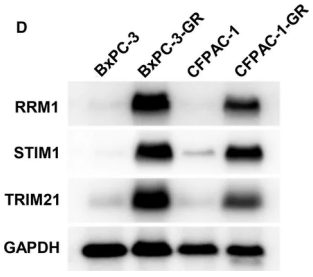


Image collected and cropped by CiteAb under a CC-BY license from the publication

Western blot - Anti-RRM1 antibody [EPR8483] (ab137114)

RRM1 Western blot staining using rabbit Anti-RRM1 antibody

RRM1 western blot using anti-RRM1 antibody [EPR8483] ab137114. Publication image and figure legend from Zhou, J., Zhang, L., et al., 2020, Cancer Med, PubMed 31823522.

ab137114 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab137114 please see the product overview.

Expression of RRM1, STIM1, and TRIM21 was associated with the level of acquired gemcitabine (GEM) resistance. A, Venn diagram showed the top 20 consistently upregulated mRNAs in both

GEM-resistant cell lines. B, Six intersected genes selected from among the top 20 consistently upregulated mRNAs. C and D, Total RNA and cytoplasmic proteins were extracted from BxPC-3, BxPC-3-GR, CFPAC-1, and CFPAC-1-GR. mRNA and protein expression levels of RRM1, STIM1, and TRIM21 were determined by quantitative reverse-transcription polymerase chain reaction and western blot analysis. Glyceraldehyde 3-phosphate dehydrogenase (GAPDH) was used as a control. E and F, RRM1, STIM1, and TRIM21 protein expression levels were measured by western blot analysis in both parental cell lines and their derived GEM subclones. GAPDH was used as a control. G, RRM1, STIM1, and TRIM21 protein expression levels among normal pancreatic and pancreatic cancer (PC) cell lines were evaluated by western blot analysis. GAPDH was used as a control. H, Histogram shows IC50 values for GEM in AsPC-1, BxPC-3, CFPAC-1, MIA PaCa-2, and PANC-1 cell lines. **p < .01, ***p < .001; comparisons indicated by lines

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