abcam

ab191875

Anti-DGCR8 antibody [EPR18757]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 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	EPR18757
Purification technique	Affinity purification Protein A
Concentration	1.006 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/60
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/1000
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/1000
Notes	-

Expected

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

Target data

See full target information DGCR8

Function

Component of the microprocessor complex that acts as a RNA- and heme-binding protein that is involved in the initial step of microRNA (miRNA) biogenesis. Component of the microprocessor complex that is required to process primary miRNA transcripts (pri-miRNAs) to release precursor miRNA (pre-miRNA) in the nucleus. Within the microprocessor complex, DGCR8 function as a molecular anchor necessary for the recognition of pri-miRNA at dsRNA-ssRNA junction and directs DROSHA to cleave 11 bp away form the junction to release hairpin-shaped pre-miRNAs that are subsequently cut by the cytoplasmic DICER to generate mature miRNAs (PubMed:26027739, PubMed:26748718). The heme-bound DGCR8 dimer binds pri-miRNAs as a cooperative trimer (of dimers) and is active in triggering pri-miRNA cleavage, whereas the heme-free DGCR8 monomer binds pri-miRNAs as a dimer and is much less active. Both double-stranded and single-stranded regions of a pri-miRNA are required for its binding (PubMed:15531877, PubMed:15574589, PubMed:15589161, PubMed:16751099, PubMed:16906129, PubMed:16963499, PubMed:17159994). Specifically recognizes and binds N6-methyladenosine (m6A)-containing pri-miRNAs, a modification required for pri-miRNAs processing (PubMed:25799998). Involved in the silencing of embryonic stem cell self-renewal (By similarity). Also plays a role in DNA repair by promoting the recruitment of RNF168 to RNF8 and MDC1 at DNA double-strand breaks and subsequently the clearance of DNA breaks (PubMed:34188037).

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	The DGCR8 protein also known as Pasha in some organisms serves an important role in the microRNA (miRNA) processing machinery. It has a molecular mass of approximately 90 kDa and shows expression ubiquitously but with higher levels in tissues with active cell division like the brain and lungs. DGCR8 acts as a partner in a complex with Drosha and together they initiate the microRNA maturation process by cleaving primary miRNA transcripts into precursor miRNA in the nucleus.
Biological function summary	DGCR8 partners with Drosha to form the Microprocessor complex an important player in miRNA biogenesis. This complex identifies and accurately processes primary transcripts into precursor miRNAs a step essential for proper gene regulation. DGCR8's role is critical for maintaining the normal cellular function enabling the precise control of miRNA production which in turn modulates gene expression post-transcriptionally. Aberrations in its function affect the regulation of genes involved in cell cycle differentiation and development.
Pathways	DGCR8 holds a significant influence on the RNA interference (RNAi) pathway interacting closely with Drosha to regulate miRNA synthesis. This pathway is fundamental for the regulation of genetic networks involved in cellular development and homeostasis. In the context of the miRNA processing pathway

	DGCR8 links to proteins like Dicer which further processes precursor miRNAs in the cytoplasm. Proper function of these pathways ensures the balanced expression of mRNAn important for healthy cellular activities.
Associated diseases and disorders	DGCR8 misregulation is associated with the development of DiGeorge syndrome and certain cancers. Alterations in its function can lead to compromised miRNA maturation impacting genes that control cell growth and survival. In DiGeorge syndrome haploinsufficiency of DGCR8 may contribute to the associated developmental anomalies. In cancer altered DGCR8 expression can disrupt miRNA profiles interacting further with proteins such as Argonaute to influence the dysregulation of gene expression profiles commonly observed in tumorigenesis.

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

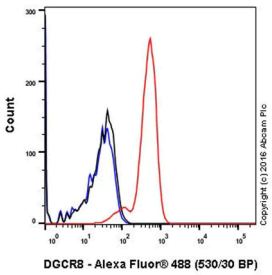
We do not recommend this combination. It is not covered by our product promise.

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.

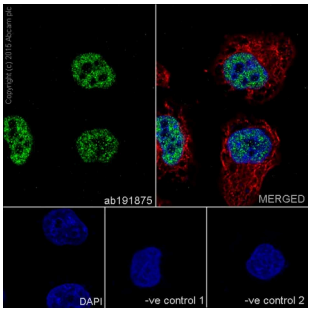
10 product images



Flow Cytometry (Intracellular) - Anti-DGCR8 antibody [EPR18757] (ab191875)

DGCR8 Flow Cytometry (Intracellular) staining using rabbit Anti-DGCR8 antibody

Intracellular Flow Cytometry analysis of Jurkat (human acute T cell leukemia) labelling DGCR8 with purified ab191875 at 1/1000 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. Alexa Fluor® 488 goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunocytochemistry/ Immunofluorescence - Anti-DGCR8 antibody [EPR18757] (ab191875)

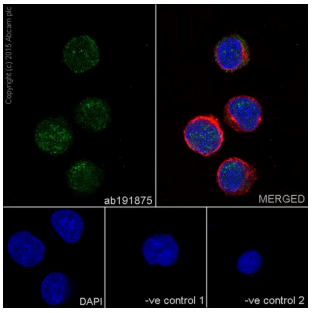
DGCR8 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DGCR8 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling DGCR8 with ab191875 at 1/500 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green).
Confocal image showing nuclear staining on HeLa cell line.

The nuclear counterstain is DAPI (blue).

Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution (red).

The negative controls are as follows:-
-ve control 1: ab191875 at 1/500 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/1000 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-DGCR8 antibody [EPR18757] (ab191875)

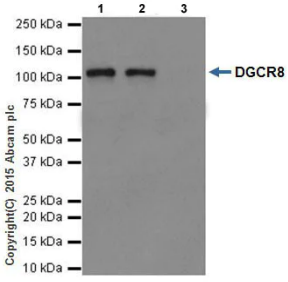
DGCR8 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DGCR8 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized Jurkat (Human T cell leukemia cells from peripheral blood) cells labeling DGCR8 with ab191875 at 1/500 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green).
Confocal image showing nuclear and weakly cytoplasmic staining on Jurkat cell line.

The nuclear counterstain is DAPI (blue).

Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution (red).

The negative controls are as follows:-
-ve control 1: ab191875 at 1/500 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/1000 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/1000 dilution.



Immunoprecipitation - Anti-DGCR8 antibody [EPR18757] (ab191875)

DGCR8 was immunoprecipitated from 1mg of HEK-293 (Human epithelial cells from embryonic kidney) whole cell lysate with ab191875 at 1/60 dilution.
Western blot was performed from the immunoprecipitate using ab191875 at 1/1000 dilution.

Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG, was used as secondary antibody at 1/1500 dilution.

Lane 1: HEK-293 whole cell lysate 10ug (Input).

Lane 2: ab191875 IP in HEK-293 whole cell lysate.

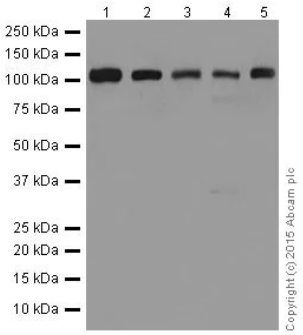
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab191875 in HEK-293 whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 30 seconds.

All lanes:
Immunoprecipitation - Anti-DGCR8 antibody [EPR18757] (ab191875)

Predicted band size: 86 kDa



Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875) at 1/1000 dilution

Lane 1:
HEK-293 (Human epithelial cells from embryonic kidney) whole cell lysate at 20 µg

Lane 2:
HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 3:
WEHI-3 (Mouse leukemia cell line) whole cell lysate at 20 µg

Lane 4:
Neuro-2a (Mouse neuroblastoma cells) whole cell lysate at 20 µg

Lane 5:
Mouse testis lysate at 20 µg

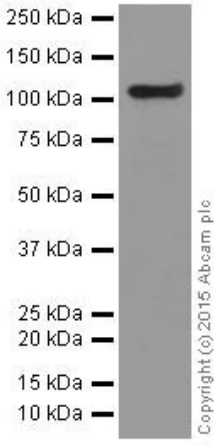
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 86 kDa

Observed band size: 100 kDa

Exposure time: 30s



Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875)

DGCR8 Western blot staining of Human fetal kidney lysate using rabbit Anti-DGCR8 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875) at 1/1000 dilution

All lanes:
Human fetal kidney lysate at 10 µg

Secondary

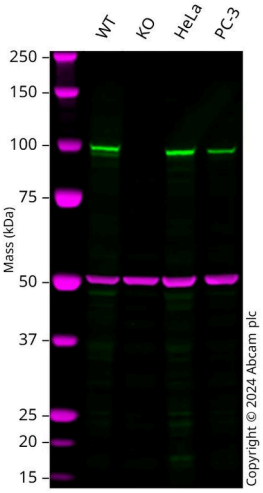
All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/50000 dilution

Predicted band size: 86 kDa

Observed band size: 100 kDa

Exposure time: 3min

Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875)



DGCR8 Western blot staining using rabbit Anti-DGCR8 antibody

Western blot: Anti-DGCR8 antibody [EPR18757] (ab191875) staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab191875 was shown to bind specifically to DGCR8. A band was observed at 90-100 kDa in wild-type A549 cell lysates with no signal observed at this size in DGCR8 knockout cell line. To generate this image, wild-type and DGCR8 knockout A549 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875) at 1/1000 dilution

Lane 1:
Wild-type A549 cell lysate at 20 µg

Lane 2:
DGCR8 knockout A549 cell lysate at 20 µg

Lane 3:
HeLa cell lysate at 20 µg

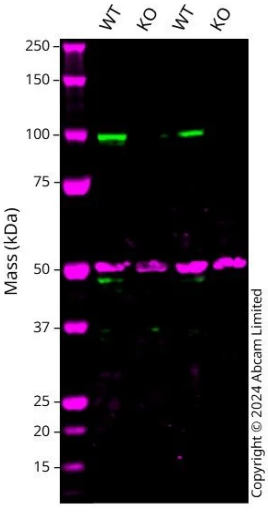
Lane 4:
PC-3 cell lysate at 20 µg

Secondary

All lanes:
Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875)



DGCR8 Western blot staining using rabbit Anti-DGCR8 antibody

Western blot: Anti-DGCR8 antibody [EPR18757] (ab191875) staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab191875 was shown to bind specifically to DGCR8. A band was observed at 100 kDa in wild-type HCT 116 cell lysates with no signal observed at this size in DGCR8 knockout cell line. To generate this image, wild-type and DGCR8 knockout HCT 116 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875) at 1/1000 dilution

Lane 1:
Wild-type HCT 116 cell lysate at 20 µg

Lane 2:

DGCR8 knockout HCT 116 cell lysate at 20 µg

Lane 3:
Wild-type A549 ab288558 cell lysate at 20 µg

Lane 4:
DGCR8 knockout A549 ab287368 cell lysate at 20 µg

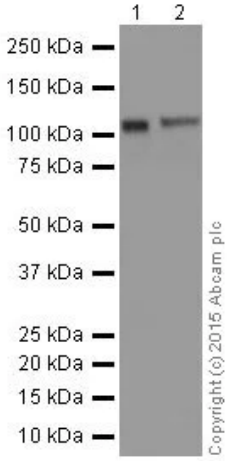
Secondary

Lanes 1 - 4:
Goat anti-Rabbit IgG H&L 800CW at 1/20000 dilution

Lanes 1 - 4:
Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 100 kDa



Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875) at 1/1000 dilution

Lane 1:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysate at 10 µg

Lane 2:
NIH/3T3 (Mouse embyro fibroblast cells) whole cell lysate at 10 µg

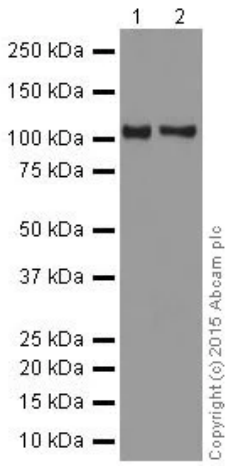
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 86 kDa

Observed band size: 100 kDa

Exposure time: 5s



Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875)

DGCR8 Western blot staining using rabbit Anti-DGCR8 antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-DGCR8 antibody [EPR18757] (ab191875) at 1/1000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Rat brain lysate at 10 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 86 kDa

Observed band size: 100 kDa

Exposure time: 3min

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