abcam

ab226044

Anti-MCM2 antibody [EPR4120] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR4120
Purification technique	Affinity purification Protein A
Dissociation constant	5.8 x 10^{-11} M
Concentration	1.053 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse, Rat

Dilution info	-
Notes	-

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Rat, Human
Dilution info	-
Notes	-

Expected

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

Target data

See full target information MCM2

Function

Acts as a component of the MCM2-7 complex (MCM complex) which is the replicative helicase essential for 'once per cell cycle' DNA replication initiation and elongation in eukaryotic cells. Core component of CDC45-MCM-GINS (CMG) helicase, the molecular machine that unwinds template DNA during replication, and around which the replisome is built (PubMed:32453425, PubMed:34694004, PubMed:34700328, PubMed:35585232). The active ATPase sites in the MCM2-7 ring are formed through the interaction surfaces of two neighboring subunits such that

a critical structure of a conserved arginine finger motif is provided in trans relative to the ATP-binding site of the Walker A box of the adjacent subunit. The six ATPase active sites, however, are likely to contribute differentially to the complex helicase activity (PubMed:32453425). Required for the entry in S phase and for cell division (PubMed:8175912). Plays a role in terminally differentiated hair cells development of the cochlea and induces cells apoptosis (PubMed:26196677).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab226044 is the carrier-free version of ab108935.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	MCM2 or Minichromosome Maintenance Complex Component 2 is a protein involved in the initiation of DNA replication. It plays a central role in the formation of the pre-replication complex which is necessary for DNA unwinding and replication fork progression. The molecular weight of MCM2 is approximately 100 kDa. It is expressed ubiquitously in proliferating cells as its function is necessary for DNA replication. Researchers often use terms like MCM-2 MC M2 or PMC M2 when discussing varying aspects of its function and interaction with other proteins in scientific literature.
Biological function summary	MCM2 is part of the heterohexameric MCM complex including other proteins like MCM3 to MCM7. This complex serves as a helicase unwinding DNA to allow replication machinery access to the template strand. The activity of the MCM complex is tightly regulated to ensure that every section of genomic DNA is replicated once per cell cycle. Its proper function ensures genetic information replication accuracy and contributes to genome stability.
Pathways	MCM2 participates in essential biological processes such as the DNA replication pathway and the cell cycle regulatory pathway. The presence of MCM2 is critical for the G1/S transition phase of the cell cycle. It interacts with other proteins including CDC45 and GINS forming the active CMG helicase complex. This complex is pivotal in orchestrating the replication machinery and signaling pathway responses to ensure appropriate replication origin firing and accurate DNA synthesis.
Associated diseases and disorders	MCM2 is often associated with cancer and some types of genomic instability disorders. Its overexpression can lead to uncontrolled cell proliferation a hallmark of cancer. MCM2 expression levels can be a marker in distinguishing certain tumors acting as a potential therapeutic target. The protein's interaction with components like cyclin-dependent kinases (CDKs) can influence pathways leading to malignant transformation and suggests its involvement in tumorigenesis and potential as a target for anticuerpos or antibodies in disease treatment.

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

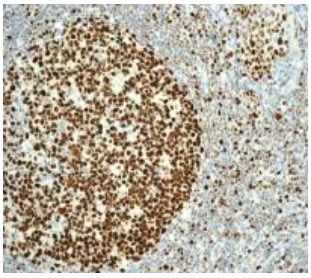
We do not recommend this combination. It is not covered by our product promise.

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.

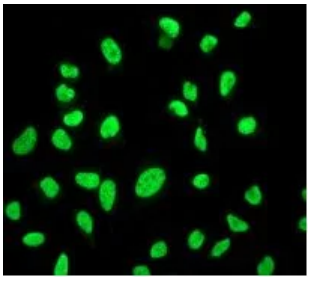
17 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MCM2 antibody

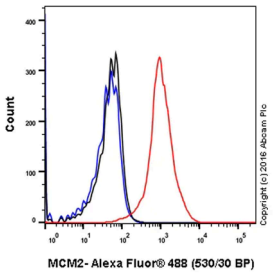
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Immunohistochemical staining of MCM2 in paraffin-embedded human tonsil tissue with unpurified ab108395, at a 1/250 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MCM2 antibody

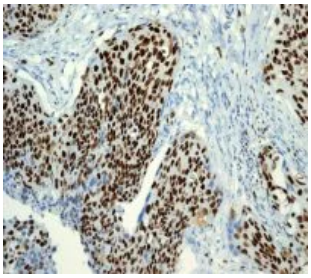
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Unpurified ab108935, at a 1/100 dilution, staining MCM2 in HeLa cells.



Flow Cytometry (Intracellular) - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Flow Cytometry (Intracellular) staining using rabbit Anti-MCM2 antibody

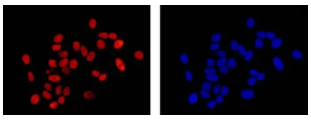
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labeling MCM2 with unpurified ab108935 at 1/160 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) was used as the unlabeled control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MCM2 antibody

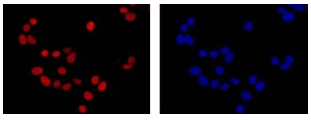
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Immunohistochemical staining of MCM2 in paraffin-embedded human squamous cell cervical carcinoma tissue with unpurified ab108395, at a 1/250 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MCM2 antibody

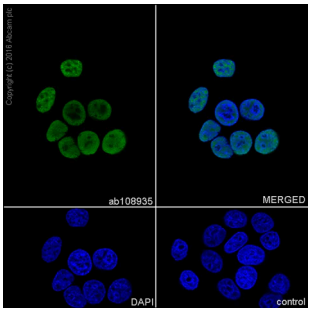
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Immunofluorescent staining of MCF7 cells (fixed with 4% PFA) with purified ab108935 at a dilution of 1/600. An Alexa Fluor® 555 goat anti-rabbit antibody was used as the secondary at a dilution of 1/200. The panel on the right shows the DAPI counter-staining.



Immunocytochemistry/ Immunofluorescence - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MCM2 antibody

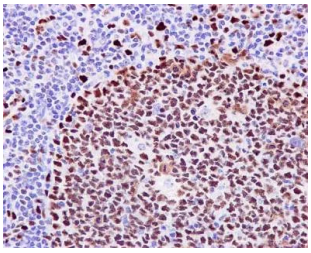
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Immunofluorescent staining of MCF7 cells (fixed with 4% PFA) with unpurified ab108935 at a dilution of 1/250. An Alexa Fluor® 555 goat anti-rabbit antibody was used as the secondary at a dilution of 1/200. The panel on the right shows the DAPI counter-staining.



Immunocytochemistry/ Immunofluorescence - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MCM2 antibody

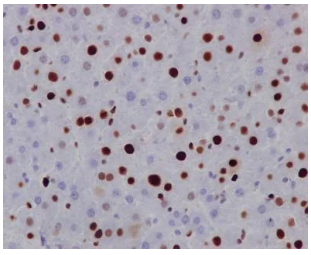
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Immunocytochemistry/Immunofluorescence analysis of MCF7 (Human breast adenocarcinoma cell line) labeling MCM2 with purified ab108935 at 1/1000. Cells were fixed with 4% PFA and permeabilized with 0.1% triton X-100. ab150077 Goat anti rabbit IgG (Alexa Fluor® 488) at 1/1000 was used as the secondary antibody. Nuclei were counterstained with DAPI. PBS was used instead of the primary antibody as the negative control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MCM2 antibody

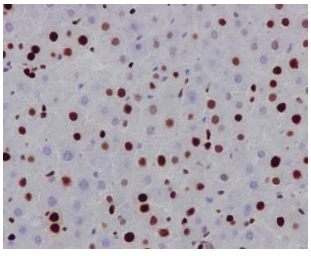
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Immunohistochemical staining of paraffin embedded human tonsil with purified ab108935 at a working dilution of 1 in 200. The secondary antibody used is a HRP polymer for rabbit IgG. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MCM2 antibody

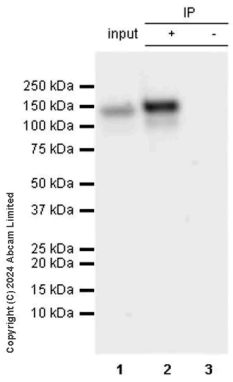
This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Immunohistochemical staining of paraffin embedded rat liver with unpurified ab108935 at a working dilution of 1 in 100. The secondary antibody used is a HRP polymer for rabbit IgG. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MCM2 antibody

This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Immunohistochemical staining of paraffin embedded rat liver with purified ab108935 at a working dilution of 1 in 200. The secondary antibody used is a HRP polymer for rabbit IgG. The sample is counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0.



Immunoprecipitation - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

This data was developed using ab108935, the same antibody clone in a different buffer formulation.
MCM2 was immunoprecipitated from 0.35 mg C6 (rat glial tumor glial cell) whole cell lysate with ab108935 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab108935 at 1/1000 dilution.

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

All lanes:
Immunoprecipitation - Anti-MCM2 antibody [EPR4120] (ab108935) at 1/30 dilution

Lane 1:
C6 (rat glial tumor glial cell) whole cell lysate (Input) at 10 µg

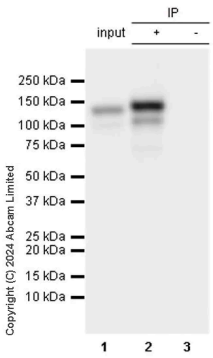
Lane 2:
C6 (rat glial tumor glial cell) whole cell lysate (+)

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Observed band size: 130 kDa

Exposure time: 3s



Immunoprecipitation - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

This data was developed using ab108935, the same antibody clone in a different buffer formulation.
MCM2 was immunoprecipitated from 0.35 mg NIH/3T3 (mouse embryonic fibroblast) whole cell lysate with ab108935 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab108935 at 1/1000 dilution.

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

All lanes:
Immunoprecipitation - Anti-MCM2 antibody [EPR4120] (ab108935) at 1/30 dilution

Lane 1:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate (Input) at 10 µg

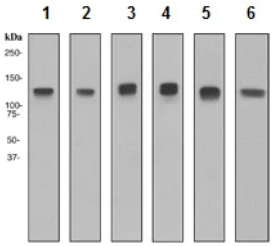
Lane 2:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate (+)

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Observed band size: 130 kDa

Exposure time: 3s



Western blot - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

This data was developed using ab108935, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-MCM2 antibody [EPR4120] (ab108935) at 1/10000 dilution

Lane 1:
MCF-7 cell lysate at 10 µg

Lane 2:
Ramos cell lysate at 10 µg

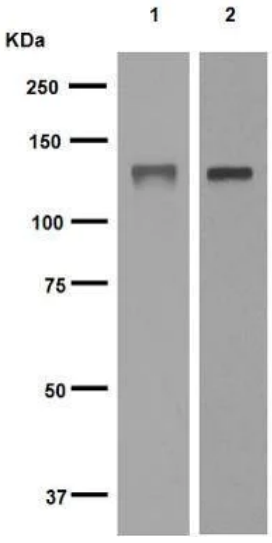
Lane 3:
SW480 cell lysate at 10 µg

Lane 4:
Molt-4 cell lysate at 10 µg

Lane 5:
Jurkat cell lysate at 10 µg

Lane 6:
HeLa cell lysate at 10 µg

Predicted band size: 102 kDa



Western blot - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-MCM2 antibody [EPR4120] (ab108935) at 1/5000 dilution

Lane 1:
HeLa cell lysate at 10 µg

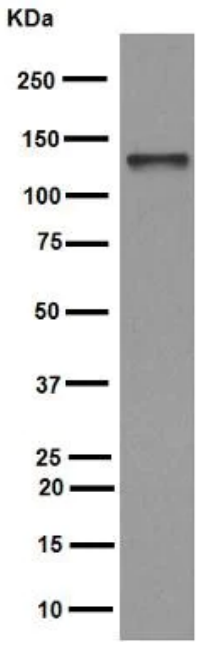
Lane 2:
Mouse kidney tissue lysate at 10 µg

Secondary

All lanes:
HRP goat anti-rabbit (H+L) at 1/1000 dilution

Predicted band size: 102 kDa

Observed band size: 125 kDa



Western blot - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

MCM2 Western blot staining of Jurkat cell lysate using rabbit Anti-MCM2 antibody

This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-MCM2 antibody [EPR4120] (ab108935) at 1/8500 dilution

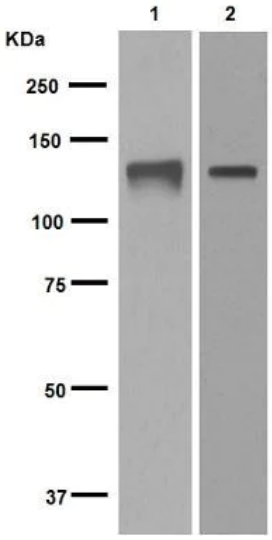
All lanes:
Jurkat cell lysate at 10 µg

Secondary

All lanes:
HRP goat anti-rabbit (H+L) at 1/1000 dilution

Predicted band size: 102 kDa

Observed band size: 125 kDa



Western blot - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

This data was developed using ab108935, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-MCM2 antibody [EPR4120] (ab108935) at 1/8500 dilution

Lane 1:
HeLa cell lysate at 10 µg

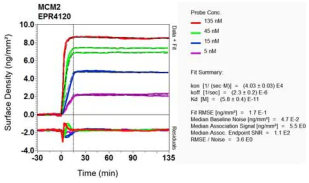
Lane 2:
Mouse kidney tissue lysate at 10 µg

Secondary

All lanes:
HRP goat anti-rabbit (H+L) at 1/1000 dilution

Predicted band size: 102 kDa

Observed band size: 125 kDa



OI-RD Scanning - Anti-MCM2 antibody [EPR4120] - BSA and Azide free (ab226044)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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