abcam

ab315019

Anti-ATM (phospho S1987) antibody [EPR28058-71]

Recombinant | RabMAb | 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
Immunogens	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR28058-71
Purification technique	Affinity purification Protein A
Specificity	The antibody recognises Mouse ATM phosphorylated at Ser1987. This site is equivalent to phosphorylated Ser1981 in Human.
Concentration	0.511 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/1000

Notes	-

Species	Transfected cell lysate - Mouse
Dilution info	1/1000
Notes	-

Not recommended

Species	Human, Synthetic peptide - Mouse, Rat
Dilution info	-
Notes	-

Dot

Tested

Species	Synthetic peptide - Mouse
Dilution info	1/1000
Notes	-

Expected

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

Not recommended

Species	Human, Transfected cell lysate - Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse

Dilution info	1/100
Notes	-

Not recommended

Species	Human, Transfected cell lysate - Mouse, Synthetic peptide - Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Not recommended

Species	Human, Transfected cell lysate - Mouse, Synthetic peptide - Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Mouse
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Transfected cell lysate - Mouse
Dilution info	-
Notes	-

Species	Synthetic peptide - Mouse
Dilution info	-
Notes	-

IHC-Fr

Not recommended

Species	Mouse, Human, Transfected cell lysate - Mouse, Synthetic peptide - Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Mouse, Human, Transfected cell lysate - Mouse, Synthetic peptide - Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information Atm pS1987

Function	Serine/threonine protein kinase which activates checkpoint signaling upon double strand breaks (DSBs), apoptosis and genotoxic stresses such as ionizing ultraviolet A light (UVA), thereby acting as a DNA damage sensor (PubMed:19047460). Recognizes the substrate consensus sequence [ST]-Q (PubMed:19047460). Phosphorylates 'Ser-139' of histone variant H2AX at double strand breaks (DSBs), thereby regulating DNA damage response mechanism (PubMed:11571274). Also

plays a role in pre-B cell allelic exclusion, a process leading to expression of a single immunoglobulin heavy chain allele to enforce clonality and monospecific recognition by the B-cell antigen receptor (BCR) expressed on individual B-lymphocytes (By similarity). After the introduction of DNA breaks by the RAG complex on one immunoglobulin allele, acts by mediating a repositioning of the second allele to pericentromeric heterochromatin, preventing accessibility to the RAG complex and recombination of the second allele (PubMed:19448632). Also involved in signal transduction and cell cycle control (By similarity). May function as a tumor suppressor (By similarity). Necessary for activation of ABL1 and SAPK (By similarity). Phosphorylates DYRK2, CHEK2, p53/TP53, FBXW7, FANCD2, NFKBIA, BRCA1, CREBBP/CBP, RBBP8/CTIP, FBXO46, MRE11, nibrin (NBN), RAD50, RAD17, PELI1, TERF1, UFL1, RAD9, UBQLN4 and DCLRE1C (By similarity). May play a role in vesicle and/or protein transport (By similarity). Could play a role in T-cell development, gonad and neurological function (By similarity). Binds DNA ends (By similarity). Plays a role in replication-dependent histone mRNA degradation (By similarity). Phosphorylation of DYRK2 in nucleus in response to genotoxic stress prevents its MDM2-mediated ubiquitination and subsequent proteasome degradation (By similarity). Phosphorylates ATF2 which stimulates its function in DNA damage response (By similarity). Phosphorylates ERCC6 which is essential for its chromatin remodeling activity at DNA double-strand breaks (By similarity). Phosphorylates TTC5/STRAP at 'Ser-203' in the cytoplasm in response to DNA damage, which promotes TTC5/STRAP nuclear localization (By similarity). Also involved in pexophagy by mediating phosphorylation of PEX5: translocated to peroxisomes in response to reactive oxygen species (ROS), and catalyzes phosphorylation of PEX5, promoting PEX5 ubiquitination and induction of pexophagy (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	ATM also known as Ataxia Telangiectasia Mutated is a protein kinase with a molecular weight of approximately 370 kDa. ATM protein primarily resides in the cell nucleus and functions as a critical regulator of the cell cycle. It plays a significant role in the detection of DNA damage and initiation of repair processes. As part of its mechanical functions ATM phosphorylates serine and threonine residues on various substrates most notably in response to double-strand breaks in DNA. This activity is important for maintaining genomic stability.
Biological function summary	ATM acts as a coordinator in cellular response to DNA damage highly interacting with multiple components of the DNA repair machinery. It forms a complex with proteins like NBS1 and MRN complex facilitating repair by recruiting and activating other proteins involved in homologous recombination and non-homologous end joining pathways. ATM also modulates p53 activity a primary response factor in cellular stress management linking ATM to control of cell cycle arrest and apoptosis. This positions ATM as an integral part of maintaining cellular integrity in face of genomic insult.
Pathways	ATM integrates neatly within the DNA damage response and cell cycle control pathways. ATM's operative relationship with the MRN complex and its role in the PI3K-related protein kinase family helps initiate appropriate repair processes upon DNA damage detection. Additionally ATM regulates the activity of proteins such as Chk2 which further propagates signals to p53 influencing decisions between cell cycle arrest and apoptosis. These interactions link ATM closely to essential processes like DNA repair and cell survival highlighting its role in genomic maintenance.
Associated diseases and disorders	ATM mutations or dysregulation leads to Ataxia Telangiectasia an autosomal recessive disorder characterized by neurodegeneration immune deficiencies and cancer predisposition. ATM dysfunction also connects to cancer development particularly breast cancer where it transmits signals involving BRCA1 contributing to DNA repair through homologous recombination. Understanding ATM dynamics and related pathways has important implications for developing therapeutic strategies to manage or mitigate effects associated with its dysfunction.

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.

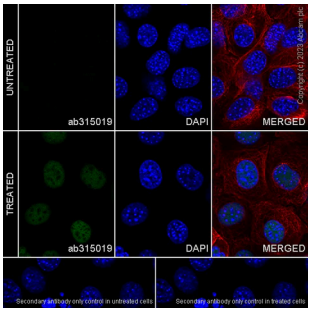
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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:
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6 product images

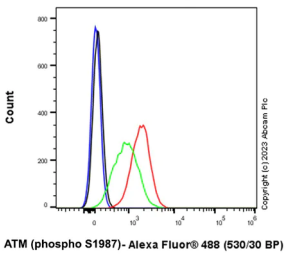


Immunocytochemistry/ Immunofluorescence - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019)

ATM (phospho S1987) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ATM (phospho S1987) antibody

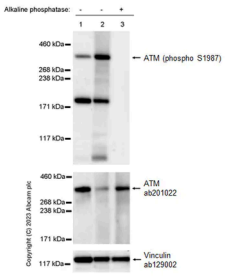
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized MEF (mouse embryo fibroblast) cells labelling ATM (phospho S1987) with ab315019 at 1/100 (5.11 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 2 ug/ml dilution (Green). Confocal image showing increased nuclear staining in MEF cells treated with UV-C 100 J/m2, then recovery for 4 hours. Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8). ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 2.5ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 2 ug/ml dilution.



Flow Cytometry (Intracellular) - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized MEF (mouse embryo fibroblast) treated with 100 J/m2 UV-C then recovery for 4h (Red) / Untreated MEF (Green) cells labelling ATM (phospho S1987) with ab315019 at 1/500 dilution (0.1 ug)/Red and Green compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.



Western blot - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019)

ATM (phospho S1987) Western blot staining using rabbit Anti-ATM (phospho S1987) antibody

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

The identity of the lower MW band at approximately 190 kDa is unknown.

In Western blot, Anti-Vinculin antibody [EPR8185] (ab129002) staining at 1/10000 dilution.

In Western blot, Anti-ATM antibody [EPR20100] - (ab201022) staining at 1/1000 dilution.

All lanes:
Western blot - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019) at 1/1000 dilution

Lane 1:
Untreated NIH/3T3 (mouse embryonic fibroblast) whole cell lysate (untreated membrane) at 20 µg

Lane 2:
NIH/3T3 treated with UV-C for 100J/cm2, then recovery 2 hours, whole cell lysate (untreated membrane) at 20 µg

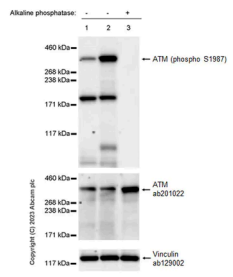
Lane 3:
NIH/3T3 treated with UV-C for 100J/cm2, then recovery 2 hours, whole cell lysate (phosphatase treated membrane) at 20 µg

Secondary

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

Observed band size: 349 kDa, 124 kDa

Exposure time: 81s



Western blot - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019)

ATM (phospho S1987) Western blot staining using rabbit Anti-ATM (phospho S1987) antibody

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

The identity of the lower MW band at approximately 190 kDa is unknown.

In Western blot, Anti-Vinculin antibody [EPR8185] (ab129002) staining at 1/10000 dilution.

In Western blot, Anti-ATM antibody [EPR20100] - (ab201022) staining at 1/1000 dilution.
All lanes:
Western blot - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019) at 1/1000 dilution

Lane 1:
Untreated MEF (mouse embryo fibroblast) whole cell lysate (untreated membrane) at 20 µg

Lane 2:
MEF treated with UV-C for 100J/m2, then recovery 4 hours, whole cell lysate (untreated membrane) at 20 µg

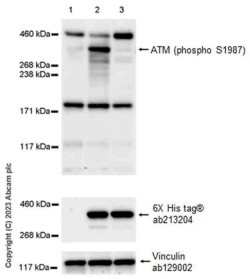
Lane 3:
MEF treated with UV-C for 100J/m2, then recovery 4 hours, whole cell lysate (phosphatase treated membrane) at 20 µg

Secondary

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

Observed band size: 349 kDa, 124 kDa

Exposure time: 81s



Western blot - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019)

ATM (phospho S1987) Western blot staining using rabbit Anti-ATM (phospho S1987) antibody

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

The identity of the lower MW band at approximately 190 kDa and higher MW band at approximately 460 kDa are unknown.

In Western blot, Anti-Vinculin antibody [EPR8185] (ab129002) staining at 1/10000 dilution.

In Western blot, Anti-6X His tag® antibody [EPR20547] - ChIP Grade (ab213204) staining at 1/5000 dilution.

All lanes:
Western blot - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019) at 1/1000 dilution

Lane 1:
293T cells transfected with an empty vector containing a myc-His-tag®, whole cell lysate at 20 µg

Lane 2:
293T cells transfected with a mouse wild-type ATM expression vector containing a myc-His-tag®, whole cell lysate at 20 µg

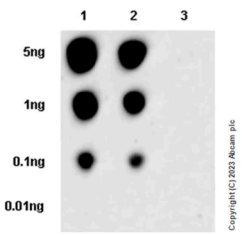
Lane 3:
293T cells transfected with a mouse ATM (S1987A mutation) expression vector containing a myc-His-tag®, whole cell lysate at 20 µg

Secondary

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

Observed band size: 349 kDa, 124 kDa

Exposure time: 180s



Dot Blot - Anti-ATM (phospho S1987) antibody [EPR28058-71] (ab315019)

ATM (phospho S1987) Dot Blot staining using rabbit Anti-ATM (phospho S1987) antibody

Dot blot analysis of ATM (phospho S1987) using ab315019 at 1:1000 (0.511 ug/ml) followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1:100,000 dilution.

Exposure time: 180 seconds

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

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