abcam

ab81292

Anti-ATM (phospho S1981) antibody [EP1890Y]

Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) is a rabbit monoclonal antibody detecting ATM in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, Dot Blot**. Suitable for **Human**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 320 publications
- Trusted since 2009

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
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EP1890Y
Purification technique	Affinity purification Protein A
Concentration	0.589 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30 - 1/40
Notes	-

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

Dot

Tested

Species	Synthetic peptide
Dilution info	1/100000
Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	1/50000
Notes	**We highly recommend using a positive control such as HEK293 cells treated with 10uM doxorubicin for 24 hours.**

Not recommended

Species	Synthetic peptide

Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human, Synthetic peptide
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/60
Notes	-

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/70 - 1/250
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Synthetic peptide

Dilution info	-
Notes	-

Target data

See full target information ATM pS1981

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:10550055, PubMed:10839545, PubMed:10910365, PubMed:12556884, PubMed:14871926, PubMed:15064416, PubMed:15448695, PubMed:15456891, PubMed:15790808, PubMed:15916964, PubMed:17923702, PubMed:21757780, PubMed:24534091, PubMed:35076389, PubMed:9733514). Recognizes the substrate consensus sequence [ST]-Q (PubMed:10550055, PubMed:10839545, PubMed:10910365, PubMed:12556884, PubMed:14871926, PubMed:15448695, PubMed:15456891, PubMed:15916964, PubMed:17923702, PubMed:24534091, PubMed:9733514). Phosphorylates 'Ser-139' of histone variant H2AX at double strand breaks (DSBs), thereby regulating DNA damage response mechanism (By similarity). 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. 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. Also involved in signal transduction and cell cycle control. May function as a tumor suppressor. Necessary for activation of ABL1 and SAPK. 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 (PubMed:10550055, PubMed:10766245, PubMed:10802669, PubMed:10839545, PubMed:10910365, PubMed:10973490, PubMed:11375976, PubMed:12086603, PubMed:15456891, PubMed:19965871, PubMed:21757780, PubMed:24534091, PubMed:26240375, PubMed:26774286, PubMed:30171069, PubMed:30612738, PubMed:30886146, PubMed:30952868, PubMed:38128537, PubMed:9733515, PubMed:9843217). May play a role in vesicle and/or protein transport. Could play a role in T-cell development, gonad and neurological function. Plays a role in replication-dependent histone mRNA degradation. Binds DNA ends. Phosphorylation of DYRK2 in nucleus in response to genotoxic stress prevents its MDM2-mediated ubiquitination and subsequent proteasome degradation (PubMed:19965871). Phosphorylates ATF2 which stimulates its function in DNA damage response (PubMed:15916964). Phosphorylates ERCC6 which is essential for its chromatin remodeling activity at DNA double-strand breaks (PubMed:29203878). Phosphorylates TTC5/STRAP at 'Ser-203' in the cytoplasm in response to DNA damage, which promotes TTC5/STRAP nuclear localization (PubMed:15448695). 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 (PubMed:26344566).

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

Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in Dot blot, Flow Cyt (Intra), IHC-P, IP, WB in human samples.

Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) has been cited over 328 times in peer reviewed journals and is trusted by the scientific community.

Abcam's high quality manufacturing and validation processes ensure Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.

Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) has 17 independent reviews from customers.

Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) specifically detects ATM Phospho-S1981 (UniProt ID: Q13315; Molecular weight: 351kDa) and is sold in 100 µL and 1 mL selling sizes.

Conjugation-ready, carrier free format available for antibody clone EP1890Y - ab208775.

Antibody clone EP1890Y is also available pre-conjugated to a variety of labels for your convenience - PE, APC, HRP, Alkaline Phosphatase, Alexa Fluor® 488, Alexa Fluor® 647, Alexa Fluor® 594, Alexa Fluor® 555 (ab305629, ab305630, ab305631, ab308654, ab309629, ab309995, ab310358, ab311880).

ATM is a significant target in oncology due to its role in DNA repair and maintaining genomic stability. Mutations in the ATM gene can lead to defective DNA repair, resulting in increased cancer risk and chemotherapy resistance.

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.

Species reactivity
Rat: We have preliminary internal testing data to indicate this antibody may not react with this species.
Please contact us for more information.

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

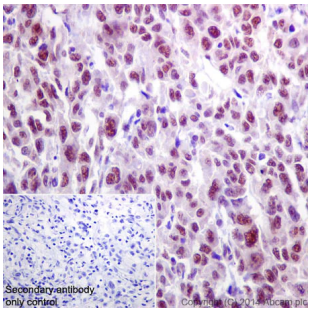
We do not recommend this combination. It is not covered by our product promise.

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:
Terms & Conditions.

10 product images

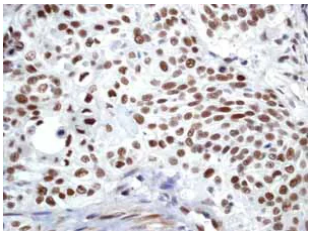


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ATM (phospho S1981) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATM (phospho S1981) antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human hepatocellular carcinoma tissue labelling ATM (phospho S1981) with purified ab81292 at 1/70. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. ab97051, an HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/500).
Negative control using PBS instead of primary antibody.

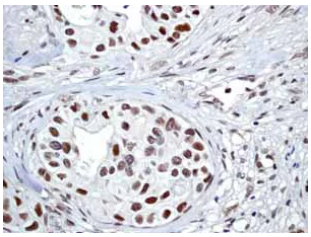
Counterstained with hematoxylin.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ATM (phospho S1981) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATM (phospho S1981) antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cervical carcinoma tissue labeling ATM with unpurified ab81292.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

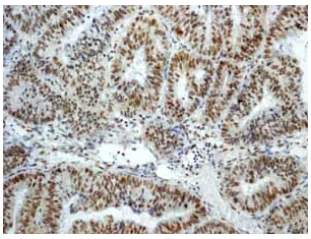


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ATM (phospho S1981) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATM (phospho S1981) antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma tissue labeling ATM with unpurified ab81292.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

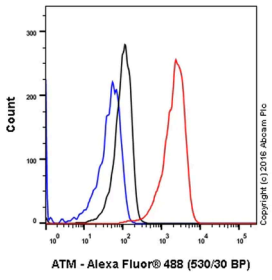


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ATM (phospho S1981) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATM (phospho S1981) antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human endometrial carcinoma tissue labeling ATM with unpurified ab81292.

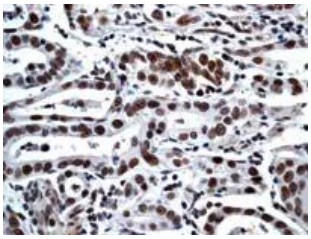
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ATM (phospho S1981) Flow Cytometry (Intracellular) staining using rabbit Anti-ATM (phospho S1981) antibody

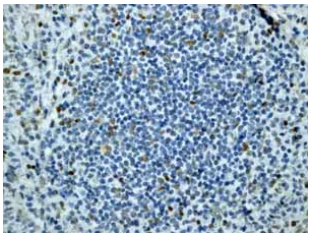
Intracellular Flow Cytometry analysis of HepG2 (Human hepatocellular carcinoma) cells labeling ATM (phospho S1981) with purified ab81292 at 1/60 dilution (10µg/mL) (red).
Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. A Goat anti rabbit IgG (Alexa Fluorr®488) at 1/2000 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-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ATM (phospho S1981) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATM (phospho S1981) antibody

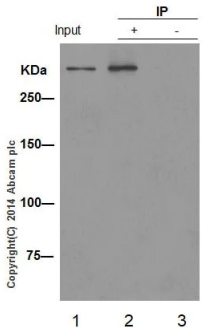
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human gastric carcinoma tissue labeling ATM with unpurified ab81292 at a 1/100 dilution.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ATM (phospho S1981) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ATM (phospho S1981) antibody

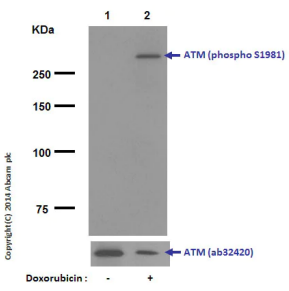
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of normal human tonsil tissue labeling ATM with unpurified ab81292.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunoprecipitation - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ATM was immunoprecipitated from HEK-293 (Human embryonic kidney epithelial cell) treated with Doxorubicin whole cell lysate with ab81292 at 1/30 dilution (5 µg in 1 mg lysates). Western blot was performed from the immunoprecipitate using ab81292 at 1/2000 dilution. An 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 treated with Doxorubicin whole cell lysate 10 µg (Input).
Lane 2: ab81292 IP in HEK-293 treated with Doxorubicin whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab81292 in HEK-293 treated with Doxorubicin whole cell lysate.
Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure time: 3 minutes.
All lanes:
Immunoprecipitation - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

Predicted band size: 351 kDa



Western blot - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

Blocking and dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) at 1/50000 dilution

Lane 1:
HEK-293 (Human epithelial cell line from embryonic kidney) cell lysate, untreated at 10 µg

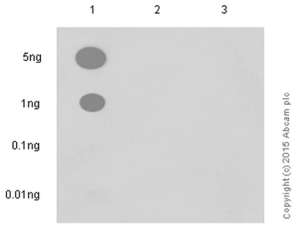
Lane 2:
HEK-293 cell lysate, treated with Doxorubicin at 10 µg

Secondary

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

Predicted band size: 351 kDa

Observed band size: 370 kDa



Dot Blot - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

Dot blot analysis of ATM peptides using ab81292 at 1/000 dilution followed by Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated secondary antibody (ab97051) at 1/100,000 dilution. Blocking and diluting buffer was 5% NFDM/TBST, exposure time 3 minutes.

Lane 1: ATM (pS1981) phospho peptide

Lane 2: ATM non-phospho peptide

Lane 3: ATM (pS428) phospho peptide

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