abcam

Product datasheet

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

Recombinant   RabMAb®

★★★★★ 15 Abreviews   134 References   11 Images

Overview

Product name	Anti-ATM (phospho S1981) antibody [EP1890Y]
Description	Rabbit monoclonal [EP1890Y] to ATM (phospho S1981)
Host species	Rabbit
Tested applications	**Suitable for:** Dot blot, WB, IHC-P, IP, Flow Cyt **Unsuitable for:** ICC/IF
Species reactivity	**Reacts with:** Human
Immunogen	Synthetic peptide (the amino acid sequence is considered to be commercially sensitive) corresponding to Human ATM (phospho S1981).
Positive control	WB: HEK293 cell lysate treated with doxorubicin. IHC-P: Human gastric carcinoma, breast carcinoma, tonsil, cervical carcinoma, hepatocellular carcinoma and endometrial carcinoma tissues and mouse endometrium tissue. IP: HEK293 cell lysate treated with doxorubicin. FC: HepG2 cells
General notes	A trial size is available to purchase for this antibody. Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information. Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMab® patents **We are constantly working hard to ensure we provide our customers with best in class antibodies. As a result of this work we are pleased to now offer this antibody in purified format. We are in the process of updating our datasheets. The purified format is designated 'PUR' on our product labels. If you have any questions regarding this update, please contact our Scientific Support team.** This product is a recombinant rabbit monoclonal antibody.

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.20

Preservative: 0.01% Sodium azide
Constituents: 59% PBS, 40% Glycerol, 0.05% BSA

Purity	Protein A purified
Clonality	Monoclonal
Clone number	EP1890Y
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab81292** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

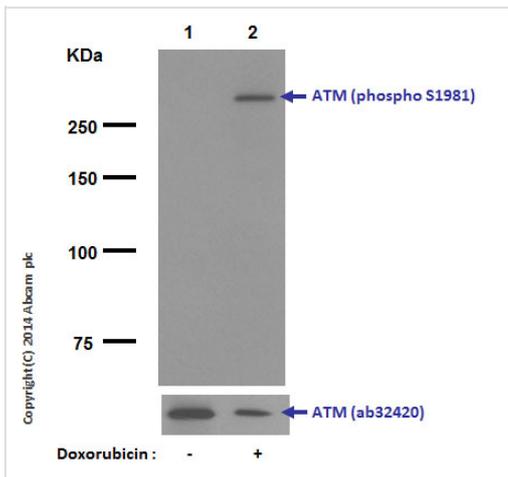| Application	Abreviews	Notes
Dot blot		1/100000.
WB	⭐⭐⭐⭐⭐	1/50000. Detects a band of approximately 370 kDa (predicted molecular weight: 351 kDa).Can be blocked with Human ATM peptide (ab235690). **For unpurified use at 1/5000 - 1/10000.**
IHC-P		1/70 - 1/250. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. See IHC antigen retrieval protocols.
IP		1/30 - 1/40.
Flow Cyt		1/60.
Application notes		Is unsuitable for ICC/IF.

Target

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. Recognizes the substrate consensus sequence [ST]-Q. Phosphorylates 'Ser-139' of histone variant H2AX/H2AFX at double strand breaks (DSBs), thereby regulating DNA damage response mechanism. 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 p53/TP53, FANCD2, NFKBIA, BRCA1, CTIP, nibrin (NBN), TERF1, RAD9 and DCLRE1C. 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.

Tissue specificity	Found in pancreas, kidney, skeletal muscle, liver, lung, placenta, brain, heart, spleen, thymus, testis, ovary, small intestine, colon and leukocytes.
Involvement in disease	Defects in ATM are the cause of ataxia telangiectasia (AT) [MIM:208900]; also known as Louis-Bar syndrome, which includes four complementation groups: A, C, D and E. This rare recessive disorder is characterized by progressive cerebellar ataxia, dilation of the blood vessels in the conjunctiva and eyeballs, immunodeficiency, growth retardation and sexual immaturity. AT patients have a strong predisposition to cancer; about 30% of patients develop tumors, particularly lymphomas and leukemias. Cells from affected individuals are highly sensitive to damage by ionizing radiation and resistant to inhibition of DNA synthesis following irradiation. Note=Defects in ATM contribute to T-cell acute lymphoblastic leukemia (TALL) and T-prolymphocytic leukemia (TPLL). TPLL is characterized by a high white blood cell count, with a predominance of prolymphocytes, marked splenomegaly, lymphadenopathy, skin lesions and serous effusion. The clinical course is highly aggressive, with poor response to chemotherapy and short survival time. TPLL occurs both in adults as a sporadic disease and in younger AT patients. Note=Defects in ATM contribute to B-cell non-Hodgkin lymphomas (BNHL), including mantle cell lymphoma (MCL). Note=Defects in ATM contribute to B-cell chronic lymphocytic leukemia (BCLL). BCLL is the commonest form of leukemia in the elderly. It is characterized by the accumulation of mature CD5+ B lymphocytes, lymphadenopathy, immunodeficiency and bone marrow failure.
Sequence similarities	Belongs to the PI3/PI4-kinase family. ATM subfamily. Contains 1 FAT domain. Contains 1 FATC domain. Contains 1 PI3K/PI4K domain.
Domain	The FATC domain is required for interaction with KAT5.
Post-translational modifications	Phosphorylated by NUAK1/ARK5. Autophosphorylation on Ser-367, Ser-1893, Ser-1981 correlates with DNA damage-mediated activation of the kinase. Acetylation, on DNA damage, is required for activation of the kinase activity, dimer-monomer transition, and subsequent autophosphorylation on Ser-1981. Acetylated in vitro by KAT5/TIP60.
Cellular localization	Nucleus. Cytoplasmic vesicle. Primarily nuclear. Found also in endocytic vesicles in association with beta-adaptin.

Images

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

All lanes : Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) at 1/50000 dilution (purified)

Lane 1 : HEK293 cell lysate, untreated
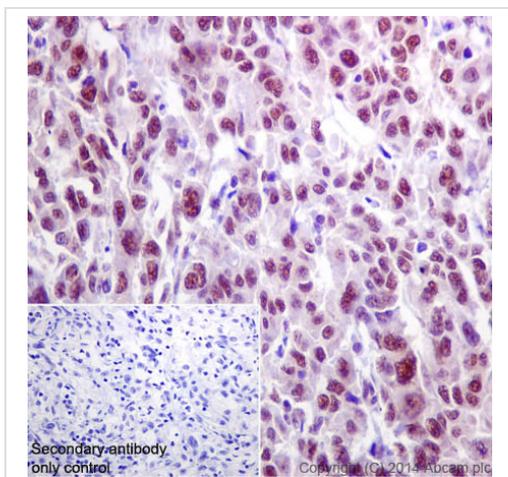**Lane 2 :** HEK293 cell lysate, treated with Doxorubicin

Lysates/proteins at 10 µg per lane.

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

Blocking and dilution buffer: 5% NFDM/TBST.

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

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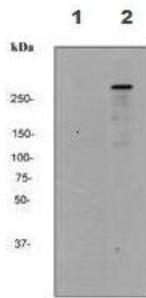
Western blot - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

All lanes : Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292) at 1/10000 dilution (unpurified)

Lane 1 : HEK293 cell lysates untreated

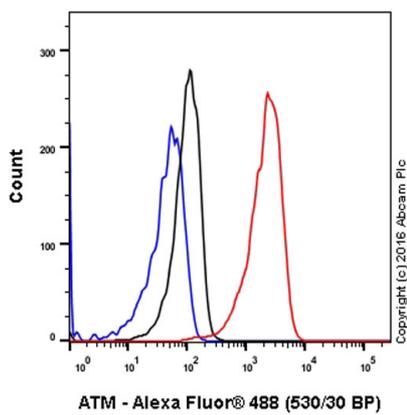**Lane 2 :** HEK293 cell lysates treated with doxorubicin.

Lysates/proteins at 10 µg per lane.

Secondary

**All lanes :** Goat Anti-Rabbit IgG H&L (HRP) (ab6721) at 1/2000 dilution

Predicted band size: 351 kDa

Observed band size: 370 kDa

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

Flow Cytometry analysis of HepG2 (human hepatocellular carcinoma) cells labeling ATM (phospho S1981) with purified ab81292 at 1/60 dilution (10ug/mL) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor®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.
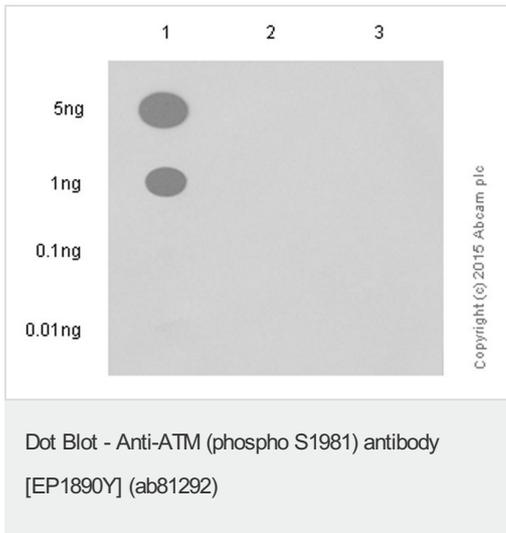
Dot blot analysis of ATM peptides using ab81292 at 1/000 dilution followed by Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated secondary antibody (ab97051) at 1/100000 dilution. Blocking and diluting buffer was 5% NFDM/TBST, exposure time 3 minuts.

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

Lane 1: ATM (pS1981) phospho peptide
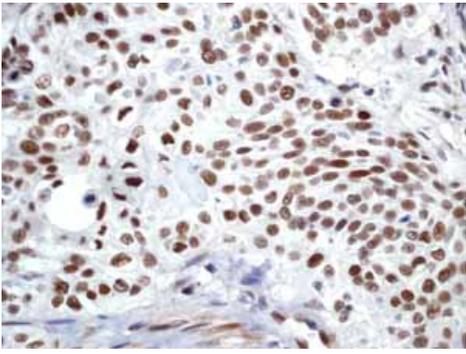
Lane 2: ATM non-phospho peptide

Lane 3: ATM (pS428) phospho peptide
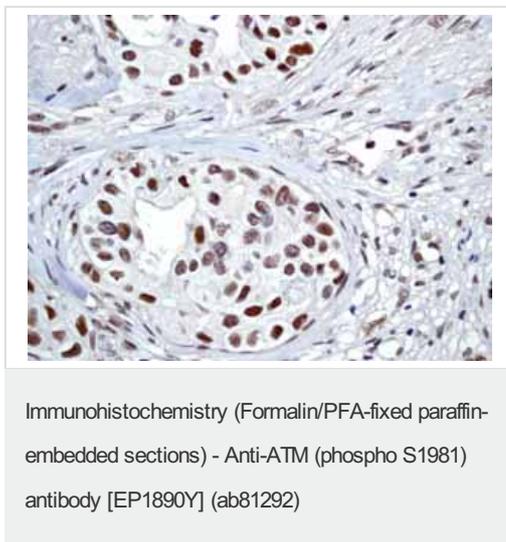
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma tissue labelling ATM with unpurified ab81292.

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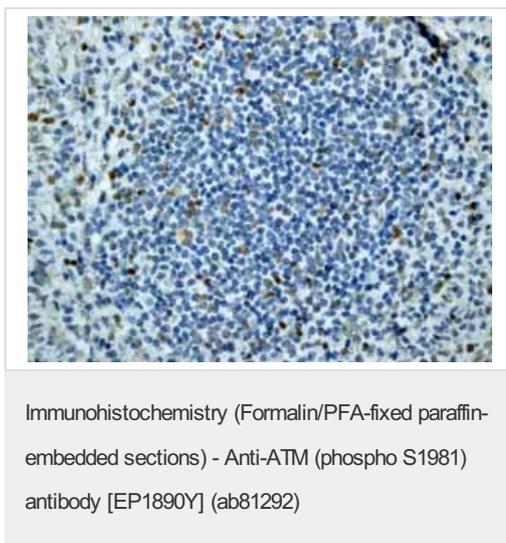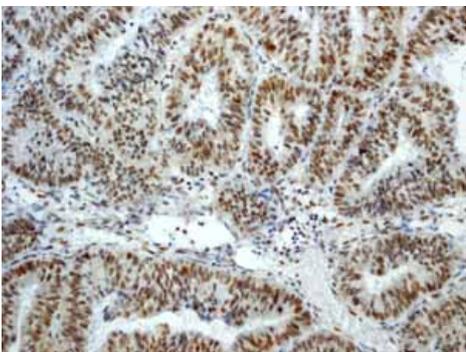

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of normal human tonsil tissue labelling ATM with unpurified ab81292.
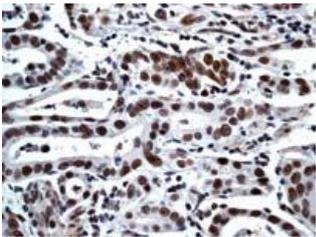
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

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

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


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

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

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

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human gastric carcinoma tissue labelling ATM with unpurified ab81292 at a 1/100 dilution.
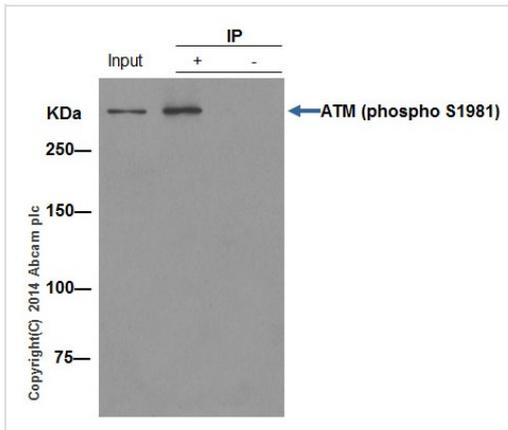
Immunoprecipitation - Anti-ATM (phospho S1981) antibody [EP1890Y] (ab81292)

ab81292 (purified) at 1/30 immunoprecipitating RAB27A in 293 + doxorubicin whole cell lysate, 10ug (Lane 1). Lane 2 - Rabbit monoclonal IgG (ab172730) instead of ab81292 in HeLa whole cell lysate. For western blotting, a HRP-conjugated anti-rabbit IgG, specific to the non-reduced form of IgG was used as the secondary antibody (1/1500).

Blocking buffer and concentration: 5% NFDM/TBST.

Diluting buffer and concentration: 5% NFDM /TBST.

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