Product datasheet

Anti-ATM antibody [Y170] ab32420

Overview

Product name: Anti-ATM antibody [Y170]
Description: Rabbit monoclonal [Y170] to ATM
Host species: Rabbit
Specificity: This antibody is specific for ATM.
Tested applications:
- Suitable for: WB, IHC-P, ICC/IF, Flow Cyt
- Unsuitable for: IP
Species reactivity: Reacts with: Human
Immunogen: Synthetic peptide (the amino acid sequence is considered to be commercially sensitive) corresponding to Human ATM.
(Peptide available as ab170988)
Positive control: WB: 293 cell lysate. FC: HeLa cells
General notes: Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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 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: Y170
Isotype: IgG

Applications

Our Abpromise guarantee covers the use of ab32420 in the following tested applications.
The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHC-P</td>
<td>★★★★☆☆</td>
<td>1/100. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.</td>
</tr>
<tr>
<td>ICC/IF</td>
<td></td>
<td>1/250 - 1/500.</td>
</tr>
<tr>
<td>Flow Cyt</td>
<td></td>
<td>1/20.</td>
</tr>
</tbody>
</table>

Application notes: Is unsuitable for IP.

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, tests, 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.
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.

Defects in ATM contribute to B-cell non-Hodgkin lymphomas (BNHL), including mantle cell lymphoma (MCL).

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
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

Images

Western blot - Anti-ATM antibody [Y170] (ab32420)

All lanes : Anti-ATM antibody [Y170] (ab32420) at 1/3000 dilution (Purified)

Lane 1 : HeLa cell lysate
Lane 2 : HEK293 cell lysate

Lysates/proteins at 10 µg per lane.

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

Predicted band size: 350 kDa
Observed band size: 370 kDa
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATM antibody [Y170] (ab32420)

Formaldehyde-fixed human serous ovarian tumor tissue stained for ATM using ab32420 at 1/50 dilution in immunohistochemical analysis.

Formaldehyde-fixed human colon tissue stained for ATM using ab32420 at 1/100 dilution in immunohistochemical analysis.

Immunohistochemical analysis of paraffin-embedded Human breast cancer tissue labeling ATM with ab32420 at 1:100 dilution. Tissue underwent antigen retrieval using Tris/EDTA Buffer (pH9.0). The section was counterstained with haematoxylin.
Immunofluorescent staining of HeLa cells (fixed with 4% PFA) with purified ab32420 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.

Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labelling ATM with purified ab32420 at 1/20 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. An Alexa Fluor® 488-conjugated 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.

Immunohistochemical analysis of paraffin-embedded Human normal breast tissue labeling ATM with ab32420 at 1:100 dilution. Tissue underwent antigen retrieval using Tris/EDTA Buffer (pH9.0). The section was counterstained with haematoxylin.

Please note: All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE"

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
• Valid for 12 months from date of delivery
• Response to your inquiry within 24 hours
• We provide support in Chinese, English, French, German, Japanese and Spanish
• Extensive multi-media technical resources to help you
• We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit http://www.abcam.com/abpromise or contact our technical team.

Terms and conditions

• Guarantee only valid for products bought direct from Abcam or one of our authorized distributors