# abcam

## Product datasheet

# APC Anti-ATM antibody [SP224] ab305547

Recombinant

RabMAb

## 1 Image

#### Overview

Product name APC Anti-ATM antibody [SP224]

**Description** APC Rabbit monoclonal [SP224] to ATM

Host species Rabbit

**Conjugation** APC. Ex: 645nm, Em: 660nm

**Tested applications** Suitable for: Target binding affinity, Antibody labelling

**Immunogen** Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.

**General notes** 

This  $\underline{\textbf{conjugated primary antibody}}$  is released using a quantitative quality control method that

evaluates binding affinity post-conjugation and efficiency of antibody labeling.

For suitable applications and species reactivity, please refer to the unconjugated version of this

clone. This conjugated antibody is eligible for Abtrial: learn more **here**.

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 production

For more information see here.

Our RabMAb<sup>®</sup> technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to **RabMAb**<sup>®</sup> **patents**.

### **Properties**

Form Liquid

**Storage instructions** Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at +4°C. Store

In the Dark.

Storage buffer pH: 7.40

Preservative: 0.02% Sodium azide Constituents: 98% PBS, 1% BSA

Purity Protein A purified

**Clonality** Monoclonal

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Clone number SP224

**Isotype** IgG

#### **Applications**

## The Abpromise guarantee

Our Abpromise quarantee covers the use of ab305547 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
Target binding affinity		Use at an assay dependent concentration.
Antibody labelling		Use at an assay dependent concentration.

#### **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 Pl3/Pl4-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 Phosphorylated by NUAK1/ARK5. Autophosphorylation on Ser-367, Ser-1893, Ser-1981

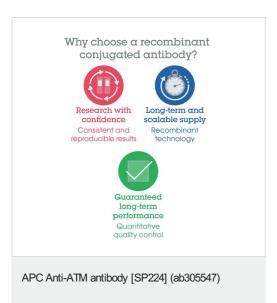
modifications correlates with DNA damage-mediated activation of the kinase.

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**



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