Datasheet for ABIN6657494

anti-ATM antibody (pSer1981)

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Overview

Quantity:	25 µL
Target:	ATM
Binding Specificity:	AA 1974-1988, pSer1981
Reactivity:	Human, Mouse, Rat
Host:	Mouse
Clonality:	Monoclonal
Conjugate:	This ATM antibody is un-conjugated
Application:	Western Blotting (WB), Immunohistochemistry (IHC), ELISA, Fluorescence Microscopy (FM)

Product Details

Immunogen:	Immunogen: Anti-ATM phospho S1981 Antibody was produced from a synthetic peptide S-L-A-F-E-E-G-Sp-Q-S-T-T-I-S-S corresponding to aa 1974-1988 of human ATM.
Clone:	10H11-E12
Isotype:	IgG1
Cross-Reactivity:	Human, Mouse (Murine), Rat (Rattus)
Cross-Reactivity (Details):	Cross reactivity with ATM from other mammalian sources has not been tested.
Purification:	Anti-ATM phospho S1981 Monoclonal Antibody is directed against human ATM and is useful in determining its presence in various assays. This monoclonal anti-ATM antibody recognizes the phosphorylated epitope in native and over-expressed proteins found in various tissues and extracts. By ELISA reactivity against SLAFEEGSpQSTTISS at a 1:1600 dilution shows an absorbance >3.000, whereas reactivity against SLAFEEGSQSTTISS shows and absorbance of

Product Details

	0.145. Reactivity is observed against human and mouse ATM.

Target Details

Target:	ATM
Alternative Name:	ATM (ATM Products)
Background:	Synonyms: mouse anti-ATM antibody, mouse anti-ATMpS1981 antibody, mouse anti- ATM pS1981 antibody, DKFZp781A0353 antibody, Human phosphatidylinositol 3 kinase homolog antibody, MGC74674 antibody, Serine protein kinase ATM antibody, T cell prolymphocytic leukemia antibody Background: Anti ATM pS1981 Antibody is a phospho site specific antibody and recognizes the product of the ATM gene that is mutated in the hereditary disease ataxia-telangiectasia. ATM codes for a protein kinase that acts as a master regulator of cellular responses to DNA double-strand breaks. ATM is normally inactive and the question of how it is activated in the event of DNA damage (due to ionizing radiation for instance) is central to understanding its function. ATM protein is now shown to be present in undamaged cells as an inactive dimer. Low doses of ionizing radiation, which induce only a few DNA breaks, activate at least half of the total ATM protein present, possibly in response to changes in chromatin structure. The ATM gene encodes a 370- kDa protein that belongs to the phosphoinositide 3-kinase (PI(3)K) superfamily, but which phosphorylates proteins rather than lipids. The 350-amino-acid kinase domain at the carboxy terminus of this large protein is the only segment of ATM with an assigned function. Exposure of cells to IR triggers ATM kinase activity, and this function is required for arrests in G1, S and G2 phases of the cell cycle. Several substrates of the ATM kinase participate in these IR-induced cell-cycle arrests. These include p53, Mdm2 and Chk2 in the G1 checkpoint, Nbs1, Brca1, FancD2 and SMC1 in the transient IR-induced S-phase arrest, and Brca1 and hRad17 in the G2/M checkpoint. Ideal for Cancer, Cell Signaling, Chromatin, Neuroscience and Signal Transduction research. Gene Name: ATM
Pathways:	p53 Signaling, Apoptosis, DNA Damage Repair, Inositol Metabolic Process, Positive Regulation of Response to DNA Damage Stimulus

Application Details

Application Notes:	Immunohistochemistry Dilution: Not Recommended Application Note: Protein A Purified Mab anti-ATM has been tested by ELISA and western blotting against both the native and recombinant forms of the protein. The antibody

Application Details

	immunoprecipitates ATM from irradiated human and mouse cells. By immunofluorescence, foci are detected in irradiated human and mouse fibroblasts. This antibody is not recommended for immunohistochemistry. Instead, for IHC, use the clone 7C10D8 (p/n 200-301-500). ELISA Dilution: 1:20,000 - 1:100,000 Western Blot Dilution: 1:200 - 1:2,000 IF Microscopy Dilution: 1:100 - 1:500
Restrictions:	For Research Use only

Handling

Format:	Liquid
Buffer:	Buffer: 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2 0.01 % (w/v) Sodium Azide Stabilizer: None
Preservative:	Sodium azide
Precaution of Use:	This product contains Sodium azide: a POISONOUS AND HAZARDOUS SUBSTANCE which should be handled by trained staff only.
Storage:	-20 °C
Storage Comment:	Store vial at -20° C or below prior to opening. This vial contains a relatively low volume of reagent (25 µL). To minimize loss of volume dilute 1:10 by adding 225 µL of the buffer stated above directly to the vial. Recap, mix thoroughly and briefly centrifuge to collect the volume at the bottom of the vial. Use this intermediate dilution when calculating final dilutions as recommended below. Store the vial at -20°C or below after dilution. Avoid cycles of freezing and thawing.

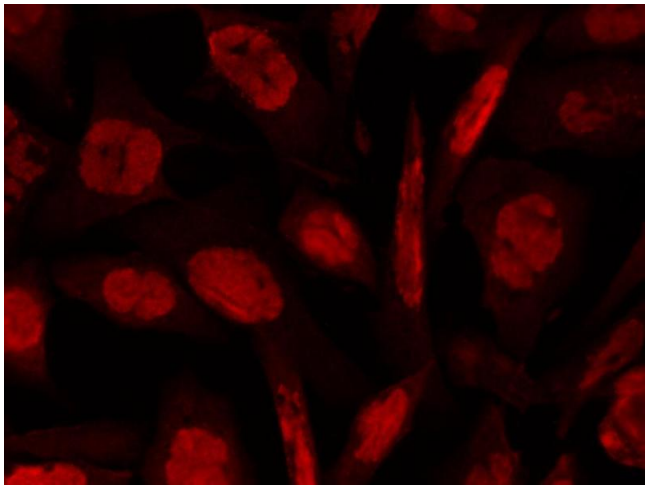
Publications

Product cited in:	Kreis, Gallrein, Rojas-Puente, Mack, Kroon, Dinkel, Willmes, Murk, Tom-Dieck, Schuman, Kirstein, Eickholt: "ATM phosphorylation of the actin-binding protein drebrin controls oxidation stress-resistance in mammalian neurons and C. elegans." in: **Nature communications**, Vol. 10, Issue 1, pp. 486, (2019) (PubMed). Carvalho, Vítor, Sridhara, Martins, Raposo, Desterro, Ferreira, de Almeida: "SETD2 is required for DNA double-strand break repair and activation of the p53-mediated checkpoint." in: **eLife**, Vol. 3,

pp. e02482, (2015) (PubMed).

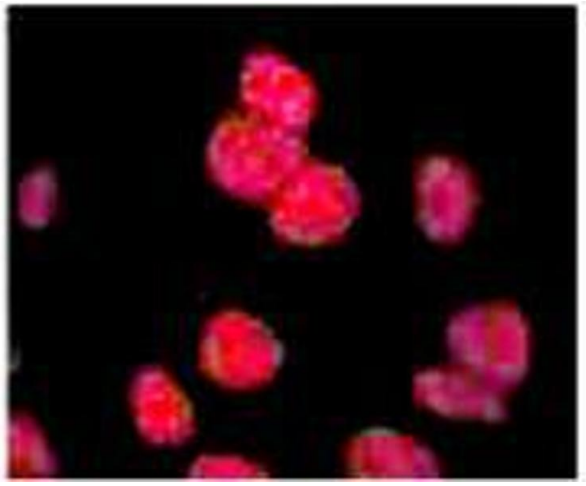
Bartkova, Horejsí, Koed, Krämer, Tort, Zieger, Guldberg, Sehested, Nesland, Lukas, Ørntoft, Lukas, Bartek: "DNA damage response as a candidate anti-cancer barrier in early human tumorigenesis." in: **Nature**, Vol. 434, Issue 7035, pp. 864-70, (2005) (PubMed).

Images



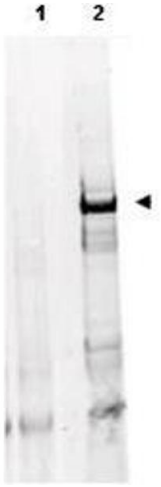
Immunofluorescence

Image 1. Anti-ATM Monoclonal Antibody - Immunofluorescence Microscopy anti-ATM pS1981 mouse monoclonal antibody (Catalog # 200-301-400) detects ATM phosphorylated on Ser 1981 by Indirect immunofluorescence microscopy. Shown are hTCEpi cells (courtesy of Dr. Danielle Robertson) infected with HSV-1 at MOI 5.0 and fixed at 8 hpi with 3% paraformaldehyde/2% sucrose for 10 min. After rinsing, cells were permeabilized with 0.5% Triton X-100 for 5 min, blocked with 3% BSA for 30 min, and stained with primary anti-ATM pS1981 antibody overnight at 5 µg/mL (1:200). Secondary staining was performed with Alexa Fluor 594 anti-mouse antibody. Images were taken with Olympus AX70 compound epifluorescence microscope equipped with Spot RT Slider camera. Experiment was performed by Oleg Alekseev in the laboratory of Dr. Jane Azizkhan-Clifford at Drexel University College of Medicine.



Immunofluorescence

Image 2. Anti-ATM Monoclonal Antibody - Immunofluorescence Microscopy Anti ATM antibody showing overlay of anti-ATM pS1981 staining. Cells were fixed 15 min after 5 Gy (IR+) of irradiation, then labeled with antibody. See Kitagawa et al. for additional details.



Western Blotting

Image 3. Anti-ATM Monoclonal Antibody - Western Blot Anti ATM Mab with human derived HEK293 cells treated with doxorubicin using Protein A Purified Mab anti-ATM Protein Kinase pS1981(clone 10H11.E12). A 370 kDa band corresponding to phosphorylated ATM is detected (arrowhead, lane 2). The lysate was prepared with HALT phosphatase inhibitor (Pierce). Pre-incubation of peptide with 50 µg of immunizing phospho peptide negates specific staining (lane 1). Approximately 30 µg of lysate was added to each lane of an SDS-PAGE gel under non-reducing conditions. The protein was transferred to nitrocellulose using standard methods. After blocking the membrane was probed with the primary antibody diluted 1:500 overnight at 4°C followed by washes and reaction with a 1:10,000 dilution of800 conjugated Gt-a-Mouse IgG [H&L] (code 610-132-121) for 40 min at room temperature. LICOR's Infrared Imaging System was used to scan and process the image. Other detection systems will yield similar results.

Please check the product details page for more images. Overall 5 images are available for ABIN6657494.

