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Anti-ATM Antibody

Catalog # ABO11091

Product Information

Application	WB
Primary Accession	Q13315
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Serine-protein kinase ATM(ATM) detection. Tested with WB in Human;Mouse;Rat.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Additional Information

Gene ID	472
Other Names	Serine-protein kinase ATM, 2.7.11.1, Ataxia telangiectasia mutated, A-T mutated, ATM
Calculated MW	350687
Application Details	Western blot, 0.1-0.5 □g/ml, Human, Rat, Mouse
Subcellular Localization	Nucleus. Cytoplasmic vesicle. Primarily nuclear. Found also in endocytic vesicles in association with beta-adaptin.
Tissue Specificity	Found in pancreas, kidney, skeletal muscle, liver, lung, placenta, brain, heart, spleen, thymus, testis, ovary, small intestine, colon and leukocytes.
Source	Eukaryota
Protein Name	Serine-protein kinase ATM
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3.
Immunogen	A synthetic peptide corresponding to a sequence at the N-terminus of human ATM(36-50aa DPETIKHLDRHSDSK), different from the related rat and mouse sequences by two amino acids.
Purification	Immunogen affinity purified.
Cross Reactivity	No cross reactivity with other proteins

Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.
Sequence Similarities	Belongs to the PI3/PI4-kinase family. ATM subfamily.

Protein Information

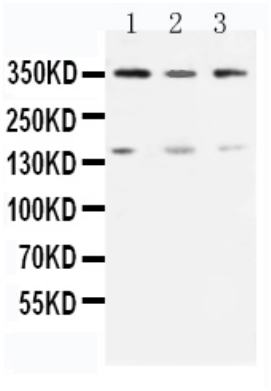
Name	ATM
Function	Serine/threonine protein kinase which activates checkpoint signaling upon double strand breaks (DSBs), apoptosis and genotoxic stresses such as ionizing ultraviolet A light (UVA), thereby acting as a DNA damage sensor (PubMed:10550055, PubMed:10839545, PubMed:10910365, PubMed:12556884, PubMed:14871926, PubMed:15064416, PubMed:15448695, PubMed:15456891, PubMed:15790808, PubMed:15916964, PubMed:17923702, PubMed:21757780, PubMed:24534091, PubMed:27941124, 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:27941124, 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, UCHL3 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:27941124, 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).
Cellular Location	Nucleus. Cytoplasmic vesicle. Cytoplasm, cytoskeleton, microtubule

	organizing center, centrosome {ECO:0000250|UniProtKB:Q62388}. Peroxisome matrix. Note=Primarily nuclear (PubMed:9050866, PubMed:9150358). Found also in endocytic vesicles in association with beta-adaptin (PubMed:9707615). Translocated to peroxisomes in response to reactive oxygen species (ROS) by PEX5 (PubMed:26344566)
Tissue Location	Found in pancreas, kidney, skeletal muscle, liver, lung, placenta, brain, heart, spleen, thymus, testis, ovary, small intestine, colon and leukocytes

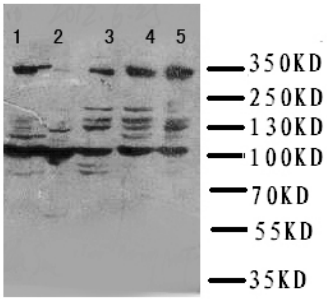
Background

ATM(ataxia telangiectasia mutated),also known as TEL1 or TELO1, is a serine/threonine protein kinase that is recruited and activated by DNA double-strand breaks. The ATM protein is a member of the phosphatidylinositol 3-kinase family of proteins that respond to DNA damage by phosphorylating key substrates involved in DNA repair and/or cell cycle control. Linkage analysis of ataxia-telangiectasia led to mapping of the ATM gene to chromosome 11q22.3. Using an antiserum developed to a peptide corresponding to the deduced amino acid sequence of ATM, the ATM protein is a single, high molecular weight protein predominantly confined to the nucleus of human fibroblasts, although it is present in both nuclear and microsomal fractions from human lymphoblast cells and peripheral blood lymphocytes. Overexpression of ATM cDNA in AT cells enhanced their survival after radiation exposure, decreased radiation-induced chromosome aberrations, reduced radioresistant DNA synthesis, and partially corrected defective cell cycle checkpoints and induction of stress-activated protein kinase. ATM has an essential role in the reconstitutive capacity of hematopoietic stem cells but is not as important for the proliferation or differentiation of progenitors, in a telomere-independent manner. ATM functions directly in the repair of chromosomal DNA double-stranded breaks by maintaining DNA ends in repair complexes generated during lymphocyte gene assembly.

Images



Anti-ATM antibody, ABO11091, Western blottingLane 1: Rat Testis Tissue Lysate Lane 2: U87 Cell Lysate Lane 3: MCF-7 Cell Lysate



Anti-ATM antibody, ABO11091, Western blottingLane 1: HELA Cell Lysate Lane 2: SMMC Cell Lysate Lane 3: U87 Cell Lysate Lane 4: A549 Cell Lysate Lane 5: MCF-7 Cell Lysate

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