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Anti-ATM Antibody

Catalog # ABO12725

Product Information

Application	WB
Primary Accession	Q13315
Host	Rabbit
Reactivity	Human
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Serine-protein kinase ATM(ATM) detection. Tested with WB in Human.
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
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 NaN3.
Immunogen	E.coli-derived human ATM recombinant protein (Position: D2870-V3056). Human ATM shares 95% amino acid (aa) sequence identity with mouse ATM.
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. The ATM gene is mapped to chromosome 11q22.3. 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

All lanes: Anti ATM (ABO12725) at 0.5ug/mlWB: Recombinant Human ATM Protein 0.5ngPredicted bind size: 60KDObserved bind size: 60KD