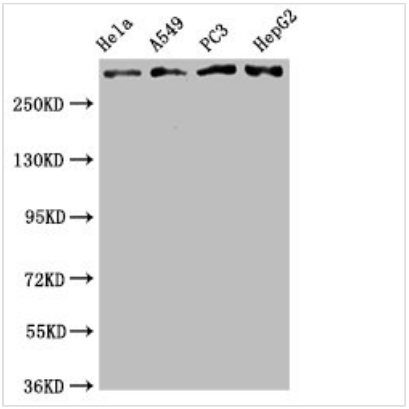
ATM Recombinant Monoclonal Antibody

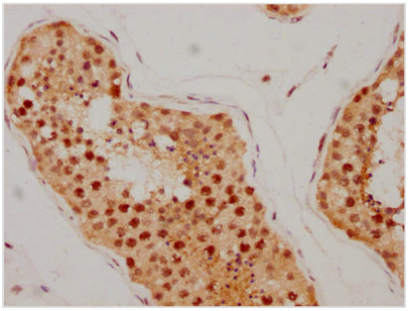
Product Code	CSB-RA618770A0HU
Abbreviation	Serine-protein kinase ATM
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	Q13315
Immunogen	A synthesized peptide derived from human ATM
Species Reactivity	Human
Tested Applications	ELISA, WB, IP; Recommended dilution: WB:1:500-1:5000, IP:1:200-1:1000
Relevance	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 DYRK2, CHEK2, 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. Phosphorylation of DYRK2 in nucleus in response to genotoxic stress prevents its MDM2-mediated ubiquitination and subsequent proteasome degradation. Phosphorylates ATF2 which stimulates its function in DNA damage response.
Form	Liquid
Conjugate	Non-conjugated
Storage Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purification Method	Affinity-chromatography
Isotype	Rabbit IgG
Clonality	Monoclonal
Product Type	Recombinant Antibody
Immunogen Species	Homo sapiens (Human)

Research Area	Epigenetics and Nuclear Signaling
Gene Names	ATM
Clone No.	4E11

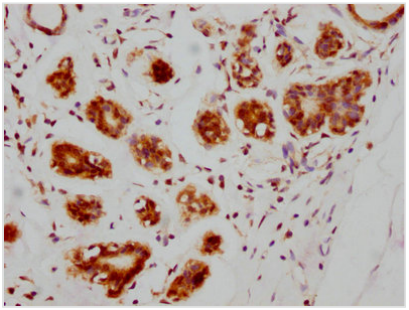
Image



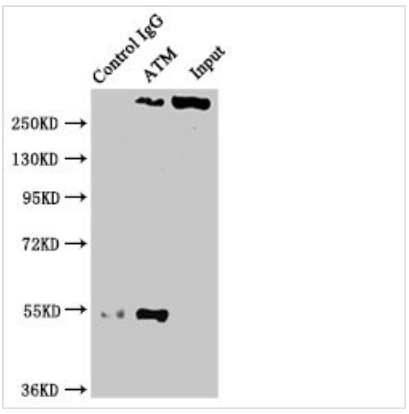
Western Blot
Positive WB detected in: Hela whole cell lysate, A549 whole cell lysate, PC3 whole cell lysate, HepG2 whole cell lysate
All lanes: ATM antibody at 2.05µg/ml
Secondary
Goat polyclonal to rabbit IgG at 1/50000 dilution
Predicted band size: 350 KDa
Observed band size: 350 KDa



IHC image of CSB-RA618770A0HU diluted at 1:205 and staining in paraffin-embedded human testis tissue performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a biotinylated secondary antibody and visualized using an HRP conjugated SP system.



IHC image of CSB-RA618770A0HU diluted at 1:205 and staining in paraffin-embedded human breast cancer performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a biotinylated secondary antibody and visualized using an HRP conjugated SP system.



Immunoprecipitating ATM in PC3 whole cell lysate
Lane 1: Rabbit control IgG instead of CSB-RA618770A0HU in PC3 whole cell lysate. For western blotting, a HRP-conjugated Protein G antibody was used as the secondary antibody (1/2000)
Lane 2: CSB-RA618770A0HU (3µg) + PC3 whole cell lysate (500µg)
Lane 3: PC3 whole cell lysate (20µg)

Description

The ATM recombinant monoclonal antibody is developed using DNA recombinant technology and in vitro genetic manipulation. Initially, animals are immunized with a synthesized peptide derived from human ATM, which induces an immune reaction and facilitates the isolation of B cells. Through screening and selection, B cells with the desired specificity are identified. The genes encoding the light and heavy chains of the ATM antibody are amplified via PCR and inserted into a plasmid vector, which is then transfected into host cells for antibody expression. The ATM recombinant monoclonal antibody is purified from the cell culture supernatant using affinity chromatography. With a validated high affinity and specificity for human ATM protein, this antibody is well-suited for ELISA, WB, and IP applications.

The ATM protein is a serine/threonine kinase that plays a crucial role in the cellular response to DNA damage. Its main function is to recognize and initiate the repair of double-strand breaks in DNA, which can be caused by exposure to ionizing radiation or other genotoxic agents. ATM also helps to prevent the replication of damaged DNA by triggering cell cycle checkpoints that allow time for repair or, if the damage is too severe, induce apoptosis. In addition to its role in DNA repair, ATM is also involved in other cellular processes, such as telomere maintenance, oxidative stress response, and regulation of gene expression. Mutations in the ATM gene can lead to the development of ataxia-telangiectasia.