

Phospho-ATM (Ser1981) (10H11.E12) Mouse mAb

- Small 100 μ l
(10 western blots)
- Large 300 μ l
(30 western blots)

rev. 07/20/10

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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W	H	350 kDa	Mouse IgG1**
Endogenous			

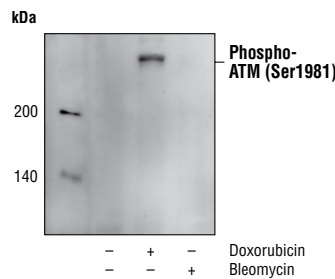
Background: Ataxia telangiectasia mutated kinase (ATM) and ataxia telangiectasia and Rad3-related kinase (ATR) are related kinases that regulate cell cycle checkpoints and DNA repair (1). Mutation in the ATM gene results in the autosomal recessive disease ataxia telangiectasia (AT). The identified substrates for ATM are p53, p95/NBS1, MDM2, Chk2, BRCA1, CtIP, 4E-BP1 and Chk1 (1,2) The essential requirement for the substrates of ATM/ATR is S/TQ. Hydrophobic amino acids at positions -3 and -1, and negatively charged amino acids at position +1 are positive determinants for substrate recognition by these kinases. Positively charged residues surrounding the S/TQ are negative determinants for substrate phosphorylation (3). The complex phenotype of cells derived from patients with AT suggests that ATM has additional cellular substrates (3). In unirradiated cells, ATM is present as an inactive homodimer or multimer (4). Double-stranded breaks in DNA caused by ionizing radiation cause rapid ATM kinase activation through dissociation of this complex and ATM autophosphorylation at Ser1981 (4).

Specificity/Sensitivity: Phospho-ATM (Ser1981) (10H11.E12) Mouse mAb detects endogenous levels of ATM only when phosphorylated at Ser1981.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues around Ser1981 of human ATM.

Background References:

- (1) Kastan, M.B. and Lim, D.S. (2000) *Nature Rev. Mol. Cell Biol.* 1, 179–186.
- (2) Zhao, H. and Piwnicka-Worms, H. (2001) *Mol. Cell Biol.* 21, 4129–4139.
- (3) Kim, S.T. et al. (1999) *J. Biol. Chem.* 274, 37538–37543.
- (4) Bakkenist, C.J. and Kastan, M.B. (2003) *Nature* 421, 499–506.



Western blot analysis of extracts from M059J cells, untreated, treated with doxorubicin, or treated with bleomycin, using Phospho-ATM (Ser1981) (10H11.E12) Mouse mAb.

Entrez-Gene ID # 472
Swiss-Prot Acc. # Q13315

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 μ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

*Species cross-reactivity is determined by western blot.

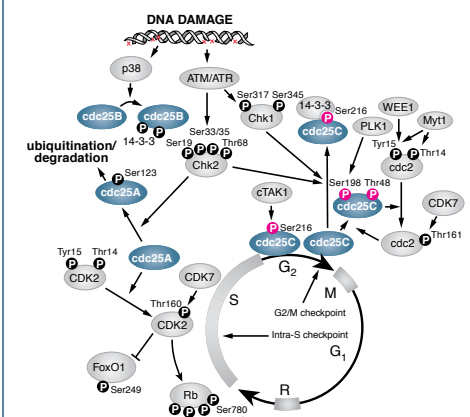
**Anti-mouse secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western Blotting 1:1000

For application specific protocols please see the web page for this product at www.cellsignaling.com.

Please visit www.cellsignaling.com for a complete listing of recommended companion products.



IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v nonfat dry milk, TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide

Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine

Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.