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#30632

Phospho-ATR (Thr1989) (D5K8W) Rabbit mAb

Cell Signaling TECHNOLOGY®

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New 09/18

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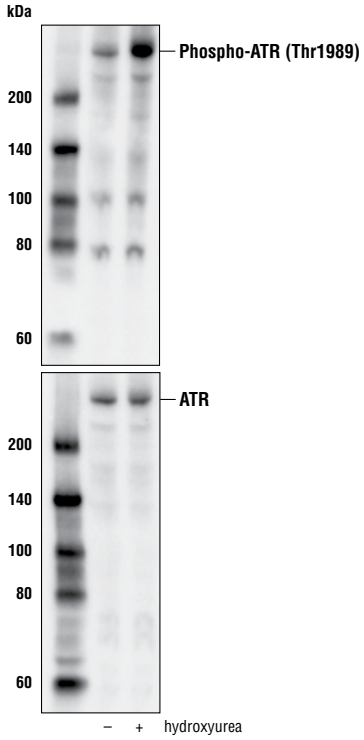
Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W Endogenous	H	300 kDa	Rabbit IgG**

Background: Ataxia telangiectasia mutated kinase (ATM) and ataxia telangiectasia and Rad3-related kinase (ATR) are PI3 kinase-related kinase (PIKK) family members that phosphorylate multiple substrates on serine or threonine residues that are followed by a glutamine in response to DNA damage or replication blocks (1-3). Despite the essential role of ATR in cell cycle signaling and DNA repair processes, little is known about its activation. ATR was long thought to exist in a constitutively active state in cells, with DNA damage-induced signaling occurring via recruitment of ATR to single stranded DNA and sites of replication stress. Phosphorylation of ATR at serine 428 in response to UV-induced DNA damage has been suggested as a means of activating ATR (4,5). Recent work has shown autophosphorylation of ATR at threonine 1989. Like ATM Ser1981, phosphorylation of ATR Thr1989 occurs in response to DNA damage, indicating that phosphorylation at this site is important in ATR-mediated signaling (6,7).

Specificity/Sensitivity: Phospho-ATR (Thr1989) (D5K8W) Rabbit mAb recognizes endogenous levels of ATR protein only when phosphorylated Thr1989.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Thr1989 of human ATR protein.



Western blot analysis of extracts from HeLa cells, untreated (-) or treated with hydroxyurea (1.5 mm, 16 hr; +), using Phospho-ATR (Thr1989) (D5K8W) Rabbit mAb (upper) or ATR (E1S3S) Rabbit mAb #13934 (lower).

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/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-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000

For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com.

Background References:

(1) Kastan, M.B. and Lim, D.S. (2000) *Nat Rev Mol Cell Biol* 1, 179-86.

(2) Abraham, R.T. (2004) *DNA Repair (Amst)* 3, 883-7.

(3) Shechter, D. et al. (2004) *DNA Repair (Amst)* 3, 901-8.

(4) Vauzour, D. et al. (2007) *Arch Biochem Biophys* 468, 159-66.

(5) Smith, J. et al. (2010) *Adv Cancer Res* 108, 73-112.

(6) Nam, E.A. et al. (2011) *J Biol Chem* 286, 28707-14.

(7) Liu, S. et al. (2011) *Mol Cell* 43, 192-202.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween®20 at 4°C with gentle shaking, overnight.

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Applications: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide **Species Cross-Reactivity:** **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.