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## DNA-PKcs Antibody


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<b>Applications:</b> WB	<b>Reactivity:</b> H	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 450	<b>Source:</b> Rabbit	<b>UniProt ID:</b> #P78527	<b>Entrez-Gene Id:</b> 5591
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<b>Product Usage Information</b>	<b>Application</b> Western Blotting	<b>Dilution</b> 1:1000
<b>Storage</b>	Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.	
<b>Specificity / Sensitivity</b>	DNA-PKcs Antibody detects endogenous levels of DNA-PKcs protein.	
<b>Source / Purification</b>	Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to amino acids near the carboxy-terminus of human DNA-PKcs. Antibodies are purified by protein A and peptide affinity chromatography.	
<b>Background</b>	<p>DNA-dependent protein kinase (DNA-PK) is an important factor in the repair of double-stranded breaks in DNA. Cells lacking DNA-PK or in which DNA-PK is inhibited fail to show proper nonhomologous end-joining (NHEJ) (1-7). DNA-PK is composed of two DNA-binding subunits (Ku70 and Ku86) and one 450 kDa catalytic subunit (DNA-PKcs) (8). It is thought that a heterodimer of Ku70 and Ku86 binds to double-stranded DNA broken ends before DNA-PKcs binds and is activated (1,9). Activated DNA-PKcs is a serine/threonine kinase that has been shown to phosphorylate a number of proteins <i>in vitro</i>, including p53, transcription factors, RNA polymerase, and Ku70/Ku86 (10,11). DNA-PKcs autophosphorylation at multiple sites, including Thr2609 and Ser2056, results in an inactivation of DNA-PK kinase activity and NHEJ ability (12,13). It has been demonstrated, however, that DNA-PK preferentially phosphorylates substrates before it autophosphorylates, suggesting that DNA-PK autophosphorylation may play a role in disassembly of the DNA repair machinery (14,15). Autophosphorylation at Thr2609 has also been shown to be required for DNA-PK-mediated double-strand break repair, and phosphorylated DNA-PK co-localizes with H2A.X and 53BP1 at sites of DNA damage (16). Phosphorylation at Ser2056 occurs in response to double-stranded DNA breaks and ATM activation (17).</p>	
<b>Background References</b>	<ol style="list-style-type: none"> <li>Gottlieb, T.M. and Jackson, S.P. (1993) <i>Cell</i> 72, 131-42.</li> <li>Hartley, K.O. et al. (1995) <i>Cell</i> 82, 849-56.</li> <li>Rosenzweig, K.E. et al. (1997) <i>Clin Cancer Res</i> 3, 1149-56.</li> <li>Jackson, S.P. and Jeggo, P.A. (1995) <i>Trends Biochem Sci</i> 20, 412-5.</li> <li>Roth, D.B. et al. (1995) <i>Curr Biol</i> 5, 496-9.</li> <li>Baumann, P. and West, S.C. (1998) <i>Proc Natl Acad Sci U S A</i> 95, 14066-70.</li> <li>Chen, S. et al. (2001) <i>J Biol Chem</i> 276, 24323-30.</li> <li>Jeggo, P.A. (1997) <i>Mutat Res</i> 384, 1-14.</li> <li>Suwa, A. et al. (1994) <i>Proc Natl Acad Sci U S A</i> 91, 6904-8.</li> <li>Anderson, C.W. and Lees-Miller, S.P. (1992) <i>Crit Rev Eukaryot Gene Expr</i> 2, 283-314.</li> <li>Kuhn, A. et al. (1995) <i>Genes Dev</i> 9, 193-203.</li> <li>Chan, D.W. and Lees-Miller, S.P. (1996) <i>J Biol Chem</i> 271, 8936-41.</li> <li>Douglas, P. et al. (2002) <i>Biochem. J.</i> 368, 243-51.</li> <li>Lees-Miller, S.P. et al. (1992) <i>Mol Cell Biol</i> 12, 5041-9.</li> <li>Jackson, S.P. et al. (1990) <i>Cell</i> 63, 155-65.</li> <li>Chan, D.W. et al. (2002) <i>Genes Dev</i> 16, 2333-8.</li> <li>Yajima, H. et al. (2009) <i>J Mol Biol</i> 385, 800-10.</li> </ol>	

<b>Species Reactivity</b>	Species reactivity is determined by testing in at least one approved application (e.g., western blot).
<b>Western Blot Buffer</b>	IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

**Applications Key****WB:** Western Blotting**Cross-Reactivity Key**

**H:** human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **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  
**GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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