Revision 1

Store at -20C

#4602

DNA-PKcs Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H	Endogenous	450	Rabbit	#P78527	5591

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

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.

Specificity/Sensitivity

DNA-PKcs Antibody detects endogenous levels of DNA-PKcs protein.

Source / Purification

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.

Background

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 *in vitro*, 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).

Background References

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Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

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

W: Western Blotting

Cross-Reactivity Key

H: Human

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