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-20°C

#74965

PhosphoPlus[®] DNA-PKcs (Ser2056) Antibody Duet



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Entrez-Gene ID #5591
UniProt ID #P78527

New 05/20

For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype
DNA-PKcs (E6U3A) Rabbit mAb	38168	100 µl	450 kDa	Rabbit IgG
Phospho-DNA-PKcs (Ser2056) (E9J4G) Rabbit mAb	68716	100 µl	450 kDa	Rabbit IgG

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions and additional application protocols.

Description: PhosphoPlus[®] Duets from Cell Signaling Technology (CST) provide a means to assess protein activation status. Each Duet contains an activation-state and total protein antibody to your target of interest. These antibodies have been selected from CST's product offering based upon superior performance in specified applications.

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).

Specificity/Sensitivity: DNA-PKcs (E6U3A) Rabbit mAb recognizes endogenous levels of total DNA-PKcs protein. Phospho-DNA-PKcs (Ser2056) (E9J4G) Rabbit mAb recognizes endogenous levels of DNA-PKcs protein only when phosphorylated at Ser2056.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro608 of human DNA-PKcs protein. Phosphorylation-specific monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser2056 of human DNA-PKcs protein.

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.

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

Background References:

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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.**