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Anti-DNA-PKcs (Phospho-S2056) Antibody

Catalog # AP61162

Product Information

Application	WB, IHC
Primary Accession	P78527
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	469089

Additional Information

Gene ID	5591
Other Names	HYRC; HYRC1; DNA-dependent protein kinase catalytic subunit; DNA-PK catalytic subunit; DNA-PKcs; DNPK1; p460
Target/Specificity	KLH-conjugated synthetic phosphopeptide corresponding to residues surrounding S2056 of human DNA-PKcs protein. The exact sequence is proprietary.
Dilution	WB~~WB (1/500 - 1/1000), IHC (1/50 - 1/200) IHC~~WB (1/500 - 1/1000), IHC (1/50 - 1/200)
Format	Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

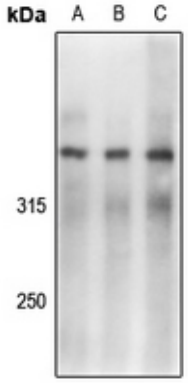
Name	PRKDC
Synonyms	HYRC, HYRC1
Function	Serine/threonine-protein kinase that acts as a molecular sensor for DNA damage (PubMed:11955432, PubMed:12649176, PubMed:14734805, PubMed:33854234). Involved in DNA non-homologous end joining (NHEJ) required for double-strand break (DSB) repair and V(D)J recombination (PubMed:11955432, PubMed:12649176, PubMed:14734805, PubMed:33854234, PubMed:34352203). Must be bound to DNA to express its catalytic properties (PubMed:11955432). Promotes processing of hairpin DNA structures in V(D)J recombination by activation of the hairpin endonuclease artemis (DCLRE1C) (PubMed:11955432). Recruited by XRCC5 and XRCC6 to DNA ends and is required to (1) protect and align broken ends of DNA, thereby preventing their degradation, (2) and sequester the DSB for repair by

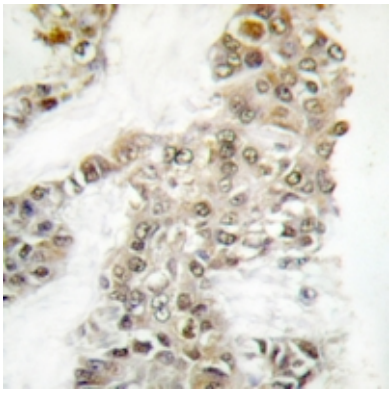
NHEJ (PubMed:11955432, PubMed:12649176, PubMed:14734805, PubMed:15574326, PubMed:33854234). Acts as a scaffold protein to aid the localization of DNA repair proteins to the site of damage (PubMed:11955432, PubMed:12649176, PubMed:14734805, PubMed:15574326). The assembly of the DNA-PK complex at DNA ends is also required for the NHEJ ligation step (PubMed:11955432, PubMed:12649176, PubMed:14734805, PubMed:15574326). Found at the ends of chromosomes, suggesting a further role in the maintenance of telomeric stability and the prevention of chromosomal end fusion (By similarity). Also involved in modulation of transcription (PubMed:11955432, PubMed:12649176, PubMed:14734805, PubMed:15574326). As part of the DNA-PK complex, involved in the early steps of ribosome assembly by promoting the processing of precursor rRNA into mature 18S rRNA in the small-subunit processome (PubMed:32103174). Binding to U3 small nucleolar RNA, recruits PRKDC and XRCC5/Ku86 to the small-subunit processome (PubMed:32103174). Recognizes the substrate consensus sequence [ST]-Q (PubMed:11955432, PubMed:12649176, PubMed:14734805, PubMed:15574326). Phosphorylates 'Ser-139' of histone variant H2AX, thereby regulating DNA damage response mechanism (PubMed:14627815, PubMed:16046194). Phosphorylates ASF1A, DCLRE1C, c-Abl/ABL1, histone H1, HSPCA, c-jun/JUN, p53/TP53, PARP1, POU2F1, DHX9, FH, SRF, NHEJ1/XLF, XRCC1, XRCC4, XRCC5, XRCC6, WRN, MYC and RFA2 (PubMed:10026262, PubMed:10467406, PubMed:11889123, PubMed:12509254, PubMed:14599745, PubMed:14612514, PubMed:14704337, PubMed:15177042, PubMed:1597196, PubMed:16397295, PubMed:18644470, PubMed:2247066, PubMed:2507541, PubMed:26237645, PubMed:26666690, PubMed:28712728, PubMed:29478807, PubMed:30247612, PubMed:8407951, PubMed:8464713, PubMed:9139719, PubMed:9362500). Can phosphorylate C1D not only in the presence of linear DNA but also in the presence of supercoiled DNA (PubMed:9679063). Ability to phosphorylate p53/TP53 in the presence of supercoiled DNA is dependent on C1D (PubMed:9363941). Acts as a regulator of the phosphatidylinositol 3-kinase/protein kinase B signal transduction by mediating phosphorylation of 'Ser-473' of protein kinase B (PKB/AKT1, PKB/AKT2, PKB/AKT3), promoting their activation (PubMed:15262962). Contributes to the determination of the circadian period length by antagonizing phosphorylation of CRY1 'Ser-588' and increasing CRY1 protein stability, most likely through an indirect mechanism (By similarity). Plays a role in the regulation of DNA virus-mediated innate immune response by assembling into the HDP-RNP complex, a complex that serves as a platform for IRF3 phosphorylation and subsequent innate immune response activation through the cGAS-STING pathway (PubMed:28712728). Also regulates the cGAS-STING pathway by catalyzing phosphorylation of CGAS, thereby impairing CGAS oligomerization and activation (PubMed:33273464). Also regulates the cGAS-STING pathway by mediating phosphorylation of PARP1 (PubMed:35460603).

Cellular Location Nucleus. Nucleus, nucleolus. Cytoplasm, cytosol

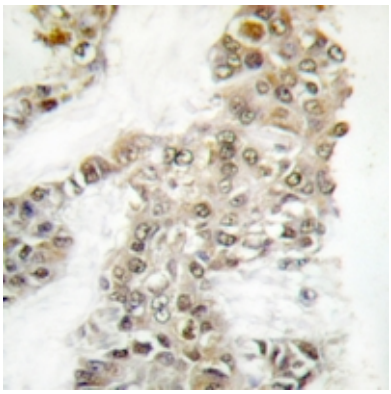
Images

Western blot analysis of DNA-PKcs (Phospho-S2056) expression in HEK293T (A), MCF7 (B), A549 (C) whole cell lysates. (Predicted band size: 469 kD; Observed band size: 450 kD)





Immunohistochemical analysis of DNA-PKcs (Phospho-S2056) staining in human breast cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunohistochemical analysis of DNA-PKcs (pS2056) staining in human breast cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

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