

DNA-PKcs Antibody
Purified Mouse Monoclonal Antibody (Mab)
Catalog # AP52744**Specification**

DNA-PKcs Antibody - Product Information

Application	WB, ICC, IP, IHC
Primary Accession	P78527
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Calculated MW	450 KDa

DNA-PKcs Antibody - Additional Information**Gene ID** 5591**Other Names**

DNA dependent protein kinase catalytic subunit;DNA PKcs;DNA-dependent protein kinase catalytic subunit;DNA-PK catalytic subunit;DNAPK;DNPK1;hyper radiosensitivity of murine scid mutation, complementing 1;HYRC;HYRC1;p350;p460;PRKDC;PRKDC_HUMAN;protein kinase, DNA activated, catalytic polypeptide;XRCC7.

Dilution

WB~~1:1000

ICC~~1:100

IP~~1:500

IHC~~1:100

Format

Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide, pH 7.3.

Storage

Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

DNA-PKcs Antibody - 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).

target="_blank">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

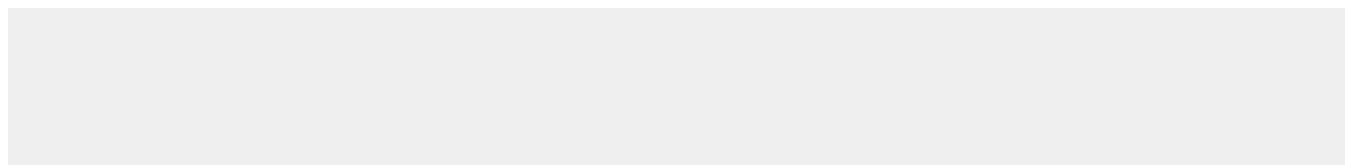
Nucleus. Nucleus, nucleolus. Cytoplasm, cytosol

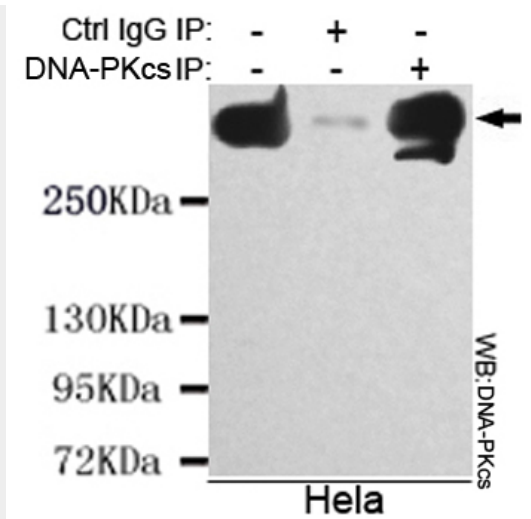
DNA-PKcs Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

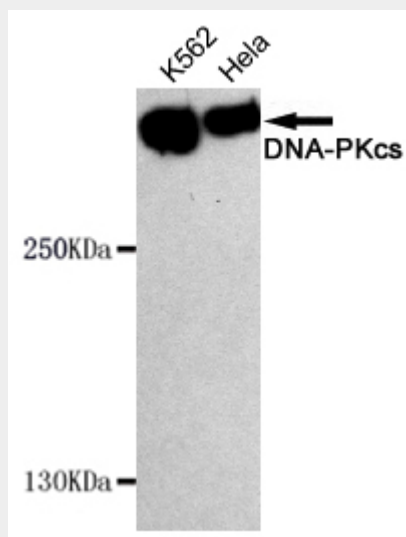
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

DNA-PKcs Antibody - Images

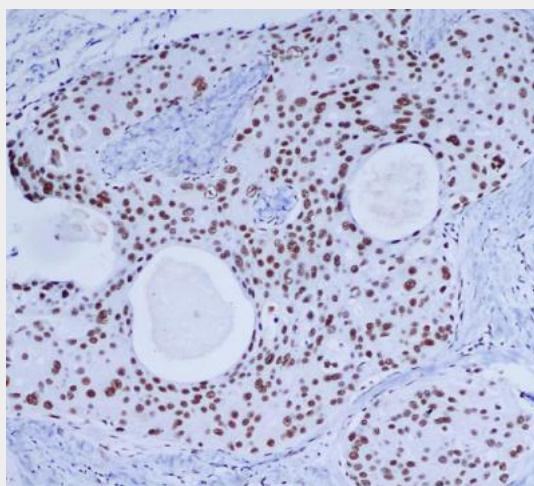




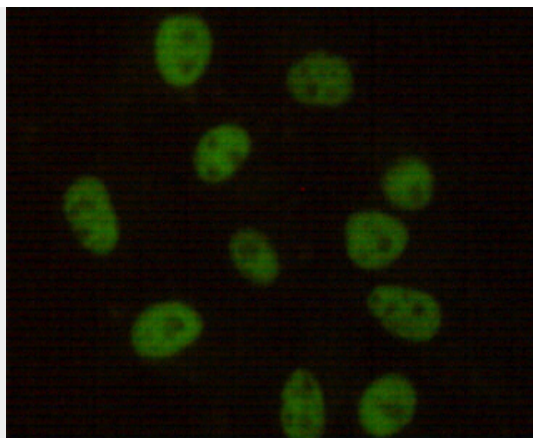
Immunoprecipitation analysis of HeLa cell lysate using DNA-PKcs mouse mAb.



Western blot detection of DNA-PKcs in HeLa and K562 cell lysates using DNA-PKcs mouse mAb (1:1000 diluted). Predicted band size: 450KDa, Observed band size: 450KDa.



Immunohistochemical analysis of paraffin-embedded Breast cancer using DNA-PKcs mouse mAb (1/200 dilution). Antigen retrieval was performed by pressure cooking in citrate buffer (pH 6.0).



Immunocytochemistry stain of HeLa using DNA-PKcs mouse mAb (1:100).

DNA-PKcs Antibody - Background

Serine/threonine-protein kinase that acts as a molecular sensor for DNA damage. Involved in DNA non-homologous end joining (NHEJ) required for double-strand break (DSB) repair and V(D)J recombination. Must be bound to DNA to express its catalytic properties. Promotes processing of hairpin DNA structures in V(D)J recombination by activation of the hairpin endonuclease artemis (DCLRE1C). The assembly of the DNA-PK complex at DNA ends is also required for the NHEJ ligation step. Required to protect and align broken ends of DNA. May also act as a scaffold protein to aid the localization of DNA repair proteins to the site of damage. Found at the ends of chromosomes, suggesting a further role in the maintenance of telomeric stability and the prevention of chromosomal end fusion. Also involved in modulation of transcription. Recognizes the substrate consensus sequence [ST]-Q. Phosphorylates 'Ser-139' of histone variant H2AX/H2AFX, thereby regulating DNA damage response mechanism. Phosphorylates DCLRE1C, c-Abl/ABL1, histone H1, HSPCA, c-jun/JUN, p53/TP53, PARP1, POU2F1, DHX9, SRF, XRCC1, XRCC1, XRCC4, XRCC5, XRCC6, WRN, MYC and RFA2. Can phosphorylate C1D not only in the presence of linear DNA but also in the presence of supercoiled DNA. Ability to phosphorylate p53/TP53 in the presence of supercoiled DNA is dependent on C1D. 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. Interacts with CRY1 and CRY2; negatively regulates CRY1 phosphorylation.

DNA-PKcs Antibody - References

- Hartley K.O., et al. Cell 82:849-856(1995).
Gell D., et al. Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
Anderson C.W., et al. Radiat. Res. 156:2-9(2001).
Ladenburger E.M., et al. Cytogenet. Cell Genet. 77:268-270(1997).
Sipley J.D., et al. Proc. Natl. Acad. Sci. U.S.A. 92:7515-7519(1995).