

Anti-DNA PKcs Antibody
Catalog # ABO11278**Specification**

Anti-DNA PKcs Antibody - Product Information

Application	WB
Primary Accession	P78527
Host	Rabbit
Reactivity	Human
Clonality	Polyclonal
Format	Lyophilized

Description

Rabbit IgG polyclonal antibody for DNA-dependent protein kinase catalytic subunit(PRKDC) detection. Tested with WB in Human.

Reconstitution

Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Anti-DNA PKcs Antibody - Additional Information

Gene ID 5591

Other Names

DNA-dependent protein kinase catalytic subunit, DNA-PK catalytic subunit, DNA-PKcs, 2.7.11.1, DNPK1, p460, PRKDC, HYRC, HYRC1

Calculated MW

469089 MW KDa

Application Details

Western blot, 0.1-0.5 µg/ml, Human

Subcellular Localization

Nucleus. Nucleus, nucleolus.

Protein Name

DNA-dependent protein kinase catalytic subunit

Contents

Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na₂HPO₄, 0.05mg Thimerosal, 0.05mg NaN₃.

Immunogen

A synthetic peptide corresponding to a sequence at the N-terminus of human DNA PKcs(328-346aa AKNAEMHK~~N~~KLQYFMEQFY).

Purification

Immunogen affinity purified.

Cross Reactivity

No cross reactivity with other proteins

Storage

At -20°C for one year. After reconstitution, at 4°C for one month. It can also be aliquotted and stored frozen at -20°C for a longer time. Avoid repeated freezing and thawing.

Sequence Similarities

Belongs to the PI3/PI4-kinase family.

Anti-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).

[15574326](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/32103174)). Binding to U3 small nucleolar RNA, recruits PRKDC and XRCC5/Ku86 to the small-subunit processome (PubMed:[32103174](http://www.uniprot.org/citations/32103174)). Recognizes the substrate consensus sequence [ST]-Q (PubMed:[11955432](http://www.uniprot.org/citations/11955432), PubMed:[12649176](http://www.uniprot.org/citations/12649176), PubMed:[14734805](http://www.uniprot.org/citations/14734805), PubMed:[15574326](http://www.uniprot.org/citations/15574326)). Phosphorylates 'Ser-139' of histone variant H2AX, thereby regulating DNA damage response mechanism (PubMed:[14627815](http://www.uniprot.org/citations/14627815), PubMed:[16046194](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/10026262), PubMed:[10467406](http://www.uniprot.org/citations/10467406), PubMed:[11889123](http://www.uniprot.org/citations/11889123), PubMed:[12509254](http://www.uniprot.org/citations/12509254), PubMed:[14599745](http://www.uniprot.org/citations/14599745), PubMed:[14612514](http://www.uniprot.org/citations/14612514), PubMed:[14704337](http://www.uniprot.org/citations/14704337), PubMed:[15177042](http://www.uniprot.org/citations/15177042), PubMed:[1597196](http://www.uniprot.org/citations/1597196), PubMed:[16397295](http://www.uniprot.org/citations/16397295), PubMed:[18644470](http://www.uniprot.org/citations/18644470), PubMed:[2247066](http://www.uniprot.org/citations/2247066), PubMed:[2507541](http://www.uniprot.org/citations/2507541), PubMed:[26237645](http://www.uniprot.org/citations/26237645), PubMed:[26666690](http://www.uniprot.org/citations/26666690), PubMed:[28712728](http://www.uniprot.org/citations/28712728), PubMed:[29478807](http://www.uniprot.org/citations/29478807), PubMed:[30247612](http://www.uniprot.org/citations/30247612), PubMed:[8407951](http://www.uniprot.org/citations/8407951), PubMed:[8464713](http://www.uniprot.org/citations/8464713), PubMed:[9139719](http://www.uniprot.org/citations/9139719), PubMed:[9362500](http://www.uniprot.org/citations/9362500)). Can phosphorylate C1D not only in the presence of linear DNA but also in the presence of supercoiled DNA (PubMed:[9679063](http://www.uniprot.org/citations/9679063)). Ability to phosphorylate p53/TP53 in the presence of supercoiled DNA is dependent on C1D (PubMed:[9363941](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/28712728)). Also regulates the cGAS-STING pathway by catalyzing phosphorylation of CGAS, thereby impairing CGAS oligomerization and activation (PubMed:[33273464](http://www.uniprot.org/citations/33273464)). Also regulates the cGAS-STING pathway by mediating phosphorylation of PARP1 (PubMed:[35460603](http://www.uniprot.org/citations/35460603)).

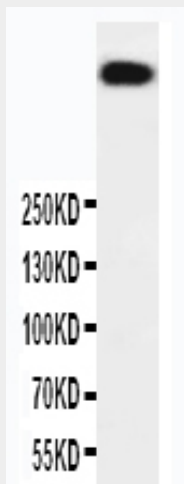
Cellular Location

Nucleus. Nucleus, nucleolus. Cytoplasm, cytosol

Anti-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](#)

Anti-DNA PKcs Antibody - Images

Anti-DNA PKcs antibody, ABO11278, Western blottingWB: HELA Cell Lysate

Anti-DNA PKcs Antibody - Background

PRKDC(Protein Kinase DNA-Activated Catalytic Subunit), also called DNAPK, HYRC1, p350 or DNPK1, is an enzyme that in humans is encoded by the PRKDC gene. DNA-PKcs belongs to the phosphatidylinositol 3-kinase-related kinase protein family. Satoh et al.(1997) mapped the MCM4 gene to 8q11.2 by FISH. Based on the close proximity of the PRKDC and MCM4 genes, it was assumed that the PRKDC gene also maps to this location. Anderson and Lees-Miller(1992) noted that DNA-PK had been shown in vitro to phosphorylate several transcription factors, suggesting that it functions in cell homeostasis by modulating transcription. Daniel et al.(1999) demonstrated that the PRKDC protein participates in retroviral DNA integration, which is catalyzed by the viral protein integrase.