

**Phospho-DNA-PK(T2609) Antibody**  
**Affinity Purified Rabbit Polyclonal Antibody (Pab)**  
**Catalog # AP3484a**

**Specification**

**Phospho-DNA-PK(T2609) Antibody - Product Information**

|                   |                        |
|-------------------|------------------------|
| Application       | <b>DB,E</b>            |
| Primary Accession | <a href="#">P78527</a> |
| Reactivity        | <b>Human</b>           |
| Host              | <b>Rabbit</b>          |
| Clonality         | <b>Polyclonal</b>      |
| Isotype           | <b>Rabbit Ig</b>       |
| Calculated MW     | <b>469089</b>          |

**Phospho-DNA-PK(T2609) Antibody - Additional Information**

**Gene ID 5591**

**Other Names**

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

**Target/Specificity**

This DNA-PK Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding T2609 of human DNA-PK.

**Dilution**

DB~~1:500

**Format**

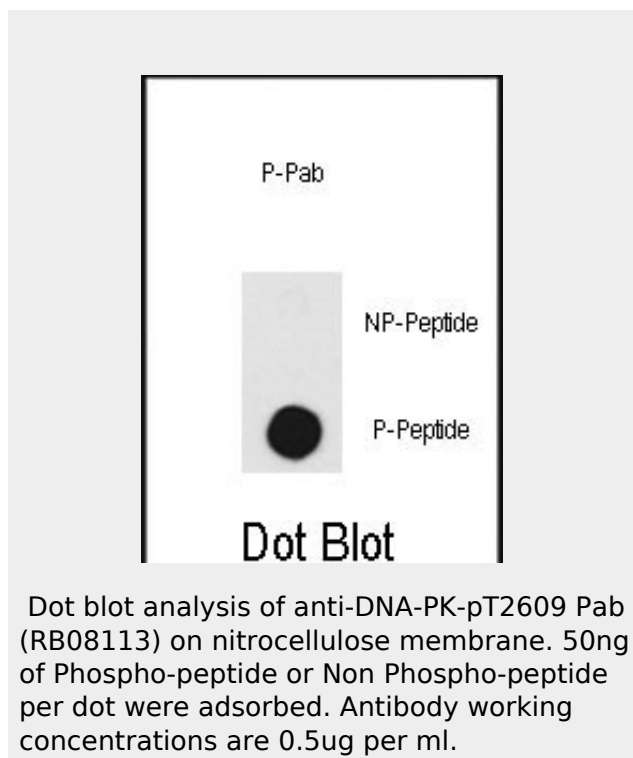
Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.

**Storage**

Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

**Precautions**

Phospho-DNA-PK(T2609) Antibody is for



**Phospho-DNA-PK(T2609) Antibody - Background**

Protein kinases are enzymes that transfer a phosphate group from a phosphate donor, generally the  $\gamma$  phosphate of ATP, onto an acceptor amino acid in a substrate protein. By this basic mechanism, protein kinases mediate most of the signal transduction in eukaryotic cells, regulating cellular metabolism, transcription, cell cycle progression, cytoskeletal rearrangement and cell movement, apoptosis, and differentiation. With more than 500 gene products, the protein kinase family is one of the largest families of proteins in eukaryotes. The family has been classified in 8 major groups based on sequence comparison of their tyrosine (PTK) or serine/threonine (STK) kinase catalytic domains. The STE group (homologs of yeast Sterile 7, 11, 20 kinases) consists of 50 kinases related to the mitogen-activated protein kinase (MAPK) cascade families (Ste7/MAP2K,

research use only and not for use in diagnostic or therapeutic procedures.

#### **Phospho-DNA-PK(T2609) Antibody - Protein Information**

**Name** PRKDC

**Synonyms** HYRC, HYRC1

#### **Function**

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 (PubMed:<a href="http://www.uniprot.org/citations/11955432" target="\_blank">11955432</a>, PubMed:<a href="http://www.uniprot.org/citations/12649176" target="\_blank">12649176</a>, PubMed:<a href="http://www.uniprot.org/citations/14734805" target="\_blank">14734805</a>). 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) (PubMed:<a href="http://www.uniprot.org/citations/11955432" target="\_blank">11955432</a>). The assembly of the DNA-PK complex at DNA ends is also required for the NHEJ ligation step (PubMed:<a href="http://www.uniprot.org/citations/15574326" target="\_blank">15574326</a>, PubMed:<a href="http://www.uniprot.org/citations/11955432" target="\_blank">11955432</a>, PubMed:<a href="http://www.uniprot.org/citations/12649176" target="\_blank">12649176</a>, PubMed:<a href="http://www.uniprot.org/citations/14734805" target="\_blank">14734805</a>). Required to protect and align broken ends of DNA (PubMed:<a href="http://www.uniprot.org/citations/15574326" target="\_blank">15574326</a>, PubMed:<a href="http://www.uniprot.org/citations/11955432" target="\_blank">11955432</a>, PubMed:<a href="http://www.uniprot.org/citations/12649176" target="\_blank">12649176</a>, PubMed:<a href="http://www.uniprot.org/citations/14734805" target="\_blank">14734805</a>).

Ste11/MAP3K, and Ste20/MAP4K). MAP kinase cascades, consisting of a MAPK and one or more upstream regulatory kinases (MAPKKs) have been best characterized in the yeast pheromone response pathway. Pheromones bind to Stem cell surface receptors and activate yeast MAPK pathway.

#### **Phospho-DNA-PK(T2609) Antibody - References**

Goudelock, D.M., et al., J. Biol. Chem. 278(32):29940-29947 (2003).  
Ding, Q., et al., Mol. Cell. Biol. 23(16):5836-5848 (2003).  
Lucero, H., et al., J. Biol. Chem. 278(24):22136-22143 (2003).  
Calsou, P., et al., J. Mol. Biol. 326(1):93-103 (2003).  
Karpova, A.Y., et al., Proc. Natl. Acad. Sci. U.S.A. 99(5):2818-2823 (2002).

PubMed:<a href="http://www.uniprot.org/citations/14734805" target="\_blank">14734805</a>). May also act as a scaffold protein to aid the localization of DNA repair proteins to the site of damage (PubMed:<a href="http://www.uniprot.org/citations/15574326" target="\_blank">15574326</a>, PubMed:<a href="http://www.uniprot.org/citations/11955432" target="\_blank">11955432</a>, PubMed:<a href="http://www.uniprot.org/citations/12649176" target="\_blank">12649176</a>, PubMed:<a href="http://www.uniprot.org/citations/14734805" target="\_blank">14734805</a>). 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 (PubMed:<a href="http://www.uniprot.org/citations/15574326" target="\_blank">15574326</a>, PubMed:<a href="http://www.uniprot.org/citations/11955432" target="\_blank">11955432</a>, PubMed:<a href="http://www.uniprot.org/citations/12649176" target="\_blank">12649176</a>, PubMed:<a href="http://www.uniprot.org/citations/14734805" target="\_blank">14734805</a>). 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:<a href="http://www.uniprot.org/citations/32103174" target="\_blank">32103174</a>). Binding to U3 small nucleolar RNA, recruits PRKDC and XRCC5/Ku86 to the small-subunit processome (PubMed:<a href="http://www.uniprot.org/citations/32103174" target="\_blank">32103174</a>). Recognizes the substrate consensus sequence [ST]-Q (PubMed:<a href="http://www.uniprot.org/citations/15574326" target="\_blank">15574326</a>, PubMed:<a href="http://www.uniprot.org/citations/11955432" target="\_blank">11955432</a>, PubMed:<a href="http://www.uniprot.org/citations/12649176" target="\_blank">12649176</a>, PubMed:<a href="http://www.uniprot.org/citations/14734805" target="\_blank">14734805</a>).

target="\_blank">14734805</a>).  
Phosphorylates 'Ser-139' of histone variant  
H2AX, thereby regulating DNA damage  
response mechanism (PubMed:<a href="http://www.uniprot.org/citations/14627815"  
target="\_blank">14627815</a>,  
PubMed:<a href="http://www.uniprot.org/citations/16046194"  
target="\_blank">16046194</a>).  
Phosphorylates DCLRE1C, c-Abl/ABL1,  
histone H1, HSPCA, c-jun/JUN, p53/TP53,  
PARP1, POU2F1, DHX9, FH, SRF, XRCC1,  
XRCC1, XRCC4, XRCC5, XRCC6, WRN, MYC  
and RFA2 (PubMed:<a href="http://www.uniprot.org/citations/2507541"  
target="\_blank">2507541</a>,  
PubMed:<a href="http://www.uniprot.org/citations/2247066"  
target="\_blank">2247066</a>,  
PubMed:<a href="http://www.uniprot.org/citations/1597196"  
target="\_blank">1597196</a>,  
PubMed:<a href="http://www.uniprot.org/citations/8407951"  
target="\_blank">8407951</a>,  
PubMed:<a href="http://www.uniprot.org/citations/8464713"  
target="\_blank">8464713</a>,  
PubMed:<a href="http://www.uniprot.org/citations/9362500"  
target="\_blank">9362500</a>,  
PubMed:<a href="http://www.uniprot.org/citations/9139719"  
target="\_blank">9139719</a>,  
PubMed:<a href="http://www.uniprot.org/citations/10026262"  
target="\_blank">10026262</a>,  
PubMed:<a href="http://www.uniprot.org/citations/10467406"  
target="\_blank">10467406</a>,  
PubMed:<a href="http://www.uniprot.org/citations/12509254"  
target="\_blank">12509254</a>,  
PubMed:<a href="http://www.uniprot.org/citations/11889123"  
target="\_blank">11889123</a>,  
PubMed:<a href="http://www.uniprot.org/citations/14612514"  
target="\_blank">14612514</a>,  
PubMed:<a href="http://www.uniprot.org/citations/14704337"  
target="\_blank">14704337</a>,  
PubMed:<a href="http://www.uniprot.org/citations/16397295"  
target="\_blank">16397295</a>,  
PubMed:<a href="http://www.uniprot.org/citations/26237645"

target="\_blank">26237645</a>,  
PubMed:<a href="http://www.uniprot.org/citations/28712728"  
target="\_blank">28712728</a>). Can  
phosphorylate C1D not only in the presence  
of linear DNA but also in the presence of  
supercoiled DNA (PubMed:<a href="http://www.uniprot.org/citations/9679063"  
target="\_blank">9679063</a>). Ability to  
phosphorylate p53/TP53 in the presence of  
supercoiled DNA is dependent on C1D  
(PubMed:<a href="http://www.uniprot.org/citations/9363941"  
target="\_blank">9363941</a>).  
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:<a href="http://www.uniprot.org/citations/28712728"  
target="\_blank">28712728</a>).

#### **Cellular Location**

Nucleus. Nucleus, nucleolus

#### **Phospho-DNA-PK(T2609) 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](#)