10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Biotinylated DNA-PK-T2647 Phospho Peptide
Synthetic Peptide
Catalog # SP2045b

Specification

Biotinylated DNA-PK-T2647 Phospho Peptide - Product Information

Primary Accession	P78527
Sequence	**Biotin-QQHDFTL(pT)QTADGRS**

Biotinylated DNA-PK-T2647 Phospho Peptide - Additional Information

Gene ID 5591

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

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

Biotinylated DNA-PK-T2647 Phospho Peptide - 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:15574326, PubMed:11955432, PubMed:12649176, PubMed:14734805, PubMed:33854234). Act as a scaffold protein to aid the localization of DNA repair proteins to the site of damage (PubMed:15574326, PubMed:11955432, PubMed:12649176, PubMed:14734805). The assembly of the DNA-PK complex at DNA ends is also required for the NHEJ ligation step (PubMed:15574326, PubMed:11955432, PubMed:12649176, PubMed:14734805). 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:15574326, PubMed:11955432, PubMed:12649176, PubMed:14734805). 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:15574326, PubMed:11955432, PubMed:12649176, PubMed:14734805). 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:2507541, PubMed:2247066, PubMed:1597196, PubMed:8407951, PubMed:8464713, PubMed:9362500, PubMed:9139719, PubMed:10026262, PubMed:10467406, PubMed:12509254, PubMed:11889123, PubMed:14612514, PubMed:14599745, PubMed:15177042, PubMed:18644470, PubMed:26666690, PubMed:<a href="http://www.uniprot.org/citations/30247612"

target="_blank">30247612, PubMed:14704337, PubMed:16397295, PubMed:26237645, PubMed:28712728, PubMed:29478807). 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). 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

Biotinylated DNA-PK-T2647 Phospho Peptide - Images