# Data Sheet (Cat.No.TMAH-00948)

## Anti-Phospho-PRKDC (Ser2056) Antibody (3F632)

### Product Details

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| Ig Type: | Rabbit IgG |
| Reactivity: | Human |
| Conjugation: | Unconjugated |
| Clone: | 3F632 |
| Purification: | Affinity-chromatography |

### Applications

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| Verified Activity: | Immunofluorescence staining of Hela cells(treated with UV) with TMAH-00948 at 1:100,counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeabilized using 0.2% Triton X-100 and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4°C. The secondary antibody was Alexa Fluor 488-congugated AffiniPure Goat Anti-Rabbit IgG (H+L). |
| Application: | ELISA,IF |
| Recommended | IF:1:20-1:200. |

### Properties

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| Stability & Storage: | Store at -20°C or -80°C for 12 months. Avoid repeated freeze-thaw cycles. |
| Shipping: | Shipping with blue ice. |

### Antigen Details

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| Immunogen: | A synthetic peptide: Human Phospho-PRKDC (S2056) |
| Antigen Species: | Human |
| Gene ID: | 5591 |
| Uniprot ID: | P78527 |
| Synonyms: | DNAPK;HYRC1;p-PRKDC (Ser2056);complementing 1;PRKDC (p-Ser2056);DNPK 1;IMD26;DNPK1;p350;HYRC;p-PRKDC (S2056);PRKDC (p-S2056);Protein Kinase DNA Activated Catalytic Polypeptide;PKRDC;DNA-PKcs;Phospho-PRKDC (S2056);Hyper radiosensitivity of murine scid mutation;p460;Hyperradiosensitivity complementing 1;XRCC7;DNAPK catalytic subunit;XRCC 7;PRKDC;DNA dependent protein kinase catalytic subunit;DNA PK catalytic subunit;HYRC 1 |
| Biology Area: | Epigenetics and Nuclear Signaling |

### Research 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). 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. Act as a scaffold protein to aid the localization of DNA repair proteins to the site of damage. The assembly of the DNA-PK complex at DNA ends is also required for the NHEJ ligation step. 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. 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. Binding to U3 small nucleolar RNA, recruits PRKDC and XRCC5/Ku86 to the small-subunit processome. Recognizes the substrate consensus sequence [ST]-Q. Phosphorylates 'Ser-139' of histone variant H2AX, thereby regulating DNA damage response mechanism. Phosphorylates 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. 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. 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.



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