SANTA CRUZ BIOTECHNOLOGY, INC.

DNA-PK$_{CS}$ (H-163): sc-9051

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The phosphatidylinositol kinase (PIK) family members fall into two distinct subgroups. The first subgroup contains proteins such as the PI 3- and PI 4-kinases and the second group comprises the PIK-related kinases. The PIK-related kinases include Atm, DNA-PK$_{CS}$ and FRAP. These proteins have in common a region of homology at their carboxy-termini that is not present in the PI 3- and PI 4-kinases. The Atm gene is mutated in the autosomal recessive disorder ataxia telangiectasia (AT) that is characterized by cerebellar degeneration (ataxia) and the appearance of dilated blood vessels (telangiectases) in the conjunctivae of the eyes. AT cells are hypersensitive to ionizing radiation, impaired in mediating the inhibition of DNA synthesis and they display delays in p53 induction. DNA-PK is a heterotrimeric DNA binding enzyme that is composed of a large subunit, DNA-PK$_{CS}$, and two smaller subunits collectively known as Ku. The loss of DNA-PK leads to defects in DSB repair and V(D)J recombination. FRAP can autophosphorylate on serine and bind to Rapamycin/FKBP. FRAP is also an upstream regulator of S6 kinase and has been implicated in the regulation of p27 and p21 expression.

CHROMOSOMAL LOCATION

Genetic locus: PRKDC (human) mapping to 8q11.21; Prkdc (mouse) mapping to 16 A2.

SOURCE

DNA-PK$_{CS}$ (H-163) is a rabbit polyclonal antibody raised against amino acids 3965-4127 mapping at the C-terminus of DNA-PK$_{CS}$ (DNA-dependent protein kinase catalytic subunit) of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

DNA-PK$_{CS}$ (H-163) is recommended for detection of DNA-PK$_{CS}$ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DNA-PKCS (H-163) is also recommended for detection of DNA-PKCS in additional species, including equine, canine and porcine.

Suitable for use as control antibody for DNA-PK$_{CS}$ siRNA (h): sc-35200, DNA-PK$_{CS}$ siRNA (m): sc-35201, DNA-PK$_{CS}$ shRNA Plasmid (h): sc-35200-SH, DNA-PK$_{CS}$ shRNA Plasmid (m): sc-35201-SH, DNA-PK$_{CS}$ shRNA (h) Lentiviral Particles: sc-35200-V and DNA-PK$_{CS}$ shRNA (m) Lentiviral Particles: sc-35201-V.

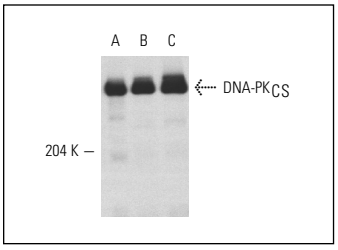
Molecular Weight of DNA-PK$_{CS}$: 460 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, HeLa whole cell lysate: sc-2200 or MOLT-4 cell lysate: sc-2233.

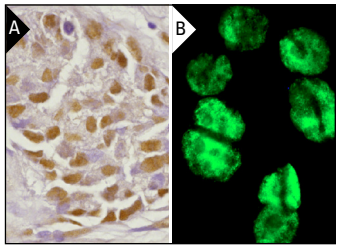
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



DNA-PK$_{CS}$ (H-163): sc-9051. Western blot analysis of DNA-PK$_{CS}$ expression in HeLa (**A**), MOLT-4 (**B**) and K-562 (**C**) whole cell lysates.



DNA-PK$_{CS}$ (H-163): sc-9051. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast tumor (**A**) and immunofluorescence staining of methanol-fixed HeLa cells (**B**) showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Hayes, S.A., et al. 2003. p38 MAP kinase modulates Smad-dependent changes in human prostate cell adhesion. Oncogene 22: 4841-4850.
2. Hamer, G., et al. 2003. Function of DNA-protein kinase catalytic subunit during the early meiotic prophase without Ku70 and Ku86. Biol. Reprod. 68: 717-721.
3. Serrano, M.A., et al. 2012. DNA-PK, ATM and ATR collaboratively regulate p53-RPA interaction to facilitate homologous recombination DNA repair. Oncogene 32: 2452-2462.
4. Tavecchio, M., et al. 2012. Further characterisation of the cellular activity of the DNA-PK inhibitor, NU7441, reveals potential cross-talk with homologous recombination. Cancer Chemother. Pharmacol. 69: 155-164.
5. Su, J.H., et al. 2012. 10-acetylirciformonin B, a sponge furanoterpenoid, induces DNA damage and apoptosis in leukemia cells. Molecules 17: 11839-11848.
6. Olsen, B.B., et al. 2012. Protein kinase CK2 localizes to sites of DNA double-strand break regulating the cellular response to DNA damage. BMC Mol. Biol. 13: 7.
7. Sousa, M.M., et al. 2013. An inverse switch in DNA base excision and strand break repair contributes to melphalan resistance in multiple myeloma cells. PLoS ONE 8: e55493.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

MONOS Satisfaction Guaranteed

Try **DNA-PK$_{CS}$ (G-12): sc-390849** or **DNA-PK$_{CS}$ (E-6): sc-390698**, our highly recommended monoclonal alternatives to DNA-PK$_{CS}$ (H-163). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **DNA-PK$_{CS}$ (G-12): sc-390849**.