SANTA CRUZ BIOTECHNOLOGY, INC.

DNA-PK$_{CS}$ (C-19): sc-1552

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 cerbellar 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$_{CS}$ (C-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of DNA-PK$_{CS}$ 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.

Blocking peptide available for competition studies, sc-1552 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

DNA-PK$_{CS}$ (C-19) is recommended for detection of DNA-PK$_{CS}$ of mouse, rat, human and *Xenopus laevis* 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-PK$_{CS}$ (C-19) is also recommended for detection of PK$_{CS}$ in additional species, including equine, canine, bovine and porcine.

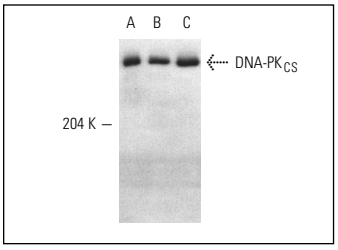
Suitable for use as control antibody for DNA-PK$_{CS}$ siRNA (h): sc-35200, DNA-PK$_{CS}$ siRNA (m): sc-35201, DNA-PK$_{CS}$ shRNA Plasmid (h): sc-35200-SH, DNA-PK$_{CS}$ shRNA Plasmid (m): sc-35201-SH, DNA-PK$_{CS}$ shRNA (h) Lentiviral Particles: sc-35200-V and DNA-PK$_{CS}$ shRNA (m) Lentiviral Particles: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

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

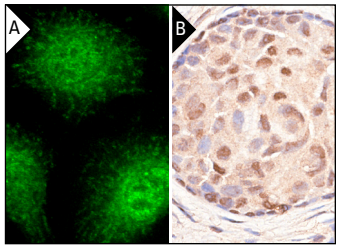
STORAGE

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

DATA



DNA-PK$_{CS}$ (C-19): sc-1552. Western blot analysis of DNA-PK$_{CS}$ expression in HeLa (**A**), MOLT-4 (**B**) and K-562 (**C**) whole cell lysates.



DNA-PK$_{CS}$ (C-19): sc-1552. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization (**A**). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast tumor showing nuclear staining (**B**).

SELECT PRODUCT CITATIONS

1. Okayasu, R., et al. 1998. Wortmannin inhibits repair of DNA double-strand breaks in irradiated normal human cells. Radiat. Res. 149: 440-445.
2. Henriksson, G., et al. 2004. Enhanced DNA-dependent protein kinase activity in Sjögren's syndrome B cells. Rheumatology 43: 1109-1115.
3. Chen, G.G., et al. 2005. Differential role of hydrogen peroxide and staurosporine in induction of cell death in glioblastoma cells lacking DNA-dependent protein kinase. Apoptosis 10: 185-192.
4. Lee, H.S., et al. 2005. Loss of DNA-dependent protein kinase catalytic subunit (DNA-PKcs) expression in gastric cancers. Cancer Res. Treat. 37: 98-102.
5. Sallmyr, A., et al. 2008. Up-regulation of WRN and DNA ligase IIIα in chronic myeloid leukemia: consequences for the repair of DNA double-strand breaks. Blood 112: 1413-1423.
6. Knuesel, M.T., et al. 2009. The human CDK8 subcomplex is a histone kinase that requires Med12 for activity and can function independently of mediator. Mol. Cell. Biol. 29: 650-661.
7. Liu, H., et al. 2011. The dominant negative mutant Artemis enhances tumor cell radiosensitivity. Radiother. Oncol. 101: 66-72.

RESEARCH USE

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