SANTA CRUZ BIOTECHNOLOGY, INC.

Rad1 (N-18): sc-14314

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

DNA damage or incomplete replication of DNA results in inhibition of cell cycle progression at the G_1/S or G_2/M checkpoints by conserved regulatory mechanisms. Rad17 is involved in regulation of cell cycle arrest at the G_1 checkpoint, whereas Chk1, Rad1, Rad9 and Hus1 are involved in regulation of cell cycle arrest at the G_2 checkpoint. Overexpression of Rad17 results in p53 activation and an accumulation of cells in G_1 phase. Chk1 functions as an essential component in the G_2 DNA damage checkpoint by phosphorylating Cdc25C in response to DNA damage, thus inhibiting mitosis. Hus1 and Rad9 exhibit conserved function in fission yeast and higher eukaryotes. Hus1 has been shown to be phosphorylated in response to DNA damage, a process which requires Rad checkpoint genes. Rad9 is thought to be a candidate tumor suppressor gene because it is localized to human chromosome 11 containing a number of tumor suppressor loci.

CHROMOSOMAL LOCATION

Genetic locus: RAD1 (human) mapping to 5p13.2.

SOURCE

Rad1 (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Rad1 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-14314 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Rad1 (N-18) is recommended for detection of Rad1 of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Rad1 (N-18) is also recommended for detection of Rad1 in additional species, including equine.

Suitable for use as control antibody for Rad1 siRNA (h): sc-36356, Rad1 shRNA Plasmid (h): sc-36356-SH and Rad1 shRNA (h) Lentiviral Particles: sc-36356-V.

Molecular Weight of Rad1: 29 kDa.

Positive Controls: Rad1 (h): 293T Lysate: sc-110519, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

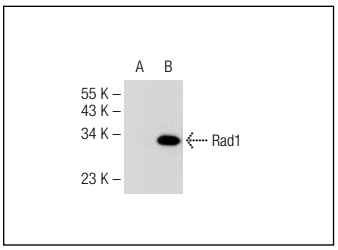
STORAGE

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

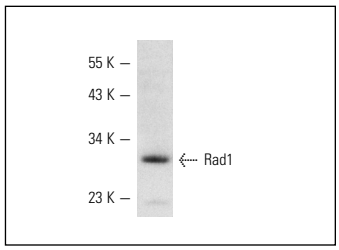
RESEARCH USE

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

DATA



Rad1 (N-18): sc-14314. Western blot analysis of Rad1 expression in non-transfected: sc-117752 (**A**) and human Rad1 transfected: sc-110519 (**B**) 293T whole cell lysates.



Rad1 (N-18): sc-14314. Western blot analysis of Rad1 expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Wang, W., et al. 2004. The human Rad9-Rad1-Hus1 checkpoint complex stimulates FLAP endonuclease 1. Proc. Natl. Acad. Sci. USA 48: 16762-16767.
2. Toueille, M., et al. 2004. The human Rad9-Rad1-Hus1 damage sensor clamp interacts with DNA polymerase β and increases its DNA substrate utilisation efficiency: implications for DNA repair. Nucleic Acids Res. 32: 3316-3324.
3. Gembka, A., et al. 2007. The checkpoint clamp, Rad9-Rad1-Hus1 complex, preferentially stimulates the activity of apurinic/apyrimidinic endonuclease 1 and DNA polymerase beta in long patch base excision repair. Nucleic Acids Res. 35: 2596-2608.
4. Kamimura, K., et al. 2007. Lack of Bcl11b tumor suppressor results in vulnerability to DNA replication stress and damages. Oncogene 26: 5840-5850.
5. Medhurst, A.L., et al. 2008. ATR and Rad17 collaborate in modulating Rad9 localisation at sites of DNA damage. J. Cell Sci. 121: 3933-3940.
6. Warmerdam, D.O., et al. 2010. Differential dynamics of ATR-mediated checkpoint regulators. J. Nucleic Acids. E-Published.
7. Mohni, K.N., et al. 2013. Efficient herpes simplex virus 1 replication requires cellular ATR pathway proteins. J. Virol. 87: 531-542.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.