SANTA CRUZ BIOTECHNOLOGY, INC.

p-p53 (Thr 18): sc-135631

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The Power to Question

BACKGROUND

p53 is a DNA-binding, oligomerization domain- and transcription activation domain-containing tumor suppressor that upregulates growth arrest and apoptosis-related genes in response to stress signals, thereby influencing programmed cell death, cell differentiation and cell cycle control mechanisms. p53 localizes to the nucleus yet can be chaperoned to the cytoplasm by the negative regulator MDM2, an E3 ubiquitin ligase that is upregulated in the presence of active p53, where MDM2 polyubiquitinates p53 for proteasome targeting. p53 can assemble into tetramers in the absence of DNA, fluctuates between latent and active (DNA-binding) conformations, and is differentially activated through posttranslational modifications including phosphorylation and acetylation. Mutations in the DNA-binding domain (DBD) (amino acids 110-286) of p53 can compromise energetically favorable association with *cis* elements and are implicated in several human cancers. Phosphorylation of p53 at residue Thr 155 is mediated by the COP9 signalosome (CSN) and targets p53 to ubiquitin-26S Proteasome-dependent degradation.

REFERENCES

1. Levine, A.J. 1997. p53, the cellular gatekeeper for growth and division. Cell 88: 323-331.
2. Ko, L.J., et al. 1997. p53 is phosphorylated by Cdk7-cyclin H in a $p36^{MAT1}$-dependent manner. Mol. Cell. Biol. 17: 7220-7229.
3. Sakaguchi, K., et al. 1998. DNA damage activates p53 through a phosphorylation-acetylation cascade. Genes Dev. 12: 2831-2841.
4. Jabbur, J.R., et al. 2000. DNA damage-induced phosphorylation of p53 at Serine 20 correlates with p21 and MDM2 induction *in vivo*. Oncogene 19: 6203-6208.
5. Dumaz, N., et al. 2001. Critical roles for the Serine 20, but not the Serine 15, phosphorylation site and for the polyproline domain in regulating p53 turnover. Biochem. J. 359: 459-464.
6. Chene, P. 2001. The role of tetramerization in p53 function. Oncogene 20: 2611-2617.
7. Xie, S., et al. 2001. Plk3 funcitonally links DNA damage to cell cycle arrest and apoptosis at least in part via the p53 pathway. J. Biol. Chem. 276: 43305-43312.
8. Bean, L.J., et al. 2001. Regulation of the accumulation and function of p53 by phosphorylation of two residues within the domain that binds to MDM2. J. Biol. Chem. 277: 1864-1871.

CHROMOSOMAL LOCATION

Genetic locus: TP53 (human) mapping to 17p13.1.

SOURCE

p-p53 (Thr 18) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 18 of p53 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-p53 (Thr 18) is recommended for detection of Thr 18 phosphorylated p53 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for p53 siRNA (h): sc-29435, p53 shRNA Plasmid (h): sc-29435-SH and p53 shRNA (h) Lentiviral Particles: sc-29435-V.

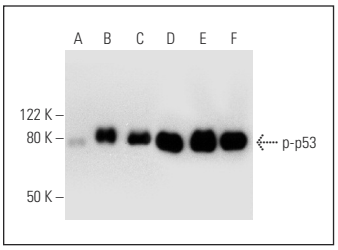
Molecular Weight of p-p53: 53 kDa.

Positive Controls: p53 (h3): 293T Lysate: sc-158802, MCF7 + etoposide cell lysate: sc-2281 or A-431 + PMA cell lysate: sc-2261.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent) and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Western blot analysis of p53 phosphorylation in untreated (**A**,**D**), CHK 1 treated (**B**,**E**) and DNA-PK treated (**C**,**F**) p53 recombinant proteins. Antibodies tested include p-p53 (Thr 18): sc-135631 (**A**,**B**,**C**) and p53 (Pab 240): sc-99 (**D**,**E**,**F**).

SELECT PRODUCT CITATIONS

1. Lee, M.H., et al. 2005. Nitric oxide induces apoptosis in mouse C2C12 myoblast cells. J. Pharmacol. Sci. 97: 369-376.

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.

PROTOCOLS

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