SANTA CRUZ BIOTECHNOLOGY, INC.

p-MDM2 (2G2): sc-53368

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The Power to Question

BACKGROUND

p53 is the most commonly mutated gene in human cancer identified to date. Expression of p53 leads to inhibition of cell growth by preventing progression of cells from G_1 to S phase of the cell cycle. Most importantly, p53 functions to cause arrest of cells in the G_1 phase of the cell cycle following any exposure of cells to DNA-damaging agents. The MDM2 (murine double minute-2) protein was initially identified as an oncogene in a murine transformation system. MDM2 functions to bind p53 and block p53-mediated transactivation of co-transfected reporter constructs. The MDM2 gene is amplified in a high percentage of human sarcomas that retain wildtype p53 and tumor cells that overexpress MDM2 and can tolerate high levels of p53 expression. These findings argue that MDM2 overexpression represents at least one mechanism by which p53 function can be abrogated during tumorigenesis. In response to ionization radiation, MDM2 may be phosphorylated on select amino acid residues, such as Thr 218.

REFERENCES

1. Kastan, M.B., et al. 1991. Participation of p53 protein in the cellular response to DNA damage. Cancer Res. 51: 6304-6311.
2. Kastan, M.B., et al. 1992. A mammalian cell cycle checkpoint pathway utilizing p53 and GADD 45 is defective in ataxia-telangiectasia. Cell 71: 587-597.
3. Oliner, J.D., et al. 1993. Oncoprotein MDM2 conceals the activation domain of tumor suppressor p53. Nature 362: 857-860.
4. Haines, D.S., et al. 1994. Physical and functional interaction between wildtype p53 and MDM2 proteins. Mol. Cell. Biol. 14: 1171-1178.
5. Chen, C.Y., et al. 1994. Interactions between p53 and MDM2 in a mammalian cell cycle checkpoint pathway. Proc. Natl. Acad. Sci. USA 91: 2684-2688.
6. Picksley, S.M., et al. 1994. Immunochemical analysis of the interaction of p53 with MDM2; fine mapping of the MDM2 binding site on p53 using synthetic peptides. Oncogene 9: 2523-2529.
7. Klein, C., et al. 2004. Targeting the p53-MDM2 interaction to treat cancer. Br. J. Cancer 91: 1415-1419.
8. Wang, Q., et al. 2008. Acidic domain is indispensable for MDM2 to negatively regulate the acetylation of p53. Biochem. Biophys. Res. Commun. 374: 437-441.
9. Brenkman, A.B., et al. 2008. MDM2 induces mono-ubiquitination of FOXO4. PLoS ONE 3: e2819.

CHROMOSOMAL LOCATION

Genetic locus: MDM2 (human) mapping to 12q15; Mdm2 (mouse) mapping to 10 D2.

SOURCE

p-MDM2 (2G2) is a mouse monoclonal antibody raised against a synthetic peptide corresponding to amino acids 180-190 containing Ser 186 phosphorylated MDM2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-MDM2 (2G2) is recommended for detection of Ser 186 phosphorylated MDM2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for MDM2 siRNA (h): sc-29394, MDM2 siRNA (m): sc-37263, MDM2 shRNA Plasmid (h): sc-29394-SH, MDM2 shRNA Plasmid (m): sc-37263-SH, MDM2 shRNA (h) Lentiviral Particles: sc-29394-V and MDM2 shRNA (m) Lentiviral Particles: sc-37263-V.

Molecular Weight of p-MDM2: 90 kDa.

Molecular Weight of p-MDM2 cleavage product: 60 kDa.

Positive Controls: U-2 OS cell lysate: sc-2295, A549 cell lysate: sc-2413 or MCF7 whole cell lysate: sc-2206.

SELECT PRODUCT CITATIONS

1. Kovacevic, Z., et al. 2011. The metastasis suppressor, N-Myc downstream regulated gene 1 (NDRG1), upregulates p21 via p53-independent mechanisms. Carcinogenesis 32: 732-740.
2. Meng, L., et al. 2018. Survivin is critically involved in VEGFR2 signaling-mediated esophageal cancer cell survival. Biomed. Pharmacother. 107: 139-145.
3. Goldsmith, Z.K., et al. 2018. Targeting the platelet-derived growth factor-β stimulatory circuitry to control retinoblastoma seeds. Invest. Ophthalmol. Vis. Sci. 59: 4486-4495.
4. Patel, R., et al. 2020. Simultaneous inhibition of atypical protein kinase-C and mTOR impedes bladder cancer cell progression. Int. J. Oncol. 56: 1373-1386.

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 for detailed protocols and support products.