Revision 1

#2015 Store at +4C

p53 (1C12) Mouse mAb (Alexa Fluor® 488 Conjugate)

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
FC-FP	H M R Hm Mk	Endogenous	Mouse IgG1	#P04637	7157

Product Usage Information

Application	Dilution
Flow Cytometry (Fixed/Permeabilized)	1:50

Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.

Specificity/Sensitivity

p53 (1C12) Mouse mAb (Alexa Fluor® 488 Conjugate) detects endogenous levels of total p53 protein.

Species predicted to react based on 100% sequence homology

Rabbit

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser20 of human p53. The antibody was conjugated to Alexa Fluor® 488 under optimal conditions with an F/P ratio of 2-6.

Description

This Cell Signaling Technology antibody is conjugated to Alexa Fluor® 488 fluorescent dye and tested in-house for direct flow cytometry and immunofluorescent analysis in human and mouse cells. The antibody is expected to exhibit the same species cross-reactivity as the unconjugated p53 (1C12) Mouse mAb #2524.

Background

The p53 tumor suppressor protein plays a major role in cellular response to DNA damage and other genomic aberrations. Activation of p53 can lead to either cell cycle arrest and DNA repair or apoptosis (1). p53 is phosphorylated at multiple sites *in vivo* and by several different protein kinases *in vitro* (2,3). DNA damage induces phosphorylation of p53 at Ser15 and Ser20 and leads to a reduced interaction between p53 and its negative regulator, the oncoprotein MDM2 (4). MDM2 inhibits p53 accumulation by targeting it for ubiquitination and proteasomal degradation (5,6). p53 can be phosphorylated by ATM, ATR, and DNA-PK at Ser15 and Ser37. Phosphorylation impairs the ability of MDM2 to bind p53, promoting both the accumulation and activation of p53 in response to DNA damage (4,7). Chk2 and Chk1 can phosphorylate p53 at Ser20, enhancing its tetramerization, stability, and activity (8,9). p53 is phosphorylated at Ser392 *in vivo* (10,11) and by CAK *in vitro* (11). Phosphorylation of p53 at Ser392 is increased in human tumors (12) and has been reported to influence the growth suppressor function, DNA binding, and transcriptional activation of p53 (10,13,14). p53 is phosphorylated at Ser6 and Ser9 by CK1δ and CK1ε both *in vitro* and *in vivo* (13,15). Phosphorylation of p53 at Ser46 regulates the ability of p53 to induce apoptosis (16). Acetylation of p53 is mediated by p300 and CBP acetyltransferases. Inhibition of deacetylation suppressing MDM2 from recruiting HDAC1 complex by p19 (ARF) stabilizes p53. Acetylation appears to play a positive role in the accumulation of p53 protein in stress response (17). Following DNA damage, human p53 becomes acetylated at Lys382 (Lys379 in mouse) *in vivo* to enhance p53-DNA binding (18). Deacetylation of p53 occurs through interaction with the SIRT1 protein, a deacetylase that may be involved in cellular aging and the DNA damage response (19).

Background References

1. Levine, A.J. (1997) *Cell* 88, 323-31.
2. Meek, D.W. (1994) *Semin Cancer Biol* 5, 203-10.
3. Milczarek, G.J. et al. (1997) *Life Sci* 60, 1-11.
4. Shieh, S.Y. et al. (1997) *Cell* 91, 325-34.
5. Chehab, N.H. et al. (1999) *Proc Natl Acad Sci U S A* 96, 13777-82.
6. Honda, R. et al. (1997) *FEBS Lett* 420, 25-7.
7. Tibbetts, R.S. et al. (1999) *Genes Dev* 13, 152-7.
8. Shieh, S.Y. et al. (1999) *EMBO J* 18, 1815-23.
9. Hirao, A. et al. (2000) *Science* 287, 1824-7.
10. Hao, M. et al. (1996) *J Biol Chem* 271, 29380-5.
11. Lu, H. et al. (1997) *Mol Cell Biol* 17, 5923-34.
12. Ullrich, S.J. et al. (1993) *Proc Natl Acad Sci U S A* 90, 5954-8.
13. Kohn, K.W. (1999) *Mol Biol Cell* 10, 2703-34.
14. Lohrum, M. and Scheidtmann, K.H. (1996) *Oncogene* 13, 2527-39.

15. Knippschild, U. et al. (1997) *Oncogene* 15, 1727-36.
16. Oda, K. et al. (2000) *Cell* 102, 849-62.
17. Ito, A. et al. (2001) *EMBO J* 20, 1331-40.
18. Sakaguchi, K. et al. (1998) *Genes Dev* 12, 2831-41.
19. Solomon, J.M. et al. (2006) *Mol Cell Biol* 26, 28-38.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Applications Key

FC-FP: Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Hm:** Hamster **Mk:** Monkey

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Limited Uses