

p53 Antibody

✓ 100 µl
(10 Western mini-blots)

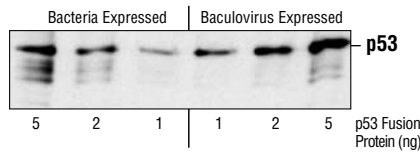
This product is for *in vitro* research use only and is not intended for use in humans or animals.
This product is not intended for use as a therapeutic or in diagnostic procedures.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IP, IF-IC Endogenous	H, R, Mk	53 kDa	Rabbit

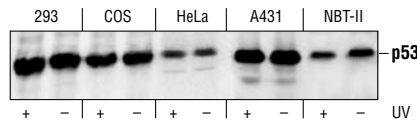
Background: The p53 tumor suppressor protein plays a major role in cellular response to DNA damage and other genomic aberrations. Activation of p53 can lead to either cell cycle arrest and DNA repair or apoptosis (1). p53 is phosphorylated at multiple sites *in vivo* and by several different protein kinases *in vitro* (2,3). DNA damage induces phosphorylation of p53 at Ser15 and Ser20 and leads to reduced interaction of p53 with its negative regulator, oncoprotein MDM2 (4). MDM2 inhibits the accumulation of p53 by targeting it for ubiquitination and proteasomal degradation (6,7). p53 can apparently be phosphorylated by ATM, ATR and DNA-PK at Ser15 and Ser37; the phosphorylations impair the ability of MDM2 to bind p53, promoting both the accumulation and activation of p53 in response to DNA damage (4,5). Chk2 and Chk1 can phosphorylate p53 at Ser20, enhancing its tetramerization, stability and activity (8,9). p53 is phosphorylated at Ser392 *in vivo* (11,12) and by CAK *in vitro* (12). Phosphorylation of p53 at Ser392 is altered in human tumors (14) and has been reported to influence the growth suppressor function, DNA binding and transcriptional activation of p53 (10,11,13). p53 is phosphorylated at Ser6 and Ser9 by ck1δ and ck1ε both *in vitro* and *in vivo* (10,15). Phosphorylation of p53 at Ser46 is important in regulating 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).

Specificity/Sensitivity: p53 Antibody detects endogenous levels of total p53 protein. The antibody does not cross-react with other p53-related proteins.

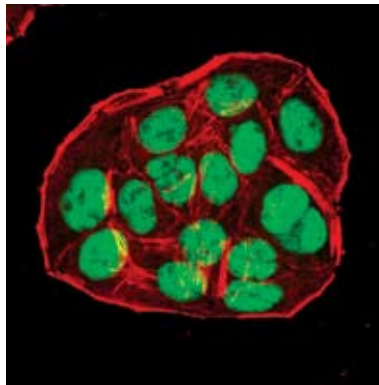
Source/Purification: Polyclonal antibodies are produced by immunizing animals with an MBP-p53 fusion protein. Antibodies are purified by protein A chromatography.



Western blot analysis of *E. coli* and Baculovirus expressed p53 fusion proteins, using p53 Antibody.



Western blot analysis of extracts from 293, COS, HeLa, A431 and NBT-II cells, untreated or UV-treated, using p53 Antibody.



Confocal immunofluorescent analysis of HT-29 cells using p53 Antibody (green). Actin filaments have been labeled with DY-554 phalloidin (red).

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Entrez-Gene ID #7157
Swiss-Prot Acc. #P04637

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

*Species cross-reactivity is determined by Western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

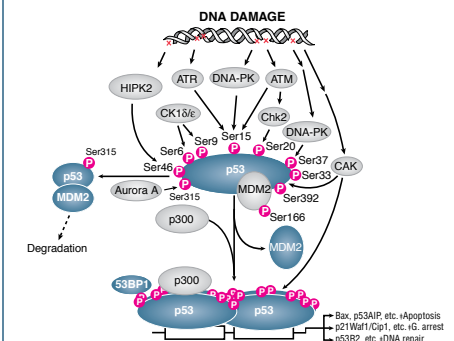
Western blotting	1:1000
Immunoprecipitation	1:200
Immunofluorescence (IF-IC)	1:800

For application specific protocols please see the web page for this product at www.cellsignal.com.

Companion Products:

p53 (1C12) Mouse mAb #2524
Phospho-p53 (Ser392) Antibody #9281
Phospho-p53 (Ser9) Antibody #9288
Phospho-p53 (Ser15) Antibody #9284
Phospho-p53 (Ser6) Antibody #9285
Phospho-p53 (Ser15) (16G8) Mouse mAb #9286
Phospho-p53 (Ser20) Antibody #9287
Phospho-p53 (Ser37) Antibody #9289
Phospho-p53 Antibody Sampler Kit #9919
Anti-rabbit IgG, HRP-linked Antibody #7074
Pre-stained Protein Marker, Broad Range (Premixed Format) #7720
Biotinylated Protein Ladder Detection Pack #7727
20X LumiGLO® Reagent and 20X Peroxide #7003

Please visit www.cellsignal.com for a complete listing of recommended companion products.



p53 Signaling Pathway

IMPORTANT: For Western blots, incubate membrane with diluted antibody in 5% nonfat dry milk, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide

Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebra fish B—bovine

Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% sequence homology.

Selected Application References:

Russell, J. L. et al. (2002) ARF differentially modulates apoptosis induced by E2F1 and Myc. *Mol. Cell. Biol.* 22, 1360–1368. Application: W.

Stansel, R. M. et al. (2002) p53 binds telomeric single strand overhangs and t-loop junctions *in vitro*. *J. Biol. Chem.* 277, 11625–11628. Application: Immunological Electron Microscopy.

Vaghefi, H. and Neet, K.E. (2004) Deacetylation of p53 after nerve growth factor treatment in PC12 cells as a post-translational modification mechanism of neurotrophin-induced tumor suppressor activation. *Oncogene* 23, 8078–8087. Application: W.

Daniely, Y. et al. (2002) Stress-dependent nucleolin mobilization mediated by p53-nucleolin complex formation. *Mol. Cell. Biol.* 22, 6014–6022. Applications: IP, W.

Background References:

- (1) Levine, A.J. (1997) *Cell* 88, 323–331.
- (2) Meek, D.W. (1994) *Semin. Cancer Biol.* 5, 203–210.
- (3) Milczarek, G.J. et al. (1997) *Life Sci.* 60, 1–11.
- (4) Shieh, S.Y. et al. (1997) *Cell* 91, 325–334.
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- (10) Kohn, K.W. (1999) *Mol. Biol. Cell* 10, 2703–2734.
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- (12) Lu, H. et al. (1997) *Mol. Cell. Biol.* 17, 5923–5934.
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- (15) Knippschild, U. et al. (1997) *Oncogene* 15, 1727–1736.
- (16) Oda, K. et al. (2000) *Cell* 102, 849–862.
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