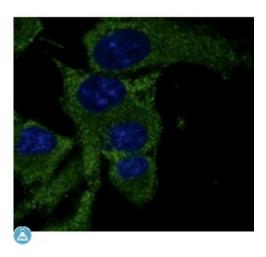


Anti-P53 antibody



Description

Goat polyclonal antibody to P53. This protein reacts to diverse cellular stresses to regulate target genes that induce apoptosis, senescence, cell cycle arrest, DNA repair, or changes in metabolism. p53 is a DNA-binding protein containing transcription activation, DNA- binding, and oligomerization domains. It is assumed to bind to a p53-binding site and activate expression of downstream genes that inhibit growth and/or invasion, and thus function as a tumour suppressor.

Model STJ140047

Host Goat

Reactivity Avian, Bovine, Canine, Donkey, Feline, Goat, Guinea Pig, Hamster, Horse,

Human, Mouse, Other, Porcine, Rabbit, Rat, Sheep, Simian

Applications IF, WB

Immunogen Recombinant peptide derived from within residues 280 aa to the C-terminus of

human P53 produced in E. coli.

Immunogen Region C-Term

Gene ID <u>7157</u>

Gene Symbol TP53

Dilution range Western blot 1:500-1:2,000 Immunofluorescence 1:50-1:250

Immunohistochemistry (paraffin) ND Immunohistochemistry (frozen) ND

Tissue Specificity Ubiquitous. Isoforms are expressed in a wide range of normal tissues but in a

tissue-dependent manner. Isoform 2 is expressed in most normal tissues but is not detected in brain, lung, prostate, muscle, fetal brain, spinal cord and fetal liver. Isoform 3 is expressed in most normal tissues but is not detected in lung,

spleen, testis, fetal brain, spinal cord and fetal liver. Isoform 7 is expressed in most normal tissues but is not detected in prostate, uterus, skeletal muscle and

breast. Isoform 8 is detec

Purification This antibody is epitope-affinity purified from goat antiserum.

Note For research use only (RUO).

Protein Name Cellular tumor antigen p53 Antigen NY-CO-13 Phosphoprotein p53 Tumor

suppressor p53

Molecular Weight 44 kDa

Clonality Polyclonal

Conjugation Unconjugated

Isotype IgG

Formulation PBS, 20% glycerol and 0.05% sodium azide.

Concentration 3 mg/mL

Storage Instruction Store at -20°, and avoid repeated freeze-thaw cycles.

Database Links <u>HGNC:11998OMIM:133239</u>

Alternative Names Cellular tumor antigen p53 Antigen NY-CO-13 Phosphoprotein p53 Tumor

suppressor p53

Function Acts as a tumor suppressor in many tumor types; induces growth arrest or

apoptosis depending on the physiological circumstances and cell type. Involved in cell cycle regulation as a trans-activator that acts to negatively regulate cell division by controlling a set of genes required for this process. One of the activated genes is an inhibitor of cyclin-dependent kinases. Apoptosis induction seems to be mediated either by stimulation of BAX and FAS antigen expression, or by repression of Bcl-2 expression. In cooperation

with mitochondrial PPIF is involved in activating oxidative stress-induced necrosis; the function is largely independent of transcription. Induces the transcription of long intergenic non-coding RNA p21 (lincRNA-p21) and

lincRNA-Mkln1. LincRNA-p21 participates in TP53-dependent

transcriptional repression leading to apoptosis and seem to have to effect on cell-cycle regulation. Implicated in Notch signaling cross-over. Prevents CDK7 kinase activity when associated to CAK complex in response to DNA damage, thus stopping cell cycle progression. Isoform 2 enhances the transactivation activity of isoform 1 from some but not all TP53-inducible promoters. Isoform 4 suppresses transactivation activity and impairs growth suppression mediated by isoform 1. Isoform 7 inhibits isoform 1-mediated apoptosis. Regulates the circadian clock by repressing CLOCK-

ARNTL/BMAL1-mediated transcriptional activation of PER2.

Sequence and Domain Family The nuclear export signal acts as a transcriptional repression domain. The

TADI and TADII motifs (residues 17 to 25 and 48 to 56) correspond both to 9aaTAD motifs which are transactivation domains present in a large number

of yeast and animal transcription factors.

Cellular Localization Cytoplasm. Nucleus. Nucleus, PML body. Endoplasmic reticulum.

Mitochondrion matrix. Interaction with BANP promotes nuclear localization.

Recruited into PML bodies together with CHEK2. Translocates to

mitochondria upon oxidative stress. Translocates to mitochondria in response

to mitomycin C treatment . Isoform 1: Nucleus. Cytoplasm. Predominantly nuclear but localizes to the cytoplasm when expressed with isoform 4.. Isoform 2: Nucleus. Cytoplasm. Localized mainly in the nucleus with minor staining in the cytoplasm.. Isoform 3: Nucleus. Cytoplasm. Localized in the nucleus in most cells but found in the cytoplasm in some cells.. Isoform 4: Nucleus. Cytoplasm. Predominantly nuclear but translocates to the cytoplasm following cell stress.. Isoform 7: Nucleus. Cytoplasm. Localized mainly in the nucleus with minor staining in the cytoplasm.. Isoform 8: Nucleus. Cytoplasm. Localized in both nucleus and cytoplasm in most cells. In some cells, forms foci in the nucleus that are different from nucleoli.. Isoform 9: Cytoplasm.

Post-translational Modifications

Acetylated. Acetylation of Lys-382 by CREBBP enhances transcriptional activity. Deacetylation of Lys-382 by SIRT1 impairs its ability to induce proapoptotic program and modulate cell senescence. Deacetylation by SIRT2 impairs its ability to induce transcription activation in a AKT-dependent manner. Phosphorylation on Ser residues mediates transcriptional activation. Phosphorylated by HIPK1. Phosphorylation at Ser-9 by HIPK4 increases repression activity on BIRC5 promoter. Phosphorylated on Thr-18 by VRK1. Phosphorylated on Ser-20 by CHEK2 in response to DNA damage, which prevents ubiquitination by MDM2. Phosphorylated on Ser-20 by PLK3 in response to reactive oxygen species (ROS), promoting p53/TP53-mediated apoptosis. Phosphorylated on Thr-55 by TAF1, which promotes MDM2mediated degradation. Phosphorylated on Ser-33 by CDK7 in a CAK complex in response to DNA damage. Phosphorylated on Ser-46 by HIPK2 upon UV irradiation. Phosphorylation on Ser-46 is required for acetylation by CREBBP. Phosphorylated on Ser-392 following UV but not gamma irradiation. Phosphorylated on Ser-15 upon ultraviolet irradiation; which is enhanced by interaction with BANP. Phosphorylated by NUAK1 at Ser-15 and Ser-392; was intially thought to be mediated by STK11/LKB1 but it was later shown that it is indirect and that STK11/LKB1-dependent phosphorylation is probably mediated by downstream NUAK1. It is unclear whether AMP directly mediates phosphorylation at Ser-15. Phosphorylated on Thr-18 by isoform 1 and isoform 2 of VRK2. Phosphorylation on Thr-18 by isoform 2 of VRK2 results in a reduction in ubiquitination by MDM2 and an increase in acetylation by EP300. Stabilized by CDK5-mediated phosphorylation in response to genotoxic and oxidative stresses at Ser-15, Ser-33 and Ser-46, leading to accumulation of p53/TP53, particularly in the nucleus, thus inducing the transactivation of p53/TP53 target genes. Phosphorylated by DYRK2 at Ser-46 in response to genotoxic stress. Phosphorylated at Ser-315 and Ser-392 by CDK2 in response to DNA-damage. Dephosphorylated by PP2A-PPP2R5C holoenzyme at Thr-55. SV40 small T antigen inhibits the dephosphorylation by the AC form of PP2A.; May be O-glycosylated in the C-terminal basic region. Studied in EB-1 cell line. Ubiquitinated by MDM2 and SYVN1, which leads to proteasomal degradation. Ubiquitinated by RFWD3, which works in cooperation with MDM2 and may catalyze the formation of short polyubiquitin chains on p53/TP53 that are not targeted to the proteasome. Ubiquitinated by MKRN1 at Lys-291 and Lys-292, which leads to proteasomal degradation. Deubiquitinated by USP10, leading to its stabilization. Ubiquitinated by TRIM24, RFFL, RNF34 and RNF125, which leads to proteasomal degradation. Ubiquitination by TOPORS induces degradation. Deubiquitination by USP7, leading to stabilization. Isoform 4 is monoubiquitinated in an MDM2-independent manner. Ubiquitinated by RFWD2, which leads to proteasomal degradation. Ubiquitination and

subsequent proteasomal degradation is negatively regulated by CCAR2. Monomethylated at Lys-372 by SETD7, leading to stabilization and increased transcriptional activation. Monomethylated at Lys-370 by SMYD2, leading to decreased DNA-binding activity and subsequent transcriptional regulation activity. Lys-372 monomethylation prevents interaction with SMYD2 and subsequent monomethylation at Lys-370. Dimethylated at Lys-373 by EHMT1 and EHMT2. Monomethylated at Lys-382 by KMT5A, promoting interaction with L3MBTL1 and leading to repress transcriptional activity. Dimethylation at Lys-370 and Lys-382 diminishes p53 ubiquitination, through stabilizing association with the methyl reader PHF20. Demethylation of dimethylated Lys-370 by KDM1A prevents interaction with TP53BP1 and represses TP53-mediated transcriptional activation.; Sumoylated with SUMO1. Sumoylated at Lys-386 by UBC9.

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