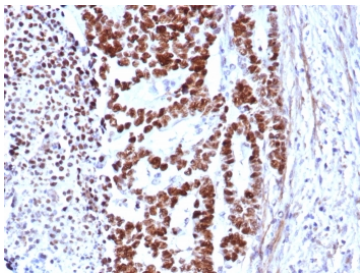
TP53 Antibody / Apoptosis Regulator Antibody [clone rTP53/8579] (V4440)

Catalog No.	Formulation	Size
V4440-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V4440-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V4440SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Recombinant MOUSE MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Recombinant Mouse Monoclonal
Isotype	Mouse IgG1, kappa
Clone Name	rTP53/8579
Purity	Protein A/G affinity
UniProt	P04637
Localization	Nucleus
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml for 30 minutes at RT
Limitations	This TP53 antibody is available for research use only.



TP53 Antibody / Apoptosis Regulator Antibody immunohistochemistry of human colon carcinoma. Formalin-fixed, paraffin-embedded human colon carcinoma tissue was stained using recombinant mouse monoclonal antibody clone rTP53/8579. Strong HRP-DAB brown nuclear staining is observed in tumor epithelial cells, consistent with nuclear localization of the TP53 apoptosis regulator protein p53. Hematoxylin counterstain provides nuclear contrast. Antigen retrieval was performed by boiling tissue sections in pH 9 10mM Tris with 1mM EDTA for 20 min followed by cooling prior to staining.

Description

Tumor protein p53 (TP53) is a nuclear transcription factor widely recognized as one of the most important apoptosis regulators in mammalian cells. Acting as a central mediator of programmed cell death, p53 determines whether cells

carrying severe genomic damage should be eliminated through apoptosis. The TP53 Antibody / Apoptosis Regulator Antibody detects this key apoptosis regulator, commonly known as p53, which activates transcriptional and mitochondrial pathways that drive programmed cell death in response to cellular stress.

TP53 antibody, also referred to as p53 antibody or Tumor protein p53 antibody in the literature, targets a protein that functions as a master apoptosis regulator within the cell. Under normal physiological conditions the apoptosis regulator p53 is maintained at very low levels through continuous ubiquitin-mediated degradation primarily controlled by the E3 ubiquitin ligase MDM2. When cells experience genotoxic stress such as DNA damage, oncogene activation, oxidative stress, or hypoxia, this regulatory pathway is disrupted, allowing stabilization and nuclear accumulation of the apoptosis regulator protein.

Once activated, the apoptosis regulator p53 functions as a sequence-specific transcription factor that induces expression of numerous pro-apoptotic genes. Among the most important transcriptional targets of the apoptosis regulator are BAX, PUMA, and NOXA, which promote mitochondrial outer membrane permeabilization and activation of the intrinsic apoptosis pathway. Through these transcriptional programs the apoptosis regulator p53 eliminates cells carrying irreparable DNA damage, preventing survival of genetically compromised cells.

In addition to its transcriptional activity, the apoptosis regulator p53 can also directly promote mitochondrial apoptosis through transcription-independent mechanisms. In this pathway p53 interacts with members of the BCL2 protein family at the mitochondrial outer membrane, facilitating release of cytochrome c and activation of caspases that execute programmed cell death. These complementary transcriptional and mitochondrial mechanisms reinforce the central role of p53 as a master apoptosis regulator in cellular stress responses.

Loss of TP53 apoptosis regulation is a common molecular event in human cancer. Mutations affecting the TP53 gene impair the ability of cells to undergo apoptosis following genomic damage, allowing survival and proliferation of genetically unstable cells. In many tumor types mutant forms of the apoptosis regulator protein become stabilized and accumulate within the nucleus, resulting in elevated p53 protein levels frequently detected in cancer tissues.

A recombinant mouse monoclonal TP53 antibody such as clone rTP53/8579 is suitable for detecting the p53 apoptosis regulator in studies examining programmed cell death pathways, tumor suppressor signaling networks, and cellular responses to genotoxic stress.

Researchers studying p53 expression and TP53 signaling can explore our Protein Microarray Validated p53 Antibody page for additional reagents targeting this key tumor suppressor in cancer, DNA damage response and cell cycle research.

Application Notes

Optimal dilution of the TP53 Antibody / Apoptosis Regulator Antibody should be determined by the researcher.

Immunogen

Recombinant full-length human protein was used as the immunogen for the TP53 Antibody / Apoptosis Regulator Antibody.

Storage

Aliquot the TP53 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

p53 antibody, Tumor protein p53 antibody, Cellular tumor antigen p53 antibody, Phosphoprotein p53 antibody, Transformation related protein 53 antibody

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