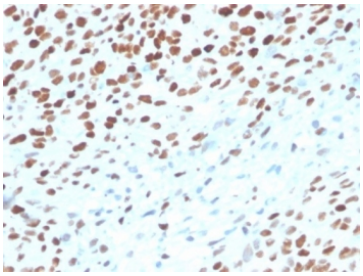
TP53 Antibody / Genome Stability Regulator Antibody [clone rTP53/3889] (V4439)

Catalog No.	Formulation	Size
V4439-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V4439-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V4439SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

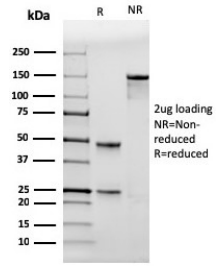
Recombinant | MOUSE MONOCLONAL

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	rTP53/3889
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 / Genome Stability Regulator Antibody immunohistochemistry of human bladder tissue. Formalin-fixed, paraffin-embedded human bladder tissue was stained using recombinant mouse monoclonal antibody clone rTP53/3889. Strong HRP-DAB brown nuclear staining is observed in urothelial epithelial cells, consistent with nuclear localization of the TP53 genome stability 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.



SDS-PAGE analysis of purified, BSA-free TP53 Antibody / Genome Stability Regulator Antibody (clone rTP53/3889) as confirmation of integrity and purity.

Description

Tumor protein p53 (TP53) is a nuclear transcription factor that functions as one of the most important genome stability regulators in mammalian cells. Acting as a central guardian of genomic integrity, p53 monitors cellular stress and coordinates transcriptional programs that prevent propagation of cells carrying damaged DNA. The TP53 Antibody / Genome Stability Regulator Antibody detects this essential genome stability regulator, widely known as p53, which integrates DNA repair pathways, checkpoint signaling, and apoptosis to maintain genome integrity.

TP53 antibody, also referred to as p53 antibody or Tumor protein p53 antibody in the literature, targets a protein that serves as a master genome stability regulator within the cell. Under normal physiological conditions the genome stability regulator p53 is maintained at very low levels through continuous ubiquitin-mediated degradation primarily driven by the E3 ubiquitin ligase MDM2. When genomic stress such as DNA damage, replication errors, oncogene activation, or oxidative stress occurs, this degradation pathway is inhibited, allowing stabilization and nuclear accumulation of the genome stability regulator protein.

Once activated, the genome stability regulator p53 functions as a sequence-specific transcription factor that binds regulatory DNA elements within genes responsible for maintaining genomic integrity. Activation of TP53 signaling induces expression of genes that enforce cell cycle checkpoints and coordinate genome maintenance pathways. One of the best characterized transcriptional targets of the genome stability regulator is CDKN1A (p21), which halts cell cycle progression at the G1/S checkpoint following DNA damage. This checkpoint control provides cells time to repair damaged DNA before replication proceeds.

In addition to checkpoint regulation, the genome stability regulator p53 coordinates multiple DNA repair pathways including nucleotide excision repair, base excision repair, and homologous recombination. Through these mechanisms the TP53 pathway preserves genome stability by preventing accumulation of mutations during DNA replication or cellular stress. When DNA damage is extensive and genome integrity cannot be restored, the genome stability regulator activates apoptotic signaling pathways that remove genetically compromised cells from the population.

Loss of TP53 genome stability regulation is one of the most common molecular events in human cancer. Mutations affecting the TP53 gene impair the ability of cells to maintain genomic integrity, allowing accumulation of chromosomal abnormalities and oncogenic mutations. In many tumors mutant forms of the genome stability regulator protein become stabilized and accumulate within the nucleus, producing elevated p53 protein levels frequently detected in cancer tissues.

A recombinant mouse monoclonal TP53 antibody such as clone rTP53/3889 is suitable for detecting the p53 genome stability regulator in studies examining genome maintenance pathways, DNA repair signaling networks, and molecular mechanisms that preserve genomic integrity during cellular 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 / Genome Stability Regulator Antibody should be determined by the researcher.

Immunogen

Recombinant human full-length protein was used as the immunogen for the TP53 Antibody / Genome Stability 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

Copyright © NSJ Bioreagents. All rights reserved.