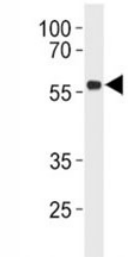
TP53 Antibody for Immunofluorescence / Tumor Protein p53 IF Antibody (F49539)

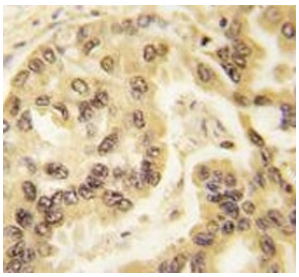
Catalog No.	Formulation	Size
F49539-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F49539-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

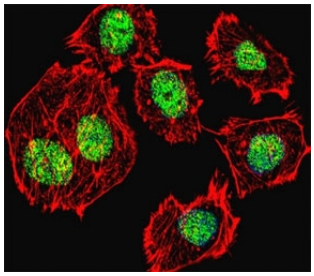
Availability	1-3 business days
Species Reactivity	Human
Predicted Reactivity	Primate
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity
UniProt	P04637
Applications	Western Blot : 1:1000 IHC (Paraffin) : 1:10-1:50 Immunofluorescence : 1:10-1:50
Limitations	This TP53 antibody is available for research use only.



p53/TP53 antibody western blot analysis in Daudi lysate.



IHC analysis of FFPE human lung carcinoma tissue stained with p53/TP53 antibody.



TP53 Antibody for Immunofluorescence / Tumor Protein p53 IF Antibody. Immunofluorescence analysis of human U251 glioma cells using TP53 Antibody for Immunofluorescence / Tumor Protein p53 IF Antibody shows strong nuclear localization of p53 (green). Cytoskeletal actin filaments are visualized with a red fluorescent counterstain, highlighting cellular morphology, while nuclei display concentrated p53 fluorescence consistent with transcription factor accumulation in the nucleus. The image was acquired using confocal fluorescence microscopy, demonstrating nuclear enrichment of Tumor protein p53 within human glioma cells.

Description

Tumor protein p53 (TP53) is a sequence-specific transcription factor that functions as a central tumor suppressor regulating DNA damage responses, cell cycle arrest, apoptosis, and genomic stability. A TP53 Antibody for Immunofluorescence enables direct visualization of p53 localization within cells using fluorescence microscopy, allowing researchers to examine nuclear accumulation, intracellular distribution, and dynamic changes in p53 expression at the single-cell level.

TP53 antibody, also referred to as Tumor protein p53 antibody or Cellular tumor antigen p53 antibody in the literature, targets one of the most extensively studied regulatory proteins in cancer biology. The TP53 gene is located on chromosome 17p13.1 and encodes a transcription factor belonging to the p53 family of DNA-binding proteins. The p53 protein contains several functional domains including an N-terminal transcriptional activation domain, a central DNA-binding region responsible for target gene recognition, a tetramerization domain that forms active p53 complexes, and a C-terminal regulatory region that modulates protein stability and DNA interaction.

In unstressed cells, p53 protein levels remain extremely low due to continuous ubiquitination and proteasomal degradation mediated by the E3 ubiquitin ligase MDM2. When cells encounter stress signals such as DNA damage, oncogene activation, oxidative stress, or hypoxia, this degradation pathway is inhibited and p53 becomes stabilized. The stabilized protein rapidly accumulates in the nucleus where it activates transcription of genes including CDKN1A (p21), BAX, and PUMA. A TP53 Antibody for Immunofluorescence allows these stress-induced changes to be visualized through fluorescent nuclear staining that reflects activation of the p53 signaling pathway.

Because many TP53 mutations produce stabilized proteins that accumulate in tumor cell nuclei, cancer cells frequently display strong nuclear fluorescence when stained using a TP53 Antibody for Immunofluorescence. Immunofluorescence imaging therefore provides a powerful method for detecting abnormal p53 accumulation and examining tumor-associated alterations in p53 regulation. In cancer cell lines, p53 staining commonly appears as bright nuclear fluorescence that contrasts with weak or absent signal in cells lacking stabilized protein.

Immunofluorescence microscopy using a TP53 Antibody for Immunofluorescence is particularly valuable for studying the spatial organization of p53 within individual cells. Fluorescent imaging can reveal nuclear enrichment, redistribution following DNA damage, and cell-to-cell variability in p53 expression within heterogeneous populations. These imaging-based approaches allow researchers to monitor p53 pathway activation after chemotherapeutic treatment, radiation exposure, or experimental induction of cellular stress.

Beyond its classical tumor suppressor function, p53 regulates numerous biological processes including metabolism,

autophagy, immune signaling, and stem cell homeostasis. The protein interacts with multiple regulatory partners such as MDM2, ATM, ATR, and p300/CBP that influence transcriptional activity and intracellular localization. Because these regulatory interactions often alter nuclear abundance and spatial distribution of p53, fluorescence imaging using a TP53 Antibody for Immunofluorescence provides a valuable tool for studying p53 signaling dynamics and tumor suppressor activity in normal and transformed cells.

Application Notes

Titration of the TP53 Antibody for Immunofluorescence / Tumor Protein p53 IF Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 293-322 from the human protein was used as the immunogen for this TP53 Antibody for Immunofluorescence / Tumor Protein p53 IF 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, TP53 tumor suppressor antibody