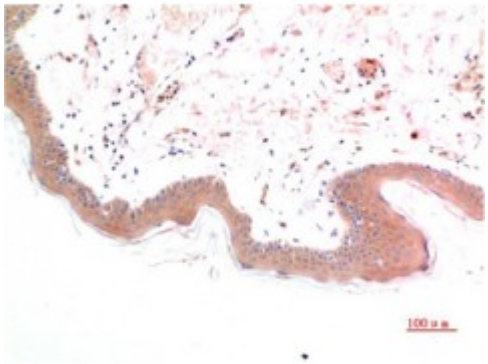
Anti-Phospho-Smad3 (S425) antibody



Description	Mouse monoclonal to Phospho-Smad3 (S425).

Model	STJ98875
Host	Mouse
Reactivity	Human, Mouse, Rat
Applications	ELISA, WB
Immunogen	synthetic peptide derived from Phospho-Smad3 (S425).
Immunogen Region	Phospho-Smad3 S425.
Gene ID	4088
Gene Symbol	SMAD3
Dilution range	WB 1:500-2000ELISA 1:10000-20000
Specificity	The antibody detects endogenous Phospho-Smad3 (S425) protein.
Purification	The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific immunogen.
Note	For Research Use Only (RUO).
Protein Name	Mothers against decapentaplegic homolog 3 MAD homolog 3 Mad3 Mothers against DPP homolog 3 hMAD-3 JV15-2 SMAD family member 3 SMAD 3 Smad3 hSMAD3
Molecular Weight	52kDa
Clonality	Monoclonal
Conjugation	Unconjugated

Formulation	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide.
Concentration	1 mg/ml
Storage Instruction	Store at -20°C, and avoid repeat freeze-thaw cycles.
Database Links	HGNC:6769OMIM:114500
Alternative Names	Mothers against decapentaplegic homolog 3 MAD homolog 3 Mad3 Mothers against DPP homolog 3 hMAD-3 JV15-2 SMAD family member 3 SMAD 3 Smad3 hSMAD3
Function	Receptor-regulated SMAD (R-SMAD) that is an intracellular signal transducer and transcriptional modulator activated by TGF-beta (transforming growth factor) and activin type 1 receptor kinases. Binds the TRE element in the promoter region of many genes that are regulated by TGF-beta and, on formation of the SMAD3/SMAD4 complex, activates transcription. Also can form a SMAD3/SMAD4/JUN/FOS complex at the AP-1/SMAD site to regulate TGF-beta-mediated transcription. Has an inhibitory effect on wound healing probably by modulating both growth and migration of primary keratinocytes and by altering the TGF-mediated chemotaxis of monocytes. This effect on wound healing appears to be hormone-sensitive. Regulator of chondrogenesis and osteogenesis and inhibits early healing of bone fractures. Positively regulates PDPK1 kinase activity by stimulating its dissociation from the 14-3-3 protein YWHAQ which acts as a negative regulator.
Sequence and Domain Family	The MH1 domain is required for DNA binding. Also binds zinc ions which are necessary for the DNA binding.; The MH2 domain is required for both homomeric and heteromeric interactions and for transcriptional regulation. Sufficient for nuclear import.; The linker region is required for the TGFbeta-mediated transcriptional activity and acts synergistically with the MH2 domain.
Cellular Localization	Cytoplasm Nucleus. Cytoplasmic and nuclear in the absence of TGF-beta. On TGF-beta stimulation, migrates to the nucleus when complexed with SMAD4 . Through the action of the phosphatase PPM1A, released from the SMAD2/SMAD4 complex, and exported out of the nucleus by interaction with RANBP1 . Co-localizes with LEMD3 at the nucleus inner membrane . MAPK-mediated phosphorylation appears to have no effect on nuclear import . PDPK1 prevents its nuclear translocation in response to TGF-beta .
Post-translational Modifications	Phosphorylated on serine and threonine residues. Enhanced phosphorylation in the linker region on Thr-179, Ser-204 and Ser-208 on EGF and TGF-beta treatment. Ser-208 is the main site of MAPK-mediated phosphorylation. CDK-mediated phosphorylation occurs in a cell-cycle dependent manner and inhibits both the transcriptional activity and antiproliferative functions of SMAD3. This phosphorylation is inhibited by flavopiridol. Maximum phosphorylation at the G(1)/S junction. Also phosphorylated on serine residues in the C-terminal SXS motif by TGFBR1 and ACVR1. TGFBR1-mediated phosphorylation at these C-terminal sites is required for interaction with SMAD4, nuclear location and transactivational activity, and appears to be a prerequisite for the TGF-beta mediated phosphorylation in the linker region. Dephosphorylated in the C-terminal SXS motif by PPM1A. This dephosphorylation disrupts the interaction with SMAD4, promotes nuclear export and terminates TGF-beta-mediated signaling. Phosphorylation at Ser-418 by CSNK1G2/CK1 promotes ligand-dependent ubiquitination and

subsequent proteasome degradation, thus inhibiting SMAD3-mediated TGF-beta responses. Phosphorylated by PDPK1. Acetylation in the nucleus by EP300 in the MH2 domain regulates positively its transcriptional activity and is enhanced by TGF-beta. Poly-ADP-ribosylated by PARP1 and PARP2. ADP-ribosylation negatively regulates SMAD3 transcriptional responses during the course of TGF-beta signaling. Ubiquitinated. Monoubiquitinated, leading to prevent DNA-binding . Deubiquitination by USP15 alleviates inhibition and promotes activation of TGF-beta target genes . Ubiquitinated by RNF111, leading to its degradation: only SMAD3 proteins that are 'in use' are targeted by RNF111, RNF111 playing a key role in activating SMAD3 and regulating its turnover . Undergoes STUB1-mediated ubiquitination and degradation .