Rabbit Smad3 Polyclonal Antibody | anti-Smad3 antibody

Phospho-Smad3 (Ser213) Antibody

CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA31058	**Rabbit**	**Human, Mouse, Rat**	**Western Blot, Immunohistochemistry, Immunofluorescence, Immunocytochemistry, ELISA**

PRODUCT SYNONYMS

Smad3; Polyclonal Antibody; Phospho-Smad3 (Ser213) Antibody; DKFZP586N0721; DKFZp686J10186; hMAD 3; hMAD-3; hSMAD3; HSPC193; HST17436; JV15 2; JV15-2; JV152; LDS1C; LDS3; MAD (mothers against decapentaplegic Drosophila) homolog 3; MAD homolog 3; Mad homolog JV15 2; Mad protein homolog; MAD; mothers against decapentaplegic homolog 3; Mad3; MADH 3; MADH3; MGC60396; Mothers against decapentaplegic homolog 3; Mothers against DPP homolog 3; SMA and MAD related protein 3; SMAD 3; SMAD; SMAD family member 3; mothers against DPP homolog 3; SMAD3_HUMAN; anti-Smad3 antibody

PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Isotype	IgG
Specificity	Phospho-Smad3 (Ser213) antibody detects endogenous levels of Smad3 only when phosphorylated at Serine 213
Purity/Purification	From purified rabbit serum by affinity purification via sequential chromatography on phospho-and non-phospho-peptide affinity columns.
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	320
Applicable Applications for anti-Smad3 antibody	WB (Western Blot), IHC (Immunohistochemistry), IF (Immunofluorescence), ICC (Immunocytochemistry), ELISA
Application Notes	WB: 1:500-1:2000 IHC: 1:50-1:200 IF/ICC: 1:100-1:500
Immunogen	A synthesized peptide derived from human Smad3 around the phosphorylation site of Serine 213
Subcellular Location	Cytoplasm. Nucleus. Cytoplasmic and nuclear in the absence of TGF-beta. On TGF-beta stimulation, migrates to the nucleus when complexed with SMAD4 (PubMed:15799969). Through the action of the phosphatase PPM1A, released from the SMAD2/SMAD4 complex, and exported out of the nucleus by interaction with RANBP1 (PubMed:16751101, PubMed:19289081). Co-localizes with LEMD3 at the nucleus inner membrane (PubMed:15601644). MAPK-mediated phosphorylation appears to have no effect on nuclear import (PubMed:19218245). PDPK1 prevents its nuclear translocation in response to TGF-beta (PubMed:17327236).
Conjugation	Unconjugated
Epitope	Phospho Ser213
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.

IMAGES

WB (Western Blot)
Western blot analysis of Smad3 phosphorylation expression in HT29 whole cell lysates, The lane on the left is treated with the antigen-specific peptide.

IHC (Immunohistochemistry)
AAA31058 at 1/200 staining Rat liver tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.

IHC (Immunohistchemistry)
AAA31058 at 1/200 staining Mouse lung tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.

IHC (Immunohistochemistry)
AAA31058 at 1/200 staining Mouse liver tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.

IHC (Immunohistochemistry)
AAA31058 at 1/200 staining Mouse testis tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.

IHC (Immunohistochemistry)
AAA31058 at 1/200 staining Human prostate tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.

ADDITIONAL INFORMATION

Related Product Information for anti-Smad3 antibody

Description: Smad3 transcription factor phosphorylated and activated by TGF-beta-type receptors. A receptor-regulated Smad (R-smad). Binds directly to consensus DNA-binding elements in the promoters of target genes. In mouse required for establishemnt of the mucosal immune response and proper development of skeleton.
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.
Subunit Structure: Monomer; in the absence of TGF-beta. Homooligomer; in the presence of TGF-beta. Heterotrimer; forms a heterotrimer in the presence of TGF-beta consisting of two molecules of C-terminally phosphorylated SMAD2 or SMAD3 and one of SMAD4 to form the transcriptionally active SMAD2/SMAD3-SMAD4 complex. Interacts with TGFBR1. Part of a complex consisting of AIP1, ACVR2A, ACVR1B and SMAD3. Interacts with AIP1, TGFB1I1, TTRAP, FOXL2, PML, PRDM16, HGS, WWP1 and SNW1. Interacts (via MH2 domain) with CITED2 (via C-terminus). Interacts with NEDD4L; the interaction requires TGF-beta stimulation. Interacts (via the MH2 domain) with ZFYVE9. Interacts with HDAC1, VDR, TGIF and TGIF2, RUNX3, CREBBP, SKOR1, SKOR2, SNON, ATF2, SMURF2 and TGFB1I1. Interacts with DACH1; the interaction inhibits the TGF-beta signaling. Forms a complex with SMAD2 and TRIM33 upon addition of TGF-beta. Found in a complex with SMAD3, RAN and XPO4. Interacts in the complex directly with XPO4. Interacts (via the MH2 domain) with LEMD3; the interaction represses SMAD3 transcriptional activity through preventing the formation of the heteromeric complex with SMAD4 and translocation to the nucleus. Interacts with RBPMS. Interacts (via MH2 domain) with MECOM. Interacts with WWTR1 (via its coiled-coil domain). Interacts (via the linker region) with EP300 (C-terminal); the interaction promotes SMAD3 acetylation and is enhanced by TGF-beta phosphorylation in the C-terminal of SMAD3. This interaction can be blocked by competitive binding of adenovirus oncoprotein E1A to the same C-terminal site on EP300, which then results in partially inhibited SMAD3/SMAD4 transcriptional activity. Interacts with SKI; the interaction represses SMAD3 transcriptional activity. Component of the multimeric complex SMAD3/SMAD4/JUN/FOS which forms at the AP1 promoter site; required for synergistic transcriptional activity in response to TGF-beta. Interacts (via an N-terminal domain) with JUN (via its basic DNA binding and leucine zipper domains); this interaction is essential for DNA binding and cooperative transcriptional activity in response to TGF-beta. Interacts with PPM1A; the interaction dephosphorylates SMAD3 in the C-terminal SXS motif leading to disruption of the SMAD2/3-SMAD4 complex, nuclear export and termination of TGF-beta signaling. Interacts (dephosphorylated form via the MH1 and MH2 domains) with RANBP3 (via its C-terminal R domain); the interaction results in the export of dephosphorylated SMAD3 out of the nucleus and termination of the TGF-beta signaling. Interacts with MEN1. Interacts with IL1F7. Interaction with CSNK1G2. Interacts with PDPK1 (via PH domain). Interacts with DAB2; the interactions are enhanced upon TGF-beta stimulation. Interacts with USP15. Interacts with PPP5C; the interaction decreases SMAD3 phosphorylation and protein levels. Interacts with LDLRAD4 (via the SMAD interaction motif). Interacts with PMEPA1. Interacts with ZC3H3 (By similarity). Interacts with ZNF451 (PubMed:24324267). Identified in a complex that contains at least ZNF451, SMAD2, SMAD3 and SMAD4 (PubMed:24324267). Interacts with ZFHX3. Interacts weakly with ZNF8 (PubMed:12370310). Interacts (when phosphorylated) with RNF111; RNF111 acts as an enhancer of the transcriptional responses by mediating ubiquitination and degradation of SMAD3 inhibitors (By similarity). Interacts with STUB1, HSPA1A, HSPA1B, HSP90AA1 and HSP90AB1 (PubMed:24613385).
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 G1/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 (PubMed:21947082). Deubiquitination by USP15 alleviates inhibition and promotes activation of TGF-beta target genes (PubMed:21947082). 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 (By similarity). Undergoes STUB1-mediated ubiquitination and degradation (PubMed:24613385).
Similarity: 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. Belongs to the dwarfin/SMAD family.

NCBI AND UNIPROT INFORMATION

NCBI GI #	223029440
NCBI GeneID	4088
NCBI Accession #	NP_001138574.1
NCBI GenBank Nucleotide #	NM_001145102.1
UniProt Accession #	P84022; O09064; O09144; O14510; O35273; Q92940; Q93002; A8K4B6; B7Z4Z5; B7Z6M9; B7Z9Q2; F5H383
Molecular Weight	Observed: 48 kDa Predicted: 49 kDa
NCBI Official Full Name	mothers against decapentaplegic homolog 3 isoform 2
NCBI Official Synonym Full Names	SMAD family member 3
NCBI Official Symbol	SMAD3
NCBI Official Synonym Symbols	LDS3; LDS1C; MADH3; JV15-2; HSPC193; HsT17436
NCBI Protein Information	mothers against decapentaplegic homolog 3
UniProt Protein Name	Mothers against decapentaplegic homolog 3
UniProt Gene Name	**SMAD3**
UniProt Synonym Gene Names	MADH3; MAD homolog 3; Mad3; Mothers against DPP homolog 3; hMAD-3; SMAD 3; Smad3; hSMAD3

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

AAA Biotech | Tel: +1 (619) 604-9440 | Fax: +1 (619) 604-9441 | contact@aaabiotech.com
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