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phospho-SMAD7 (Ser249) Rabbit pAb

Catalog # AP97102

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	O15105
Other Accession	O15105
Reactivity	Rat, Human, Mouse
Predicted	Pig
Host	Rabbit
Clonality	Polyclonal
Calculated MW	46426
Physical State	Liquid
Immunogen	KLH conjugated synthesised phosphopeptide derived from human SMAD7 around the phosphorylation site of Ser249
Epitope Specificity	SD(p-S)QL
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the dwarfin/SMAD family.Contains 1 MH1 (MAD homology 1) domain.Contains 1 MH2 (MAD homology 2) domain.
SUBUNIT	Interacts with WWP1. Interacts with COPS5. Interacts with NEDD4L. Interacts with STAMBP. Interacts with RNF111, AXIN1 and AXIN2. Interacts with PPP1R15A. Interacts (via MH2 domain) with EP300. Interacts with ACVR1B, SMURF1, SMURF2 and TGFBR1; SMAD7 recruits SMURF1 and SMURF2 to the TGF-beta receptor and regulates its degradation. Interacts with PDPK1 (via PH domain).
Post-translational modifications	Phosphorylation on Ser-249 does not affect its stability, nuclear localization or inhibitory function in TGFB signaling; however it affects its ability to regulate transcription. Phosphorylated by PDPK1. Ubiquitinated by WWP1 (By similarity). Polyubiquitinated by RNF111, which is enhanced by AXIN1 and promotes proteasomal degradation. In response to TGF-beta, ubiquitinated by SMURF1; which promotes its degradation. Acetylation prevents ubiquitination and degradation mediated by SMURF1.
DISEASE	Genetic variations in SMAD7 influence susceptibility to colorectal cancer type 3 (CRCS3) [MIM:612229]. Colorectal cancer consists of tumors or cancer of either the colon or rectum or both. Cancers of the large intestine are the second most common form of cancer found in males and females. Symptoms include rectal bleeding, occult blood in stools, bowel obstruction and weight loss. Treatment is based largely on the extent of cancer penetration into the intestinal wall. Surgical cures are possible if the malignancy is confined to the intestine. Risk can be reduced when following a diet which is low in fat and high in fiber.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	The protein encoded by this gene is a nuclear protein that binds the E3 ubiquitin ligase SMURF2. Upon binding, this complex translocates to the cytoplasm, where it interacts with TGF-beta receptor type-1 (TGFBR1), leading to the degradation of both the encoded protein and TGFBR1. Expression of

this gene is induced by TGFBR1. Variations in this gene are a cause of susceptibility to colorectal cancer type 3 (CRCS3). Several transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Jun 2010]

Additional Information

Gene ID	4092
Other Names	Madh7; SMAD7_HUMAN; SMAD7; MAD homolog 7; Mothers against DPP homolog 7; Mothers against decapentaplegic homolog 8 (MAD homolog 8 | Mothers against DPP homolog 8); SMAD family member 7 (SMAD 7 | Smad7 | hSMAD7); MADH8; SMAD7_MOUSE; SMAD family member 7 (SMAD 7 | Smad7); SMAD7_RAT; SMAD family member 7; MAD, mothers against decapentaplegic homolog 7 (Drosophila); SMAD, mothers against DPP homolog 7 (Drosophila); SMAD7 (phospho-S249); p-SMAD7; phospho-SMAD7; SMAD7 (phospho-Ser249)
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	SMAD7 (HGNC:6773)
Synonyms	MADH7, MADH8
Function	Antagonist of signaling by TGF-beta (transforming growth factor) type 1 receptor superfamily members; has been shown to inhibit TGF-beta (Transforming growth factor) and activin signaling by associating with their receptors thus preventing SMAD2 access (PubMed:21791611). Functions as an adapter to recruit SMURF2 to the TGF-beta receptor complex. Also acts by recruiting the PPP1R15A-PP1 complex to TGFBR1, which promotes its dephosphorylation. Positively regulates PDPK1 kinase activity by stimulating its dissociation from the 14-3-3 protein YWHAQ which acts as a negative regulator.
Cellular Location	Nucleus. Cytoplasm. Note=Interaction with NEDD4L or RNF111 induces translocation from the nucleus to the cytoplasm (PubMed:16601693). TGF-beta stimulates its translocation from the nucleus to the cytoplasm. PDPK1 inhibits its translocation from the nucleus to the cytoplasm in response to TGF-beta (PubMed:17327236)
Tissue Location	Ubiquitous with higher expression in the lung and vascular endothelium

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