10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

SMAD7 Rabbit pAb

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Catalog # AP52036

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	O15105
Reactivity	Human, Mouse, Rat
Predicted	Pig
Host	Rabbit
Clonality	Polyclonal
Calculated MW	46426
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Smad7
Epitope Specificity	1-100/426
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Nucleus. Cytoplasm. Note=Interaction with NEDD4L or RNF111 or induces translocation from the nucleus to the cytoplasm. 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.
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	Mothers against decapentaplegic homolog 7, 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, SMAD7, MADH7, MADH8
Target/Specificity	Ubiquitous with higher expression in the lung and vascular endothelium.
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,ICC/IF=1:100-500,IF=1:100-500,Flow-Cyt=1ug/Test
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
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

Background

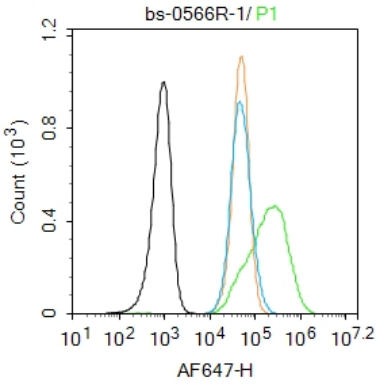
The protein encoded by this gene is a nuclear protein that binds the E3 ubiquitin ligase SMURF2. Upon binding, this complex translocates to the cytoplasm, where it interacts with TGF-beta receptor type-1

(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]

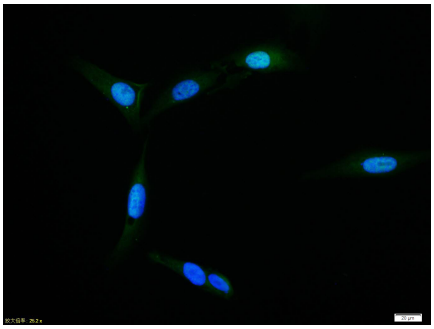
References

Hayashi H.,et al.Cell 89:1165-1173(1997).
Topper J.N.,et al.Proc. Natl. Acad. Sci. U.S.A. 94:9314-9319(1997).
Nakao A.,et al.Nature 389:631-635(1997).
Hagiwara K.,et al.Submitted (SEP-1997) to the EMBL/GenBank/DDBJ databases.
Ota T.,et al.Nat. Genet. 36:40-45(2004).

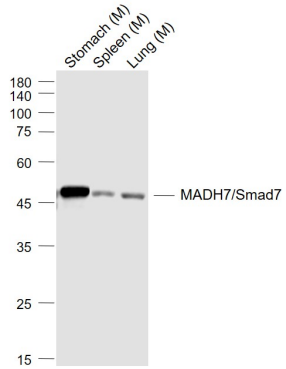
Images



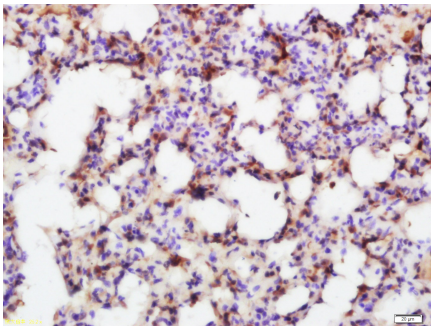
Blank control: SH-SY5Y.
Primary Antibody (green line): Rabbit Anti-MADH7/Smad7 antibody (AP52036)
Dilution: 1 µg /10^6 cells;
Isotype Control Antibody (orange line): Rabbit IgG .
Secondary Antibody : Goat anti-rabbit IgG-AF647
Dilution: 1 µg /test.
Protocol
The cells were fixed with 4% PFA (10min at room temperature)and then permeabilized with 90% ice-cold methanol for 20 min at-20℃.The cells were then incubated in 5%BSA to block non-specific protein-protein interactions for 30 min at room temperature .Cells stained with Primary Antibody for 30 min at room temperature. The secondary antibody used for 40 min at room temperature. Acquisition of 20,000 events was performed.



U-2OS cell; 4% Paraformaldehyde-fixed; Triton X-100 at room temperature for 20 min; Blocking buffer (normal goat serum, C-0005) at 37°C for 20 min; Antibody incubation with (MADH7/Smad7) polyclonal Antibody, Unconjugated (AP52036) 1:100, 90 minutes at 37°C; followed by a conjugated Goat Anti-Rabbit IgG antibody at 37°C for 90 minutes, DAPI (blue, C02-04002) was used to stain the cell nuclei.



Sample:
Lane 1: Stomach (Mouse) Lysate at 40 ug
Lane 2: Spleen (Mouse) Lysate at 40 ug
Lane 3: Lung (Mouse) Lysate at 40 ug
Primary: Anti-MADH7/Smad7 (AP52036) at 1/1000 dilution
Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution
Predicted band size: 50 kD
Observed band size: 50 kD



Paraformaldehyde-fixed, paraffin embedded (rat lung); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (Smad7) Polyclonal Antibody, Unconjugated (AP52036) at 1:600 overnight at 4°C, followed by a conjugated secondary (sp-0023) for 20 minutes and DAB staining.