

# Phospho-SMAD4(T277) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP3251a

## Product Information

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<b>Application</b>	WB, IHC-P, IF, DB, E
<b>Primary Accession</b>	<a href="#">Q13485</a>
<b>Other Accession</b>	<a href="#">Q70437</a> , <a href="#">P97471</a>
<b>Reactivity</b>	Human, Mouse, Rat
<b>Predicted</b>	Mouse, Rat
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Isotype</b>	Rabbit IgG
<b>Calculated MW</b>	60439

## Additional Information

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<b>Gene ID</b>	4089
<b>Other Names</b>	Mothers against decapentaplegic homolog 4, MAD homolog 4, Mothers against DPP homolog 4, Deletion target in pancreatic carcinoma 4, SMAD family member 4, SMAD 4, Smad4, hSMAD4, SMAD4, DPC4, MADH4
<b>Target/Specificity</b>	This SMAD4 Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding T277 of human SMAD4.
<b>Dilution</b>	WB~~1:500 IHC-P~~1:100~500 IF~~1:10~50 DB~~1:500 E~~Use at an assay dependent concentration.
<b>Format</b>	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
<b>Storage</b>	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
<b>Precautions</b>	Phospho-SMAD4(T277) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	SMAD4
<b>Synonyms</b>	DPC4, MADH4

## Function

In muscle physiology, plays a central role in the balance between atrophy and hypertrophy. When recruited by MSTN, promotes atrophy response via phosphorylated SMAD2/4. MSTN decrease causes SMAD4 release and subsequent recruitment by the BMP pathway to promote hypertrophy via phosphorylated SMAD1/5/8. Acts synergistically with SMAD1 and YY1 in bone morphogenetic protein (BMP)-mediated cardiac- specific gene expression. Binds to SMAD binding elements (SBEs) (5'- GTCT/AGAC-3') within BMP response element (BMPRE) of cardiac activating regions (By similarity). Common SMAD (co-SMAD) is the coactivator and mediator of signal transduction by TGF-beta (transforming growth factor). Component of the heterotrimeric SMAD2/SMAD3-SMAD4 complex that forms in the nucleus and is required for the TGF-mediated signaling (PubMed:[25514493](#)). Promotes binding of the SMAD2/SMAD4/FAST-1 complex to DNA and provides an activation function required for SMAD1 or SMAD2 to stimulate transcription. Component of the multimeric SMAD3/SMAD4/JUN/FOS complex which forms at the AP1 promoter site; required for synergistic transcriptional activity in response to TGF- beta. May act as a tumor suppressor. Positively regulates PDPK1 kinase activity by stimulating its dissociation from the 14-3-3 protein YWHAQ which acts as a negative regulator.

## Cellular Location

Cytoplasm. Nucleus Note=Cytoplasmic in the absence of ligand. Migrates to the nucleus when complexed with R-SMAD (PubMed:15799969). PDPK1 prevents its nuclear translocation in response to TGF-beta (PubMed:17327236)

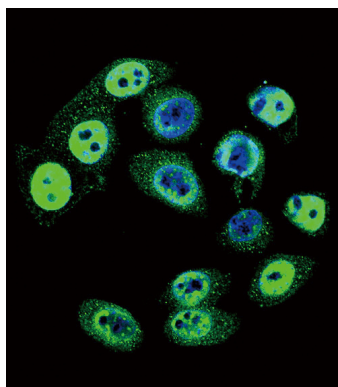
## Background

Common mediator of signal transduction by TGF-beta (transforming growth factor) superfamily, SMAD4 is the common SMAD (co-SMAD). It promotes binding of the SMAD2/SMAD4/FAST-1 complex to DNA and provides an activation function required for SMAD1 or SMAD2 to stimulate transcription. It may act as a tumor suppressor.

## References

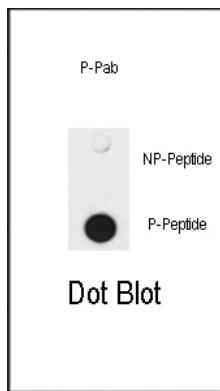
- Sekiya, T., et al., Biochem. Biophys. Res. Commun. 320(3):680-684 (2004).  
Horvath, L.G., et al., Prostate 59(3):234-242 (2004).  
Li, L., et al., Mol. Cell. Biol. 24(2):856-864 (2004).  
Wan, M., et al., J. Biol. Chem. 279(15):14484-14487 (2004).  
Maru, D., et al., Oncogene 23(3):859-864 (2004).

## Images

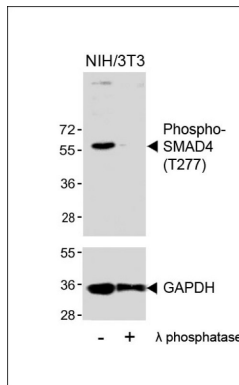


Confocal immunofluorescent analysis of Phospho-SMAD4-T277 Antibody(Cat#AP3251a) with Hela cell followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green).DAPI was used to stain the cell nuclear (blue).

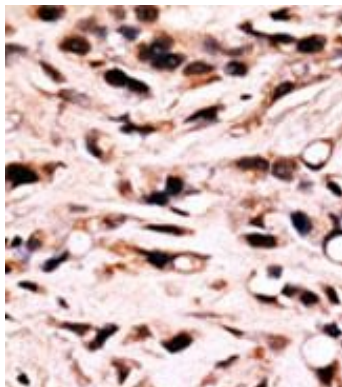
Dot blot analysis of anti-Phospho-SMAD4-T277 Antibody



(RB7971) on nitrocellulose membrane. 50ng of Phospho-peptide or Non Phospho-peptide per dot were adsorbed. Antibody working concentrations are 0.5ug per ml.



Western blot analysis of lysates from NIH/3T3 cell line, untreated or treated with  $\lambda$  phosphatase, using Phospho-SMAD4 Antibody (T277)(upper) or GAPDH (lower).



Formalin-fixed and paraffin-embedded Breast Carcinoma reacted with SMAD4-T277 (center) (Cat.#AP3251a), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.

## Citations

- [SALL1 regulates commitment of odontoblast lineages by interacting with RUNX2 to remodel open chromatin regions](#)
- [Apoptosis and fibrosis of vascular smooth muscle cells in aortic dissection: an immunohistochemical study](#)
- [Increased Retinal Expression of the Pro-Angiogenic Receptor GPR91 via BMP6 in a Mouse Model of Juvenile Hemochromatosis.](#)

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