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Phospho-SMAD4(T277) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP3251a

Product Information

Application	WB, IHC-P, IF, DB, E
Primary Accession	Q13485
Other Accession	O70437, P97471
Reactivity	Human, Mouse, Rat
Predicted	Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	60439

Additional Information

Gene ID	4089
Other Names	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
Target/Specificity	This SMAD4 Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding T277 of human SMAD4.
Dilution	WB~~1:500 IHC-P~~1:100~500 IF~~1:10~50 DB~~1:500 E~~Use at an assay dependent concentration.
Format	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.
Storage	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.
Precautions	Phospho-SMAD4(T277) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SMAD4
Synonyms	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)

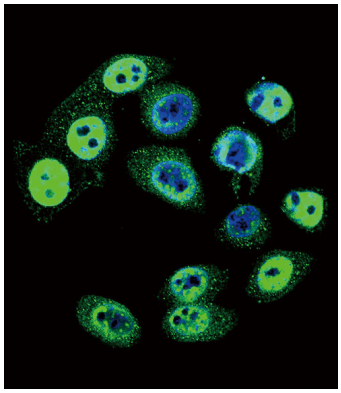
Background

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

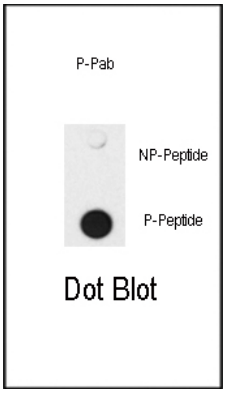
Sekiya, T., et al., Biochem. Biophys. Res. Commun. 320(3):680-684 (2004).
Horvath, L.G., et al., Prostate 59(3):234-242 (2004).
Li, L., et al., Mol. Cell. Biol. 24(2):856-864 (2004).
Wan, M., et al., J. Biol. Chem. 279(15):14484-14487 (2004).
Maru, D., et al., Oncogene 23(3):859-864 (2004).

Images

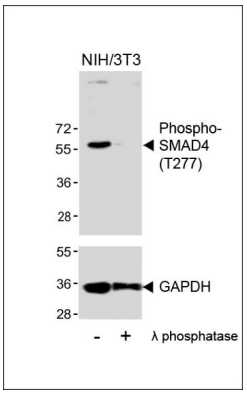


Confocal immunofluorescent analysis of Phospho-SMAD4-T277 Antibody(Cat#AP3251a) with Hela cell followed by Alexa Fluor 488-conjugated goat anti-rabbit lgG (green).DAPI was used to stain the cell nuclear (blue).

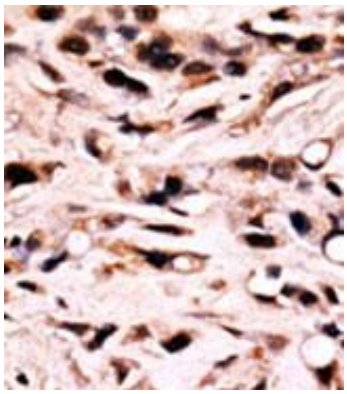
Dot blot analysis of anti-Phospho-SMAD4-T277 Antibody



(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 λ 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.