

SMAD2 Antibody
Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7365A

Specification

SMAD2 Antibody - Product Information

Application	IF, WB, FC,E
Primary Accession	Q15796
Other Accession	O54835 , Q9JIW5 , O15198 , Q9R1V3 , P97454 , Q99717 , Q9W7E7 , Q56I99 , P84025 , P84024 , Q8BUN5 , P84022 , P84023 , O70436 , O62432 , Q9I9P9 , Q1W668 , P97588 , P70340 , Q15797 , Q9I8V2 , Q1JOA2 , P42003
Reactivity Predicted	Human, Mouse Drosophila, Bovine, Zebrafish, Rat, Chicken, Pig
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	52306
Antigen Region	97-125

SMAD2 Antibody - Additional Information

Gene ID 4087

Other Names

Mothers against decapentaplegic homolog 2, MAD homolog 2, Mothers against DPP homolog 2, JV18-1, Mad-related protein 2, hMAD-2, SMAD family member 2, SMAD 2, Smad2, hSMAD2, SMAD2, MADH2, MADR2

Target/Specificity

This SMAD2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 97-125 amino acids from human SMAD2.

Dilution

IF~~1:100
WB~~1:1000
FC~~1:10~50

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

SMAD2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

SMAD2 Antibody - Protein Information

Name SMAD2

Synonyms MADH2, MADR2

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 SMAD2/SMAD4 complex, activates transcription. Promotes TGFβ1-mediated transcription of odontoblastic differentiation genes in dental papilla cells (By similarity). Positively regulates PDPK1 kinase activity by stimulating its dissociation from the 14-3-3 protein YWHAQ which acts as a negative regulator. May act as a tumor suppressor in colorectal carcinoma (PubMed:[8752209](#)).

Cellular Location

Cytoplasm. Nucleus. Note=Cytoplasmic and nuclear in the absence of TGF-beta. On TGF-beta stimulation, migrates to the nucleus when complexed with SMAD4 or with IPO7 (PubMed:21145499, PubMed:9865696). On dephosphorylation by phosphatase PPM1A, released from the SMAD2/SMAD4 complex, and exported out of the nucleus by interaction with RANBP1 (PubMed:16751101, PubMed:19289081). Localized mainly to the nucleus in the early stages of embryo development with expression becoming evident in the cytoplasm at the blastocyst and epiblast stages (By similarity). {ECO:0000250|UniProtKB:Q62432, ECO:0000269|PubMed:16751101, ECO:0000269|PubMed:19289081, ECO:0000269|PubMed:21145499, ECO:0000269|PubMed:9865696}

Tissue Location

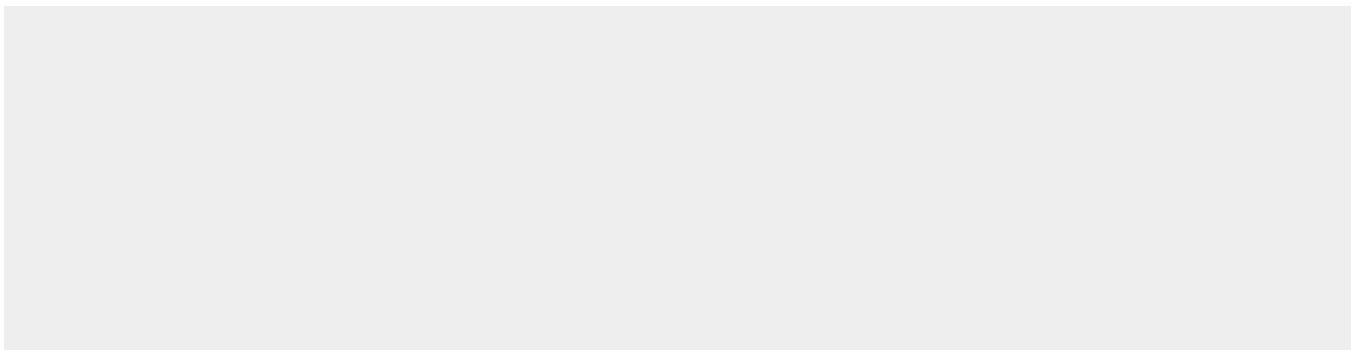
Expressed at high levels in skeletal muscle, endothelial cells, heart and placenta.

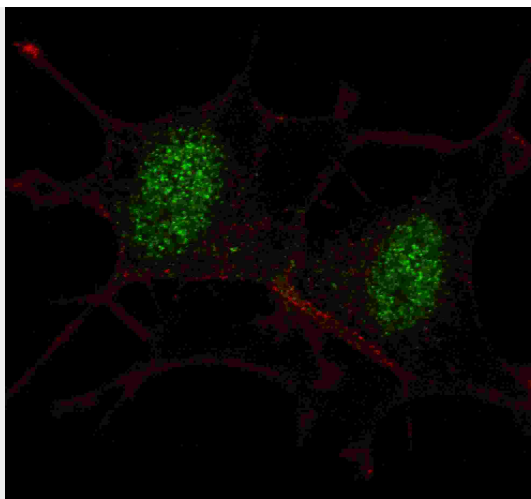
SMAD2 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

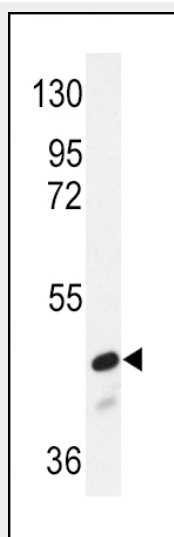
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

SMAD2 Antibody - Images

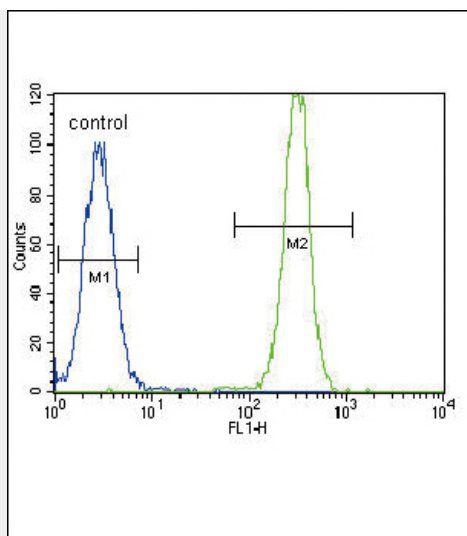




Fluorescent confocal image of SY5Y cells stained with SMAD2 antibody. SY5Y cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.2%, 30 min). Cells were then incubated with AP7365a SMAD2 primary antibody (1:100, 2 h at room temperature). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:1000, 1h). Nuclei were counterstained with Hoechst 33342 (blue) (10 µg/ml, 5 min). Note the highly specific localization of the SMAD2 mainly to the nucleus.



Western blot analysis of SMAD2 Antibody (Cat.# AP7365a) in NIH-3T3 cell line lysates (35ug/lane). SMAD2 (arrow) was detected using the purified Pab.



SMAD2 Antibody (Cat. #AP7365a) flow cytometric analysis of HeLa cells (right histogram) compared to a negative control cell (left histogram). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

SMAD2 Antibody - Background

The protein belongs to the SMAD, a family of proteins similar to the proteins of the *Drosophila* gene 'mothers against decapentaplegic' (Mad) and the *C. elegans* gene Sma. SMAD proteins are signal transducers and transcriptional modulators that mediate multiple signaling pathways. This protein mediates the signal of the transforming growth factor (TGF)-beta, and thus regulates multiple cellular processes, such as cell proliferation, apoptosis, and differentiation. This protein is recruited to the TGF-beta receptors through its interaction with the SMAD anchor for receptor activation (SARA) protein. In response to TGF-beta signal, this protein is phosphorylated by the TGF-beta receptors. The phosphorylation induces the dissociation of this protein with SARA and the association with the family member SMAD4. The association with SMAD4 is important for the translocation of this protein into the nucleus, where it binds to target promoters and forms a transcription repressor complex with other cofactors. This protein can also be phosphorylated by activin type 1 receptor kinase, and mediates the signal from the activin.

SMAD2 Antibody - References

References for protein:

1. Funaba, M., *J. Biol. Chem.* 277 (44), 41361-41368 (2002)
2. Wicks, S.J., *Mol. Cell. Biol.* 20 (21), 8103-8111 (2000)

References for SY5Y (SH-SY5Y; ATCC#CRL-2266): 1. Ross RA, et al. Coordinate morphological and biochemical interconversion of human neuroblastoma cells. *J. Natl. Cancer Inst.* 71: 741-749, 1983. [PubMed: 6137586]; 2. Biedler JL, et al. Multiple neurotransmitter synthesis by human neuroblastoma cell lines and clones. *Cancer Res.* 38: 3751-3757, 1978. [PubMed: 29704].