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

Anti-SMAD2 (RABBIT) Antibody
SMAD2 Antibody
Catalog # ASR5419

Specification

Anti-SMAD2 (RABBIT) Antibody - Product Information

Host	**Rabbit**
Conjugate	**Unconjugated**
Target Species	**Human**
Reactivity	**Human, Monkey**
Clonality	**Polyclonal**
Application	**WB, E, IP, I, LCI**
Application Note	**This affinity purified antibody has been tested for use in ELISA and western blotting. Specific conditions for reactivity should be optimized by the end user. Expect a band approximately 52 kDa in size corresponding to Smad2 protein by western blotting in the appropriate cell lysate or extract.**
Physical State	**Liquid (sterile filtered)**
Buffer	**0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2**
Immunogen	**This affinity purified antibody was prepared from whole rabbit serum produced by repeated immunizations with a synthetic peptide corresponding to an internal region of human Smad2 protein.**
Preservative	**0.01% (w/v) Sodium Azide**

Anti-SMAD2 (RABBIT) Antibody - Additional Information

Gene ID 4087

Other Names
4087

Purity
This affinity purified antibody is directed against human Smad2 protein. The product was affinity purified from monospecific antiserum by immunoaffinity chromatography. A BLAST analysis was used to suggest cross-reactivity with Smad2 protein from human, mouse and rat based on 100% homology with the immunizing sequence. Reactivity against homologues from other sources is not known. Also, the antibody is Smad2 specific, and reactivity to other Smad proteins (specifically Smad1, Smad3, Smad4, and Smad7) is not detected in over-expressed cell lysates (Personal Communication, Kathleen Flanders, CCR-NCI, Bethesda, MD).

Storage Condition
Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted

liquid. Dilute only prior to immediate use.

Precautions Note
This product is for research use only and is not intended for therapeutic or diagnostic applications.

Anti-SMAD2 (RABBIT) 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 TGFB1-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.

Anti-SMAD2 (RABBIT) 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 Cytomety
- Cell Culture

Anti-SMAD2 (RABBIT) Antibody - Images

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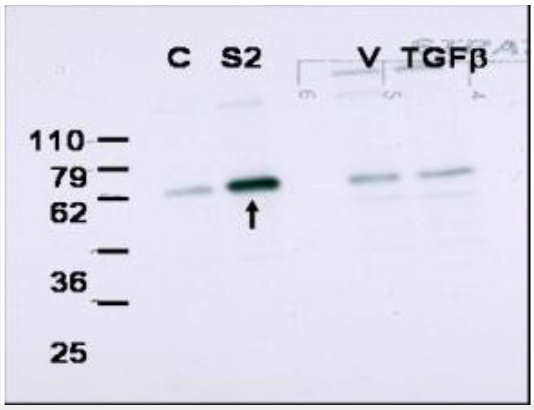

Western blot using Rockland's affinity purified anti-Smad2 to detect over-expressed Smad2 in COS cells (arrow). Lane C shows mock infection of COS cells with lentiviral vector alone. Lane S2 shows detection of Smad2 in lysates of COS transfected with Smad2. Lane V contains lysates of MDA-MB231 cells treated with vehicle; the next lane contains lysates of MDA-MB231 cells treated with TGF beta. Low levels of staining in control lanes correspond to detection of endogenous Smad2. Pre-incubation of the antibody with immunizing peptide (data not shown) completely blocks specific band staining. The blot presented is askew relative to the molecular weight markers. The expected MW for Smad2 is 52 kDa. The membrane was probed with the primary antibody at a 1:2500 dilution. Personal Communication Kathleen Flanders, CCR-NCI, Bethesda, MD.

Anti-SMAD2 (RABBIT) Antibody - Background

This antibody is designed, produced, and validated as part of a collaboration between Rockland and the National Cancer Institute (NCI). Smad2 (also known as Mothers against decapentaplegic homolog 2, Mothers against DPP homolog 2, Mad2, hMAD-2 or hSMAD2) is a member of the Smad family of proteins which are similar to the gene products 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. Alternatively, spliced transcript variants have been observed for this gene. SMAD2 may act as a tumor suppressor in colorectal carcinoma. It positively regulates PDPK1 kinase activity by stimulating its dissociation from the 14-3-3 protein YWHAQ which acts as a negative regulator. SMAD2 may be associated with diseases such as Keloids and Ureteral Disease. Anti-SMAD2 Antibody is useful for researchers interested in SMAD pathways, transcription factor activity, sequence-specific DNA binding, and cancer research.