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antibody and ELISA experts

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Anti-SMAD2 Antibody Picoband®

Catalog Number: A00090-1

About SMAD2

Smad2 (Mothers against decapentaplegic homolog 2), also known as MADR2, MADH2, SMAD family member 2 or SMAD2, is a protein that in humans is encoded by the SMAD2 gene. MAD homolog 2 belongs to the SMAD, a family of proteins similar to the gene products of the Drosophila gene 'mothers against decapentaplegic' (Mad) and the C. elegans gene Sma. Eppert et al. mapped the MADR2 gene close to DPC4 at 18q21, a region which is frequently deleted in colorectal cancers. Riggins et al. mapped the human MADH2 gene to 18q21. Nakao et al. refined the localization of the SMAD2 gene to 18q21.1, approximately 3 Mb proximal to DPC4, by fluorescence in situ hybridization. SMAD2 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.

Overview

Product Name	Anti-SMAD2 Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-SMAD2 Antibody catalog # A00090-1. Tested in ELISA, Flow Cytometry, IF, IHC, ICC, WB applications. This antibody reacts with Human, Mouse, Rat. The brand Picoband indicates this is a premium antibody that guarantees superior quality, high affinity, and strong signals with minimal background in Western blot applications. Only our best-performing antibodies are designated as Picoband, ensuring unmatched performance.
Application	ELISA, Flow Cytometry, IF, IHC, ICC, WB
Clonality	Polyclonal
Formulation	Each vial contains 4mg Trehalose, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3.
Storage Instructions	Store at -20˚C for one year from date of receipt. After reconstitution, at 4˚C for one month. It can also be aliquotted and stored frozen at -20˚C for six months. Avoid repeated freeze-thaw cycles.
Host	Rabbit
Uniprot ID	Q15796

Technical Details

Immunogen	E.coli-derived human SMAD2 recombinant protein (Position: E83-Q264).
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot, and HRP Conjugated anti-Rabbit IgG Super Vision Assay Kit (SV0002-14) for IHC(P) and ICC.
Cross Reactivity	No cross-reactivity with other proteins.
Isotype	Rabbit IgG

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Form	Lyophilized
Concentration	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml.
Purification	Immunogen affinity purified.
Suggested Dilutions	Western blot, 0.1-0.5ug/ml Immunohistochemistry (Paraffin-embedded Section), 0.5-1ug/ml Immunocytochemistry/Immunofluorescence, 5ug/ml Flow Cytometry (Fixed), 1-3ug/1x10^6 cells ELISA, 0.1-0.5ug/ml

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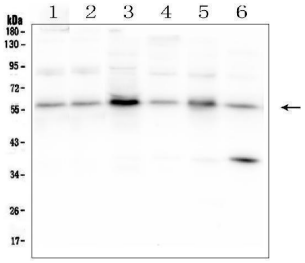
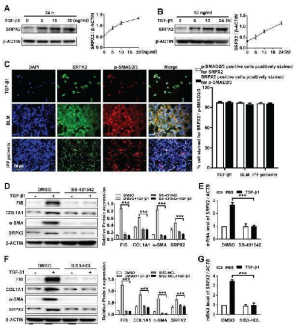
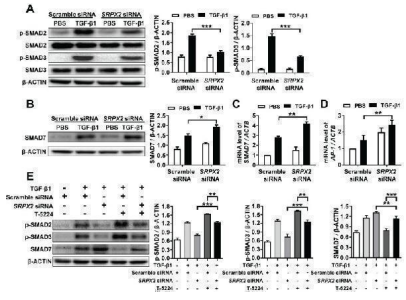
Anti-SMAD2 Antibody Picoband® (A00090-1) Images



Western blot analysis of SMAD2 using anti-SMAD2 antibody (A00090-1). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions. Lane 1: human placenta tissue lysatesLane 2: rat liver tissue lysatesLane 3: mouse testicular tissue lysatesLane 4: mouse heart tissue lysatesLane 5: mouse lung tissue lysatesLane 6: mouse lung tissue lysates After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes. Blocked the membrane with 5% Non-fat Milk/ TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-SMAD2 antigen affinity purified polyclonal antibody (Catalog # A00090-1) at 0.5 ug/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:10000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for SMAD2 at approximately 60KD. The expected band size for SMAD2 is at 52KD.



SRPX2 is elevated in fibroblasts in a TGF-beta/SMADs manner. A : Western blot analysis of SRPX2 expression in HPFs following different dose of TGF-beta1 induction for 24 h. B : Results for time-course Western blot analysis of SRPX2 expression in HPFs following TGF-beta1 (10 ng/ml). C : Results for co-immunostaining of SRPX2 and p-SMAD2/3 in HPFs following TGF-beta1 induction for 1h (up), lung sections of pulmonary fibrosis mice (middle), and lung sections from IPF patients (down). The nuclei were stained blue by DAPI, and the images were taken under original magnification ×400. D-E : Western blot (D) and RT-PCR (E) analysis of SRPX2 expression in HPFs pre-treated with SB431542 treatment following TGF-beta1 induction. F-G : Western blot (F) and RT-PCR (G) analysis of SRPX2 expression in HPFs pre-treated with SIS3-HCL following TGF-beta1 induction. The data are represented as the mean ± SEM of three independent experiments. ***, p < 0.001.Index in PubMed under a CC BY license. PMID: 34093874



SRPX2 regulated TGF-beta/SMADs signaling pathways by AP1 and SMAD7. A: Results for Western blot analysis of p-SMAD2, SMAD2, p-SMAD3 and SMAD3 expression in HPFs following TGF-beta1 stimulation. B-C : Western blot (B) and RT-PCR (C) analysis of SMAD7 expression in HPFs following TGF-beta1 induction. D : Expression of AP1 in HPFs after TGF-beta1 stimulation. E : Western blot results for analysis of the levels of P-SMAD2, P-SMAD3 and SMAD7 in HPFs pre-treated with T-5224 (an inhibitor for AP-1) treatment following TGF-beta1 induction. The data are represented as the mean ± SEM of three independent experiments. *, p < 0.05; **, p <

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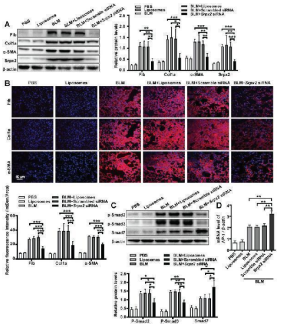
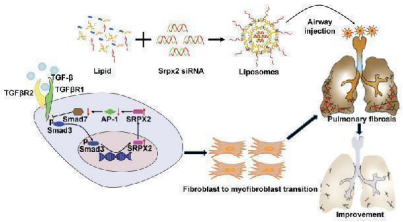
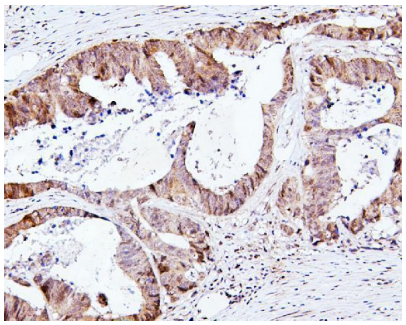
0.01; ***, p < 0.001.Index in PubMed under a CC BY license. PMID: 34093874



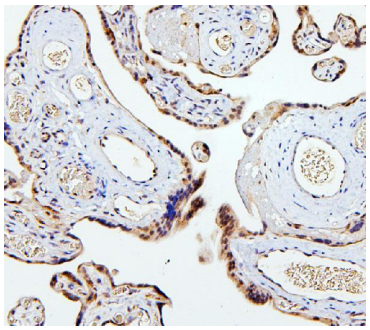
Srpx2 promoted FMT in BLM-induced pulmonary fibrosis. A : Western blot analysis of Fibronectin, Col1a1, alpha-SMA and Srpx2 expression in mice after BLM induction with Scrambled or Srpx2 siRNA-loaded liposomes. B : Representative images of immunostaining of Fibronectin, Col1a1 and alpha-SMA in the mice lung sections. The nuclei were stained blue by DAPI, and the images were taken under original magnification ×400. C : Western blot analysis of p-Smad2, p-Smad3 and Smad7 expression in mice after BLM induction. D : RT-PCR analysis of AP-1 expression in mice in each group. Six mice were included in each study group. The data are represented as the mean ± SEM. *, p < 0.05; **, p < 0.01; ***, p < 0.001.Index in PubMed under a CC BY license. PMID: 34093874



A diagram for mechanisms underlying SRPX2 regulation of pulmonary fibrosis. Specifically, TGF-beta enhanced SRPX2 expression in a TGFbetaR1 and SMAD3-dependent manner. Subsequently, SRPX2 inhibited the expression of AP-1, by which it blunt SMAD7 expression and accelerate the phosphorylation of SMAD2/3. The activated TGF-beta/SMADs signaling would promote the FMT and pulmonary fibrosis.Index in PubMed under a CC BY license. PMID: 34093874



IHC analysis of SMAD2 using anti-SMAD2 antibody (A00090-1).SMAD2 was detected in paraffin-embedded section of human colon cancer tissues. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-SMAD2 Antibody (A00090-1) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.



IHC analysis of SMAD2 using anti-SMAD2 antibody (A00090-1).SMAD2 was detected in paraffin-embedded section of human placenta tissues. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-SMAD2 Antibody (A00090-1) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.

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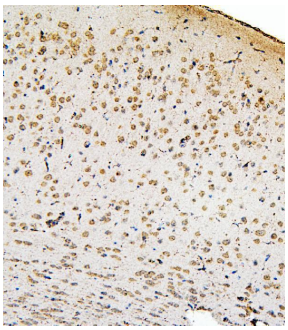
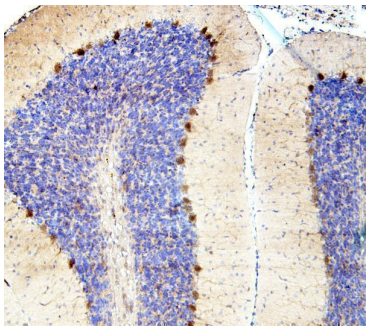
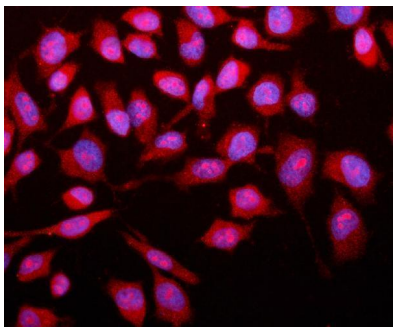


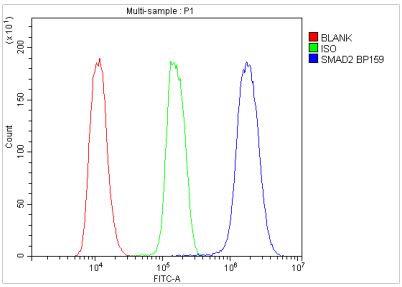
IHC analysis of SMAD2 using anti-SMAD2 antibody (A00090-1).SMAD2 was detected in paraffin-embedded section of mouse brain tissues. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-SMAD2 Antibody (A00090-1) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.



IHC analysis of SMAD2 using anti-SMAD2 antibody (A00090-1).SMAD2 was detected in paraffin-embedded section of rat brain tissues. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-SMAD2 Antibody (A00090-1) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.



IF analysis of SMAD2 using anti-SMAD2 antibody (A00090-1). SMAD2 was detected in immunocytochemical section of HELA cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5ug/mL rabbit anti-SMAD2 Antibody (A00090-1) overnight at 4°C. DyLight®594 Conjugated Goat Anti-Rabbit IgG (BA1142) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Flow Cytometry analysis of K562 cells using anti-SMAD2 antibody (A00090-1). Overlay histogram showing K562 cells stained with A00090-1 (Blue line).To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-SMAD2 Antibody (A00090-1, 1ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10ug/1x106 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

3 Publications Citing This Product

1. PubMed ID: 10.1155/2016/2601830, Effect of Kuijie Granule on the Expression of TGF-beta/Smads Signaling Pathway in Patients with

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Ulcerative Colitis

2. PubMed ID: 26261569, Astragaloside effect on TGF-%u03B21, SMAD2/3, and %u03B1-SMA expression in the kidney tissues of diabetic KKAy mice

3. PubMed ID: 30090338, Mouse hepatic neoplasm formation induced by trace level and low frequency exposure to diethylnitrosamine through %u03B2-catenin signaling pathway

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Anti-SMAD2 Antibody

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