abcam

Product datasheet

Anti-Smad4 antibody ab236321

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Overview

Product name	Anti-Smad4 antibody
Description	Rabbit polyclonal to Smad4
Host species	Rabbit
Tested applications	**Suitable for:** IP, IHC-P, WB
Species reactivity	**Reacts with:** Mouse, Human **Predicted to work with:** Rat, Cow, Pig
Immunogen	Recombinant fragment corresponding to Human Smad4 aa 1-200. Database link: **Q13485** Run BLAST with Run BLAST with
Positive control	WB: SH-SY5Y, 3T3 and HepG2 whole cell lysate. IHC-P: Human colon cancer and kidney tissue. IP: Jurkat cells.
General notes	The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long term. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.40 Preservative: 0.03% Proclin 300 Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Purity	Protein G purified
Purification notes	Protein >95%.
Clonality	Polyclonal

Isotype IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab236321 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IP		1/200 - 1/2000.
IHC-P		1/20 - 1/200.
WB		1/500 - 1/2000. Predicted molecular weight: 60 kDa.

Target

Function 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. 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 syngernistic transcriptional activity in response to TGF-beta. May act as a tumor suppressor.

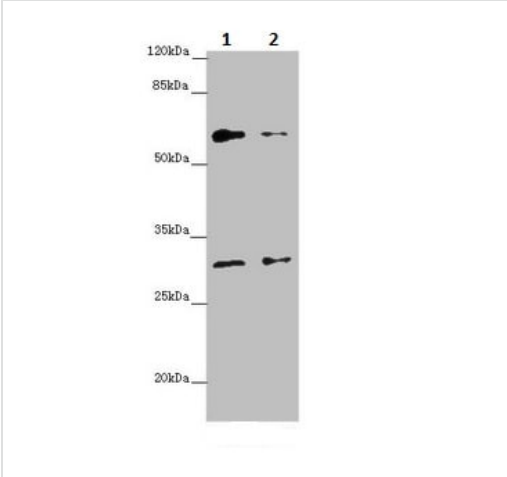
Involvement in disease Defects in SMAD4 are a cause of pancreatic cancer (PNCA) [MIM:260350].
Defects in SMAD4 are a cause of juvenile polyposis syndrome (JPS) [MIM:174900]; also known as juvenile intestinal polyposis (JIP). JPS is an autosomal dominant gastrointestinal hamartomatous polyposis syndrome in which patients are at risk for developing gastrointestinal cancers. The lesions are typified by a smooth histological appearance, predominant stroma, cystic spaces and lack of a smooth muscle core. Multiple juvenile polyps usually occur in a number of Mendelian disorders. Sometimes, these polyps occur without associated features as in JPS; here, polyps tend to occur in the large bowel and are associated with an increased risk of colon and other gastrointestinal cancers.
Defects in SMAD4 are a cause of juvenile polyposis/hereditary hemorrhagic telangiectasia syndrome (JP/HHT) [MIM:175050]. JP/HHT syndrome phenotype consists of the coexistence of juvenile polyposis (JIP) and hereditary hemorrhagic telangiectasia (HHT) [MIM:187300] in a single individual. JIP and HHT are autosomal dominant disorders with distinct and non-overlapping clinical features. The former, an inherited gastrointestinal malignancy predisposition, is caused by mutations in SMAD4 or BMPR1A, and the latter is a vascular malformation disorder caused by mutations in ENG or ACVRL1. All four genes encode proteins involved in the transforming-growth-factor-signaling pathway. Although there are reports of patients and families with phenotypes of both disorders combined, the genetic etiology of this association is unknown.
Defects in SMAD4 may be a cause of colorectal cancer (CRC) [MIM:114500].

Sequence similarities Belongs to the dwarfin/SMAD family.
Contains 1 MH1 (MAD homology 1) domain.
Contains 1 MH2 (MAD homology 2) domain.

Domain The MH1 domain is required for DNA binding.
The MH2 domain is required for both homomeric and heteromeric interactions and for

	transcriptional regulation. Sufficient for nuclear import.
Post-translational modifications	Monoubiquitinated on Lys-519 by E3 ubiquitin-protein ligase TRIM33. Monoubiquitination hampers its ability to form a stable complex with activated SMAD2/3 resulting in inhibition of TGF-beta/BMP signaling cascade. Deubiqitination by USP9X restores its competence to mediate TGF-beta signaling.
Cellular localization	Cytoplasm. Nucleus. Cytoplasmic in the absence of ligand. Migrates to the nucleus when complexed with R-SMAD.

Images



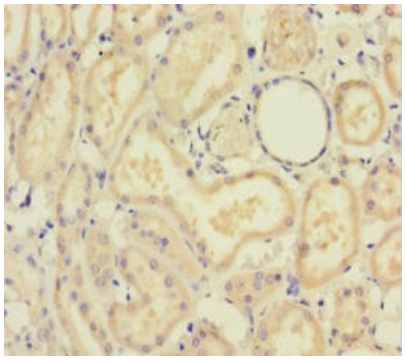
Western blot - Anti-Smad4 antibody (ab236321)

All lanes : Anti-Smad4 antibody (ab236321) at 1/500 dilution

Lane 1 : SH-SY5Y (human neuroblastoma cell line from bone marrow) whole cell lysate
Lane 2 : NIH/3T3 (mouse embryo fibroblast cell line) whole cell lysate

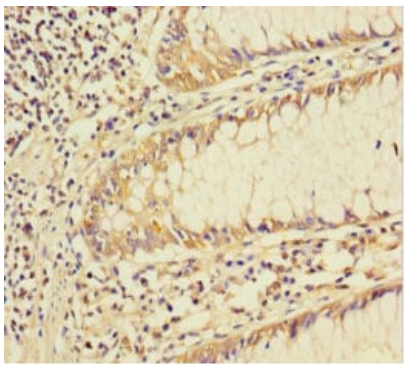
Secondary
All lanes : Goat polyclonal to rabbit IgG at 1/10000 dilution

Predicted band size: 60 kDa



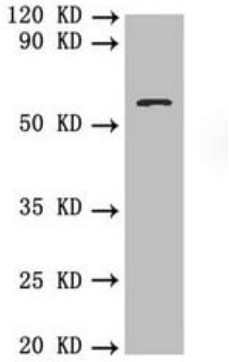
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Smad4 antibody (ab236321)

Paraffin-embedded human kidney tissue stained for Smad4 using ab236321 at 1/100 dilution in immunohistochemical analysis.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Smad4 antibody (ab236321)

Paraffin-embedded human colon cancer tissue stained for Smad4 using ab236321 at 1/100 dilution in immunohistochemical analysis.



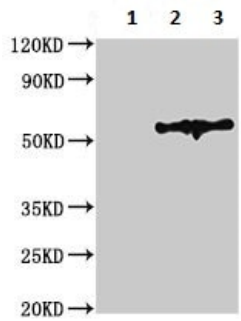
Western blot - Anti-Smad4 antibody (ab236321)

Anti-Smad4 antibody (ab236321) at 1/500 dilution + HepG2 (human liver hepatocellular carcinoma cell line) whole cell lysate

Secondary

Goat polyclonal to rabbit IgG at 1/10000 dilution

Predicted band size: 60 kDa



Immunoprecipitation - Anti-Smad4 antibody (ab236321)

Smad4 was immunoprecipitated from 0.5 mg Jurkat (human T cell leukemia cell line from peripheral blood) whole cell lysate with ab236321.

Lane 1: Rabbit control IgG instead of ab236321 in Jurkat whole cell lysate.
Lane 2: ab236321 IP in Jurkat whole cell lysate.
Lane 3: Jurkat whole cell lysate 10 µg (Input).

For western blotting, a HRP-conjugated Protein G antibody was used as the secondary antibody at 1/2000 dilution.

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