abcam

ab232326

Anti-Smad2 + Smad3 antibody [EPR19557-4] - BSA and Azide free

Recombinant | RabMAb | Advanced Validation

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR19557-4
Purification technique	Affinity purification Protein A
Concentration	1.034 - 1.07 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ChIC/CUT&RUN-seq

Tested

Species	Human
Dilution info	-

Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Recombinant fragment - Human
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Recombinant fragment - Human
Dilution info	-
Notes	-

ChIP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Recombinant fragment - Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Recombinant fragment - Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Recombinant fragment - Human
Dilution info	-
Notes	-

WB

Tested

Species	Human, Mouse, Recombinant fragment - Human, Rat
Dilution info	-
Notes	-

Target data

See full target information SMAD3

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 SMAD3/SMAD4 complex, activates transcription. Also can form a SMAD3/SMAD4/JUN/FOS complex at the AP-1/SMAD site to regulate TGF-beta-mediated transcription. Has an inhibitory effect on wound healing probably by

modulating both growth and migration of primary keratinocytes and by altering the TGF-mediated chemotaxis of monocytes. This effect on wound healing appears to be hormone-sensitive. Regulator of chondrogenesis and osteogenesis and inhibits early healing of bone fractures. Positively regulates PDPK1 kinase activity by stimulating its dissociation from the 14-3-3 protein YWHAQ which acts as a negative regulator.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab232326 is the carrier-free version of ab202445.

Patented technology

Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?

This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Smad2 and Smad3 are intracellular proteins tightly involved in the TGF-β signaling pathway. These proteins also known as mothers against decapentaplegic homolog 2 and 3 play an important role in transmitting signals from the cell surface to the nucleus. Smad2 has a molecular weight of approximately 58 kDa while Smad3 is about 52 kDa. They are expressed in various tissues throughout the body including heart skin and immune cells. Upon activation Smad2 and Smad3 undergo phosphorylation a modification that is important for their function as signal transducers.
Biological function summary	The functions of Smad2 and Smad3 are critical in mediating cellular processes such as proliferation differentiation and apoptosis. These proteins often form complexes specifically oligomeric structures with other Smad proteins like co-Smad4 to exert their regulatory roles. The Smad2/3 complexes control the transcription of specific genes in response to TGF-β stimuli influencing cellular responses in a context-dependent manner.
Pathways	Smad2 and Smad3 are central to the TGF-β signaling pathway one significant pathway that affects cellular growth and differentiation. These proteins interact with TGF-β receptors on the cell surface to become phosphorylated forming a complex with Smad4 which then translocates to the nucleus. In the nucleus this complex regulates gene expression. Both Smad2 and Smad3 also engage with other signaling pathways such as the MAPK pathway further influencing cell behavior and cooperating with proteins like ERK.
Associated diseases and disorders	Smad2 and Smad3 have been linked to conditions like cancer and fibrosis. Dysregulation of Smad2/3 signaling often leads to unchecked cell proliferation a hallmark of tumorigenesis. In fibrosis excessive Smad2/3 activity contributes to tissue scarring due to increased extracellular matrix production. For instance their interaction with proteins like α-SMA (alpha-smooth muscle actin) in fibroblasts plays a role in cardiac and pulmonary fibrosis. Understanding their exact contribution provides insights into potential therapeutic targets for treating these diseases.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

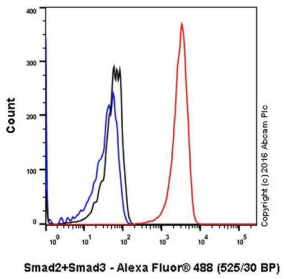
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

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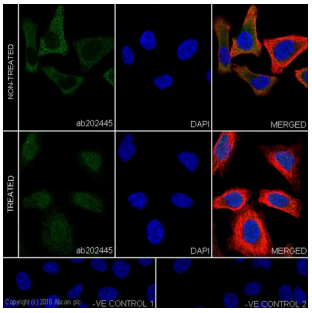
5 product images



Flow Cytometry (Intracellular) - Anti-Smad2 + Smad3 antibody [EPR19557-4] - BSA and Azide free (ab232326)

Smad2 + Smad3 Flow Cytometry (Intracellular) staining using rabbit Anti-Smad2 + Smad3 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Smad2 + Smad3 with ab202445 at 1/600 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730; black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (Alexa Fluor® 488) at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab202445).



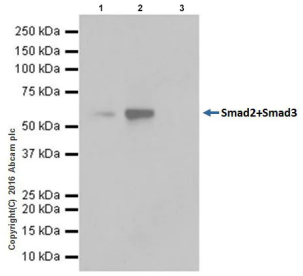
Immunocytochemistry/ Immunofluorescence - Anti-Smad2 + Smad3 antibody [EPR19557-4] - BSA and Azide free (ab232326)

Smad2 + Smad3 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Smad2 + Smad3 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Smad2 + Smad3 with ab202445 at 1/200 dilution, followed by Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). The results show signal translocation after TGF-beta (10ng/ml, 1h) treatment on HeLa cells.The nuclear counter stain is DAPI (blue).
Tubulin is detected with Anti-alpha Tubulin mouse MAb (ab7291) at 1/1000 dilution followed by Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) (ab150120) secondary antibody at 1/1000 dilution (red).

The negative controls are as follows:
-ve control 1: ab202445 at 1/200 dilution, followed by Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) (ab150120) secondary antibody at 1/1000 dilution.
-ve control 2: Anti-alpha Tubulin mouse MAb (ab7291) at 1/1000 dilution,followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab202445).



Immunoprecipitation - Anti-Smad2 + Smad3 antibody [EPR19557-4] - BSA and Azide free (ab232326)

Smad2 + Smad3 was immunoprecipitated from 0.35mg of HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab202445 at 1/40 dilution. Western blot was performed from the immunoprecipitate using ab202445 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.
Lane 1: HeLa whole cell lysate 10µg (Input).

Lane 2: ab202445 IP in HeLa whole cell lysate.

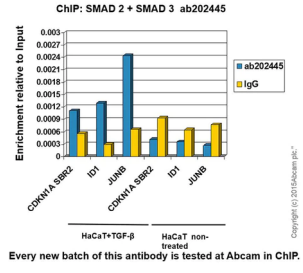
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab202445 in HeLa whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 seconds.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab202445).

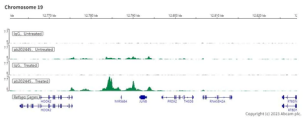
All lanes:
Immunoprecipitation - Anti-Smad2 + Smad3 antibody [EPR19557-4] - ChIP Grade (ab202445)



ChIP - Anti-Smad2 + Smad3 antibody [EPR19557-4] - BSA and Azide free (ab232326)

Chromatin was prepared from HaCaT (Human keratinocyte cell line) cells treated with 7ng/ml TGF-β for 1h and non-treated according to the Abcam X-ChIP protocol. Cells were fixed with formaldehyde for 10 minutes. The ChIP was performed with 25µg of chromatin, 2µg of ab202445 (blue), and 20µl of Anti rabbit IgG sepharose beads. 2µg of rabbit normal IgG was added to the

beads control (yellow). The immunoprecipitated DNA was quantified by real time PCR (Sybr green approach).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab202445).



ChIC/CUT&RUN sequencing - Anti-Smad2 + Smad3 antibody [EPR19557-4] - BSA and Azide free (ab232326)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab202445).

ChIC/CUT&RUN was performed using ta pAG-MNAse at a final concentration of 700 ng/mL, 2.5 x 10^5 HaCaT (Human keratinocyte cell line) cells (treated with 7ng/ml TGF-β for 1h) and 5 µg of ab202445 [EPR19557-4]. The resulting DNA was sequenced on the Illumina NovaSeq 6000 to a depth of 10 million reads. The negative IgG control ab172730 is also shown. Additional screenshots of mapped reads can be found in the Protocol booklet in the Product Protocol section. The University of Geneva owns patents relevant to ChIC (Chromatin Immuno-Cleavage) methods.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.