abcam

ab217553

Anti-Smad2 + Smad3 antibody

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.02% Proclin 300 Constituents: 50% Glycerol (glycerin, glycerine), 48.98% TBS, 1X, 1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human SMAD3 aa 1-100 conjugated to Keyhole Limpet Haemocyanin. The exact immunogen used to generate this antibody is proprietary information. Database link P84022
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Flow Cyt

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	1/100 - 1/1000
Notes	-

Species	Mouse
Dilution info	1/100 - 1/1000
Notes	-

Species	Rat
Dilution info	1/100 - 1/1000
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 duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

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

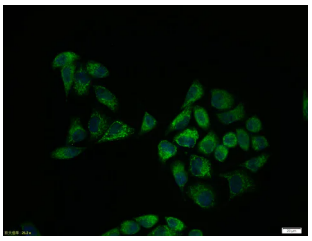
We do not recommend this combination. It is not covered by our product promise.

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.

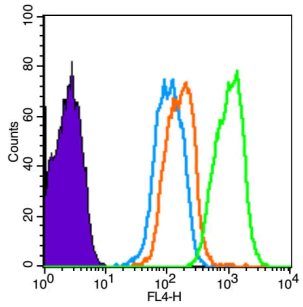
4 product images



Immunocytochemistry/ Immunofluorescence - Anti-Smad2 + Smad3 antibody (ab217553)

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

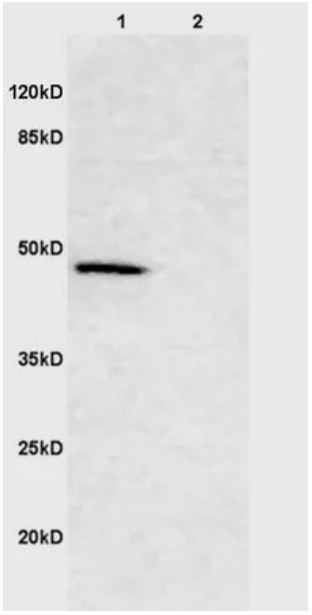
Hela cell; 4% Paraformaldehyde-fixed; Triton X-100 at room temperature for 20 min; Blocking buffer (normal goat serum) at 37°C for 20 min; Antibody incubation with (Smad3) polyclonal Antibody, Unconjugated (ab217553) 1:100, 90 minutes at 37°C; followed by a conjugated Goat Anti-Rabbit IgG antibody at 37°C for 90 minutes, DAPI (blue) was used to stain the cell nuclei.



Flow Cytometry - Anti-Smad2 + Smad3 antibody (ab217553)

Smad2 + Smad3 Flow Cytometry staining using rabbit Anti-Smad2 + Smad3 antibody

HUVEC cells(black) were fixed with 4% PFA for 10min at room temperature,permeabilized with 90% ice-cold methanol for 20 min at -20☒, and incubated in 5% BSA blocking buffer for 30 min at room temperature. Cells were then stained with Smad2/3 Polyclonal Antibody(ab217553) at 1:50 dilution in blocking buffer and incubated for 30 min at room temperature, washed twice with 2% BSA in PBS, followed by secondary antibody(blue) incubation for 40 min at room temperature. Acquisitions of 20,000 events were performed. Cells stained with primary antibody (green), and isotype control (orange).



Western blot - Anti-Smad2 + Smad3 antibody (ab217553)

12% SDS-PAGE
All lanes:
Western blot - Anti-Smad2 + Smad3 antibody (ab217553) at 1/200 dilution

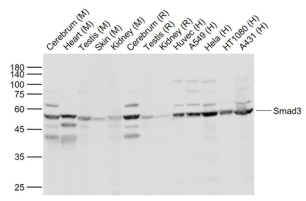
Lane 1:
mouse brain lysates

Lane 2:
mouse kidney lysates

Secondary

All lanes:
HRP-conjugated secondary antibody at 1/3000 dilution

Observed band size: 47 kDa



Western blot - Anti-Smad2 + Smad3 antibody (ab217553)

All lanes:
Western blot - Anti-Smad2 + Smad3 antibody (ab217553) at 1/1000 dilution

Lane 1:
Mouse cerebrum lysate

Lane 2:
Mouse heart lysate

Lane 3:
Mouse testis lysate

Lane 4:
Mouse Skin lysate

Lane 5:
Mouse Kidney lysate

Lane 6:
Rat cerebrum lysate

Lane 7:
Rat Testis lysate

Lane 8:
Rat kidney lysate

Lane 9:
HUVEC cell lysate

Lane 10:
A459 cell lysate

Lane 11:
HeLa cell lysate

Lane 12:
HT1080 cell lysate

Lane 13:
A431 cell lysate

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