abcam

ab53281

Anti-Sonic Hedgehog antibody [EP1190Y]

Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281) is a rabbit monoclonal antibody detecting Sonic Hedgehog in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF**. Suitable for **Human**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 80 publications
- Trusted since 2007

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EP1190Y
Purification technique	Affinity purification Protein A
Specificity	Specific for both full length (51kDa) and c-product subunit (27kDa) of human Sonic Hedgehog protein
Concentration	0.924 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/250 - 1/500
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

IHC-P

Tested

Species	Human
Dilution info	1/2000
Notes	**For unpurified use at 1/100.** Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information SHH

Function	Sonic hedgehog protein. The C-terminal part of the sonic hedgehog protein precursor displays an autoproteolysis and a cholesterol transferase activity (By

similarity). Both activities result in the cleavage of the full-length protein into two parts (ShhN and ShhC) followed by the covalent attachment of a cholesterol moiety to the C-terminal of the newly generated ShhN (By similarity). Both activities occur in the endoplasmic reticulum (By similarity). Once cleaved, ShhC is degraded in the endoplasmic reticulum (By similarity). Sonic hedgehog protein N-product. The dually lipidated sonic hedgehog protein N-product (ShhNp) is a morphogen which is essential for a variety of patterning events during development. Induces ventral cell fate in the neural tube and somites (PubMed:24863049). Involved in the patterning of the anterior-posterior axis of the developing limb bud (By similarity). Essential for axon guidance (By similarity). Binds to the patched (PTCH1) receptor, which functions in association with smoothened (SMO), to activate the transcription of target genes (PubMed:10753901). In the absence of SHH, PTCH1 represses the constitutive signaling activity of SMO (PubMed:10753901).

Storage

Shipped at conditions	Conditional Ambient
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, Stable for 12 months at -20°C

Notes

What is this antibody validated in?
Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of Sonic Hedgehog?
Anti-Sonic Hedgehog [EP1190Y] (ab53281) specifically detects a band for Sonic Hedgehog (UniProt: Q15465) at a molecular weight of 51kDa.

Trusted by the scientific community
Anti-Sonic Hedgehog [EP1190Y] (ab53281) was first used in a scientific publication in 2007 and has been cited over 80 times in peer-reviewed journals.

Reviewed by scientists
Anti-Sonic Hedgehog [EP1190Y] (ab53281) has over 5 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [EP1190Y] also available for your convenience: ab53281, Carrier free - ab175180, Alexa Fluor® 488 - ab203961, PE - ab305737, APC - ab305738, HRP - ab305739, Alkaline Phosphatase - ab308815, Alexa Fluor® 647 - ab310129, Alexa Fluor® 555 - ab312076, Alexa Fluor® 568 - ab312553

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Sonic Hedgehog also known as SHH is a protein that plays an important role in cell signaling during embryonic development. It has alternative names like 'HHG-1' and '5h4'. The Sonic Hedgehog protein is about 45 kDa in mass. Scientists find SHH expression in various tissues including the brain lungs and limb buds. Its activity plays a role in the organization of several tissue structures during development helping to regulate cellular growth and differentiation processes.
Biological function summary	Sonic Hedgehog is critical for the vertebrate embryonic patterning and organogenesis. It functions as a signaling molecule and is part of the Hedgehog signaling complex. The protein acts by binding to the Patched receptor further influencing the Smoothened transducer in cellular signaling cascades. This signaling contributes to the proper formation of limbs central nervous system structures and other vital organs in early development stages.
Pathways	Sonic Hedgehog participates in essential signaling pathways such as the Hedgehog pathway and the Wnt signaling pathway. It interacts with proteins including the Patched and Smoothened to facilitate downstream genetic transcription regulation. Through these pathways Sonic Hedgehog influences the transcription of specific genes that control cell growth. These interactions contribute to the regulation of different cell types and the organization of distinct tissue areas.
Associated diseases and disorders	Sonic Hedgehog connects to issues like cancer and congenital malformations. Aberrations in its signaling can lead to conditions such as basal cell carcinoma and holoprosencephaly. Sonic Hedgehog through its influence on the Hedgehog

signaling pathway implicates interactions with other proteins like GLI transcription factors and Patched. These interactions can dysregulate cellular processes and result in disease states when not functioning correctly.

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

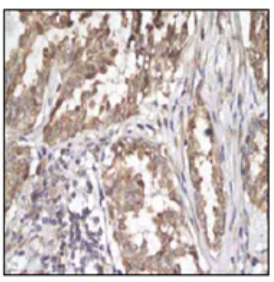
We do not recommend this combination. It is not covered by our product promise.

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.

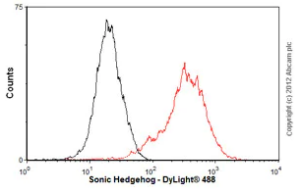
13 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Sonic Hedgehog antibody

Immunohistochemical analysis of Formalin fixed paraffin-embedded human kidney cancerous tissue labeling Sonic Hedgehog with unpurified ab53281 at 1/100 dilution.



Flow Cytometry (Intracellular) - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Flow Cytometry (Intracellular) staining using rabbit Anti-Sonic Hedgehog antibody

Overlay histogram showing HepG2 cells stained with unpurified ab53281 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab53281, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HepG2 cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

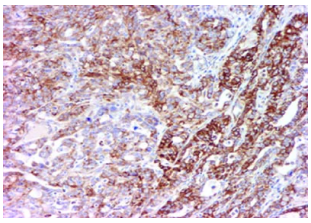
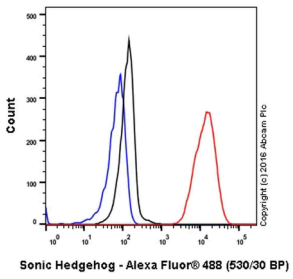


Image from McCann CK et al. PLoS One. 2011;6(11):e28077. Epub 2011 Nov 29. Fig 1.; doi:10.1371/journal.pone.0028077; November 29 2011 PLoS ONE 6(11): e28077.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Immunohistochemical analysis of Formalin fixed paraffin embedded human ovarian cancer tissue, staining Sonic Hedgehog with unpurified ab53281.

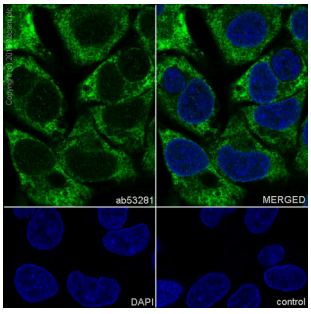
Antigen retrieval was carried out in citrate buffer using a pressure cooker for 40 minutes. Sections were blocked with blocking agent before incubating with primary antibody (1/2000) for 90 minutes at room temperature. Staining was detected using DAB.



Flow Cytometry (Intracellular) - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Flow Cytometry (Intracellular) staining using rabbit Anti-Sonic Hedgehog antibody

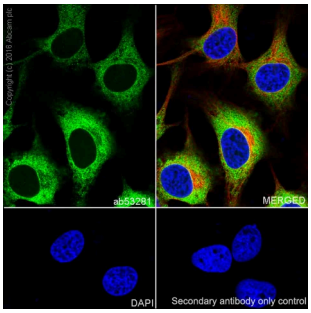
Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labelling Sonic Hedgehog with unpurified ab53281 at 1/20 (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. An Alexa Fluorr® 488-conjugated goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunocytochemistry/ Immunofluorescence - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sonic Hedgehog antibody

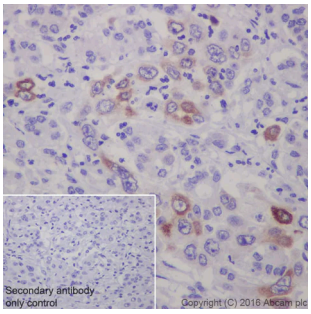
Immunocytochemistry/Immunofluorescence analysis of HeLa (human cervix adenocarcinoma) labelling Sonic Hedgehog with purified ab53281 at 1/500. Cells were fixed with 4% Paraformaldehyde and permeabilised by 0.1% tritonX-100. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody (ab150077). Nuclei counterstained with DAPI (blue).



Immunocytochemistry/ Immunofluorescence - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sonic Hedgehog antibody

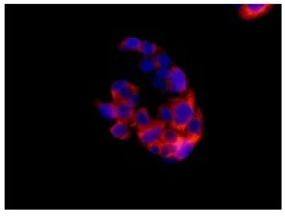
Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Sonic Hedgehog with purified ab53281 at 1/250 dilution (0.8µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889, Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/ml). ab150077 Goat anti rabbit IgG(Alexa Fluor® 488) was used as the secondary antibody at 1/1000 dilution. DAPI nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Sonic Hedgehog antibody

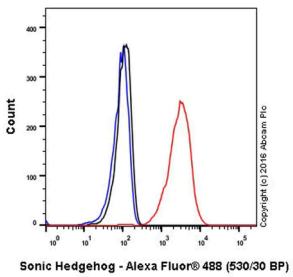
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human pancreatic carcinoma tissue sections labeling Sonic Hedgehog with purified ab53281 at 1/2000 dilution (0.097 µg/ml). Heat mediated antigen retrieval was performed using EDTA Buffer, PH9. Tissue was counterstained with Hematoxylin. ab97051 Goat Anti-Rabbit IgG H&L (HRP) secondary antibody was used at 1/500 dilution. PBS instead of the primary antibody was used as the negative control.



Immunocytochemistry/ Immunofluorescence - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Sonic Hedgehog antibody

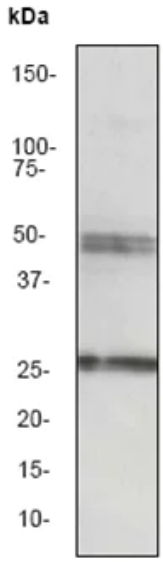
Immunocytochemistry/Immunofluorescence analysis of HepG2 cells labelling Sonic Hedgehog with unpurified ab53281.



Flow Cytometry (Intracellular) - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Flow Cytometry (Intracellular) staining using rabbit Anti-Sonic Hedgehog antibody

Intracellular Flow Cytometry analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling Sonic Hedgehog with purified ab53281 at 1/20 dilution (10 ug/ml) (red). Cells were fixed with 4% Paraformaldehyde. A Goat anti rabbit IgG (Alexa Fluorr® 488) secondary antibody was used at 1/2000 dilution. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - cells without incubation with primary antibody and secondary antibody (Blue).



Western blot - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

All lanes:
Western blot - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281) at 1/2000 dilution

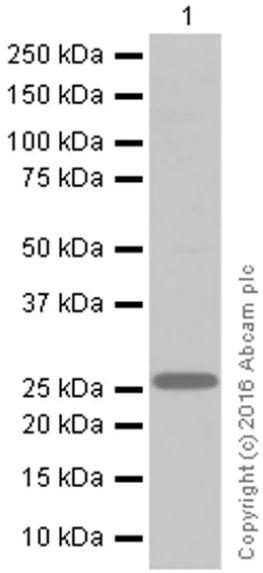
All lanes:
Fetal liver membrane at 10 µg

Secondary

All lanes:
Goat anti-rabbit HRP at 1/2000 dilution

Predicted band size: 49 kDa

Observed band size: 27 kDa, 49 kDa, 51 kDa



Western blot - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Blocking and diluting buffer: 5% NFDM /TBST .
27KDa: C-terminal product.

All lanes:
Western blot - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281) at 1/1000 dilution

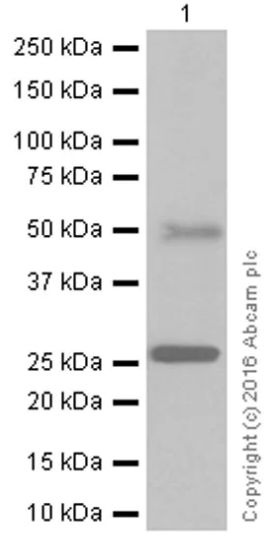
All lanes:
Human fetal kidney lysate at 15 µg

Secondary

All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/2000 dilution

Predicted band size: 49 kDa

Observed band size: 27 kDa



Western blot - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Western blot staining of Human fetal liver lysate using rabbit Anti-Sonic Hedgehog antibody

Blocking and diluting buffer: 5% NFDM/TBST.
50kDa: Full-length SHH; 27KDa: C-terminal product

All lanes:
Western blot - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281) at 1/2000 dilution

All lanes:
Human fetal liver lysate at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 49 kDa

Observed band size: 27 kDa, 50 kDa

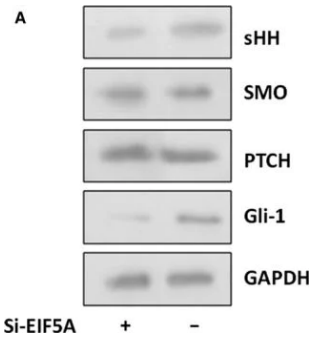


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Western blot - Anti-Sonic Hedgehog antibody [EP1190Y] (ab53281)

Sonic Hedgehog Western blot staining using rabbit Anti-Sonic Hedgehog antibody

Sonic Hedgehog western blot using anti-Sonic Hedgehog antibody [EP1190Y] ab53281. Publication image and figure legend from Wang, Z., Jiang, J., et al., 2019, J Cell Mol Med, PubMed 30761741.

ab53281 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab53281 please see the product overview.

The expression of EIF5A controls the sHH signalling pathway in PC cells. The Western blot showed that EIF5A knockdown can decrease the protein expression of sHH signalling factors in Panc-1 cells (A) and BxPc-3 cells (B). Graphs showed the EIF5A knockdown obviously reduced the expressions of sHH and Gli-1 in Panc-1 cells (C) and BxPc-3 cells (D). To decide whether activation of sHH signalling pathway depends on sHH factor, we used recombinant sHH or neutralizing antibody to treat the PC cells with Si-EIF5A. The Western blot results showed the low expression level of Gli-1 for Panc-1 cells (E) and for BxPc-3 cells (F). *p < 0.05 as determined by the Student's t test

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