abcam

Product datasheet

Anti-Sonic Hedgehog antibody ab19897

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Overview

Product name	Anti-Sonic Hedgehog antibody
Description	Rabbit polyclonal to Sonic Hedgehog
Host species	Rabbit
Tested applications	**Suitable for:** ICC/IF, Sandwich ELISA, WB **Unsuitable for:** IHC-Fr
Species reactivity	**Reacts with:** Mouse **Predicted to work with:** Rat, Chicken, Cow, Human, Xenopus laevis, Zebrafish, a wide range of other species
Immunogen	Synthetic peptide corresponding to Human Sonic Hedgehog aa 1-100 (N terminal) conjugated to keyhole limpet haemocyanin. (Peptide available as ab21448)
Positive control	This antibody gave a positive signal in Mouse Recombinant Sonic Hedgehog protein.

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 or -80°C. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.40 Preservative: 0.02% Sodium azide Constituent: PBS Batches of this product that have a concentration < 1mg/ml may have BSA added as a stabilising agent. If you would like information about the formulation of a specific lot, please contact our scientific support team who will be happy to help.
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab19897** 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
ICC/IF		Use a concentration of 5 µg/ml.
Sandwich ELISA		Use a concentration of 0.5 µg/ml. For sandwich ELISA, use this antibody as Detection at 0.5 µg/ml with Mouse monoclonal [10H6] to Sonic Hedgehog (ab87382) as Capture.
WB	★★★★☆	Use a concentration of 1 µg/ml. Detects a band of approximately 26 kDa (predicted molecular weight: 48 kDa).

Application notes Is unsuitable for IHC-Fr.

Target

Function Binds to the patched (PTC) receptor, which functions in association with smoothened (SMO), to activate the transcription of target genes. In the absence of SHH, PTC represses the constitutive signaling activity of SMO. Also regulates another target, the gli oncogene. Intercellular signal essential for a variety of patterning events during development: signal produced by the notochord that induces ventral cell fate in the neural tube and somites, and the polarizing signal for patterning of the anterior-posterior axis of the developing limb bud. Displays both floor plate- and motor neuron-inducing activity. The threshold concentration of N-product required for motor neuron induction is 5-fold lower than that required for floor plate induction.

Tissue specificity Expressed in fetal intestine, liver, lung, and kidney. Not expressed in adult tissues.

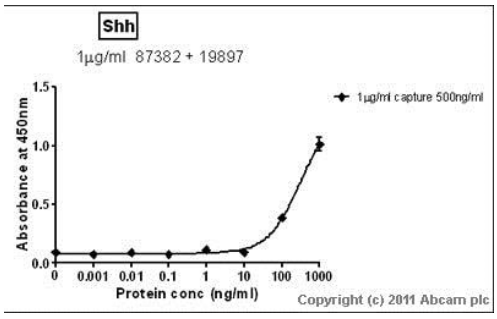
Involvement in disease Defects in SHH are the cause of microphthalmia isolated with coloboma type 5 (MCOPCB5) [MIM:611638]. Microphthalmia is a clinically heterogeneous disorder of eye formation, ranging from small size of a single eye to complete bilateral absence of ocular tissues. Ocular abnormalities like opacities of the cornea and lens, scaring of the retina and choroid, cataract and other abnormalities like cataract may also be present. Ocular colobomas are a set of malformations resulting from abnormal morphogenesis of the optic cup and stalk, and the fusion of the fetal fissure (optic fissure).
Defects in SHH are the cause of holoprosencephaly type 3 (HPE3) [MIM:142945]. Holoprosencephaly (HPE) [MIM:236100] is the most common structural anomaly of the brain, in which the developing forebrain fails to correctly separate into right and left hemispheres. Holoprosencephaly is genetically heterogeneous and associated with several distinct facies and phenotypic variability. The majority of HPE3 cases are apparently sporadic, although clear examples of autosomal dominant inheritance have been described. Interestingly, up to 30% of obligate carriers of HPE3 gene in autosomal dominant pedigrees are clinically unaffected.
Defects in SHH are a cause of solitary median maxillary central incisor (SMMCI) [MIM:147250]. SMMCI is a rare dental anomaly characterized by the congenital absence of one maxillary central incisor.
Defects in SHH are the cause of triphalangeal thumb-polysyndactyly syndrome (TPTPS) [MIM:174500]. TPTPS is an autosomal dominant syndrome characterized by a wide spectrum of pre- and post-axial abnormalities due to altered SHH expression pattern during limb development. TPTPS mutations have been mapped to the 7q36 locus in the LMBR1 gene which contains in its intron 5 a long-range cis-regulatory element of SHH expression.

Sequence similarities Belongs to the hedgehog family.

Post-translational The C-terminal domain displays an autoproteolysis activity and a cholesterol transferase activity.

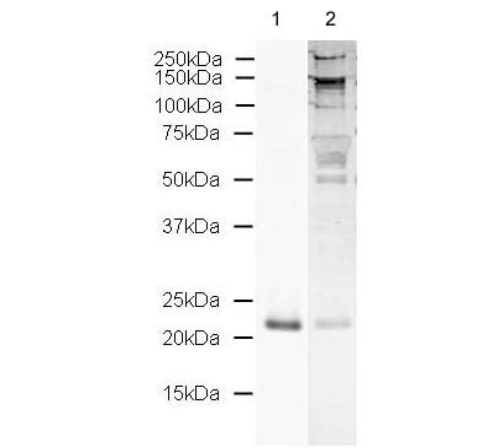
modifications	Both activities result in the cleavage of the full-length protein and covalent attachment of a cholesterol moiety to the C-terminal of the newly generated N-terminal fragment (N-product). The N-product is the active species in both local and long-range signaling, whereas the C-product has no signaling activity. Cholesterylation is required for N-product targeting to lipid rafts and multimerization. N-palmitoylation of Cys-24 by HHAT is required for N-product multimerization and full activity.
Cellular localization	Cell membrane. The N-product either remains associated with lipid rafts at the cell surface, or forms freely diffusible active multimers with its hydrophobic lipid-modified N- and C-termini buried inside and Secreted > extracellular space. The C-terminal peptide diffuses from the cell.

Images



Sandwich ELISA - Anti-Sonic Hedgehog antibody (ab19897)

Standard Curve for Sonic Hedgehog (Analyte: Sonic Hedgehog protein (Amino end active) (ab63216)); dilution range 1pg/ml to 1µg/ml using Capture Antibody Mouse monoclonal [10H6] to Sonic Hedgehog (ab87382) at 1µg/ml and Detector Antibody Rabbit polyclonal to Sonic Hedgehog (ab19897) at 0.5µg/ml.



Western blot - Anti-Sonic Hedgehog antibody (ab19897)

All lanes : Anti-Sonic Hedgehog antibody (ab19897) at 1 µg/ml

Lane 1 : 22 kDa fragment of Mouse recombinant Sonic Hedgehog protein
Lane 2 : 22 kDa fragment of Mouse recombinant Sonic Hedgehog protein with Human Sonic Hedgehog peptide (ab21448) at 1 µg/ml

Lysates/proteins at 1 µg per lane.

Predicted band size: 48 kDa
Observed band size: 22 kDa
why is the actual band size different from the predicted?

ab19897 detects a 180 AA (22 kDa) recombinant fragment of mouse Sonic Hedgehog (lane 1). Binding of ab19897 to Sonic Hedgehog was reduced when blocking using the immunising peptide (lane 2).

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