10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Anti-Patched Antibody

Catalog # AP51457

Product Information

Application	WB, IHC
Primary Accession	Q13635
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	160545

Additional Information

Gene ID	5727
Other Names	PTCH; Protein patched homolog 1; PTC; PTC1
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within the N-term region of human Patched. The exact sequence is proprietary.
Dilution	WB~~ 1:1000 IHC~~1:100~500
Format	Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

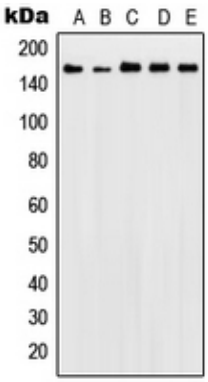
Name	PTCH1 {ECO:0000303|PubMed:31555730, ECO:0000312|HGNC:HGNC:9585}
Function	Negative regulator of the smoothened signaling pathway, which acts as a receptor for hedgehog (SHH, IHH and DHH) morphogens (PubMed:21537345, PubMed:29954986, PubMed:29995851, PubMed:30139912, PubMed:31127104, PubMed:31555730, PubMed:37611095, PubMed:40128518, PubMed:9811851). In absence of hedgehog, acts as an inhibitor of smoothened protein (SMO) by preventing SMO access to cholesterol: mechanistically, acts as a cholesterol transporter, which depeletes cholesterol from the outer leaflet of plasma membrane, thereby preventing cholesterol-binding to the extracellular CRD region of SMO (PubMed:31555730, PubMed:37611095). Hedgehog-binding inhibits PTCH1 cholesterol transporter activity, promoting SMO activation by cholesterol and transduction of the smoothened signaling pathway (PubMed:31548691). Molecular mechanism governing cholesterol transport are still unclear: may move cholesterol from the outer to the inner leaflet of the membrane in exchange for potassium or sodium ion export in the opposite direction (PubMed:37611095). Seems to have a tumor suppressor function, as

	inactivation of this protein is probably a necessary, if not sufficient step for tumorigenesis (PubMed:8658145).
Cellular Location	Cell membrane; Multi-pass membrane protein. Cell projection, cilium membrane {ECO:0000250|UniProtKB:Q61115}; Multi-pass membrane protein Note=Localizes to primary cilium and prevents cilium localization of SMO (PubMed:29954986, PubMed:29995851, PubMed:30139912, PubMed:31127104, PubMed:31555730). Delocalizes from primary cilium following hedgehog-binding (By similarity) {ECO:0000250|UniProtKB:Q61115, ECO:0000269|PubMed:29954986, ECO:0000269|PubMed:29995851, ECO:0000269|PubMed:30139912, ECO:0000269|PubMed:31127104, ECO:0000269|PubMed:31555730}
Tissue Location	In the adult, expressed in brain, lung, liver, heart, placenta, skeletal muscle, pancreas and kidney. Expressed in tumor cells but not in normal skin.

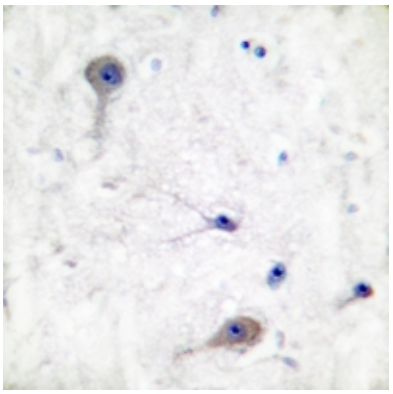
References

Johnson R.L.,et al.Science 272:1668-1671(1996).
Hahn H.,et al.J. Biol. Chem. 271:12125-12128(1996).
Humphray S.J.,et al.Nature 429:369-374(2004).
Nagao K.,et al.Genomics 85:462-471(2005).
Shimokawa T.,et al.Oncogene 26:4889-4896(2007).

Images



Western blot analysis of Patched expression in HeLa (A), Ramos (B), MCF7 (C), NIHC3T3 (D), PC12 (E) whole cell lysates. (Predicted band size: 160 kD; Observed band size: 160 kD)



Immunohistochemical analysis of Patched staining in human brain formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

Citations

- The sonic hedgehog pathway mediates Tongxinluo capsule-induced protection against blood-brain barrier disruption

after ischemic stroke in mice.

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