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

SMO Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP16325c

Product Information

Application	WB, E
Primary Accession	Q99835
Other Accession	NP_005622.1
Reactivity	Human
Predicted	Mouse, Rat, Bovine, Canine, Rabbit, Chicken
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB35752
Calculated MW	86397
Antigen Region	539-567

Additional Information

Gene ID	6608
Other Names	Smoothened homolog, SMO, Protein Gx, SMO, SMOH
Target/Specificity	This SMO antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 539-567 amino acids from the Central region of human SMO.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	SMO Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SMO {ECO:0000303|PubMed:8906787, ECO:0000312|HGNC:HGNC:11119}
Function	G protein-coupled receptor, which transduces the smoothened signaling pathway (PubMed:19592253, PubMed:27437577, PubMed:28344083, PubMed:31168089, PubMed:32929279, PubMed:36202993). Activated by

	cholesterol in response to hedgehog (DHH, IHH or SHH) morphogens (PubMed:27437577, PubMed:28344083, PubMed:32929279). In absence of hedgehog, SMO is inactivated by patched protein (PTCH1 or PTCH2), which prevents SMO access to cholesterol (PubMed:28344083). In response to hedgehog-binding to pathched, inhibition is relieved, promoting SMO translocation to primary cilium and activation by cholesterol: cholesterol causes a conformation change that triggers signaling via G protein G(i), mediating inhibition of adenylate cyclase activity and decreassed production of cAMP (PubMed:28344083, PubMed:31168089). Decreased cAMP levels then inhibit protein kinase A (PKA) and promote release of GLI (GLI1, GLI2 and GLI3) transcription factors, which activate expression of target genes (PubMed:31168089). Active SMO also directly inhibits PKA by sequestering its catalytic subunit, PRKACA, at the cell membrane, preventing PRKACA-mediated phosphorylation and subsequent processing of GLI transcription factors (PubMed:36202993, PubMed:39138140). Active SMO also promotes the removal of GPR161, a key inhibitor of the smoothened signaling pathway, from primary cilia (By similarity).
Cellular Location	Cell membrane {ECO:0000250|UniProtKB:P56726}; Multi-pass membrane protein. Cell projection, cilium membrane; Multi-pass membrane protein. Note=Translocates to primary cilium in response to hedgehog (DHH, IHH or SHH) morphogens (By similarity) Cilium localization is mediated via a beta-arrestin and KIF3A-dependent mechanism (By similarity). {ECO:0000250|UniProtKB:P56726}

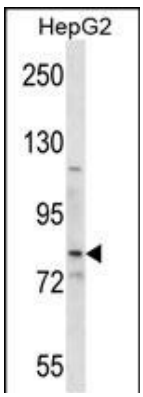
Background

The protein encoded by this gene is a G protein-coupled receptor that interacts with the patched protein, a receptor for hedgehog proteins. The encoded protein tranduces signals to other proteins after activation by a hedgehog protein/patched protein complex.

References

Zhang, L., et al. Oral Dis 16(8):818-822(2010)
Desch, P., et al. Oncogene 29(35):4885-4895(2010)
Walter, K., et al. Clin. Cancer Res. 16(6):1781-1789(2010)
Hirotsu, M., et al. Mol. Cancer 9, 5 (2010) :
Rittie, L., et al. Aging Cell 8(6):738-751(2009)

Images



SMO Antibody (Center) (Cat. #AP16325c) western blot analysis in HepG2 cell line lysates (35ug/lane).This demonstrates the SMO antibody detected the SMO protein (arrow).

Citations

- Salinomycin exerts anticancer effects on human breast carcinoma MCF-7 cancer stem cells via modulation of Hedgehog signaling.
- The sonic hedgehog pathway mediates Tongxinluo capsule-induced protection against blood-brain barrier disruption after ischemic stroke in mice.
- Dehydroeffusol inhibits viability and epithelial-mesenchymal transition through the Hedgehog and Akt/mTOR signaling pathways in neuroblastoma cells.

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