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SMURF2 Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2105a

Product Information

Application	WB, IHC-P, E
Primary Accession	Q9HAU4
Other Accession	A2A5Z6, A9JRZ0, NP_073576
Reactivity	Human, Mouse
Predicted	Zebrafish
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	86196
Antigen Region	6-36

Additional Information

Gene ID	64750
Other Names	E3 ubiquitin-protein ligase SMURF2, hSMURF2, 632-, SMAD ubiquitination regulatory factor 2, SMAD-specific E3 ubiquitin-protein ligase 2, SMURF2
Target/Specificity	This SMURF2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 6-36 amino acids from the N-terminal region of human SMURF2.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
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	SMURF2 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SMURF2 (HGNC:16809)
Function	E3 ubiquitin-protein ligase which accepts ubiquitin from an E2 ubiquitin-conjugating enzyme in the form of a thioester and then directly transfers the ubiquitin to targeted substrates (PubMed:11016919,

PubMed:38016474). Interacts with SMAD7 to trigger SMAD7-mediated transforming growth factor beta/TGF-beta receptor ubiquitin-dependent degradation, thereby down-regulating TGF-beta signaling (PubMed:11163210, PubMed:12717440, PubMed:21791611). In addition, interaction with SMAD7 activates autocatalytic degradation, which is prevented by interaction with AIMP1 (PubMed:18448069). Also forms a stable complex with TGF-beta receptor-mediated phosphorylated SMAD1, SMAD2 and SMAD3, and targets SMAD1 and SMAD2 for ubiquitination and proteasome-mediated degradation (PubMed:11016919, PubMed:11158580, PubMed:11389444). SMAD2 may recruit substrates, such as SNON, for ubiquitin-dependent degradation (PubMed:11389444). Negatively regulates TGFB1-induced epithelial-mesenchymal transition and myofibroblast differentiation (PubMed:30696809). Acts as an activator of ferroptosis by mediating ubiquitination and degradation of GSTP1, thereby preventing detoxification of 4-hydroxynonenal (4-HNE) reactive aldehyde (PubMed:38016474). Acts as a positive regulator of smoothened signaling pathway by mediating ubiquitination of PTCH1, leading to endocytosis and lysosomal degradation of PTCH1 (By similarity).

Cellular Location Nucleus. Cytoplasm. Cell membrane. Membrane raft. Note=Cytoplasmic in the presence of SMAD7. Colocalizes with CAV1, SMAD7 and TGF-beta receptor in membrane rafts

Tissue Location Widely expressed.

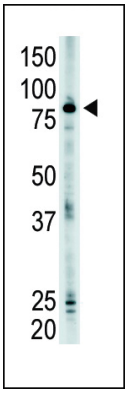
Background

SMURF2, a 748-amino acid ubiquitin E3 ligase that is 83% identical to SMURF1, codes for a C2-WW-HECT domain ubiquitin ligase that associates constitutively with SMAD7. Binding to SMAD7 induces export of SMURF2 and recruitment to the activated transforming growth factor-beta receptor (TGFBR), where it causes receptor and SMAD7 degradation. A strong interaction of second and third SMURF2 WW domains has been identified with SMAD1, SMAD2, and SMAD3, but not SMAD4. Western blot analysis showed that SMURF2 selectively downregulates the transcription of SMAD2 and SMAD1, but not SMAD3. The nuclear SMURF2/phosphorylated SMAD2 interaction is requires TGFB1.

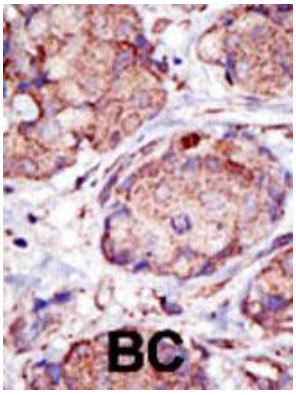
References

Zhang, Y., et al., Proc. Natl. Acad. Sci. U.S.A. 98(3):974-979 (2001).
Kavsak, P., et al., Mol. Cell 6(6):1365-1375 (2000).
Lin, X., et al., J. Biol. Chem. 275(47):36818-36822 (2000).

Images



The anti-SMURF2 Pab (Cat. #AP2105a) is used in Western blot to detect SMURF2 in mouse brain tissue lysate.



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

Citations

- Ubiquitination of the GTPase Rap1B by the ubiquitin ligase Smurf2 is required for the establishment of neuronal polarity.
- Glucocorticoid-induced leucine zipper (GILZ) antagonizes TNF- inhibition of mesenchymal stem cell osteogenic differentiation.

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