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SMURF2 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2105b

Product Information

Application	WB, IHC-P, IF, E
Primary Accession	Q9HAU4
Other Accession	A2A5Z6, Q9PUN2, Q9CUN6, Q9HCE7
Reactivity	Human, Rat, Mouse
Predicted	Mouse, Xenopus
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	86196
Antigen Region	702-731

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 702-731 amino acids from the C-terminal region of human SMURF2.
Dilution	WB~~1:2000 IHC-P~~1:100~500 IF~~1:10~50 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 (C-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). 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).

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.

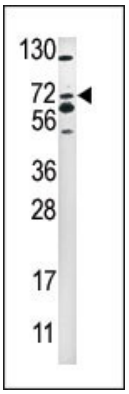
Background

SMURF2 is an 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. This protein interacts with SMAD1, SMAD2 and SMAD7 in order to trigger their ubiquitination and proteasome-dependent degradation. It enhances the inhibitory activity of SMAD7 and reduces the transcriptional activity of SMAD2. Coexpression of SMURF2 with SMAD1 results in considerable decrease in steady-state level of SMAD1 protein and a smaller decrease of SMAD2 level.

References

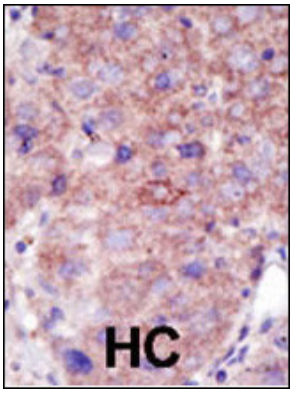
Tajima, Y., et al., J. Biol. Chem. 278(12):10716-10721 (2003). Suzuki, C., et al., J. Biol. Chem. 277(42):39919-39925 (2002). Ebisawa, T., et al., J. Biol. Chem. 276(16):12477-12480 (2001). Zhu, H., et al., Nature 400(6745):687-693 (1999). Lambris, J., et al., J. Immunol. Methods 27(1):55-59 (1979).

Images

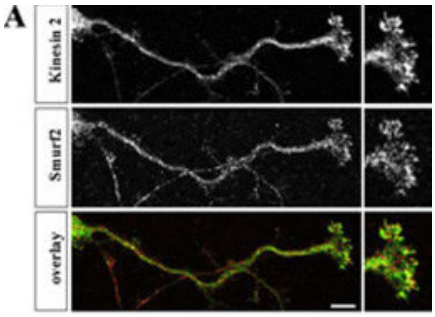


Western blot analysis of anti-SMURF2 Pab (Cat. #AP2105b) in 293 cell line lysate (35ug/lane). SMURF2(arrow) was detected using the purified Pab

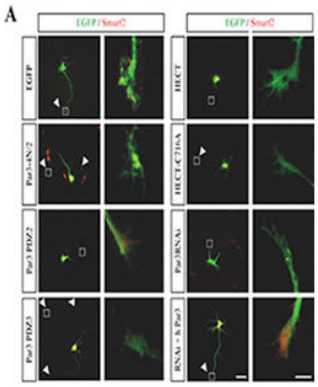
Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical



relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.



Hippocampal neurons were fixed at stage 3, stained with anti-Smurf2 (red) and anti-Kinesin-2 (green) antibodies, and analyzed by confocal microscopy. The panels show single confocal planes. (J. Biol. Chem. 2007 Nov 30;282(48):35259-35268)



Hippocampal neurons were transfected 2 h after plating with expression vectors for EGFP, EGFP-tagged Par3-4N/2, Par3-PDZ2, Par3-PDZ3, Smurf2-HECT (HECT), Smurf2-HECT-C716A (HECT CA), and shRNA directed against mPar3 (Par3 RNAi), or vectors for the anti-Par3 shRNA and human Myc-Par3 (RNAi + h Par3) (green). Transfected cells were analyzed at 3 d.i.v. by staining with an anti-Smurf2 antibody (red). Axons are marked by arrowheads. The marked growth cones are shown at a higher magnification. Scale bars, 40 and 10 ?. (J. Biol. Chem. 2007 Nov 30;282(48):35259-35268)

Citations

- The interaction of mPar3 with the ubiquitin ligase Smurf2 is required for the establishment of neuronal polarity.