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SMURF1 Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2104a

Product Information

Application	WB, IHC-P, E
Primary Accession	Q9HCE7
Other Accession	Q2TAS2, A2A5Z6, Q9HAU4, A9JRZ0, Q9PUN2, Q9CUN6
Reactivity	Human, Mouse, Rat
Predicted	Zebrafish, Xenopus, Bovine, Canine, Rabbit, Chicken
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	86114
Antigen Region	66-96

Additional Information

Gene ID	57154
Other Names	E3 ubiquitin-protein ligase SMURF1, hSMURF1, 632-, SMAD ubiquitination regulatory factor 1, SMAD-specific E3 ubiquitin-protein ligase 1, SMURF1, KIAA1625
Target/Specificity	This SMURF1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 66-96 amino acids from the N-terminal region of human SMURF1.
Dilution	WB~~1:2000 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	SMURF1 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SMURF1
Synonyms	KIAA1625

Function	E3 ubiquitin-protein ligase that acts as a negative regulator of BMP signaling pathway. Mediates ubiquitination and degradation of SMAD1 and SMAD5, 2 receptor-regulated SMADs specific for the BMP pathway. Promotes ubiquitination and subsequent proteasomal degradation of TRAF family members and RHOA. Promotes ubiquitination and subsequent proteasomal degradation of MAVS (PubMed:23087404). Acts as a positive regulator of smoothened signaling pathway by mediating ubiquitination of PTCH1, leading to endocytosis and lysosomal degradation of PTCH1 (By similarity). Acts as an antagonist of TGF-beta signaling by ubiquitinating TGFBR1 and targeting it for degradation (PubMed:21791611). Plays a role in dendrite formation by melanocytes (PubMed:23999003).
Cellular Location	Cytoplasm. Cell membrane; Peripheral membrane protein; Cytoplasmic side
Tissue Location	Expressed in melanocytes (PubMed:23999003).

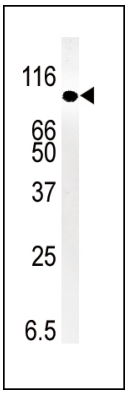
Background

Members of the transforming growth factor-beta (TGFB) family signal through type I and type II serine/threonine-kinase receptors, which in turn activate the SMAD signaling pathway. Bone morphogenetic protein (BMP) receptors target SMAD1, SMAD5, and SMAD8, whereas receptors for activin and TGFB (e.g., ACVR1 and TGFBR1, respectively) target SMAD2 and SMAD3. Phosphorylation of these receptor-regulated SMADs induces their association with the common-partner SMAD, SMAD4. Smurf1, a HECT domain E3 ubiquitin ligase, regulates cell polarity and protrusive activity and is required to maintain the transformed morphology and motility of a tumor cell. Atypical protein kinase C-zeta (PKC2), an effector of the Cdc42/Rac1-PAR6 polarity complex, recruits Smurf1 to cellular protrusions, where it controlled the local level of RhoA. Smurf1 thus links the polarity complex to degradation of RhoA in lamellipodia and filopodia to prevent RhoA signaling during dynamic membrane movements.

References

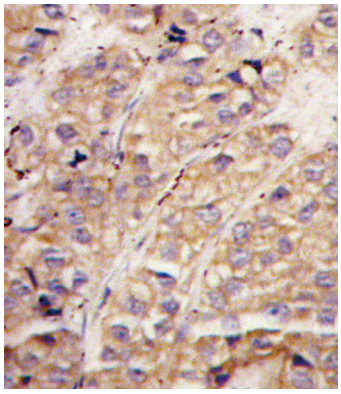
Tajima, Y., et al., J. Biol. Chem. 278(12):10716-10721 (2003). Suzuki, C., et al., J. Biol. Chem. 277(42):39919-39925 (2002). Ebisawa, T., et al., J. Biol. Chem. 276(16):12477-12480 (2001). Zhu, H., et al., Nature 400(6745):687-693 (1999). Lambris, J., et al., J. Immunol. Methods 27(1):55-59 (1979).

Images

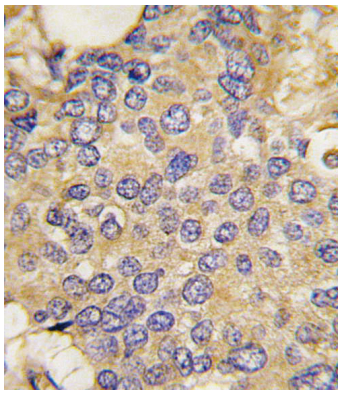


Western blot analysis of anti-SMURF1 Pab (Cat. #AP2104a) in mouse kidney tissue lysate (35ug/lane). SMURF1(arrow) was detected using the purified Pab.

Formalin-fixed and paraffin-embedded human breast carcinoma tissue reacted with hSMURF1-W81 (Cat.#AP2104a), 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.



Formalin-fixed and paraffin-embedded human Testis tissue reacted with hSMURF1-W81 (Cat.#AP2104a), 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.

Citations

- Ubiquitination of the GTPase Rap1B by the ubiquitin ligase Smurf2 is required for the establishment of neuronal polarity.
- Tumor necrosis factor promotes Runx2 degradation through up-regulation of Smurf1 and Smurf2 in osteoblasts.
- Glucocorticoid-induced leucine zipper (GILZ) antagonizes TNF- □± inhibition of mesenchymal stem cell osteogenic differentiation.
- Ubiquitin ligase Smurf1 mediates tumor necrosis factor-induced systemic bone loss by promoting proteasomal degradation of bone morphogenetic signaling proteins.

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