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

SMURF2 Antibody

Catalog # ASC11791

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q9HAU4
Other Accession	NP_073576, 12232397
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	86196
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	SMURF2 antibody can be used for detection of SMURF2 by Western blot at 1 - 2 □g/ml. Antibody can also be used for Immunohistochemistry at 5 □g/mL. For Immunoflorescence start at 20 □g/mL.

Additional Information

Gene ID	64750
Other Names	E3 ubiquitin-protein ligase SMURF2, hSMURF2, 6.3.2.-, SMAD ubiquitination regulatory factor 2, SMAD-specific E3 ubiquitin-protein ligase 2, SMURF2
Target/Specificity	SMURF2; SMURF2 antibody is human, mouse and rat reactive. SMURF2 is predicted to not cross-react with SMURF1.
Reconstitution & Storage	SMURF2 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	SMURF2 Antibody 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.

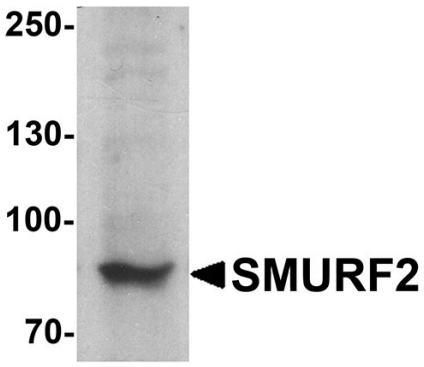
Background

SMURF2 (SMAD ubiquitin regulatory factor 2) is a negative regulator of TGF-beta signaling (1). SMURF1 and SMURF2 are members of HECT domain E3 ubiquitin ligase which are involved in the enzymatic reactions of the Ub conjugating pathway (1,2). SMURF2 is widely expressed and was initially identified as an inhibitor of TGF-beta/BMP signaling by targeting R-Smads and TGF type I receptor for ubiquitination and degradation (3). Studies have shown that SMURF2 functions as a tumor suppressor by maintaining genomic stability through targeting RNF20 (3). SMURF2 associates constitutively with SMAD7 (4).

References

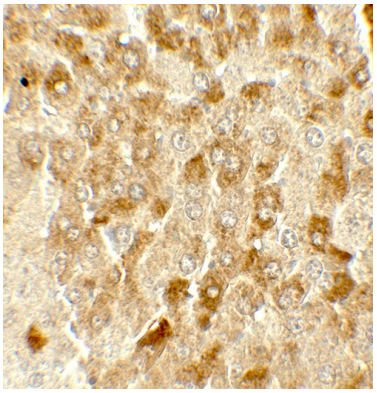
Huibregtse JM, Scheffner M, Beaudenon S, et al. A family of proteins structurally and functionally related to the E6-AP ubiquitin-protein ligase. Proc. Natl. Acad. Sci. USA 1995; 92:2563-7.
Hwang YS, Lee HS, Kamata T, et al. The Smurf ubiquitin ligases regulate tissue separation via antagonistic interactions with ephrinB1. Genes Dev. 2013; 27:491-503.
Lin X, Liang M, and Feng XH. Smurf2 is a ubiquitin E3 ligase mediating proteasomedependent degradation of Smad2 in transforming growth factor-beta signaling. J. Biol. Chem. 2000; 275:36818-22.
Kavsak P, Rasmussen RK, Causing CG, et al. Smad7 binds to Smurf2 to form an E3 ubiquitin ligase that targets the TGF-beta receptor for degradation. Mol. Cell 2000; 6:1365-75.

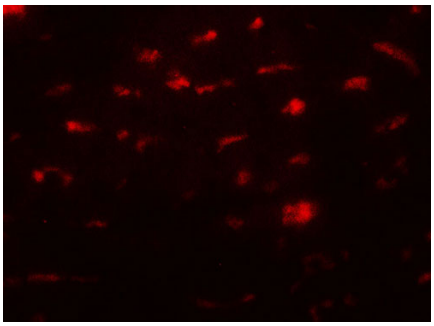
Images



Western blot analysis of SMURF2 in C2C12 cell lysate with SMURF2 antibody at 1 µg/ml.

Immunohistochemistry of SMURF2 in mouse liver tissue with SMURF2 antibody at 5 µg/mL.





Immunofluorescence of SMURF2 in mouse liver tissue with SMURF2 antibody at 20 µg/mL.

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