

#2174 Store at -20C

Smurf1 Antibody



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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications: WB	Reactivity: H	Sensitivity: Endogenous	MW (kDa): 81	Source: Rabbit	UniProt ID: #Q9HCE7	Entrez-Gene Id: 57154
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Product Usage Information	Application Western Blotting	Dilution 1:1000
Storage	Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.	
Specificity / Sensitivity	Smurf1 Antibody detects endogenous levels of total Smurf1 protein.	
Source / Purification	Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to a central region within human Smurf1 protein. Antibodies are purified by protein A and peptide affinity chromatography.	
Background	Bone morphogenetic proteins (BMPs) constitute a large family of signaling molecules that regulate a wide range of critical processes including morphogenesis, cell-fate determination, proliferation, differentiation, and apoptosis (1,2). BMP receptors are members of the TGF-β superfamily of Ser/Thr kinase receptors. Ligand binding induces multimerization, autophosphorylation, and activation of these receptors (3-5). They subsequently phosphorylate SMAD1 at Ser463 and Ser465 in the carboxy-terminal motif SSXS, as well as SMAD5 and SMAD9 (SMAD8) at their corresponding sites. These phosphorylated SMADs dimerize with the coactivating SMAD4 and translocate to the nucleus, where they regulate the transcription of target genes (5). MAP kinases and CDKs 8 and 9 are also reported to phosphorylate residues in the linker region of SMAD1, including Ser206. Phosphorylation of SMAD1 at Ser206 recruits Smurf1 to the linker region and leads to the degradation of SMAD1 (6). Phosphorylation at this site also promotes SMAD1 transcriptional activity by recruiting YAP to the linker region (7). Smurf1, a member of the HECT family of E3 ubiquitin ligases, selectively interacts with BMP pathway Smad effectors, leading to Smad protein ubiquitination and degradation (6). In addition, Smurf1 interacts with the inhibitor Smad, Smad7, the bone-specific transcription factor Runx2/Cbfa1, RhoA and MEK2 (7-10). Smurf1 negatively regulates osteoblast differentiation and bone formation <i>in vivo</i> (10,11). A related protein, Smurf2, acts more promiscuously, interacting with both BMP and TGF-β pathway Smad proteins (12).	
Background References	- Hogan, B.L. (1996) <i>Genes Dev</i> 10, 1580-94. - Hoodless, P.A. et al. (1996) <i>Cell</i> 85, 489-500. - Klemm, J.D. et al. (1998) <i>Annu Rev Immunol</i> 16, 569-92. - Kretzschmar, M. et al. (1997) <i>Genes Dev</i> 11, 984-95. - Whitman, M. (1998) <i>Genes Dev</i> 12, 2445-62. - Sapkota, G. et al. (2007) <i>Mol Cell</i> 25, 441-54. - Alarcón, C. et al. (2009) <i>Cell</i> 139, 757-69. - Zhu, H. et al. (1999) <i>Nature</i> 400, 687-693. - Ebisawa, T. et al. (2001) <i>J. Biol. Chem.</i> 276, 12477-12480. - Zhao, M. et al. (2003) <i>J. Biol. Chem.</i> 278, 27939-27944. - Wang, H.R. et al. (2003) <i>Science</i> 302, 1775-1779. - Yamashita, M. et al. (2005) <i>Cell</i> 121, 101-113. - Zhao, M. et al. (2004) <i>J. Biol. Chem.</i> 279, 12854-12859. - Zhang, Y. et al. (2001) <i>Proc. Natl. Acad. Sci. U S A</i> 98, 974-979.	

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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