

Smurf1 (X-25): sc-130877

BACKGROUND

Smurf1 and Smurf2 (Smad ubiquitination regulatory factor-1 and 2) are members of the Hect family of proteins, which also includes the ubiquitin (Ub) E3-type ligases Nedd3 and E6-AP. E3 ligases are involved in the enzymatic reactions of the Ub conjugating pathway, which targets proteins for degradation by the 26S proteasome. Within the Ub pathway, the E3 ligases specifically catalyze the transfer of Ub from the Ub-conjugating enzymes to the individual protein substrate. As an E3 ligase, Smurf1 selectively interacts with receptor-regulated Smads specific to the BMP pathway in order to trigger their ubiquitination and degradation. Smurf2 interacts with receptor-activated Smads (R-Smads), including Smad1, Smad2 and Smad3, but not Smad4. Although Smurf2 localizes to the nucleus, binding to Smad7 induces its export and its recruitment to the activated TGF β receptor, where it causes degradation of Smad7.

REFERENCES

1. Scheffner, M., et al. 1993. The HPV-16 E6 and E6-AP complex functions as a ubiquitin-protein ligase in the ubiquitination of p53. *Cell* 75: 495-505.
2. Huibregtse, J.M., et al. 1995. A family of proteins structurally and functionally related to the E6-AP ubiquitin-protein ligase. *Proc. Natl. Acad. Sci. USA* 92: 2563-2567.
3. Hershko, A., et al. 1998. The ubiquitin system. *Annu. Rev. Biochem.* 67: 425-479.
4. Zhu, H., et al. 1999. A Smad ubiquitin ligase targets the BMP pathway and affects embryonic pattern formation. *Nature* 400: 687-693.
5. Lin, X., et al. 2000. Smurf2 is a ubiquitin E3 ligase mediating proteasome-dependent degradation of Smad2 in transforming growth factor β signaling. *J. Biol. Chem.* 275: 36818-36822.
6. Kavsak, P., et al. 2000. Smad7 binds to Smurf2 to form an E3 ubiquitin ligase that targets the TGF β receptor for degradation. *Mol. Cell* 6: 1365-1375.

CHROMOSOMAL LOCATION

Genetic locus: SMURF1 (human) mapping to 7q22.1; Smurf1 (mouse) mapping to 5 G2.

SOURCE

Smurf1 (X-25) is a purified rabbit polyclonal antibody raised against a peptide mapping near the N-terminus of Smurf1 of human origin.

PRODUCT

Each vial contains 100 μ g IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

Smurf1 (X-25) is recommended for detection of Smurf1 of mouse, human, *Xenopus laevis* and zebrafish origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Smurf1 siRNA (h): sc-41673, Smurf1 siRNA (m): sc-41674, Smurf1 shRNA Plasmid (h): sc-41673-SH, Smurf1 shRNA Plasmid (m): sc-41674-SH, Smurf1 shRNA (h) Lentiviral Particles: sc-41673-V and Smurf1 shRNA (m) Lentiviral Particles: sc-41674-V.

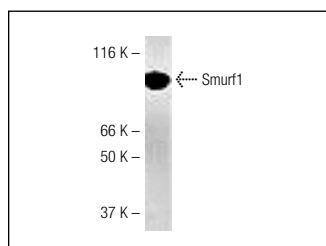
Molecular Weight of Smurf1: 86 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or mouse kidney extract: sc-2255.

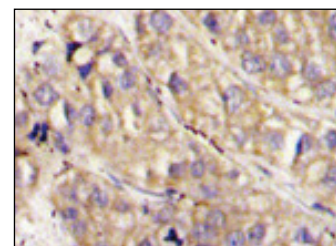
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



Smurf1 (X-25): sc-130877. Western blot analysis of Smurf1 expression in mouse kidney tissue extract.



Smurf1 (X-25): sc-130877. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing cytoplasmic localization.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

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Try **Smurf1 (45-K): sc-100616**, our highly recommended monoclonal alternative to Smurf1 (X-25).