

Smurf1 (F-20): sc-14906

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 TGF 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.
7. LocusLink Report (LocusID 57154). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: SMURF1 (human) mapping to 7q22.1.

SOURCE

Smurf1 (F-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Smurf1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-14906 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

Smurf1 (F-20) is recommended for detection of Smurf1 of human 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Smurf1 (F-20) is also recommended for detection of Smurf1 in additional species, including equine, canine, bovine, porcine and avian.

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

Molecular Weight of Smurf1: 86 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Koinuma, D., et al. 2003. Arkadia amplifies TGF β superfamily signalling through degradation of Smad7. *EMBO J.* 22: 6458-6470.
2. Fukunaga, E., et al. 2008. Smurf2 induces ubiquitin-dependent degradation of Smurf1 to prevent migration of breast cancer cells. *J. Biol. Chem.* 283: 35660-35667.

STORAGE

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

PROTOCOLS

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


 MONOS
Satisfaction
Guaranteed

Try **Smurf1 (45-K): sc-100616**, our highly recommended monoclonal alternative to Smurf1 (F-20).