SANTA CRUZ BIOTECHNOLOGY, INC.

p-Smad2 (Thr 220): sc-135644

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The Power to Question

BACKGROUND

Smad proteins, the mammalian homologs of the *Drosophila* mothers against decapentaplegic (Mad), have been implicated as downstream effectors of TGFβ/BMP signaling. Smad1 (also designated Madr1 or JV4-1) and Smad5 are effectors of BMP-2 and BMP-4 function, while Smad2 (also designated Madr2 or JV18-1) and Smad3 are involved in TGFβ and Activin-mediated growth modulation. Smad4 (also designated DPC4) has been shown to mediate all of the above activities through interaction with various Smad family members. Smad6 and Smad7 regulate the response to Activin/TGFβ signaling by interfering with TGFβ-mediated phosphorylation of other Smad proteins. Mouse, rat and human Smad2 are subject to phosphorylation by TGFβ receptors, and Thr 220 is one of the sites that is targeted for phosphorylation.

REFERENCES

1. Liu, F., et al. 1996. A human Mad protein acting as a BMP-regulated transcriptional activator. Nature 381: 620-623.
2. Hoodless, P.A., et al. 1996. Madr1, a Mad-related protein that functions in BMP-2 signaling pathways. Cell 85: 489-500.
3. Eppert, K., et al. 1996. Madr2 maps to 18q21 and encodes a TGFβ-regulated Mad-related protein that is functionally mutated in colorectal carcinoma. Cell 86: 543-552.
4. Zhang, Y., et al. 1996. Receptor-associated Mad homologues synergize as effectors of the TGFβ response. Nature 383: 168-172.
5. Lagna, G., et al. 1996. Partnership between DPC4 and Smad proteins in TGFβ signalling pathways. Nature 383: 832-836.
6. Massague, J., et al. 1997. TGFβ signalling through the Smad pathway. Trends Cell Biol. 7: 187-192.
7. Imamura, T., et al. 1997. Smad6 inhibits signalling by the TGFβ superfamily. Nature 389: 622-626.
8. Nakao, A., et al. 1997. Identification of Smad7, a TGFβ-inducible antagonist of TGFβ signalling. Nature 389: 631-635.
9. Gaspar, N.J., et al. 2007. Inhibition of TGFβ signaling reduces pancreatic adenocarcinoma growth and invasiveness. Mol. Pharmacol. 72: 152-161.

CHROMOSOMAL LOCATION

Genetic locus: SMAD2 (human) mapping to 18q21.1; Smad2 (mouse) mapping to 18 E3.

SOURCE

p-Smad2 (Thr 220) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Thr 220 phosphorylated Smad2 of human origin.

PRODUCT

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

RESEARCH USE

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

APPLICATIONS

p-Smad2 (Thr 220) is recommended for detection of Thr 220 phosphorylated Smad2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

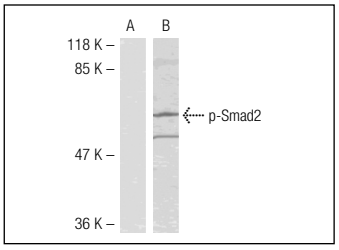
Suitable for use as control antibody for Smad2 siRNA (h): sc-38374, Smad2 siRNA (m): sc-38375, Smad2 shRNA Plasmid (h): sc-38374-SH, Smad2 shRNA Plasmid (m): sc-38375-SH, Smad2 shRNA (h) Lentiviral Particles: sc-38374-V and Smad2 shRNA (m) Lentiviral Particles: sc-38375-V.

Molecular Weight of p-Smad2: 55-60 kDa.

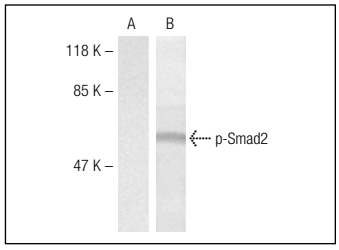
RECOMMENDED SECONDARY REAGENTS

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent) and Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



p-Smad2 (Thr 220): sc-135644. Western blot analysis of phosphorylated Smad2 expression in untreated (**A**) and IL-4-treated (**B**) HeLa cell extracts.



p-Smad2 (Thr 220): sc-135644. Western blot analysis of phosphorylated Smad2 expression in untreated (**A**) and IL-4-treated (**B**) HeLa cell extracts.

SELECT PRODUCT CITATIONS

1. Wang, X., et al. 2013. Effects of TRAP-1-like protein (TLP) gene on collagen synthesis induced by TGF-β/Smad signaling in human dermal fibroblasts. PLoS ONE 8: e55899.
2. Li, G., et al. 2013. Lyn mitigates mouse airway remodeling by downregulating the TGF-β3 isoform in house dust mite models. J. Immunol. 191: 5359-5370.
3. Namachivayam, K., et al. 2015. All-*trans* retinoic acid induces TGF-β2 in intestinal epithelial cells via RhoA- and p38α MAPK-mediated activation of the transcription factor ATF2. PLoS ONE 10: e0134003.

STORAGE

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