SANTA CRUZ BIOTECHNOLOGY, INC.

# Smad1/2/3 (H-2): sc-7960

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Smad proteins, the mammalian homologs of the *Drosophila* Mothers against dpp (Mad), have been implicated as downstream effectors of TGFβ/BMP signaling. Smad1 (also designated Madr1 or JV4-1) and Smad5 are effectors of BMP2 and BMP4 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 family members.

## REFERENCES


1. Liu, F., et al. 1996. A human Mad protein acting as a BMP-regulated transcriptional activator. Nature 381: 620-623.
2. Eppert, K., et al. 1996. MADR2 maps to 18q21 and encodes at TGFβ-regulated MAD-related protein that is functionally encoded in colorectal carcinoma. Cell 86: 543-552.


## SOURCE

Smad1/2/3 (H-2) is a mouse monoclonal antibody raised against amino acids 1-465 representing full length of Smad1 of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_{2a}$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-7960 X, 200 µg/0.1 ml.

Smad1/2/3 (H-2) is available conjugated to agarose (sc-7960 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-7960 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-7960 PE), fluorescein (sc-7960 FITC), Alexa Fluor® 488 (sc-7960 AF488), Alexa Fluor® 546 (sc-7960 AF546), Alexa Fluor® 594 (sc-7960 AF594) or Alexa Fluor® 647 (sc-7960 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-7960 AF680) or Alexa Fluor® 790 (sc-7960 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.



## APPLICATIONS

Smad1/2/3 (H-2) is recommended for detection of Smad1, Smad2 and Smad3 of mouse, rat, human and mink origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

Smad1/2/3 (H-2) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

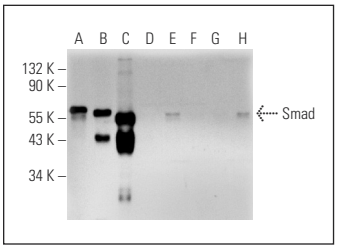
Molecular Weight of Smad1/2/3: 55-60 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, Mv 1 Lu cell lysate: sc-3810 or Mv 1 Lu + TGF cell lysate: sc-24737.

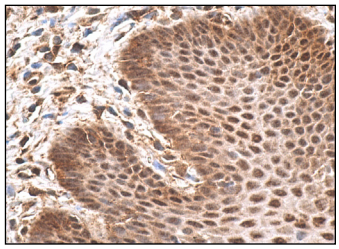
## STORAGE

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

## DATA




Smad1/2/3 (H-2): sc-7960. Western blot analysis of Smad expression in COS cells transfected with Smad1 (**A**), Smad2 (**B**), Smad3 (**C**), Smad4 (**D**), Smad5 (**E**), Smad6 (**F**) and Smad7 (**G**) expression vectors and "empty" vector (**H**).



Smad1/2/3 (H-2): sc-7960. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing nuclear and cytoplasmic staining of squamous epithelial cells.

## SELECT PRODUCT CITATIONS


1. Johnson, K., et al. 1999. Interaction of Smad complexes with tripartite DNA-binding sites. J. Biol. Chem. 274: 20709-20716.
2. Latonen, L., et al. 2011. Proteasome inhibitors induce nucleolar aggregation of proteasome target proteins and polyadenylated RNA by altering ubiquitin availability. Oncogene 30: 790-805.
3. Browne, J.A., et al. 2013. Serine-204 in the linker region of Smad3 mediates the collagen-I response to TGF-β in a cell phenotype-specific manner. Exp. Cell Res. 319: 2928-2937.
4. Fang, J., et al. 2014. Ets related gene and Smad3 proteins collaborate to activate transforming growth factor-β mediated signaling pathway in ETS related gene-positive prostate cancer cells. J. Pharm. Sci. Pharmacol. 1: 175-181.
5. Chen, C.L., et al. 2015. Euphol from *Euphorbia tirucalli* negatively modulates TGF-β responsiveness via TGF-β receptor segregation inside membrane rafts. PLoS ONE 10: e0140249.
6. Li, B. and Wang, X.L. 2016. Effective treatment of polydatin weakens the symptoms of collagen-induced arthritis in mice through its anti-oxidative and anti-inflammatory effects and the activation of MMP-9. Mol. Med. Rep. 14: 5357-5362.
7. Zöller, T., et al. 2018. Silencing of TGF-β signalling in microglia results in impaired homeostasis. Nat. Commun. 9: 4011.
8. Narayana, Y.V., et al. 2019. Clathrin-mediated endocytosis regulates a balance between opposing signals to maintain the pluripotent state of embryonic stem cells. Stem Cell Reports 12: 152-164.
9. Hu, X. and Zhu, D. 2020. Rehmannia radix extract relieves bleomycin-induced pulmonary fibrosis in mice via transforming growth factor β1 (TGF-β1). Med. Sci. Monit. 26: e927240.


## RESEARCH USE

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