Smad2 ABfinity™ Recombinant Rabbit Monoclonal Antibody - Purified

REF Catalog no. 700048

(See product label for lot information)

Clone/PAD: 31H15L4
Isotype: IgG
Gene ID: 4087
Protein Acc. no.: Q15796
Qty: 100 µg
Volume: 200 µl
Concentration: 0.5 mg/ml

Formulation
PBS + 0.09% azide

Immunogen
A peptide corresponding to amino acids 81-107 of Q15796.

Immunogen sequence
CSEIWGLSTPNTIDQWDTTGLYSFSEQ

Reactivity
This antibody reacts with human Smad2. Based on sequence identity and similarity, reactivity to orangutan, bovine, chicken, Xenopus, opossum, mouse, rat, zebrafinch, carp, zebrafish, and goldfish is expected.

Storage
2-8°C for up to 1 mo, -20°C for long term storage. Avoid repeated freezing and thawing.

Expiration Date
Expires one year from date of receipt when stored as instructed.

Validated Applications:

	Species	Test Material	Concentration
Western Blotting	human	HepG2	1-2 µg/ml
Immunofluorescence	human	HeLa	2-4 µg/ml
Flow Cytometry	human	Jurkat	0.5-1 µg/test
Sandwich ELISA	detector		1-5 µg/ml

Background
Smad proteins, the mammalian homologs of the Drosophila Mothers against dpp (Mad) have been implicated as downstream effectors of TGFβ/BMP signaling (1,2). Members of the Smad family transmit TGF-β signals from the cell surface into the nucleus. Once in the nucleus, Smads can target a variety of DNA binding proteins to regulate transcriptional responses (3,4). Three distinct classes of Smads have been defined: the receptor-regulated Smads (R-Smads), which include Smad1, 2, 3, 5, 8; the common-mediator Smads (co-Smads), including Smad4 and the antagonistic or inhibitory Smads (I-Smads), including Smad6 and Smad7 (1,5-8). Impaired Smad2 activity has been linked to TGF-β resistance in multiple myeloma through the activation of CDKs. Aberrant activation of CDKs results in phosphorylation of Thr8 and subsequent inactivation of Smad2, preventing Smad2-Smad4 interaction resulting in loss of transcriptional regulation by Smad2 (9).

References

1. Heldin CH, et al. (1997) TGFβ signaling from cell membrane to nucleus through Smad proteins Nature 390:465-471.
2. Zhang Y, et al. (1996) Receptor-associated Mad homologues synergize as effectors of the TGF-beta response. Nature 383:168–172.
3. Attisano L, & Wrana JL (2002) Signal transduction by the TGF-β superfamily. *Science* 296: 1646−1647.
4. Moustakas A, et al. (2001) Smad regulation in TGF-ß signal transduction. J Cell Sci 114:4359-4369.
5. Attisano L & Wrana JL. (1998) Mads and Smads in TGF-β signaling. Curr Opin Cell Biol 10:188-194.
6. Derynck R, et al. (1998) Smads: transcriptional activators of TGF-β responses. Cell 95:737-740.
7. Massague J. (1998) TGF-β signal transduction. Annu Rev Biochem 67:753-791.
8. Whitman M. (1998) Smads and early developmental signaling by the TGFβ superfamily. Genes Dev 12:2445-2462.
9. Baughn, L.B., et al. (2009) CDK phosphorylation of Smad2 disrupts TGF-β transcriptional regulation in resistant primary bone marrow myeloma cells. J. Immunol. 182:1810-1817.

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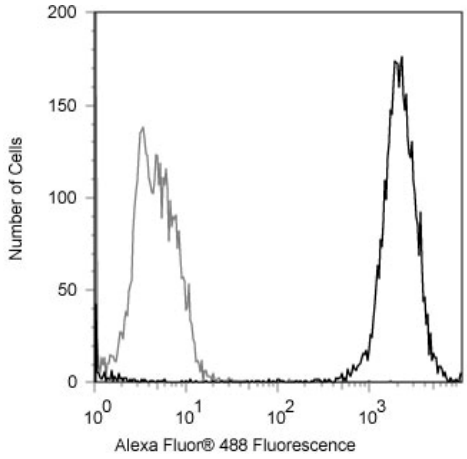
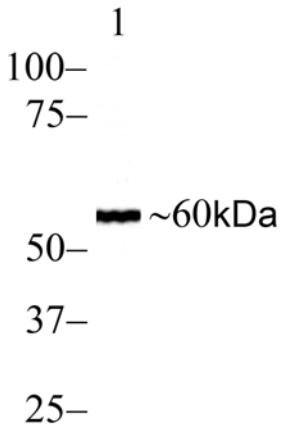


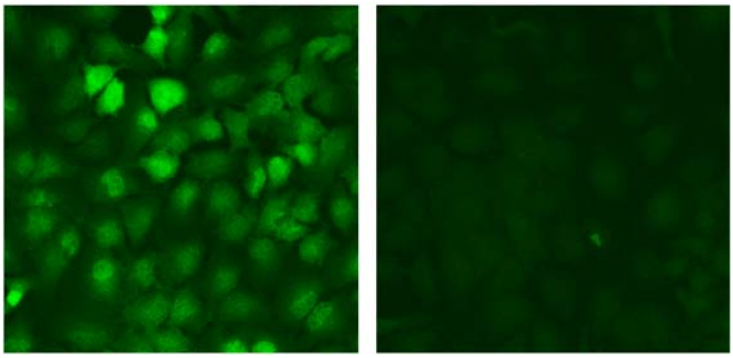
Flow cytometry of Jurkat cells labeled with rabbit anti-Smad2 (Cat. No. 700048).

Jurkat cells were fixed and permeabilized using FIX & PERM® (Cat. No. GAS004) reagents. Cells were then stained with (black trace) or without (gray trace) 0.5 µg anti-Smad2 followed by Alexa Fluor® 488 goat anti-rabbit Ig (Cat. No. A11008).



Western blot of HepG2 lysates labeled with rabbit anti-Smad2 (Cat. No. 700048).

Rabbit anti-Smad2 (1 µg/mL) was used to label Smad2 in HepG2 lysates (lane 1).



Immunocytochemistry of HeLa cells labeled with rabbit anti-Smad2 (Cat. No. 700048).

HeLa cells labeled with rabbit anti-Smad2 (2.5 µg/ml) in the absence of peptides (left) or in the presence of peptide used as immunogen (right). Alexa Fluor® 488 goat anti-rabbit (Cat. No. A11008) at 1:1000 was used as secondary antibody.