Datasheet for ABIN964922

anti-SMAD3 antibody (pThr179)

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Overview

Quantity:	100 µg
Target:	SMAD3
Binding Specificity:	pThr179
Reactivity:	Mouse
Host:	Rabbit
Clonality:	Polyclonal
Application:	Western Blotting (WB), ELISA

Product Details

Purpose:	SMAD3 phospho T179 Antibody
Immunogen:	Immunogen: Anti-SMAD3 pT179 antibody was prepared by repeated immunizations with a synthetic peptide corresponding to an internal region of human Smad3 protein surrounding amino acid residue 179. Immunogen Type: Conjugated Peptide
Isotype:	IgG
Cross-Reactivity (Details):	Anti-SMAD3 pT179 affinity-purified antibody is directed against the phosphorylated form of human Smad3 protein at the pT179 residue.
Characteristics:	Synonyms: rabbit anti-SMAD3 pT179 antibody, SMAD-3, SMAD 3, mothers against decapentaplegic homolog 3 antibody, MAD homolog 3, Mothers against DPP homolog 3, SMAD family member 3, MADH3, MADH 3, JV15-2
Purification:	The product was affinity purified from monospecific antiserum by immunoaffinity purification.

Product Details

Sterility:	Sterile filtered

Target Details

Target:	SMAD3
Alternative Name:	SMAD3 (SMAD3 Products)
Background:	Background: SMAD3 pT179 is designed, produced, and validated as part of a collaboration with the National Cancer Institute (NCI) and is suitable for Cancer, Immunology and Nuclear Signaling research. Smad3 (also known as Mothers against decapentaplegic homolog 3, Mothers against DPP homolog 3, Mad3, hMAD-3, JV15-2 or hSMAD3) is a transcriptional modulator activated by TGF-beta (transforming growth factor) and activin type 1 receptor kinase. These activators exert diverse effects on a wide array of cellular processes. The Smad proteins mediate much of the signaling responses induced by the TGF-beta superfamily. Activated type I receptor phosphorylates receptor-activated Smads (R-Smads) at their c-terminal two extreme serines in the S-S-X-S motif, e.g. Smad2 and Smad3 proteins in the TGF-b pathway, or Smad1, Smad5 or Smad8 in the bone morphogenic protein or BMP pathway. The phosphorylated R-Smads are translocated into nucleus, where they regulate transcription of target genes. Based on microarray and animal model experiments, Smad3 accounts for at least 80 % of all TGF-b-mediated response.
Gene ID:	4088
NCBI Accession:	NP_005893
UniProt:	P84022
Pathways:	Cell Division Cycle, Chromatin Binding, Cell-Cell Junction Organization, Positive Regulation of Endopeptidase Activity, Autophagy

Application Details

Application Notes:	Application Note: Anti-SMAD3 pT179 has been tested for use in ELISA and by western blot, and suitable by immunohistochemistry. Specific conditions for reactivity should be optimized by the end user. Expect a band approximately 48.1 kDa in size corresponding to human phosphorylated Smad3 protein by western blotting in the appropriate stimulated tissue or cell lysate or extract. Western Blot Dilution: 1:1,000 ELISA Dilution: 1:15,000-1:75,000 Other: User Optimized

Application Details

Restrictions:	For Research Use only

Handling

Format:	Liquid
Concentration:	0.97 mg/mL
Buffer:	Buffer: 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2 Stabilizer: None Preservative: 0.01 % (w/v) Sodium Azide
Preservative:	Sodium azide
Precaution of Use:	This product contains Sodium azide: a POISONOUS AND HAZARDOUS SUBSTANCE which should be handled by trained staff only.
Storage:	4 °C,-20 °C
Storage Comment:	Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.
Expiry Date:	12 months

Publications

Product cited in:	Feng, Cook, Tsai, Zhou, LaFlamme, Evans, Chen: "Discovery of a Small-Molecule BMP Sensitizer for Human Embryonic Stem Cell Differentiation." in: **Cell reports**, Vol. 15, Issue 9, pp. 2063-75, (2017) (PubMed). Pelish, Liau, Nitulescu, Tangpeerachaikul, Poss, Da Silva, Caruso, Arefolov, Fadeyi, Christie, Du, Banka, Schneider, Jestel, Zou, Si, Ebmeier, Bronson, Krivtsov, Myers, Kohl, Kung, Armstrong, Lemieux et al.: "Mediator kinase inhibition further activates super-enhancer-associated genes in AML. ..." in: **Nature**, Vol. 526, Issue 7572, pp. 273-6, (2015) (PubMed). Herhaus, Al-Salihi, Macartney, Weidlich, Sapkota: "OTUB1 enhances TGFβ signalling by inhibiting the ubiquitylation and degradation of active SMAD2/3." in: **Nature communications**, Vol. 4, pp. 2519, (2014) (PubMed).

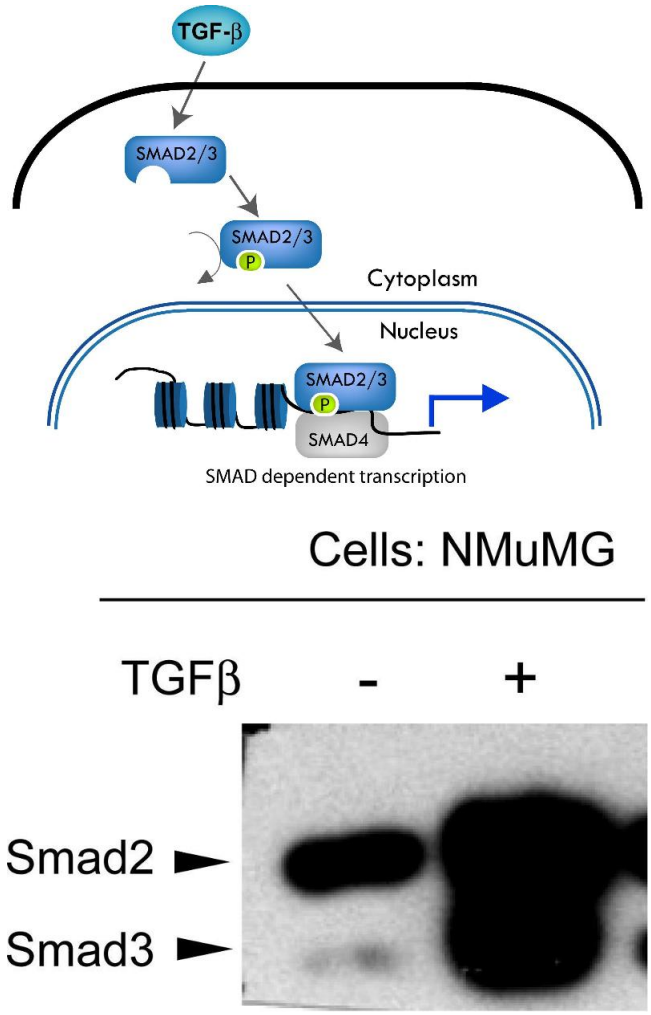

Image 1. The SMAD pathway follows the canonical TGF-ß signaling pathway. TGF-ß dimers bind to a receptor thereby activating the pathway. The type I receptor then recruits and phosphorylates a receptor regulated SMAD (R-SMAD).i.e. SMAD2 or SMAD3. The R-SMAD then binds to the common SMAD (coSMAD) i.e. SMAD4, and forms a heterodimeric complex. This complex then enters the cell nucleus and acts as a transcription factor.

Western Blotting

Image 2. NMuMG mouse mammary epithelial cells were probed for the activation of Smad3 by detecting phosphorylation of threonine 179. The cells were either untreated or treated with TGF-beta, transferred to membranes and probed with Anti-SMAD3 pT179 (RABBIT) Antibody. The antibody detects only Smad3 in stimulated cells suggesting detection of phosphorylated SMAD3 at T179.