

Product Information

Anti-SMAD3

produced in rabbit, affinity isolated antibody

Catalog Number **SAB4200342**

Product Description

Anti-SMAD3 is produced in rabbit using as immunogen a peptide corresponding to an internal region of human SMAD3 (GeneID: 4088), conjugated to KLH. The corresponding sequence is identical in mouse, rat, monkey, dog, pig and bovine. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-SMAD3 recognizes human SMAD3. The antibody may be used by several immunochemical techniques including immunoblotting (~55 kDa). Detection of the SMAD3 band by immunoblotting is specifically inhibited by the immunizing peptide.

SMADs are a group of related proteins critical for transmitting signals from the transforming growth factor- β (TGF β) to the nucleus, and thus regulate multiple cellular processes, such as cell proliferation, apoptosis, and differentiation. In mammals, 8 SMAD family members have been identified that can be grouped into three subfamilies, the receptor-regulated SMADs (R-SMADs), which include SMAD1, 2, 3, 5 and 8, the common-mediator SMAD (co-SMAD), SMAD4, and the inhibitory SMADs (I-SMADs), SMAD6 and 7, each of which plays a distinct role in the TGF- β pathway. Most SMADs have two conserved domains, the N-terminal MH1 and C-terminal MH2, that are separated by a proline-rich linker region of varying length. The MH1 domain regulates nuclear import and transcription by binding to DNA and interacting with nuclear proteins. The MH2 domain regulates SMAD oligomerization and recognition by type I receptors and interacts with cytoplasmic adaptors and transcription factors.¹⁻²

SMAD3 binds the TRE element in the promoter region of many genes that are regulated by TGF- β . Its transcription activity is regulated by reversible phosphorylation and nucleocytoplasmic shuttling.

Phosphorylated SMAD3 can form a complex with SMAD4, which translocates to the nucleus and regulates gene expression. SMAD3-SMAD4 complex can also interact with c-Jun and c-Fos at the AP-1/SMAD site to regulate TGF- β -mediated transcription. SMAD3 has an inhibitory effect on wound healing. It also serves as a regulator of chondrogenesis and osteogenesis and inhibits early healing of bone fractures¹⁻⁵

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 0.5-1.0 μ g/mL is recommended using whole extracts of HEK-293T cells over-expressing human SMAD3.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

1. Attisano, L. and Hoefflich, S.T.L., *Genome Biol.*, **2**, 3010.1-3010.8 (2001).

2. Moustakas, A., et al., *J. Cell Sci.*, **114**, 4359-4369 (2001).
3. Zhang, Y., et al., *Nature*, **394**, 909-913 (1998).

4. Ashcroft, G.S. and Roberts, A.B., *Cytokine Growth Factor Rev.*, **11**, 125-131 (2000).
5. Kawakatsu, M., et al., *Ex. Mol. Pathol.*, **90**, 107-115 (2010).

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