

Product Information

Anti-SMAD5

produced in rabbit, affinity isolated antibody

Catalog Number **SAB4200406**

Product Description

Anti-SMAD5 is produced in rabbit using as immunogen a peptide corresponding to an internal region of human SMAD5 (GeneID: 4090), conjugated to KLH. The corresponding sequence is identical in monkey, bovine, dog and pig and differs by one amino acid in mouse and rat. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-SMAD5 recognizes human, rat and mouse SMAD5. The antibody may be used in various immunochemical techniques including immunoblotting (~50 kDa) and immunofluorescence. Detection of the SMAD5 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

SMAD5, together with SMAD1 and SMAD8, participates in signaling downstream of bone morphogenetic protein (BMP) receptors, which are involved in a range of biological activities including cell growth, apoptosis, morphogenesis, development and immune responses. In response to BMP ligands, SMAD5 can be phosphorylated and activated by the

BMP receptor kinase. The phosphorylated form of SMAD5 forms a complex with SMAD4, which translocates to the nucleus and interacts with other cofactors to regulate the expression of downstream target genes. SMAD5 interacts with SMURF1, an E3 ubiquitin ligase that catalyzes ubiquitination of target proteins for proteasomal degradation, and SUV39H histone methyltransferases to repress promoter activity.¹⁻⁵

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 1-2 $\mu\text{g/mL}$ is recommended using whole extracts of human HepG2 or HEK-293T cells, and rat PC12 cells.

Immunofluorescence: a working concentration of 2.5-5.0 $\mu\text{g/mL}$ is recommended using mouse P19 cells.

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 Hoeflich, S.T.L., *Genome Biol.*, **2**, 3010.1–3010.8 (2001).
2. Moustakas, A., et al., *J. Cell Sci.*, **114**, 4359-4369 (2001).
3. Li, W., et al., *Biochem. Biophys. Res. Commun.*, **286**, 1163-1169 (2001).
4. Sangadala, S., et al., *J. Biomol. Struct. Dyn.*, **25**, 11-23 (2007).
5. Frontelo, P., et al., *Oncogene*, **23**, 5242-5251 (2004).

ST,TD,PHC 01/12-1