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Product Information

Anti-SMAD2
produced in rabbit, affinity isolated antibody

Catalog Number **SAB4200354**

Product Description

Anti-SMAD2 is produced in rabbit using as immunogen a peptide corresponding to an internal region of human SMAD2 (GeneID: 4087**),** conjugated to KLH. The corresponding sequence is identical in mouse, rat and bovine. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-SMAD2 recognizes human SMAD2. The antibody may be used in various immunochemical techniques including immunoblotting (~52 kDa) and immunofluorescence. Detection of the SMAD2 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 (TGFβ) 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 TGFβ 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]

SMAD2 is recruited to TGFβ receptors through its interaction with the SARA (SMAD anchor for receptor activation) protein. In response to TGFβ, SMAD2 is phosphorylated by TGFβ receptors. This phosphorylation induces the dissociation of SMAD2 from SARA and the association with the family member SMAD4. The association with SMAD4 is important for the translocation of SMAD2 into the nucleus, where it binds to target promoters and forms a transcription repressor complex with other cofactors.[1-4]

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 2-4 µg/mL is recommended using whole extracts of HEK-293T cells over-expressing human SMAD2.

Immunofluorescence: a working concentration of 2.5-5.0 µg/mL is recommended using human HeLa 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. Tang, W.B., et al., *Front. Biosci.*, **2**, 857-860 (2010).
4. Massagué, J., et al., *Genes Dev.*, **19**, 2783-2810 (2005).

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