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Product Information

Anti-SMAD7 (N-terminal)
produced in rabbit, affinity isolated antibody

Product Number **SAB4200346**

Product Description

Anti-SMAD7 (N-terminal) is produced in rabbit using as immunogen a peptide corresponding to the N-terminal region of human SMAD7 (GeneID: 4092**),** conjugated to KLH. The corresponding sequence is identical in monkey and differs by 2 amino acids in mouse and rat. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-SMAD7 (N-terminal) recognizes human SMAD7. The antibody may be used in various immunochemical techniques including immunoblotting (~46 kDa) and immunofluorescence. Detection of the SMAD7 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]

SMAD7 is a key negative regulator of TGFβ and BMP signaling. It is a nuclear protein that binds the E3 ubiquitin ligase Smurf1/2. Upon binding, this complex trans-locates to the cytoplasm, where it interacts with TGFβ type 1 receptor (TβR1), leading to the degradation of both SMAD7 and TβR1. Expression of the SMAD7 gene is induced by TGFβ and other growth factors. SMAD7 altered expression is associated with human diseases including fibrosis and cancer.[3-5]

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 2-4 µg/mL is recommended using whole extracts of HEK-293 cells over-expressing human SMAD7.

Immunofluorescence: a working concentration of 1-2 µg/mL is recommended using human A549 cells.

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

References

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2. Moustakas, A., et al., *J. Cell Sci.*, **114**, 4359-4369 (2001).

3. Mochizuki, T., et al., *J. Biol. Chem.*, **279**, 31568-31574 (2004).
4. Kamiya, Y., et al., *J. Biol. Chem.*, **285**, 30804-30813 (2010).
5. Yan, X. and Chen, Y.G., *Biochem. J.*, **434**, 1-10 (2011).

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