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Product Information

Anti-Axin1 (C-terminal)

produced in rabbit, affinity isolated antibody

Catalog Number **A0481**

Product Description

Anti-Axin1 (C-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 815-832 located near the C-terminal of rat axin1 (GeneID: 79257), conjugated to KLH. This sequence is highly conserved (single amino acid substitution) in human, mouse and bovine axin1. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Axin1 (C-terminal) specifically recognizes rat and mouse axin1 by immunoblotting (~130 kDa). Staining of the axin1 band in immunoblotting is specifically inhibited by the immunizing peptide.

The Wnt signaling pathway plays an essential role in the regulation of cellular proliferation, differentiation, motility, morphogenesis (embryonic axis formation) and as been linked to some forms of cancer.¹⁻⁴ Axin1 (axis inhibitor-1, axin, 130 kDa) acts as a negative regulator of Wnt signaling. It directly interacts with various molecules involved in the Wnt pathway, β -catenin, adenomatous polyposis coli (APC), glycogen synthase kinase-3 β (GSK-3 β) and dishevelled (Dsh).⁵⁻⁸ Wnt signaling stabilizes β -catenin by preventing its ubiquitination and degradation, allowing its direct interaction with the lymphoid enhancer factor-T cell factor (Lef-1/Tcf) family of transcription factors and upregulation of downstream genes. Axin1 enhances the phosphorylation of β -catenin by GSK-3 β , thereby promoting β -catenin degradation and inhibiting the Wnt signaling.⁹ Axin1 is involved in the degradation of β -catenin by acting as a scaffold to form a complex between β -catenin, APC and GSK-3 β , thus facilitating β -catenin phosphorylation by GSK-3 β . Axin1 is itself phosphorylated and its activity regulated by GSK-3 β . Axin1 phosphorylation is reduced by Wnt signaling, leading to decreased affinity of interaction of axin1 and β -catenin, resulting in the release of β -catenin from the degradation complex and increased stability of β -catenin in the cell.¹⁰ Axin1 is destabilized by Wnt signaling and its levels in the cell are reduced. Axin1 contains two conserved domains, an N-terminal

regulator of G-protein signaling (RGS) domain, and a C-terminal DIX domain. The C-terminal region of axin1 is important for homodimerization, whereas the central region of axin-1 binds β -catenin and GSK-3 β .^{6,11} Axin isoform axin2 (conductin, axil) is 45% identical to Axin1 and appears to play a similar role to Axin1 in the Wnt signaling pathway.⁸

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: ~1.5 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 extended storage, freeze in working aliquots at -20 °C. 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 dilution samples should be discarded if not used within 12 hours. For continuous use, store at 2-8 °C for up to one month.

Product Profile

Immunoblotting: a working concentration of 0.1-0.2 μ g/ml is recommended using HEK-293 cells expressing mouse Axin-1.

Note: In order to obtain best results and assay sensitivity in different techniques and preparations we recommend determining optimal working concentrations by titration test.

References

- Behrens, J., et al., *Science*, **280**, 596-599 (1998).
- Wodarz, A., and Nusse, R., *Ann. Rev. Cell Dev. Biol.*, **14**, 59-88 (1998).

3. Miller, J. R., et al., *Oncogene*, **18**, 7860-7872 (1999).
4. Anderson, C.B., et al., *Proc. Natl. Acad. Sci. USA*, **99**, 8683-8688 (2002).
5. Zeng, L., et al., *Cell*, **90**, 181-192 (1997).
6. Fagotto, F., et al., *J. Cell Biol.*, **145**, 741-756 (1999).
7. Kishida, S., et al., *J. Biol. Chem.*, **273**, 10823-10826 (1998).
8. Yamamoto, H., et al., *Mol. Cell Biol.*, **18**, 2867-2875 (1998).
9. Ikeda, S., et al., *EMBO J.*, **17**, 1371-1384 (1998).
10. Willert, K., et al., *Genes Dev.*, **13**, 1768-1773 (1999).
11. Sakanaka, C., and Williams, L.T., *J. Biol. Chem.*, **274**, 14090-14093 (1999).

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