Qty: 100 µg/400 µl

Rabbit anti-Axin

Catalog No. 34-5900

Lot No. See product label

Rabbit anti-Axin

FORM
This polyclonal antibody is supplied as a 400 µl aliquot at a concentration of 0.25 mg/ml in phosphate buffered saline (pH 7.4) containing 0.1% sodium azide. The antibody is epitope-affinity-purified from rabbit antiserum.

PAD: ZMD.195

IMMUNOGEN
Synthetic peptide derived from the internal region of the human Axin protein. Based on amino acid sequence, this antibody is not expected to cross-react with Axin-2.

SPECIFICITY
This antibody reacts with the human Axin protein. On Western blots, it recognizes a doublet band at ~ 120-130 kDa. The sequence used for this antibody shares 86% sequence homology with mouse, rat, and chicken Axin.

REACTIVITY
Reactivity is confirmed with human Jurkat leukemia T cell lysates.

Sample	Western Blotting	ELISA
Human	+++	ND
Mouse	ND	ND

(Excellent +++, Good++, Poor +, No reactivity 0, Not applicable N/A, Not Determined ND)

USAGE
Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

Western Blotting: 0.1 - 2.0 µg/mL

STORAGE
Store at 2-8°C for up to one month. Store at –20°C for long-term storage. Avoid repeated freezing and thawing.

(cont'd)

BACKGROUND

The Axin (**ax**is **in**hibition) protein is an ~120-130 kDa negative regulator of Wnt pathway signaling.[1] The Wnt pathway is essential for embryonic axis development in amphibians, *Drosophila*, and mammals; Axin has been shown to inhibit dorsal axial development.[1] In vertebrates, Wnt signaling occurs when the frizzled receptor transduces a signal to the Dishevelled protein, triggering glycogen synthase kinase-3 (GSK-3) inactivation and the accumulation of β-catenin.[2] Axin binds directly to GSK-3β, β-catenin, and the adenomatous polyposis coli (APC) tumor suppressor protein at separate binding sites;[3,4] these four proteins form a tetrameric complex that regulates β-catenin stability and signaling.[5]

In addition to its role in Wnt signaling, Axin has been implicated in tumorigenesis, particularly via its interaction with APC. Inactivation of the APC protein is responsible for both inherited and sporadic forms of colon cancer, as the result of mutant APC's inability to downregulate β-catenin.[5] This lack of β-catenin downregulation by mutant APC may be partially explained by several observations about Axin: 1) overexpression of Axin produces downregulation of β-catenin in colon cancer cells, and 2) the binding sites for Axin on APC are typically deleted by cancer-associated mutations in the APC gene.[5] The lack of Axin binding sites on mutant APC may thus contribute directly to the initiation and progression of colon cancer. However, mutations in the Axin gene itself are not associated with pediatric renal tumors.[6] In transgenic mice, Axin expression impairs mammary gland and lymphoid organ development, inducing massive levels of apoptosis in the spleen and thymus.[7] This finding has proposed Axin as a tumor suppressor protein that controls cell survival, growth, and differentiation through the regulation of apoptosis.

Axin is ubiquitously expressed in almost all tissues, from early development to adulthood.[1] Studies of mutant Axin protein have demonstrated that the phosphorylated form of Axin is more stable than the unphosphorylated form.[8] Other signal transduction pathways in which Axin is involved are the JNK mitogen-associated protein kinase cascade, wherein Axin functions as a scaffold for JNK activation,[9] and the TGF-β signaling pathway, in which Axin acts as an adapter protein for Smad3, enhancing the transcriptional activity of TGF-β.[10] Axin has also demonstrated binding to γ-catenin (plakoglobin)[11] and, through its C-terminal region, to the catalytic subunit of protein phosphatase 2A and to itself in the formation of dimers or multimers.[12]

REFERENCES

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12. Hsu W, et al. *J Biol Chem* 274(6):3439-3445, 1999.

RELATED PRODUCTS

Product	*Clone/PAD**	*Cat. No.*
Mouse anti-β-Catenin	CAT-5H10	13-8400
Rabbit anti-β-Catenin	CAT-15	71-2700
Mouse anti-γ-Catenin	PG-11E4	13-8500
Rabbit anti-Smad3	LPC3	51-1500
Rabbit anti-MEKK1	ZK1	51-3400
Rabbit anti-ILK	ZMD.194	34-5800
PolyFast™Rabbit anti-Axin2	AX2	52-1307

*PAD: Polyclonal Antibody Designation

Conjugate	ZyMAX™ Goat x Rabbit IgG (H+L)	ZyMAX™ Goat x Mouse IgG (H+L)
Purified	81-6100	81-6500
FITC	81-6111	81-6511
TRITC	81-6114	81-6514
Cy™3	81-6115	81-6515
Cy™5	81-6116	81-6516
HRP	81-6120	81-6520
AP	81-6122	81-6522
Biotin	81-6140	81-6540

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