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Axin1 Rabbit pAb

Catalog # AP100218

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	O15169
Other Accession	O15169
Reactivity	Mouse
Predicted	Rat, Pig, Human, Chicken, Dog, Horse, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	95635
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Axin1
Epitope Specificity	421-520/862
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Contains 1 DIX domain. Contains 1 RGS domain.
Post-translational modifications	Phosphorylation and dephosphorylation of AXIN1 regulates assembly and function of the beta-catenin complex. Phosphorylated by CK1 and GSK3B. Dephosphorylated by PPP1CA and PPP2CA. Phosphorylation by CK1 enhances binding of GSK3B to AXIN1. ADP-ribosylated by tankyrase TNKS and TNKS2. Poly-ADP-ribosylated protein is recognized by RNF146, followed by ubiquitination and subsequent activation of the Wnt signaling pathway. Ubiquitinated by RNF146 when poly-ADP-ribosylated, leading to its degradation and subsequent activation of the Wnt signaling pathway. Sumoylation at Lys-857 and Lys-860 prevents ubiquitination and degradation. Sumoylation is required for AXIN1-mediated JNK activation. Deubiquitinated by USP34, deubiquitinated downstream of beta-catenin stabilization step: deubiquitination is important for nuclear accumulation during Wnt signaling to positively regulate beta-catenin (CTNBB1)-mediated transcription.
DISEASE	Defects in AXIN1 are involved in hepatocellular carcinoma (HCC) [MIM:114550]. Defects in AXIN1 are a cause of caudal duplication anomaly (CADUA) [MIM:607864]. Caudal duplication anomaly is characterized by the occurrence of duplications of different organs in the caudal region. Note=Caudal duplication anomaly is associated with hypermethylation of the AXIN1 promoter.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	This gene encodes a cytoplasmic protein which contains a regulation of G-protein signaling (RGS) domain and a dishevelled and axin (DIX) domain. The encoded protein interacts with adenomatosis polyposis coli, catenin (cadherin-associated protein), beta 1, 88kDa, glycogen synthase kinase 3 beta, protein phosphate 2, and itself. This protein functions as a negative regulator of the wingless-type MMTV integration site family, member 1 (WNT) signaling pathway and can induce apoptosis. The crystal structure of a portion of this protein, alone and in a complex with other proteins, has been resolved. Mutations in this gene have been associated with hepatocellular carcinoma,

hepatoblastomas, ovarian endometriod adenocarcinomas, and medullablastomas. Two transcript variants encoding distinct isoforms have been identified for this gene. [provided by RefSeq]

Additional Information

Gene ID	8312
Other Names	AXIN; CMDOH; PPP1R49; AXIN1-RGS; axin-1; Fu; Kb; Ki; fused; kinky; knobbly; AXIN1_CHICK; AXIN1; Axis inhibition protein 1; AXN; AXIN1_HUMAN; Axis inhibition protein 1 (hAxin); AXIN1_MOUSE; Protein Fused; AXIN1_RAT; Axis inhibition protein 1 (rAxin); axin 1; protein phosphatase 1, regulatory subunit 49
Dilution	IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	AXIN1
Synonyms	AXIN
Function	Component of the beta-catenin destruction complex required for regulating CTNNB1 levels through phosphorylation and ubiquitination, and modulating Wnt-signaling (PubMed:12192039, PubMed:27098453, PubMed:28829046). Controls dorsoventral patterning via two opposing effects; down-regulates CTNNB1 to inhibit the Wnt signaling pathway and ventralize embryos, but also dorsalizes embryos by activating a Wnt-independent JNK signaling pathway (PubMed:12192039). In Wnt signaling, probably facilitates the phosphorylation of CTNNB1 and APC by GSK3B (PubMed:12192039). Enhances TGF-beta signaling by recruiting the RNF111 E3 ubiquitin ligase and promoting the degradation of inhibitory SMAD7 (PubMed:16601693). Also a component of the AXIN1-HIPK2-TP53 complex which controls cell growth, apoptosis and development (PubMed:17210684). Facilitates the phosphorylation of TP53 by HIPK2 upon ultraviolet irradiation (PubMed:17210684). Activates the AMP-activated protein kinase (AMPK) in response to calorie restriction by acting as a molecular adapter: recruited to late endosome membrane by the V-ATPase complex downstream of TULP3, and mediates association between STK11 and its AMPK substrates PRKAA1 and/or PRKAA2, leading to AMPK activation (By similarity).
Cellular Location	Cytoplasm. Nucleus. Membrane {ECO:0000250|UniProtKB:O35625} Cell membrane {ECO:0000250|UniProtKB:O35625}. Late endosome {ECO:0000250|UniProtKB:O35625}. Note=MACF1 is required for its translocation to cell membrane (By similarity). On UV irradiation, translocates to the nucleus and colocalizes with DAAX (PubMed:17210684). {ECO:0000250|UniProtKB:O35625, ECO:0000269|PubMed:17210684}
Tissue Location	Ubiquitously expressed.

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