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FNIP2 Antibody

Catalog # ASC10854

Product Information

Application	WB, E, IHC-P
Primary Accession	Q9P278
Other Accession	NP_065891, 154689769
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	122115
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	FNIP2 antibody can be used for detection of FNIP2 by Western blot at 1 - 2 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL.

Additional Information

Gene ID	57600
Other Names	Folliculin-interacting protein 2, FNIP1-like protein, O6-methylguanine-induced apoptosis 1 protein, FNIP2, FNIPL, KIAA1450, MAPO1
Target/Specificity	FNIP2; Multiple isoforms of FNIP2 are known to exist. This antibody is predicted to not cross-react with FNIP1.
Reconstitution & Storage	FNIP2 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	FNIP2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	FNIP2 {ECO:0000303|PubMed:18663353, ECO:0000312|HGNC:HGNC:29280}
Function	Binding partner of the GTPase-activating protein FLCN: involved in the cellular response to amino acid availability by regulating the non-canonical mTORC1 signaling cascade controlling the MiT/TFE factors TFEB and TFE3 (PubMed:18663353, PubMed:31672913, PubMed:36103527). Required to promote FLCN recruitment to lysosomes and interaction with Rag GTPases, leading to activation of the non- canonical mTORC1 signaling (By similarity). In low-amino acid conditions, component of the lysosomal folliculin complex (LFC) on the membrane of lysosomes, which inhibits the GTPase-activating

	activity of FLCN, thereby inactivating mTORC1 and promoting nuclear translocation of TFEB and TFE3 (PubMed:31672913, PubMed:36103527). Upon amino acid restimulation, disassembly of the LFC complex liberates the GTPase- activating activity of FLCN, leading to activation of mTORC1 and subsequent inactivation of TFEB and TFE3 (PubMed:31672913). Together with FLCN, regulates autophagy: following phosphorylation by ULK1, interacts with GABARAP and promotes autophagy (PubMed:25126726). Interaction with GABARAP also inhibits the non-canonical mTORC1 signaling cascade: GABARAP sequesters FLCN, thereby inactivating mTORC1 and promoting nuclear translocation of TFEB and TFE3 (PubMed:34597140). In addition to its role in mTORC1 signaling, also acts as a co- chaperone of HSP90AA1/Hsp90: inhibits the ATPase activity of HSP90AA1/Hsp90, leading to activate both kinase and non-kinase client proteins of HSP90AA1/Hsp90 (PubMed:18403135). Acts as a scaffold to load client protein FLCN onto HSP90AA1/Hsp90 (PubMed:18403135). Competes with the activating co-chaperone AHSA1 for binding to HSP90AA1, thereby providing a reciprocal regulatory mechanism for chaperoning of client proteins (PubMed:18403135). May play a role in the signal transduction pathway of apoptosis induced by O6- methylguanine-mispaired lesions (By similarity).
Cellular Location	Lysosome membrane. Cytoplasm. Note=Colocalizes with FLCN in the cytoplasm.
Tissue Location	Widely expressed with highest levels in muscle, nasal mucosa, salivary gland, uvula, fat, liver, heart, placenta and pancreas (PubMed:18403135, PubMed:18663353, PubMed:27353360) Moderately expressed in the lung, small intestine, kidney and brain Lower levels detected in renal cell carcinoma than in normal kidney tissue (PubMed:18403135). Higher levels detected in oncocytoma tumors than in normal kidney. Higher levels detected in renal cell carcinoma tumors than in normal kidney tissue (PubMed:27353360)

Background

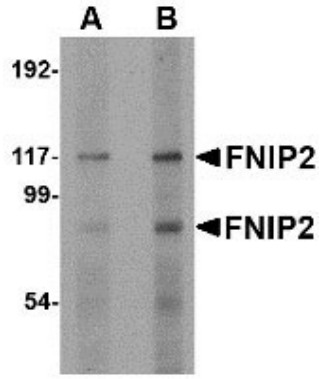
FNIP2 Antibody: FNIP2 is the second protein found to interact with folliculin, the product of the Birt-Hogg-Dube (BHD) gene. Folliculin is thought to act as a tumor suppressor as mutations or loss of heterozygosity in this gene are associated with BHD syndrome-related renal tumors. Folliculin and FNIP1, a protein that shares 49% identity to FNIP2, bind to AMPK, an important energy sensor in cells that negatively regulates the mammalian target of rapamycin (mTOR), a protein that is thought to be the master switch for cell growth and proliferation. FNIP1 and FNIP2 are able to form homo- and heteromeric multimers, suggesting these proteins may have a functional relationship.

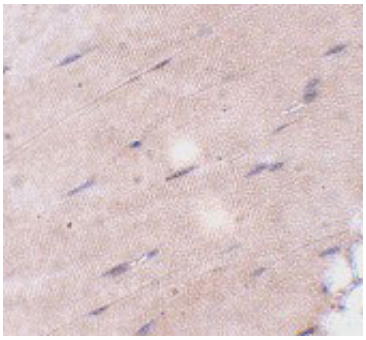
References

Hasumi H, Baba M, Hong S-B, et al. Identification and characterization of a novel folliculin-interacting protein FNIP2. Gene2008; 415:60-7.
Takagi Y, Kobayashi T, Shiono M, et al. Interaction of folliculin (Birt-Hogg-Dube gene product) with novel Fnip1-like (FnipL/Fnip2) protein. Oncogene2008; 27:5339-47.
Vocke CD, Yang Y, Pavlovich CP, et al. High frequency of somatic frameshift BHD mutations in Birt-Hogg-Dube-associated renal tumors. J. Natl. Cancer Inst.2005; 97:931-5.
Baba M, Hong SB, Sharma M, et al. Folliculin encoded by the BHD gene interacts with a binding protein, FNIP1, and AMPK, and is involved in AMPK and mTOR signaling. Proc. Natl. Acad. Sci. USA2006; 103:15552-7.

Images

Western blot analysis of FNIP2 in rat skeletal muscle lysate with FNIP2 antibody at (A) 1 and (B) 2 µg/mL.





Immunohistochemistry of FNIP2 in mouse skeletal muscle tissue with FNIP2 antibody at 5 µg/mL.

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