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RICTOR Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1443a

Product Information

Application	WB, IHC, FC, ICC, E
Primary Accession	Q6R327
Reactivity	Human, Mouse, Monkey
Host	Mouse
Clonality	Monoclonal
Clone Names	7B3
Isotype	IgG1
Calculated MW	192218
Description	Cell growth is a fundamental biological process whereby cells accumulate mass and increase in size. The mammalian TOR (mTOR) pathway regulates growth by coordinating energy and nutrient signals with growth factor-derived signals . mTOR is a large protein kinase with two different complexes. One complex contains mTOR, GβL and raptor, which is a target of rapamycin. The other complex, insensitive to rapamycin, includes mTOR, GβL, Sin1 and rictor . The mTOR-rictor complex phosphorylates Ser473 of Akt/PKB in vitro . This phosphorylation is essential for full Akt/PKB activation. Furthermore, an siRNA knockdown of rictor inhibits Ser473 phosphorylation in 3T3-L1 adipocytes . This complex has also been shown to phosphorylate the rapamycin-resistant mutants of S6K1, another effector of mTOR .
Immunogen	Purified recombinant fragment of human RICTOR expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	253260
Other Names	Rapamycin-insensitive companion of mTOR, AVO3 homolog, hAVO3, RICTOR {ECO:0000312|EMBL:EAW55980.1}
Dilution	WB~~1/500 - 1/2000 IHC~~1/500 - 1/2000 FC~~1/200 - 1/400 ICC~~N/A E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	RICTOR Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RICTOR {ECO:0000303|PubMed:15268862, ECO:0000312|HGNC:HGNC:28611}
Function	Component of the mechanistic target of rapamycin complex 2 (mTORC2), which transduces signals from growth factors to pathways involved in proliferation, cytoskeletal organization, lipogenesis and anabolic output (PubMed:15268862, PubMed:15718470, PubMed:19720745, PubMed:19995915, PubMed:21343617, PubMed:33158864, PubMed:35904232, PubMed:35926713). In response to growth factors, mTORC2 phosphorylates and activates AGC protein kinase family members, including AKT (AKT1, AKT2 and AKT3), PKC (PRKCA, PRKCB and PRKCE) and SGK1 (PubMed:19720745, PubMed:19935711, PubMed:19995915). In contrast to mTORC1, mTORC2 is nutrient-insensitive (PubMed:15467718, PubMed:21343617). Within the mTORC2 complex, RICTOR probably acts as a molecular adapter (PubMed:21343617, PubMed:33158864, PubMed:35926713). RICTOR is responsible for the FKBP12-rapamycin-insensitivity of mTORC2 (PubMed:33158864). mTORC2 plays a critical role in AKT1 activation by mediating phosphorylation of different sites depending on the context, such as 'Thr-450', 'Ser-473', 'Ser-477' or 'Thr-479', facilitating the phosphorylation of the activation loop of AKT1 on 'Thr-308' by PDPK1/PDK1 which is a prerequisite for full activation (PubMed:15718470, PubMed:19720745, PubMed:19935711, PubMed:35926713). mTORC2 catalyzes the phosphorylation of SGK1 at 'Ser-422' and of PRKCA on 'Ser-657' (By similarity). The mTORC2 complex also phosphorylates various proteins involved in insulin signaling, such as FBXW8 and IGF2BP1 (By similarity). mTORC2 acts upstream of Rho GTPases to regulate the actin cytoskeleton, probably by activating one or more Rho-type guanine nucleotide exchange factors (PubMed:15467718). mTORC2 promotes the serum-induced formation of stress-fibers or F-actin (PubMed:15467718).
Cellular Location	Cell membrane. Endoplasmic reticulum membrane. Lysosome membrane. Note=The mTORC2 complex localizes to membranes: mTORC2 is active at the plasma membrane, endoplasmic reticulum membrane and lysosomes (PubMed:21867682). In lysosomal membrane, mTORC2 is sensitive to lysosomal positioning in the cell (PubMed:31130364).

References

1. Genes Dev. 2006 Oct 15;20(20):2820-32. 2. Biochem Biophys Res Commun. 2008 Aug 8;372(4):578-83.

Images

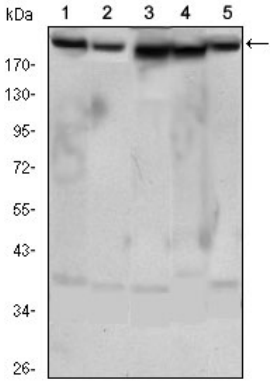


Figure 1: Western blot analysis using RICTOR mouse mAb against Hela (1), PANC-1 (2), MOLT4 (3), HepG2 (4) and HEK293 (5) cell lysate.

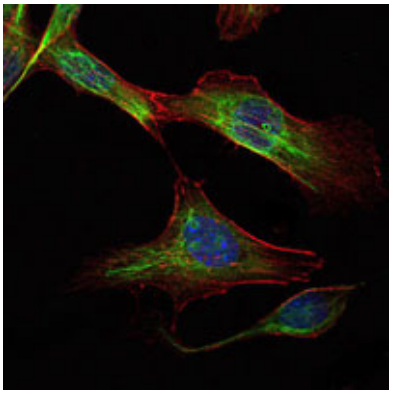


Figure 2: Immunofluorescence analysis of NIH/3T3 cells using RICTOR mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye. Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin.

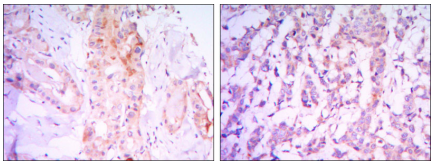


Figure 3: Immunohistochemical analysis of paraffin-embedded thyroid gland tissues (left) and human breast carcinoma (right) using RICTOR mouse mAb with DAB staining.

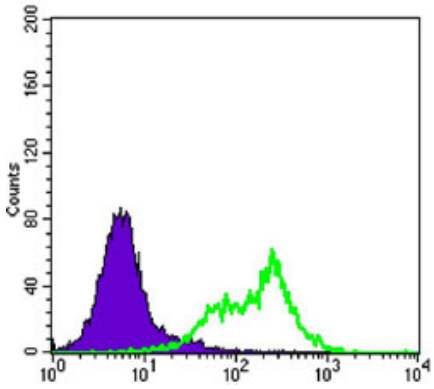


Figure 4: Flow cytometric analysis of Hela cells using RICTOR mouse mAb (green) and negative control (purple).

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