abcam

ab70374

Anti-RICTOR antibody

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7 - 8 Preservative: 0.09% Sodium azide Constituents: Tris buffered saline, 0.1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human RICTOR. The exact immunogen used to generate this antibody is proprietary information. Database link Q6R327
Purification technique	Affinity purification Immunogen
Specificity	Initial tests for reactivity with mouse RICTOR from NIH3T3 cells suggest that higher amounts of lysate and less dilution of ab70374 are required for brief exposure times.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	2 µg/mL
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Predicted

Species	Mouse, Dog, Chimpanzee, Rhesus monkey, Gorilla, Orangutan
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	2-10 µg/mg of lysate
Notes	-

Predicted

Species	Mouse, Dog, Chimpanzee, Rhesus monkey, Gorilla, Orangutan
Dilution info	-
Notes	-

Flow Cyt

Expected

Species	Mouse
Dilution info	-
Notes	0.5 ug per 1 million cells in a 150 mcl reaction. ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Human
Dilution info	-
Notes	0.5 ug per 1 million cells in a 150 mcl reaction. ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Dog, Chimpanzee, Rhesus monkey, Gorilla, Orangutan

Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/2000 - 1/10000
Notes	-

Predicted

Species	Mouse, Dog, Chimpanzee, Rhesus monkey, Gorilla, Orangutan
Dilution info	-
Notes	-

Target data

See full target information RICTOR

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).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	RICTOR (Rapamycin-insensitive companion of mTOR) is an important component of the mTOR complex 2 (mTORC2) distinguished by its ability to interact with mTOR (mechanistic target of rapamycin). RICTOR possesses a molecular mass of approximately 192 kDa. You can find RICTOR widely expressed in various tissues including the brain liver and skeletal muscle. Researchers also refer to it as AVO3.
Biological function summary	The protein plays a significant role in cellular growth proliferation and survival. RICTOR forms part of the mTORC2 complex which is important for Akt/PKB phosphorylation. Activation of mTORC2 by RICTOR regulates actin cytoskeleton dynamics and membrane trafficking. This involvement affects the control of cell metabolism and immune responses.
Pathways	RICTOR integrates into the PI3K/Akt signaling pathway influencing cell growth and survival in response to nutrients and growth factors. RICTOR as part of mTORC2 also interacts with proteins such as Sin1 and mLST8 helping regulate PKB/Akt phosphorylation at Ser473. This interaction links RICTOR's function to the insulin signaling pathway which controls aspects of glucose metabolism.
Associated diseases and disorders	The dysregulation of RICTOR plays a role in cancer progression and metabolic disorders. Alterations in the PI3K/Akt/mTOR signaling pathway can lead to the development of various cancers with RICTOR contributing to tumorigenesis through Akt activation. Additionally aberrant RICTOR expression affects insulin signaling therefore connecting it to diabetes. Through these pathways and conditions RICTOR's interaction with proteins such as mTOR illustrates its relevance in disease mechanisms and therapeutic targets.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

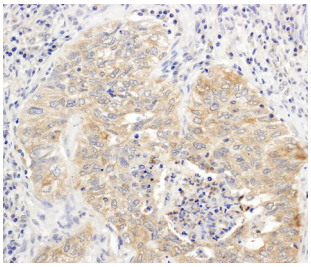
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

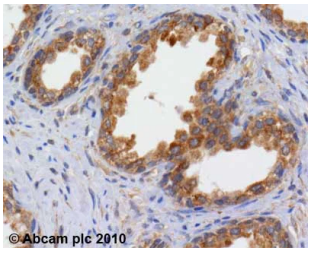
4 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RICTOR antibody (ab70374)

RICTOR Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-RICTOR antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human lung carcinoma tissue labelling RICTOR with ab70374 at 1/1000 (1µg/ml). Detection: DAB.

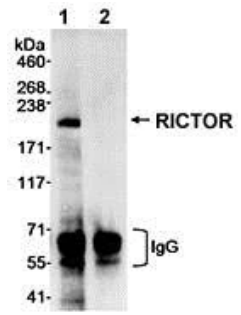


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RICTOR antibody (ab70374)

RICTOR Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-RICTOR antibody

ab70374 (2µg/ml) staining RICTOR in human prostate using an automated system (DAKO Autostainer Plus). Using this protocol there is strong cytoplasmic staining of glandular epithelium. Sections were rehydrated and antigen retrieved with the Dako 3 in 1 AR buffer citrate pH 6.0 in a DAKO PT link. Slides were peroxidase blocked in 3% H2O2 in methanol for 10 mins. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 min and detected with Dako Envision Flex amplification kit for 30 minutes. Colorimetric detection was completed with Diaminobenzidine for 5 minutes. Slides were counterstained with Haematoxylin and coverslipped under DePeX. Please note that, for manual

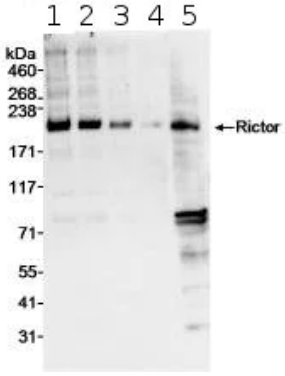
staining, optimization of primary antibody concentration and incubation time is recommended. Signal amplification may be required.



Immunoprecipitation - Anti-RICTOR antibody (ab70374)

Detection of Human RICTOR by Immunoprecipitation in Whole cell lysate from HeLa cells (1 mg for IP, 1/4 of IP loaded) using ab70374 at 3 µg/mg for IP (Lane 1) and at 0.04 µg/ml for subsequent WB detection. Lane 2 represents control rabbit IgG.
All lanes:
Immunoprecipitation - Anti-RICTOR antibody (ab70374)

Predicted band size: 192 kDa



Western blot - Anti-RICTOR antibody (ab70374)

All lanes:
Western blot - Anti-RICTOR antibody (ab70374) at 0.04 µg/mL

Lane 1:
HeLa whole cell lysate at 5 µg

Lane 2:
HeLa whole cell lysate at 2.5 µg

Lane 3:
HeLa whole cell lysate at 1 µg

Lane 4:
HeLa whole cell lysate at 0.5 µg

Lane 5:
NIH3T3 cells at 50 µg

Predicted band size: 192 kDa

Observed band size: 192 kDa, 78 kDa, 80 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.