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RRAGD Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP4959c

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	Q9NQL2
Other Accession	Q7TT45, Q99K70, Q9HB90
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB25579
Calculated MW	45588
Antigen Region	171-199

Additional Information

Gene ID	58528
Other Names	Ras-related GTP-binding protein D, Rag D, RagD, RRAGD (HGNC:19903)
Target/Specificity	This RRAGD antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 171-199 amino acids from the Central region of human RRAGD.
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	RRAGD Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RRAGD (HGNC:19903)
Function	Guanine nucleotide-binding protein that plays a crucial role in the cellular response to amino acid availability through regulation of the mTORC1 signaling cascade (PubMed:20381137, PubMed:24095279,

PubMed:34607910). Forms heterodimeric Rag complexes with RagA/RRAGA or RagB/RRAGB and cycles between an inactive GTP-bound and an active GDP-bound form: RagD/RRAGD is in its active form when GDP-bound RagD/RRAGD forms a complex with GTP-bound RagA/RRAGA (or RagB/RRAGB) and in an inactive form when GTP-bound RagD/RRAGD heterodimerizes with GDP-bound RagA/RRAGA (or RagB/RRAGB) (PubMed:24095279). In its active form, promotes the recruitment of mTORC1 to the lysosomes and its subsequent activation by the GTPase RHEB (PubMed:20381137, PubMed:24095279). This is a crucial step in the activation of the MTOR signaling cascade by amino acids (PubMed:20381137, PubMed:24095279). Also plays a central role in the non-canonical mTORC1 complex, which acts independently of RHEB and specifically mediates phosphorylation of MiT/TFE factors TFEB and TFE3: GDP-bound RagD/RRAGD mediates recruitment of MiT/TFE factors TFEB and TFE3 (PubMed:32612235).

Cellular Location

Cytoplasm. Nucleus. Lysosome membrane. Note=Predominantly cytoplasmic (PubMed:11073942). Recruited to the lysosome surface by the Ragulator complex (PubMed:20381137). May shuttle between the cytoplasm and nucleus, depending on the bound nucleotide state of associated RRAGA (PubMed:11073942).

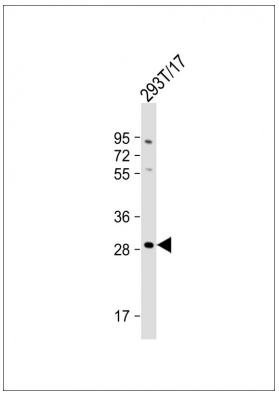
Background

RRAGD is a monomeric guanine nucleotide-binding protein, or G protein. By binding GTP or GDP, small G proteins act as molecular switches in numerous cell processes and signaling pathways.

References

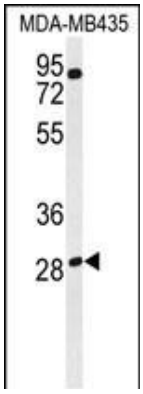
Olsen, J.V., et al. Cell 127(3):635-648(2006)
de Wit, N.J., et al. Br. J. Cancer 92(12):2249-2261(2005)
Sekiguchi, T., et al. J. Biol. Chem. 279(9):8343-8350(2004)

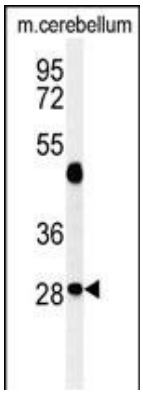
Images



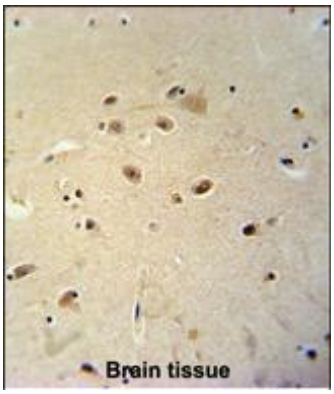
Anti-RRAGD Antibody (Center) at 1:1000 dilution + 293T/17 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 46 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

Western blot analysis of RRAGD Antibody (Center) (Cat. #AP4959c) in MDA-MB435 cell line lysates (35ug/lane). RRAGD (arrow) was detected using the purified Pab.

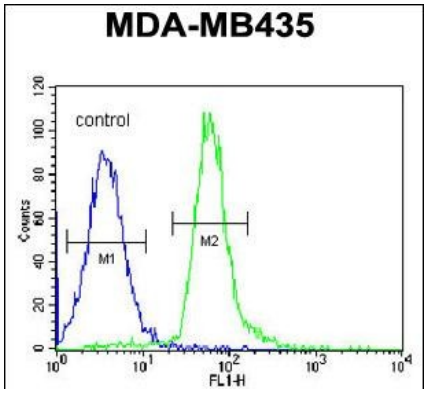




Western blot analysis of RRAGD Antibody (Center) (Cat. #AP4959c) in mouse cerebellum tissue lysates (35ug/lane). RRAGD (arrow) was detected using the purified Pab.



RRAGD Antibody (Center) (Cat. #AP4959c) immunohistochemistry analysis in formalin fixed and paraffin embedded human brain tissue followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of the RRAGD Antibody (Center) for immunohistochemistry. Clinical relevance has not been evaluated.



RRAGD Antibody (Center) (Cat. #AP4959c) flow cytometric analysis of MDA-MB435 cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.