10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

LAMTOR2 Antibody

Catalog # ASC11768

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q9Y2Q5
Other Accession	NP_054736, 7661728
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	13508
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	LAMTOR2 antibody can be used for detection of LAMTOR2 by Western blot at 1 - 2 g/ml. Antibody can also be used for Immunohistochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	28956
Other Names	Ragulator complex protein LAMTOR2, Endosomal adaptor protein p14, Late endosomal/lysosomal Mp1-interacting protein, Late endosomal/lysosomal adaptor and MAPK and MTOR activator 2, Mitogen-activated protein-binding protein-interacting protein, MAPBP-interacting protein, Roadblock domain-containing protein 3, LAMTOR2, MAPBPIP, ROBLD3
Target/Specificity	LAMTOR2; LAMTOR2 antibody is human, mouse and rat reactive. At least two isoforms of LAMTOR2 are known to exist; this antibody will detect both isoforms. LAMTOR2 antibody is predicted to not cross-react with other LAMTOR family proteins.
Reconstitution & Storage	LAMTOR2 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	LAMTOR2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	LAMTOR2 (HGNC:29796)
Synonyms	MAPBPIP, ROBLD3
Function	As part of the Ragulator complex it is involved in amino acid sensing and activation of mTORC1, a signaling complex promoting cell growth in response to growth factors, energy levels, and amino acids (PubMed:20381137,

PubMed:28935770, PubMed:29107538, PubMed:29123114, PubMed:29158492). Activated by amino acids through a mechanism involving the lysosomal V-ATPase, the Ragulator plays a dual role for the small GTPases Rag (RagA/RRAGA, RagB/RRAGB, RagC/RRAGC and/or RagD/RRAGD): it (1) acts as a guanine nucleotide exchange factor (GEF), activating the small GTPases Rag and (2) mediates recruitment of Rag GTPases to the lysosome membrane (PubMed:22980980, PubMed:28935770, PubMed:29107538, PubMed:29123114, PubMed:29158492, PubMed:30181260). Activated Ragulator and Rag GTPases function as a scaffold recruiting mTORC1 to lysosomes where it is in turn activated (PubMed:22980980, PubMed:29107538, PubMed:29123114, PubMed:29158492). Adapter protein that enhances the efficiency of the MAP kinase cascade facilitating the activation of MAPK2 (By similarity).

Cellular Location

Late endosome membrane {ECO:0000250|UniProtKB:Q9JHS3}; Peripheral membrane protein {ECO:0000250|UniProtKB:Q9JHS3}; Cytoplasmic side {ECO:0000250|UniProtKB:Q9JHS3}. Lysosome membrane; Peripheral membrane protein {ECO:0000250|UniProtKB:Q9JHS3}; Cytoplasmic side {ECO:0000250|UniProtKB:Q9JHS3}. Note=Recruited to lysosome and endosome membranes by LAMTOR1. {ECO:0000250|UniProtKB:Q9JHS3}

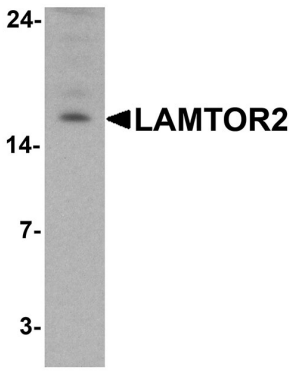
Background

The late endosomal/lysosomal adaptor MAPK and MTOR activator 2 (LAMTOR2) protein belongs to the LAMTOR family of proteins, and together with LAMTOR3 and the MAPK1 and ERK kinase 1 (MEK1) localizes to late endosomes where it is required for the efficient activation of ERK signaling (1,2). This complex is involved in the regulation of late endosomal traffic and cellular proliferation (3) and plays a role in cellular host defense against Salmonella infection (4).

References

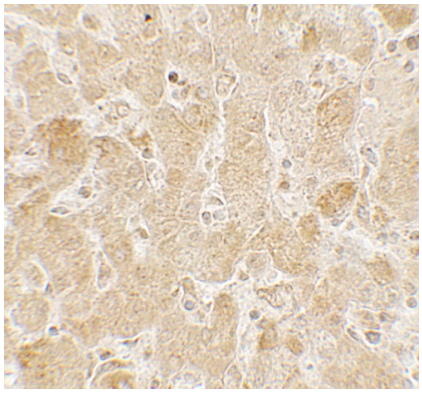
Wunderlich W, Fialka I, Teis D, et al. A novel 14-kilodalton protein interacts with the mitogen-activated protein kinase scaffold MP1 on a late endosomal/lysosomal compartment. J. Cell Biol. 2001; 152:765-76.
Teis D, Wunderlich W, and Huber LA. Localization of the MP1-MAPK scaffold complex to endosomes is mediated by p14 and required for signal transduction. Dev. Cell 2002; 3:803-14.
Teis D, Taub N, Kurzbauer R, et al. p14-MP1-MEK1 signaling regulates endosomal traffic and cellular proliferation during tissue homeostasis. J. Cell Biol. 2006; 175:861-8.
Taub N, Nairz M, Hilber D, et al. The late endosomal adaptor p14 is a macrophage host-defense factor against Salmonella infection. J. Cell Sci. 2012; 125:2698-708.

Images

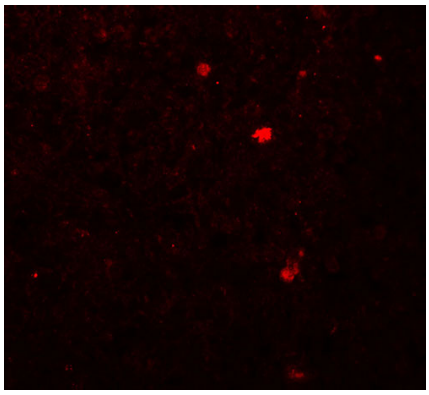


Western blot analysis of LAMTOR2 in HepG2 cell lysate with LAMTOR2 antibody at 1 µg/ml.

Immunohistochemistry of LAMTOR2 in human spleen



tissue with LAMTOR2 antibody at 5 µg/mL.



Immunofluorescence of LAMTOR2 in human spleen tissue with LAMTOR2 antibody at 20 µg/mL.