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

LAMTOR1 Antibody

Catalog # ASC11767

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q6IAA8
Other Accession	NP_060377, 8923579
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	17745
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	LAMTOR1 antibody can be used for detection of LAMTOR1 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	55004
Other Names	Ragulator complex protein LAMTOR1, Late endosomal/lysosomal adaptor and MAPK and MTOR activator 1, Lipid raft adaptor protein p18, Protein associated with DRMs and endosomes, p27Kip1-releasing factor from RhoA, p27RF-Rho, LAMTOR1, C11orf59, PDRO
Target/Specificity	LAMTOR1; LAMTOR1 antibody is human, mouse and rat specific. LAMTOR1 antibody is predicted to not cross-react with other LAMTOR family proteins.
Reconstitution & Storage	LAMTOR1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	LAMTOR1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	LAMTOR1 {ECO:0000303|PubMed:31001086, ECO:0000312|HGNC:HGNC:26068}
Function	Key component of the Ragulator complex, a multiprotein complex 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:22980980, 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:22053050, PubMed:22980980, PubMed:28935770, PubMed:29158492, PubMed:30181260, PubMed:31001086, PubMed:32686708, PubMed:36476874). Activated Ragulator and Rag GTPases function as a scaffold recruiting mTORC1 to lysosomes where it is in turn activated (PubMed:20381137, PubMed:22980980, PubMed:29158492). LAMTOR1 is directly responsible for anchoring the Ragulator complex to the lysosomal membrane (PubMed:31001086, PubMed:32686708). LAMTOR1 wraps around the other subunits of the Ragulator complex to hold them in place and interacts with the Rag GTPases, thereby playing a key role in the recruitment of the mTORC1 complex to lysosomes (PubMed:28935770, PubMed:29107538, PubMed:29123114, PubMed:29285400). Also involved in the control of embryonic stem cells differentiation via non-canonical RagC/RRAGC and RagD/RRAGD activation: together with FLCN, it is necessary to recruit and activate RagC/RRAGC and RagD/RRAGD at the lysosomes, and to induce exit of embryonic stem cells from pluripotency via non-canonical, mTOR-independent TFE3 inactivation (By similarity). Also required for late endosomes/lysosomes biogenesis it may regulate both the recycling of receptors through endosomes and the MAPK signaling pathway through recruitment of some of its components to late endosomes (PubMed:20381137, PubMed:22980980). May be involved in cholesterol homeostasis regulating LDL uptake and cholesterol release from late endosomes/lysosomes (PubMed:20544018). May also play a role in RHOA activation (PubMed:19654316).
Cellular Location	Lysosome membrane; Lipid-anchor; Cytoplasmic side. Late endosome membrane; Lipid-anchor; Cytoplasmic side. Note=Recruited to lysosome and endosome membranes through N-terminal myristoylation and palmitoylation

Background

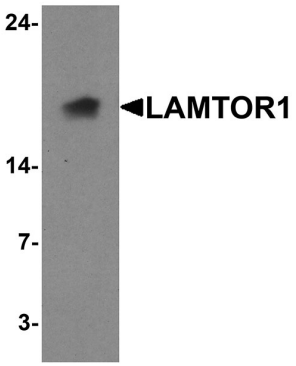
LAMTOR1 is a 161 amino acid membrane protein belonging to the LAMTOR family. It has been identified to interact with and recruit the four Rag GTPases (Rag A-D) to the surface of lysosomes (1). The mTORC1 kinase complex is a critical component in the regulation of cell growth (2). As part of the ragulator complex, LAMTOR1 recruits the Rag GTPases and the mTORC1 complex to lysosomes, a key step in activation of the TOR signaling cascade by amino acids (3). LAMTOR1 may be involved in cholesterol homeostasis regulating LDL uptake and cholesterol release from late endosomes / lysosomes (4).

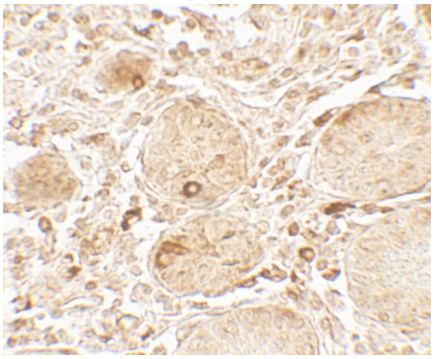
References

Sancak Y, Bar-Peled L, Zoncu R, et al. Ragulator-Rag complex targets mTORC1 to the lysosomal surface and is necessary for its activation by amino acids. Cell 2010; 141:290-303.
Kim E, Goraksha-Hicks P, Li L, et al. Regulation of TORC1 by Rag GTPases in nutrient response. Nat. Cell Biol. 2008; 10:935-45.
Wullschleger S, Loewith R, and Hall MN. TOR signaling in growth and metabolism. Cell 2006; 124:471-84.
Soma-Nagae T, Nada S, Kitagawa M, et al. The lysosomal signaling anchor p18/LAMTOR1 controls epidermal development by regulating lysosome-mediated catabolic processes. J. Cell Sci. 2013; 126:3575-84.

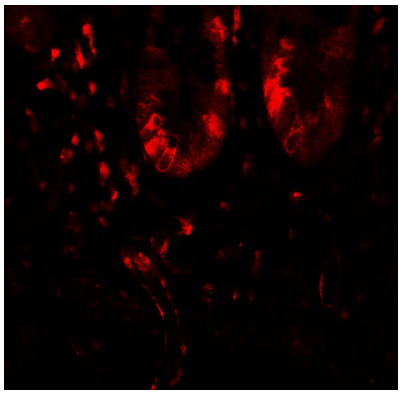
Images

Western blot analysis of LAMTOR1 in A431 cell lysate with LAMTOR1 antibody at 1 µg/ml.





Immunohistochemistry of LAMTOR1 in human small intestine tissue with LAMTOR1 antibody at 5 µg/mL.



Immunofluorescence of LAMTOR1 in human small intestine tissue with LAMTOR1 antibody at 20 µg/mL.

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