LAMTOR1 Protein, Human (His)

Cat. No.:	HY-P71583
Synonyms:	C11orf59; LAMTOR1; Late endosomal/lysosomal adaptor and MAPK and MTOR activator 1; Lipid raft adaptor protein p18; LTOR1_HUMAN; p18; p27Kip1-releasing factor from RhoA; p27RF-Rho; PDRO; PP7157; Protein associated with DRMs and endosomes; Ragulator complex protein LAMTOR1; ragulator complex protein PDRO; Ragulator1; RhoA activator C11orf59
Species:	Human
Source:	E. coli
Accession:	Q6IAA8 (2G-161P)
Gene ID:	55004
Molecular Weight:	Approximately 24 kDa

PROPERTIES

AA Sequence	G C C Y S S E N E D S D Q D R E E R K L L L D P S S P P T K A L N G A E P N Y H S L P S A R T D E Q A L L S S I L A K T A S N I I D V S A A D S Q G M E Q H E Y M D R A R Q Y S T R L A V L S S S L T H W K K L P P L P S L T S Q P H Q V L A S E P I P F S D L Q Q V S R I A A Y A Y S A L S Q I R V D A K E E L V V Q F G I P
Appearance	Lyophilized powder.
Formulation	Lyophilized after extensive dialysis against solution in PBS, 6% Trehalose, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	LAMTOR1 stands as a crucial component within the Ragulator complex, a multifaceted assembly involved in amino acid sensing and the activation of mTORC1, a signaling nexus orchestrating cell growth in response to diverse stimuli, including growth factors, energy levels, and amino acids. Serving a dual role for the small GTPases Rag, the Ragulator acts as both a guanine nucleotide exchange factor (GEF) activating Rag GTPases and a mediator for their recruitment to the lysosome membrane. In this intricate interplay, activated Ragulator and Rag GTPases synergistically act as a scaffold, orchestrating the recruitment and activation of mTORC1 at lysosomes. LAMTOR1, pivotal to this mechanism, directly anchors the Ragulator complex to the lysosomal membrane, assuming a critical role in holding together other subunits of the Ragulator complex. Additionally, LAMTOR1's interaction with Rag GTPases plays a central role in the recruitment of the mTORC1

complex to lysosomes. Beyond its role in mTOR signaling, LAMTOR1 demonstrates its versatility by participating in processes such as the control of embryonic stem cell differentiation, regulation of late endosomes/lysosomes biogenesis, and potential involvement in cholesterol homeostasis and RHOA activation. As part of the Ragulator complex and various interacting networks, LAMTOR1 emerges as a key orchestrator in cellular responses to diverse stimuli, contributing to the regulation of essential cellular processes.

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