RHEB Protein, Human (sf9, N-His)

Cat. No.:	HY-P700268
Synonyms:	GTP-Binding Protein Rheb; Ras Homolog Enriched in Brain; RHEB; RHEB2
Species:	Human
Source:	P. pastoris
Accession:	Q15382 (M1-C181)
Gene ID:	6009
Molecular Weight:	Approximately 21 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 20mM Tris, 500mM NaCl, 10% Glycerol, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
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	RHEB, a small GTPase, functions as a crucial allosteric activator of the canonical mTORC1 complex, a pivotal nutrient sensor orchestrating cellular biomass generation and growth. In response to cues such as nutrients, growth factors, or amino acids, RHEB plays a specific role in activating the protein kinase activity of MTOR within the mTORC1 complex. This activation is achieved through inducing a conformational change that aligns residues in the active site of MTOR, thereby enhancing the phosphorylation of key downstream effectors like ribosomal protein S6 kinase (RPS6KB1 and RPS6KB2) and EIF4EBP1 (4E-BP1). Additionally, RHEB is essential for the localization of the TSC-TBC complex to lysosomal membranes, providing spatial regulation to mTORC1 activity. Conversely, during starvation, the TSC-TBC complex inactivates RHEB, preventing mTORC1 activation and contributing to cellular adaptation under nutrient-deprived conditions. Notably, RHEB exhibits low intrinsic GTPase activity, further emphasizing its role in dynamically regulating mTORC1 signaling.

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