



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human RHEB Protein
Catalog Number: hRP-1835
Manufacturer: LD Biopharma, Inc.

Introduction

Human GTP-binding protein Rheb gene is a member of the small GTPase superfamily and encodes a lipid-anchored, cell membrane protein with five repeats of the RAS-related GTP-binding region. This protein is vital in regulation of growth and cell cycle progression due to its role in the insulin/TOR/S6K signaling pathway. The protein has GTPase activity and shuttles between a GDP-bound form and a GTP-bound form, and farnesylation of the protein is required for this activity.

Full-length human RHEB cDNA (183 aa, derived from BC066307) was constructed with codon optimization for its N-terminal region and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. This protein was expressed in *E. coli* as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: RHRB (RHEB2)
Accession Number: NP_005605.1
Species: Human
Size: 25 µg / Vial
Composition: 0.25 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.
Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Shahani N, et al., *Rheb GTPase regulates beta-secretase levels and amyloid beta generation*. J. Biol. Chem. 289 (9), 5799-5808 (2014)

Groenewoud MJ et al., *Rheb and Rags come together at the lysosome to activate mTORC1*.



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Biochem. Soc. Trans. 41 (4), 951-955 (2013)

Mazhab-Jafari MT, et al., *Membrane-dependent modulation of the mTOR activator Rheb: NMR observations of a GTPase tethered to a lipid-bilayer nanodisc*. J. Am. Chem. Soc. 135 (9), 3367-3370 (2013)

Yoshida S, et al., *Redox regulates mammalian target of rapamycin complex 1 (mTORC1) activity by modulating the TSC1/TSC2-Rheb GTPase pathway*. J. Biol. Chem. 286 (37), 32651-32660 (2011)

Applications

1. May be used for in vitro RHEB mediated mTORC1 pathway regulation study for cell growth and cell cycle progression by intracellular delivery of this protein with ProFectin Reagent.
2. May be used for protein-protein interaction mapping.
3. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein for prognostic diagnosis of various cancers by monitoring RHEB expression level in tumor.
5. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFPQSKSRKIAILGYRSVGKSSSLTIQFVEGQFVDSYD
PTIENTFTKLIITVNGQEYHLQLVDTAGQDEYSIFPQTYSIDINGYILVYFVTSIKSFVVIKVIH
GKLLDMVGKVQIPIMLVGNKKDLHMERVISYEEGKALAESWNAAFLESSAKENQTAVDVFRRII
LEAEKMDGAASQKSSCSVM