



LD Biopharma, Inc.
7384 Trade Street, Suite B
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Tel: 858-876-8266
<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human RhoA Protein
Catalog Number: hRP-2389
Manufacturer: LD Biopharma, Inc.

Introduction

Human RhoA gene encodes a member of the Rho family of small GTPases, which cycle between inactive GDP-bound and active GTP-bound states and function as molecular switches in signal transduction cascades. It regulates a signal transduction pathway linking plasma membrane receptors to the assembly of focal adhesions and actin stress fibers. RhoA is involved in a microtubule-dependent signal that is required for the myosin contractile ring formation during cell cycle cytokinesis. It plays an essential role in cleavage furrow formation. It is also required for the apical junction formation of keratinocyte cell-cell adhesion. RhoA stimulates PKN2 kinase activity and may be an activator of PLCE1. RhoA is activated by ARHGEF2, which promotes the exchange of GDP for GTP. It is essential for the SPATA13-mediated regulation of cell migration and adhesion assembly and disassembly. The MEMO1-RHOA-DIAPH1 signaling pathway plays an important role in ERBB2-dependent stabilization of microtubules at the cell cortex. It controls the localization of APC and CLASP2 to the cell membrane, via the regulation of GSK3B activity. In turn, membrane-bound APC allows the localization of the MACF1 to the cell membrane, which is required for microtubule capture and stabilization. RhoA regulates a signal transduction pathway linking plasma membrane receptors to the assembly of focal adhesions and actin stress fibers. It is involved in a microtubule-dependent signal that is required for the myosin contractile ring formation during cell cycle cytokinesis. RhoA plays an essential role in cleavage furrow formation. Overexpression of this gene is associated with tumor cell proliferation and metastasis.

Full-length human RhoA cDNA (192aa) was constructed with codon optimization gene synthesis and expressed with a human N-terminalT7-His-TEV cleavage site Tag (29aa) fusion. It 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: RHOA (ARH12; ARHA; RHO12; RHOH12)
Accession Number: NP_001655
Species: Human
Size: 40 µg / Vial
Composition: 0.4 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.



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Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Yao K, et al., *RSK2 phosphorylates T-bet to attenuate colon cancer metastasis and growth*. PNAS. Nov 28; 114(48): 12791 -12796 (2017)

Tripathi BK, et al., *Receptor tyrosine kinase activation of RhoA is mediated by AKT phosphorylation of DLC1*. J. Cell Biol. 216 (12), 4255-4270 (2017)

Nakamuta S, et al., *Dual role for DOCK7 in tangential migration of interneuron precursors in the postnatal forebrain*. J. Cell Biol. 216 (12), 4313-4330 (2017)

Leclaire Alirkilicarslan A, et al., *Expression of TFH Markers and Detection of RHOA p.G17V and IDH2 p.R172K/S Mutations in Cutaneous Localizations of Angioimmunoblastic T-Cell Lymphomas*. Am. J. Surg. Pathol. 41 (12), 1581-1592 (2017)

Yang L, et al., *Raf-1/CK2 and RhoA/ROCK signaling promote TNF-alpha-mediated endothelial apoptosis via regulating vimentin cytoskeleton*
Toxicology 389, 74-84 (2017)

Nemoto Y, et al., *A rho gene product in human blood platelets. I. Identification of the platelet substrate for botulinum C3 ADP-ribosyltransferase as rhoA protein*. J. Biol. Chem. 267 (29), 20916-20920 (1992)

Applications

1. May be used for in vitro RhoA mediated RSK2-LARG-RhoA interactive signaling pathway regulation for cancer cell metastasis study by intracellular delivery of this protein with protein delivery reagent such as ProFectin reagent kit.
2. May be used for mapping protein-protein interaction.
3. May be used as specific substrate protein for RhoA specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays, such as botulinum C3 ADP-ribosyltransferase specific substrate.
4. Potential therapeutic protein, which may be used for PD disease prevention or treatment.
5. As immunogen for specific antibody production.

Quality Control



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Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFAAIRKKLVIVGDGACGKTCLLIVFSKDQFPEVYVP
TVFENYVADIEVDGKQVELALWDTAGQEDYDRLRPLSYPDTDVILMCFSIDSPDSLENIPEKWT
PEVKHFPCNPVPIILVGNKKDLRND EHTRRELAKMKQEPVKPEEGRDMANRIGAFGYMECSAKTK
DGVREVFEMATRAALQARRGKKKSGCLVL