

Recombinant Human ARHG2 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50044

Size: 10ug, 100ug

Protein Name: Rho guanine nucleotide exchange factor 2 (Guanine nucleotide exchange factor H1) (GEF-H1) (Microtubule-regulated Rho-GEF) (Proliferating cell nucleolar antigen p40)

Synonym: ARHGEF2, KIAA0651, LFP40

UniProt ID: Q92974

UniProt Link: www.uniprot.org/uniprotkb/Q92974/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 986 AA

Molecular Weight: 112 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MSRIESLTRARIDRSRELASKTREKEKMKEAKDARYTNGHLFTTISVSGMTMCYACNKSITAKEALIC
PTCNVTIHNRCCKDTLANCTKVKKQKQKAALLKNNTALQSVSLRSKTTIRERPSSAIYPSDSFRQSLLG
SRRGRSSLSLAKSVSTTNIAGHFNDSPGLRLRSQSTDSLNMNRNRTLSVESLIDEAEVIYSELMSDF
EMDEKDFAADSWSLAVDSSFLQQHKKEVMKQQDVIYELIQTELHHVRTLKIMTRLFRTGMLEELHLE
PGVVQGLFPCVDELSDIHTRFLSQLLERRRQALCPGSTRNFVIHRLGDLLISQFSGPSAEQMCKTYS
EFCSRHSKALKLYKELYARDKRFQQFIRKVTRPAVLKRHGVQECILLVTQRITKYPLLISRILQHSHGIE
EERQDLTTALGLVKELLSNVDEGIYQLEKGARLQEIYNRMDPRAQTPVPGKPGFGREELLRRKLIHD
GCLLWKTATGRFKDVLVLLMTDVLVFLQEKDQKYIFPTLDKPSVSVSLQNLIVRDIANQEKGMFLISAAP
PEMYEVHTASRDDRTWIRVIQQSVRTCPSREDFPLIETEDAYLRRIKMELQQKDRAVVELLREKV
GLFAEMTHFQAEEDGGSGMALPTLPRGLFRSESLSPRGERLLQDAIREVEGLKDLLVGPVVELLLT
PREPALPLEPDSGGNTSPGVTANGEARTFNGSIELCRADSDSSQDRNGNQLRSPQEEALQRLVNL
YGLLHGLQAAVAQQDTLMEARFPEGPERREKLCRANSRDGEAGRAGAAPVAPEKQATELALLQRQ
HALLQEELRRCRRLGEERATEAGSLEARLRESEQARALLEREAEAEARRQLAALGQTEPLPAEAPWA
RRPVDPRRRSLPAGDALYLSFNPPQPSRGTDRDLDPVTTRSVHRNFEDRERQELGSPEERLQDSS
DPDTGSEEEGSSRLSPPHSPRDFTRMQDIPEETESRDGEAVASES



3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Rho guanine nucleotide exchange factor 2 (Guanine nucleotide exchange factor H1) (GEF-H1) (Microtubule-regulated Rho-GEF) (Proliferating cell nucleolar antigen p40) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Activates Rho-GTPases by promoting the exchange of GDP for GTP. May be involved in epithelial barrier permeability, cell motility and polarization, dendritic spine morphology, antigen presentation, leukemic cell differentiation, cell cycle regulation, innate immune response, and cancer. Binds Rac-GTPases, but does not seem to promote nucleotide exchange activity toward Rac-GTPases, which was uniquely reported in PubMed:9857026. May stimulate instead the cortical activity of Rac. Inactive toward CDC42, TC10, or Ras-GTPases. Forms an intracellular sensing system along with NOD1 for the detection of microbial effectors during cell invasion by pathogens. Required for RHOA and RIP2 dependent NF-kappaB signaling pathways activation upon *S.flexneri* cell invasion. Involved not only in sensing peptidoglycan (PGN)-derived muropeptides through NOD1 that is independent of its GEF activity, but also in the activation of NF-kappaB by *Shigella* effector proteins (IpgB2 and OspB) which requires its GEF activity and the activation of RhoA. Involved in innate immune signaling transduction pathway promoting cytokine IL6/interleukin-6 and TNF secretion in macrophage upon stimulation by bacterial peptidoglycans; acts as a signaling intermediate between NOD2 receptor and RIPK2 kinase. Contributes to the tyrosine phosphorylation of RIPK2 through Src tyrosine kinase leading to NF-kappaB activation by NOD2. Overexpression activates Rho-, but not Rac-GTPases, and increases paracellular permeability (By similarity). Involved in neuronal progenitor cell division and differentiation (PubMed:28453519). Involved in the migration of precerebellar neurons (By similarity).

Subcellular Localization: Cytoplasm, cytoskeleton . Cytoplasm . Cell junction, tight junction . Golgi apparatus . Cytoplasm, cytoskeleton, spindle . Cell projection, ruffle membrane . Cytoplasmic vesicle . Note=Localizes to the tips of cortical microtubules of the mitotic spindle during cell division, and is further released upon microtubule depolymerization (PubMed:15827085). Recruited into membrane ruffles induced by *S.flexneri* at tight junctions of polarized epithelial cells (PubMed:19043560). Colocalized with NOD2 and RIPK2 in vesicles and with the cytoskeleton (PubMed:21887730).

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.



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- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.