

Recombinant Human GRB2 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50389

Size: 10ug, 100ug

Protein Name: Growth factor receptor-bound protein 2 (Adapter protein GRB2) (Protein Ash)
(SH2/SH3 adapter GRB2)

Synonym: GRB2, ASH

UniProt ID: P62993

UniProt Link: www.uniprot.org/uniprotkb/P62993/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 217 AA

Molecular Weight: 25 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MEAIKYDFKATADDELSFKRGDILKVLNEECDQNWYKAELNGKDGFIKPNYIEMKPHPWFFGKIPR
AKAEEMLSKQRHDGAFLIRESESAPGDFSLSVKFGNDVQHFKVLRDGAGKYFLWVVKFNSLNELVD
YHRSTSVSRNQQIFLRDIEQVPQQPTYVQALFDFDPQEDGELGFRRGDFIHVMDNSDPNWWKGAC
HGQTGMFPRNYVTPVNRNV

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 Growth factor receptor-bound protein 2 (Adapter protein GRB2) (Protein Ash) (SH2/SH3 adapter GRB2) 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: Non-enzymatic adapter protein that plays a pivotal role in precisely regulated signaling cascades from cell surface receptors to cellular responses, including signaling transduction and gene expression (PubMed:11016927, PubMed:11726515, PubMed:37626338). Thus, participates in many biological processes including regulation of innate and adaptive immunity, autophagy, DNA repair or necroptosis (PubMed:35831301, PubMed:37626338, PubMed:38182563). Controls signaling complexes at the T-cell antigen receptor to facilitate the activation, differentiation, and function of T-cells (PubMed:36864087, PubMed:9489702). Mechanistically, engagement of the TCR leads to phosphorylation of the adapter protein LAT, which serves as docking site for GRB2 (PubMed:9489702). In turn, GRB2 establishes a connection with SOS1 that acts as a guanine nucleotide exchange factor and serves as a critical regulator of KRAS/RAF1 leading to MAPKs translocation to the nucleus and activation (PubMed:12171928, PubMed:25870599). Functions also a role in B-cell activation by amplifying Ca(2+) mobilization and activation of the ERK MAP kinase pathway upon recruitment to the phosphorylated B-cell antigen receptor (BCR) (PubMed:25413232, PubMed:29523808). Plays a role in switching between autophagy and programmed necrosis upstream of EGFR by interacting with components of necrosomes including RIPK1 and with autophagy regulators SQSTM1 and BECN1 (PubMed:35831301, PubMed:38182563). Regulates miRNA biogenesis by forming a functional ternary complex with AGO2 and DICER1 (PubMed:37328606). Functions in the replication stress response by protecting DNA at stalled replication forks from MRE11-mediated degradation. Mechanistically, inhibits RAD51 ATPase activity to stabilize RAD51 on stalled replication forks (PubMed:38459011). Additionally, directly recruits and later releases MRE11 at DNA damage sites during the homology-directed repair (HDR) process (PubMed:34348893).; [Isoform 2]: Does not bind to phosphorylated epidermal growth factor receptor (EGFR) but inhibits EGF-induced transactivation of a RAS-responsive element. Acts as a dominant negative protein over GRB2 and by suppressing proliferative signals, may trigger active programmed cell death. Mechanistically, inhibits RAS-ERK signaling and downstream cell proliferation by competing with GRB2 for SOS1 binding and thus by regulating SOS1 membrane recruitment (PubMed:36171279).

Subcellular Localization: Nucleus . Cytoplasm . Endosome . Golgi apparatus .

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