

Recombinant Rat PPA5 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52332

Size: 10ug, 100ug

Protein Name: Tartrate-resistant acid phosphatase type 5 (TR-AP) (EC 3.1.3.2) (Purple acid phosphatase) (Tartrate-resistant acid ATPase) (TrATPase) (Type 5 acid phosphatase)

Synonym: Acp5

UniProt ID: P29288

UniProt Link: www.uniprot.org/uniprotkb/P29288/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 327 AA

Molecular Weight: 37 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MDTWMVLLGLQILLPLLAHCTAPASTLRFVAVGDWGGVPNAPFHTAREMANAKEIARTVQIMGADF
IMSLGDNFYFTGVHDANDKRFQETFEDVFSRDLRNIPWYVLGNHDLGNVSAQIAYSKISKRWNF
PSPYYRLRFKVPNSNITVAIFMLDTVMMLCGNSDDFVSQQPEMPRDLGVARTQLSWLKKQLAAAKED
YVLVAGHYPIWSIAEHGPTRCLVKNLRLPLLAAYGVTAYLCGHDHNLQYLQDENGVGYYVLSGAGNFM
DPSVRHQRKVPNGYLRFHYSSEDSLGGFTYVEIGSKEMSITYVEASGKSLFKTSLPRRPRP

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 Tartrate-resistant acid phosphatase type 5 (TR-AP) (EC 3.1.3.2) (Purple acid phosphatase) (Tartrate-resistant acid ATPase) (TrATPase) (Type 5 acid phosphatase) 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: Functions as a binuclear Fe(III)-Fe(II) acid phosphatase that hydrolyzes phosphate esters to alcohols and phosphate under acidic conditions (PubMed:11560512, PubMed:15929988, PubMed:19854170, PubMed:8195113). Dephosphorylates a broad range of substrates, including adenosine 5'-diphosphate (ADP), adenosine 5'-triphosphate (ATP), as well as larger phosphoproteins such as osteopontin (SPP1), a highly phosphorylated bone matrix protein, bone sialoprotein (IBSP) and synthetic compounds such as para-nitrophenyl phosphate (p-NPP) (PubMed:11560512, PubMed:15929988, PubMed:19854170, PubMed:8195113). Through the dephosphorylation of bone matrix proteins, plays a crucial role in normal cartilage mineralization during skeletal development and in maintaining and remodeling bone integrity in adults (PubMed:19854170, PubMed:8195113). Promotes osteoclast migration by dephosphorylating SPP1, which binds osteoclasts to the bone matrix (PubMed:19854170). Also involved in immune regulation and macrophage function, contributes to the breakdown of internalized pathogens within lysosomes (By similarity). Regulates immune cell recruitment during infection, partly via interaction with SPP1 (By similarity). The uncleaved form (isoform 5a) functions primarily in immune regulation rather than bone resorption. May contribute to the removal of mannose-6-phosphate (Man6P) from lysosomal proteins after their delivery to lysosomes, acting in concert with ACP2 (By similarity).

Subcellular Localization: Lysosome . Secreted . Note=The uncleaved form (isoform 5a) is secreted by macrophage and dendritic cell. The cleaved form (isoform 5b) is secreted by osteoclasts.

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.