

Recombinant Human TSP1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51027

Size: 10ug, 100ug

Protein Name: Thrombospondin-1 (Glycoprotein G)

Synonym: THBS1, TSP, TSP1

UniProt ID: P07996

UniProt Link: www.uniprot.org/uniprotkb/P07996/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1170 AA

Molecular Weight: 129 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MGLAWGLGVFLMHVCGTNRIPESGGDNSVFDIFELTGAARKGSGRRLVKGPDPSSPAFRIEDANLI
PPVPDDKFQDLVDAVRAEKGFLLLASLRQMKKTRGTLLALERKDHSGQVFSVVSNGKAGTLDLSLTV
QGKQHVVSVEEALLATGQWKSITLFVQEDRAQLYIDCEKMENAEADVPIQSVFTRDLASIALRLIAKG
GVNDNFQGVQLQNVRFVFGTTPEDILRNKGCSSSTSVLLTLDNNVVGSSPAIRTNYIGHKTKDLQAIC
GISCDELSSMVLELRGLRTIVTTLQDSIRKVTEENKELANELRRPPLCYHNGVQYRNNEEWTVDSCT
EHCQNSVTICKKVSCPIPCSNATVPDGECCPRCWPSDSADDGWSPWSEWTSCSTSCGNGIQQ
RGRSCDSLNNRCEGSSVQTRTCHIQECDKRFKQDGGWSHWSPWSSCSVTCGDGVITRIRLCNSPS
PQMNGKPCEGEARETKACKKDACPINGGWGPWSPWDICSVTCGGGVQKRSRLCNPPTPQFGGK
DCVGDVTENQICNKQDCPIDGCLSNPCFAGVKCTSYPDGSWKCGACPPGYSGNGIQCTDVDECKE
VPDACFNHNGEHRCENTDPGYNCLPCPPRFTGSQPFQGGVEHATANKQVCKPRNPCTDGTHDCN
KNAKCNYLGHYS DPMYRCECKPGYAGNGIICGEDTDLDGWPENENLVCVANATYHCKKDNCNLPN
SGQEDYDKDGIGDACDDDDNDKIPDDRDNCPFHYNPAQYDYDRDDVGDRCDNCPYHNHPDQAD
TDNNGEGDACAADIDGDGILNERDNCQYVYNVDQRDTMDGVGDQCDNCPLEHNPDQLDSDSDRI
GDTCDNNQDIDEDGHQNNLDNCPYVPNANQADHDKDGKGDACDHDDNDGIPDDKDNCR LVPNP
DQKDSGDGGRGDACKDDFDHDSVPDIDDICPENVDISETDFRRFQMIPLDPKGT SQNDPNWVVRH
QGKELVQTVNCDPGLAVGYDEFNAVDFSGTFFINTERDDDYAGFVFGYQSSSRFYVVMWKQVTQS
YWDTNPTRAQGYSGLSVKVNSTTGPGEHLRNALWHTGNTPGQVRTLWHDPRHIGWKDFTAYRW
RLSHRPKTGFIRVVMYEGKKIMADSGPIYDKTYAGGRLGLFVFSQEMVFFSDLKYECRDP

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 Thrombospondin-1 (Glycoprotein G) 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: Adhesive glycoprotein that mediates cell-to-cell and cell-to-matrix interactions (PubMed:15014436, PubMed:18285447, PubMed:2430973, PubMed:6489349). Multifunctional, involved in inflammation, angiogenesis, wound healing, reactive oxygen species (ROS) signaling, nitrous oxide (NO) signaling, apoptosis, senescence, aging, cellular self-renewal, stemness, and cardiovascular and metabolic homeostasis (PubMed:10613822, PubMed:11134179, PubMed:1371676, PubMed:14568985, PubMed:24511121, PubMed:29042481, PubMed:32679764). Negatively modulates dendritic cell activation and cytokine release, as part of an autocrine feedback loop, contributing to the resolution of inflammation and immune homeostasis (PubMed:14568985). Ligand for receptor CD47 (PubMed:19004835, PubMed:8550562). Modulates nitrous oxide (NO) signaling via CD47, hence playing a role as a pressor agent, supporting blood pressure (By similarity). Plays a role in endothelial cell senescence, acting via CD47, by increasing the abundance and activation of NADPH oxidase NOX1, and so generating excess ROS (PubMed:29042481). Inhibits stem cell self-renewal, acting via CD47 signaling, probably by regulation of the stem cell transcription factors POU5F1/OCT4, SOX2, MYC/c-Myc and KLF4 (By similarity). Negatively modulates wound healing, acting via CD47 (By similarity). Ligand for receptor CD36 (PubMed:10613822, PubMed:11134179, PubMed:1371676). Involved in inducing apoptosis in podocytes in response to elevated free fatty acids, acting via CD36 (By similarity). Plays a role in suppressing angiogenesis, acting, depending on context, via CD36 or CD47 (PubMed:10613822, PubMed:11134179, PubMed:1371676, PubMed:32679764). Promotes cellular senescence in a TP53-CDKN1A-RB1 signaling-dependent manner (PubMed:29042481). Ligand for immunoglobulin-like cell surface receptor SIRPA (PubMed:24511121). Involved in ROS signaling in non-phagocytic cells, stimulating NADPH oxidase-derived ROS production, acting via interaction with SIRPA (PubMed:24511121). Plays a role in metabolic dysfunction in diet-induced obesity, perhaps acting by exacerbating adipose inflammatory activity; its effects may be mediated, at least in part, through enhanced adipocyte proliferation (By similarity). Plays a role in ER stress response, via its interaction with the activating transcription factor 6 alpha (ATF6) which produces adaptive ER stress response factors (By similarity). May be involved in age-related conditions, including metabolic dysregulation, during normal aging (PubMed:29042481, PubMed:32679764).

Subcellular Localization: Secreted . Cell surface . Secreted, extracellular space, extracellular matrix . Endoplasmic reticulum . Sarcoplasmic reticulum . Note=Secreted by thrombin-activated platelets and binds to the cell surface in the presence of extracellular Ca(2+) (PubMed:101549, PubMed:6777381). Incorporated into the extracellular matrix (ECM) of fibroblasts (PubMed:6341993). The C-terminal region in trimeric form is required for retention in the ECM (PubMed:18285447). Also

detected in the endoplasmic reticulum and sarcoplasmic reticulum where it plays a role in the ER stress response (By similarity).

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.