

Recombinant Human HLAG Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50411

Size: 10ug, 100ug

Protein Name: HLA class I histocompatibility antigen, alpha chain G (HLA G antigen) (MHC class I antigen G) [Cleaved into: Soluble HLA class I histocompatibility antigen, alpha chain G (sHLA-G)]

Synonym: HLA-G, HLA-6.0, HLAG

UniProt ID: P17693

UniProt Link: www.uniprot.org/uniprotkb/P17693/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 338 AA

Molecular Weight: 38 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MVVMAPRTLFLLLSGALTLTETWAGSHSMRYFSAAVSRPGRGEPFIAMGYVDDTQFVRFDSDSAC
PRMEPRAPWVEQEGPEYWEEETRNTKAHAQTDRMNLQTLRGYYNQSEASSHTLQWMIGCDLGSD
GRLLRGYEQYAYDGKDYALNEDLRSWTAADTAAQISKRKCEANVAEQRRAYLEGTCVEWLHRYL
ENGKEMLRADPPKTHVTHHPVFDYEATLRCWALGFYPAEIILTWQRDGEDQTQDVELVETRPAGD
GTFQKWAAVVPSGEEQRYTCHVQHEGLPEPLMLRWKQSSLPTIPIMGIVAGLVVLAAVVTGAAVA
AVLWRKKSSD

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 HLA class I histocompatibility antigen, alpha chain G (HLA G antigen) (MHC class I antigen G) [Cleaved into: Soluble HLA class I histocompatibility antigen, alpha chain G (sHLA-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: [Isoform 1]: Non-classical major histocompatibility class Ib molecule involved in immune regulatory processes at the maternal-fetal interface (PubMed:19304799, PubMed:23184984, PubMed:29262349). In complex with B2M/beta-2 microglobulin binds a limited repertoire of nonamer self-peptides derived from intracellular proteins including histones and ribosomal proteins (PubMed:7584149, PubMed:8805247). Peptide-bound HLA-G-B2M complex acts as a ligand for inhibitory/activating KIR2DL4, LILRB1 and LILRB2 receptors on uterine immune cells to promote fetal development while maintaining maternal-fetal tolerance (PubMed:16366734, PubMed:19304799, PubMed:20448110, PubMed:23184984, PubMed:27859042, PubMed:29262349). Upon interaction with KIR2DL4 and LILRB1 receptors on decidual NK cells, it triggers NK cell senescence-associated secretory phenotype as a molecular switch to promote vascular remodeling and fetal growth in early pregnancy (PubMed:16366734, PubMed:19304799, PubMed:23184984, PubMed:29262349). Through interaction with KIR2DL4 receptor on decidual macrophages induces pro-inflammatory cytokine production mainly associated with tissue remodeling (PubMed:19304799). Through interaction with LILRB2 receptor triggers differentiation of type 1 regulatory T cells and myeloid-derived suppressor cells, both of which actively maintain maternal-fetal tolerance (PubMed:20448110, PubMed:27859042). May play a role in balancing tolerance and antiviral-immunity at maternal-fetal interface by keeping in check the effector functions of NK, CD8+ T cells and B cells (PubMed:10190900, PubMed:11290782, PubMed:24453251). Reprograms B cells toward an immune suppressive phenotype via LILRB1 (PubMed:24453251). May induce immune activation/suppression via intercellular membrane transfer (troglodytosis), likely enabling interaction with KIR2DL4, which resides mostly in endosomes (PubMed:20179272, PubMed:26460007). Through interaction with the inhibitory receptor CD160 on endothelial cells may control angiogenesis in immune privileged sites (PubMed:16809620).; [Isoform 2]: Likely does not bind B2M and presents peptides. Negatively regulates NK cell- and CD8+ T cell-mediated cytotoxicity (PubMed:11290782).; [Isoform 3]: Likely does not bind B2M and presents peptides. Negatively regulates NK cell- and CD8+ T cell-mediated cytotoxicity (PubMed:11290782).; [Isoform 4]: Likely does not bind B2M and presents peptides. Negatively regulates NK cell- and CD8+ T cell-mediated cytotoxicity (PubMed:11290782).; [Isoform 5]: Non-classical major histocompatibility class Ib molecule involved in immune regulatory processes at the maternal-fetal interface (PubMed:19304799, PubMed:23184984, PubMed:29262349). In complex with B2M/beta-2 microglobulin binds a limited repertoire of nonamer self-peptides derived from intracellular proteins including histones and ribosomal proteins (PubMed:7584149, PubMed:8805247). Peptide-bound HLA-G-B2M complex acts as a ligand for inhibitory/activating KIR2DL4, LILRB1 and LILRB2 receptors on uterine immune cells to promote fetal development while maintaining maternal-fetal tolerance (PubMed:16366734, PubMed:19304799, PubMed:20448110, PubMed:23184984, PubMed:29262349). Upon interaction with KIR2DL4 and LILRB1 receptors on decidual NK cells, it triggers NK cell senescence-associated secretory phenotype as a molecular switch to promote vascular remodeling and fetal growth in early pregnancy (PubMed:16366734, PubMed:19304799, PubMed:23184984, PubMed:29262349). Through interaction with KIR2DL4 receptor on decidual macrophages induces pro-inflammatory cytokine production mainly associated with tissue remodeling (PubMed:19304799). Through interaction with LILRB2 receptor triggers differentiation of type 1 regulatory T cells and myeloid-derived suppressor cells, both of which actively maintain maternal-fetal tolerance (PubMed:20448110). Reprograms B

cells toward an immune suppressive phenotype via LILRB1 (PubMed:24453251).; [Isoform 6]: Likely does not bind B2M and presents peptides.; [Isoform 7]: Likely does not bind B2M and presents peptides.

Subcellular Localization: [Isoform 1]: Cell membrane ; Single-pass type I membrane protein . Endoplasmic reticulum membrane . Early endosome membrane .; [Soluble HLA class I histocompatibility antigen, alpha chain G]: Secreted .; [Isoform 2]: Cell membrane ; Single-pass type I membrane protein .; [Isoform 3]: Cell membrane ; Single-pass type I membrane protein .; [Isoform 4]: Cell membrane ; Single-pass type I membrane protein .; [Isoform 5]: Secreted . Early endosome .; [Isoform 6]: Secreted .; [Isoform 7]: Secreted .; Cell projection, filopodium membrane . Note=HLA-G trogocytosis from extravillous trophoblast's filopodia occurs in the majority of decidual NK cells.

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.