

HLA-G Protein, Human (HEK293, His)

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| Cat. No.: | HY-P71667 |
| Synonyms: | B2 microglobulin; DADB-15K14.8; HLA 6.0; HLA class I histocompatibility antigen alpha chain G; Major histocompatibility complex class I G; MHC class I antigen; MHC class I antigen G; MHC G; T-cell A locus; TCA |
| Species: | Human |
| Source: | HEK293 |
| Accession: | P17693 (25G-338D) |
| Gene ID: | 3135 |
| Molecular Weight: | Approximately 39.6 kDa |

PROPERTIES

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| AA Sequence | <pre> G S H S M R Y F S A A V S R P G R G E P R F I A M G Y V D D T Q F V R F D S D S A C P R M E P R A P W V E Q E G P E Y W E E E T R N T K A H A Q T D R M N L Q T L R G Y Y N Q S E A S S H T L Q W M I G C D L G S D G R L L R G Y E Q Y A Y D G K D Y L A L N E D L R S W T A A D T A A Q I S K R K C E A A N V A E Q R R A Y L E G T C V E W L H R Y L E N G K E M L Q R A D P P K T H V T H H P V F D Y E A T L R C W A L G F Y P A E I I L T W Q R D G E D Q T Q D V E L V E T R P A G D G T F Q K W A A V V V P S G E E Q R Y T C H V Q H E G L P E P L M L R W K Q S S L P T I P I M G I V A G L V V L A A V V T G A A V A A V L W R K K S S D </pre> |
| Appearance | Lyophilized powder. |
| Formulation | Lyophilized after extensive dialysis against solution in Tris-based buffer, 50% glycerol. |
| Endotoxin Level | <1 EU/μg, determined by LAL method. |
| Reconstitution | It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH ₂ O. |
| Storage & Stability | Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage. |
| Shipping | Room temperature in continental US; may vary elsewhere. |

DESCRIPTION

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| Background | HLA-G, a non-classical major histocompatibility class Ib molecule, plays a crucial role in immune regulation at the maternal-fetal interface. In association with B2M/beta-2 microglobulin, it forms a complex that selectively binds a limited repertoire of nonamer self-peptides derived from intracellular proteins, including histones and ribosomal proteins. This peptide-bound HLA-G-B2M complex acts as a ligand for inhibitory/activating KIR2DL4, LILRB1, and LILRB2 receptors on uterine immune cells, fostering fetal development while maintaining maternal-fetal tolerance. Interactions with KIR2DL4 and LILRB1 |
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receptors trigger NK cell senescence-associated secretory phenotype, promoting vascular remodeling and fetal growth during early pregnancy. Moreover, HLA-G's engagement with LILRB2 induces the differentiation of type 1 regulatory T cells and myeloid-derived suppressor cells, actively contributing to the maintenance of maternal-fetal tolerance. Additionally, HLA-G may play a role in balancing tolerance and antiviral immunity by modulating the effector functions of NK cells, CD8+ T cells, and B cells. Furthermore, it negatively regulates NK cell- and CD8+ T cell-mediated cytotoxicity, highlighting its multifaceted role in immune regulation at the maternal-fetal interface.

Caution: Product has not been fully validated for medical applications. For research use only.

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