

**DESCRIPTION**

<b>Source</b>	Mouse myeloma cell line, NS0-derived Gln21-Lys267, with a C-terminal 6-His tag Accession # Q9HCN6
<b>N-terminal Sequence Analysis</b>	No results obtained: Gln21 predicted
<b>Predicted Molecular Mass</b>	27.7 kDa

**SPECIFICATIONS**

<b>SDS-PAGE</b>	50-55 kDa, reducing conditions
<b>Activity</b>	Measured by its binding ability in a functional ELISA. When cross-linked with 10 µg/mL of cross-linking antibody Mouse Anti-polyHistidine Monoclonal Antibody (Catalog # MAB050), rhGPVI will bind to Collagen I (1 µg/mL, 100 µL/well) with an apparent $K_D$ <40 nM. Optimal dilutions should be determined by each laboratory for each application.
<b>Endotoxin Level</b>	<1.0 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 100 µg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

Glycoprotein VI (GPVI) is a 63 kDa platelet/megakaryocyte-specific type I transmembrane glycoprotein of the immunoglobulin superfamily that is an important collagen receptor and initiator of platelet activation, aggregation and thrombin generation (1, 2). GPVI is also a secondary receptor required for platelet spreading on laminin (3). Human GPVI contains a 20 amino acid (aa) signal sequence, a 247 aa extracellular domain (ECD) that has two C-type Ig-like domains followed by a mucin-like, presumably O-glycosylated Ser-Thr-rich region, a 21 aa transmembrane (TM) domain and a 51 aa cytoplasmic tail that contains calmodulin-binding and SH3 domains. Human GPVI ECD shows 69%, 65% and 70% aa identity with mouse, bovine and canine GPVI ECD, respectively. Two splice variants exist; one is 17 aa shorter in the ECD, while the other diverges at aa 260, creating an inactive monomeric and presumably secreted 681 aa protein (3). GPVI associates with the Fc receptor  $\gamma$ -chain via charged aa in the TM domains of GPVI (arginine) and the FcR $\gamma$  (aspartic acid) (2). Collagen binding by the GPVI Ig-like domains initiates signaling through the FcR $\gamma$  ITAM sequence (2). Dimerization of GPVI (2:2 with FcR $\gamma$ ) and N-glycosylation greatly enhances collagen binding (5, 6). Type I and III collagens are strong thrombus-forming components in the vascular subendothelium and atherosclerotic plaques (7). GPVI initiates binding to fibrillar collagens under flow conditions, then activates integrin  $\alpha_2\beta_1$ , which binds collagen more tightly (8). GPVI deficiencies cause only a mild bleeding tendency, probably because integrin  $\alpha_2\beta_1$  is able to minimally initiate collagen binding (8). Normal human GPVI concentration can vary widely and affect maximum thrombin generation (9). Engagement of GPVI by collagens or other agonists, including autoantibodies, causes calmodulin-regulated metalloproteinase cleavage of the 57 kDa ECD and depletes surface GPVI (10).

**References:**

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