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PRODUCT INFORMATION



Histidine-rich Glycoprotein (human, recombinant)

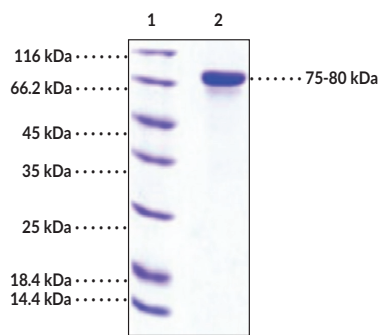
Item No. 37017

Overview and Properties

Synonyms:	Histidine-proline-rich Glycoprotein, HPRG, HRG
Source:	Active recombinant human C-terminal His-tagged histidine-rich glycoprotein expressed in HEK293 cells
Amino Acids:	19-525
Uniprot No.:	P04196
Molecular Weight:	59 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥97% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/μg, determined by the LAL endotoxin assay
Bioactivity:	See figures for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: Histidine-rich Glycoprotein

SDS-PAGE Analysis of Histidine-rich Glycoprotein. This protein has a calculated molecular weight of 59 kDa. It has an apparent molecular weight of approximately 75-80 kDa by SDS-PAGE under reducing conditions due to glycosylation.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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PRODUCT INFORMATION



Description

Histidine-rich glycoprotein is an abundant plasma glycoprotein that is involved in diverse biological processes, including angiogenesis, hemostasis, cell adhesion, and immunity.^{1,2} It is composed of a signal peptide and two cystatin-like regions in the N-terminal domain, a central domain with a histidine-rich region (HRR) and two proline-rich regions (PRRs) on either side, and a C-terminal domain. Histidine-rich glycoprotein is mainly produced by the liver but is also found in platelets and megakaryocytes.^{3,4} It has many binding partners, including IgG, immunoglobulin γ receptor (Fc γ R), and complement 1q (C1q), which bind to the N-terminal domain, zinc, heme, and microbes, which bind to the HRR, heparin and heparan sulfate, which bind to the N-terminal domain and HRR, plasminogen and thrombospondin, which bind to the N-terminal and C-terminal domains, and phospholipids, fibrinogen, and complement components, which have undefined binding regions.² Histidine-rich glycoprotein is also able to bind to various cell types such as T cells, B cells, erythrocytes, endothelial cells, and several cancer types. It modulates macrophage polarization, facilitates the clearance of apoptotic and necrotic cells, promotes antitumor immunity, and has antibacterial and antiviral activities.^{1,2} Overexpression of *HRG* decreases tumor burden, metastasis, hypoxia, and blood vessel density and increases tumor-associated macrophage (TAM) accumulation in several mouse xenograft models.⁵ Increased plasma levels of histidine-rich glycoprotein are associated with the development of post-thrombotic syndrome following a venous thromboembolic event (VTE).⁶ Cayman's Histidine-rich Glycoprotein (human, recombinant) protein can be used for cell-based adhesion assays. This protein consists of 518 amino acids, has a calculated molecular weight of 59 kDa, and a predicted N-terminus of Val19 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 75-80 kDa due to glycosylation.

References

1. Pan, Y., Deng, L., Wang, H., *et al.* Histidine-rich glycoprotein (HRGP): Pleiotropic and paradoxical effects on macrophage, tumor microenvironment, angiogenesis, and other physiological and pathological processes. *Genes Dis.* **9**(2), 381-392 (2022).
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4. Leung, L.L.K., Harpel, P.C., Nachman, R.L., *et al.* Histidine-rich glycoprotein is present in human platelets and is released following thrombin stimulation. *Blood* **62**(5), 1016-1021 (1983).
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6. Siudut, J., Natorska, J., Son, M., *et al.* Increased levels of histidine-rich glycoprotein are associated with the development of post-thrombotic syndrome. *Sci. Rep.* **10**(1), 14419 (2020).

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