

CD16a Protein, Human, Recombinant (F176V, His)

General Information

Synonyms:	FCGR3;Fc gamma R3;FCR-10;FCR3;CD16A;Fc fragment of IgG, low affinity IIIa, receptor (CD16a);IMD20;CD16;FCG3;Fc γ R3;IGFR3
Protein Construction:	A DNA sequence encoding the extracellular domain (Met1-Gln208) of human CD16a (P08637-1, with natural variant Phe 176 Val) was expressed with a C-terminal polyhistidine tag. Predicted N terminal: Gly 17
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P08637-1
Molecular Weight:	23.3 kDa (predicted); 44.2 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	<ol style="list-style-type: none">1. Immobilized Human FcγR3 / CD16a (V176) recombinant protein at 2 μg/mL can bind Human IgG1, the EC50 is 150-450 ng/mL.2. Loaded Human FcγR3 / CD16a (V176) recombinant protein on His1K Biosensor, can bind Bevacizumab (IgG1) with an affinity constant of 0.83 μM as determined in a BLI assay.3. Captured Human FcγR3 / CD16a (V176) recombinant protein on Anti-His Chip can bind Bevacizumab (IgG1) with an affinity constant of 0.31 μM as determined in an SPR assay.4. Captured Bevacizumab (IgG1) on proA Chip can bind Human FcγR3 / CD16a (V176) recombinant protein with an affinity constant of 0.78 μM as determined in an SPR assay.
Purity:	> 95 % as determined by SDS-PAGE. > 95 % as determined by SEC-HPLC
Endotoxin:	< 1.0 EU/ μ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μ m filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

The Fc receptor with low affinity for IgG (FCGR3, or CD16) is encoded by 2 nearly identical genes, FCGR3A and FCGR3B, resulting in tissue-specific expression of alternative membrane-anchored isoforms. FCGR3A, it is also known as CD16a, encodes a transmembrane protein expressed on activated monocytes/macrophages, natural killer (NK) cells, and a subset of T cells. _x000D_

CD16a / FCGR3A is a receptor expressed on NK cells that facilitates antibody dependent cellular cytotoxicity (ADCC) by binding to the Fc portion of various antibodies. CD16a / FCGR3A also has a broader function. CD16a / FCGR3A is directly involved in the lysis of some virus-infected cells and tumor cells by NK cells, independent of antibody binding. Cross-linking of CD16a / FCGR3A on NK cells resulted in increased intracellular Ca²⁺ levels and a cascade of biochemical events similar to those activated by the T cell receptor. CD16a / FCGR3A on human NK cells is a lysis receptor that mediates the direct killing of some virus infected and tumor cells, independent of antibody ligation.

Reference

David Dornan, et al. Effect of FCGR2A and FCGR3A variants on CLL outcome. Blood. 2010 116: 4212-4222

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