

## CD16a Protein, Human, Recombinant (176 Val, His & Avi)

### General Information

Synonyms:	IMD20;FCRIII;Fc gamma RIIIa;FCGRIII;FCR-10;FCRIIIA;IGFR3;FCG3;Fc $\gamma$ RIIIa;Fc fragment of IgG, low affinity IIIa, receptor (CD16a);CD16A;FCGR3;CD16
Protein Construction:	A DNA sequence encoding the extracellular domain (Met 1-Gln 208) of human CD16a (AAH17865.1) was fused with a c-terminal polyhistidine tagged AVI tag at the C-terminus. Predicted N terminal: Gly 17
Species:	Human
Expression Host:	HEK293 Cells
Accession:	AAH17865.1
Molecular Weight:	25.6 kDa (predicted); 46 kDa (reducing condition, due to glycosylation)

### QC Testing

Biological Activity:	Measured by its binding ability in a functional ELISA. Immobilized human CD16a / FCGR3A Protein (176 Val) (His & AVI Tag) at 10 $\mu$ g/ml (100 $\mu$ l/well) can bind biotinylated human IgG1, The EC50 of biotinylated human IgG1 is 0.08-0.18 $\mu$ g/ml.
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 $\mu$ 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:**  
A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

#### 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.

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 Ca<sup>2+</sup> 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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