Data Sheet (Cat.No.TMPY-01981)

TargetMol

CD16a Protein, Human, Recombinant (F176V, His & Avi), Biotinylated

General Information

Synonyms:	IMD20;FCRIIIA;FCG3;Fc fragment of IgG, low affinity IIIa, receptor (CD16a);CD16;CD16A;FCRIII; Fc gamma RIIIa;FCGRIII;FCGR3;FCR-10;IGFR3;Fc γ RIIIa
Protein Construction:	A DNA sequence encoding the extracellular domain (Met1-Gln208) of human CD16a (P08637-1, with natural variant Phe 176 Val) was fused with a c-terminal polyhistidine tagged AVI tag at the C-terminus (AVI-his). The expressed protein was biotinylated in vivo by the Biotin-Protein ligase (BirA enzyme) which is co-expressed. Predicted N terminal: Gly 17
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P08637-1
Molecular Weight:	25.6 kDa (predicted); 48 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	1.Immobilized Biotinylated Human FcγRIIIA / CD16a (V176) recombinant protein (His & Avi Tag) at 10 μg/mL can bind recombinant human IgG1 (Fc) with a linear range of 0.31-5.0 μg/mL. 1.Immobilized Biotinylated Human FcγRIIIA / CD16a (V176) recombinant protein (His & Avi Tag) at 10 μg/mL can bind recombinant human IgG1 (Fc) with a linear range of 0.31-5.0 μg/mL. 2.Loaded Biotinylated Human FcγRIIIA / CD16a (V176) recombinant protein (His & Avi Tag) on SA Biosensor, can bind Bevacizumab (IgG1) with an affinity constant of 3.3 μM as determined in a BLI assay (Sartorius Octet Red384). 3.Loaded Biotinylated Human CD16a (V176) recombinant protein, His Tag on SA Biosensor, can bind Bevacizumab with an affinity constant of 0.74 μM as determined in BLI assay (Sartorius Octet Red384) (Routinely tested).
Purity:	> 95 % as determined by SDS-PAGE. > 95 % as determined by SEC-HPLC
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm 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 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