

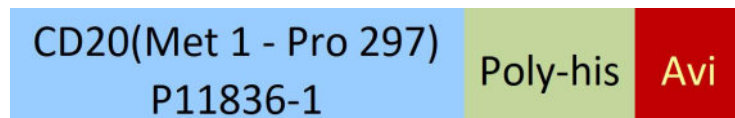
**Synonym**

MS4A1,CD20,MS4A-1

**Source**

Biotinylated Human CD20 Full Length, His,Avitag(CD0-H82E5) is expressed from human 293 cells (HEK293). It contains AA Met 1 - Pro 297 (Accession # [P11836-1](#) ).

Predicted N-terminus: Met 1

**Molecular Characterization**

This protein carries a polyhistidine tag at the C-terminus, followed by an Avi tag (Avitag™)

The protein has a calculated MW of 36.9 kDa. The protein migrates as 44 kDa under reducing (R) condition (SDS-PAGE) due to glycosylation.

**Labeling**

*Biotinylation of this product is performed using Avitag™ technology. Briefly, the single lysine residue in the Avitag is enzymatically labeled with biotin.*

**Protein Ratio**

Passed as determined by the HABA assay / binding ELISA.

**Endotoxin**

Less than 1.0 EU per µg by the LAL method.

\*\*The DDM/CHS buffer (Cat. No. [DC-11](#)) is sold separately and not included in protein, you can follow [this link](#) for product information.

**Purity**

>90% as determined by SDS-PAGE.

**Formulation**

*This product is not suitable for cell based experiments due to cytotoxicity of DDM.*

*DDM and CHS are INDISPENSABLE to keep membrane protein soluble and active, under no circumstance should you remove DDM and CHS.*

*DDM/CHS buffer (DC-11) is sold separately and not included in protein, and please contact us if you need the buffer.*

*If glycerol is not compatible to your application, remove glycerol just before immediate experiment, and NEVER store glycerol-free protein solution.*

Supplied as 0.2 µm filtered solution in 50 mM HEPES, 150 mM NaCl, DDM, CHS, pH7.5 with glycerol as protectant.

Contact us for customized product form or formulation.

**Shipping**

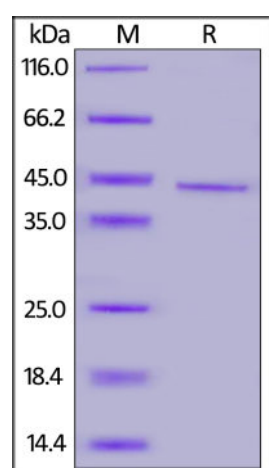
*This product is supplied and shipped as sterile liquid solution with dry ice, please inquire the shipping cost.*

**Storage**

*Please avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

- The product MUST be stored at -70°C or lower upon receipt;
- -70°C for 3 months under sterile conditions.

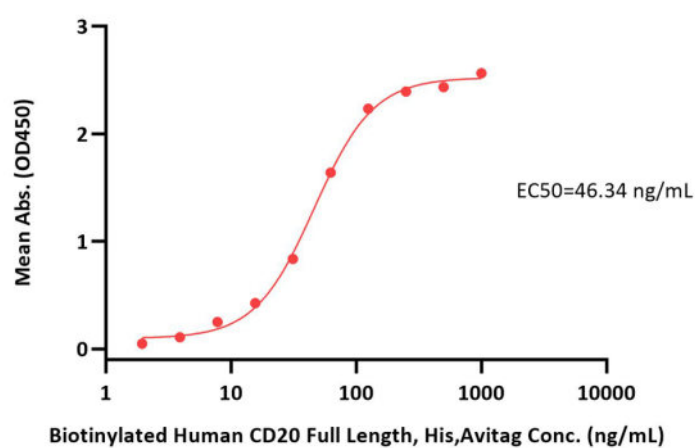
**SDS-PAGE**

Biotinylated Human CD20 Full Length, His,Avitag on SDS-PAGE under reducing (R) condition. The gel was stained overnight with Coomassie Blue.

The purity of the protein is greater than 90%.

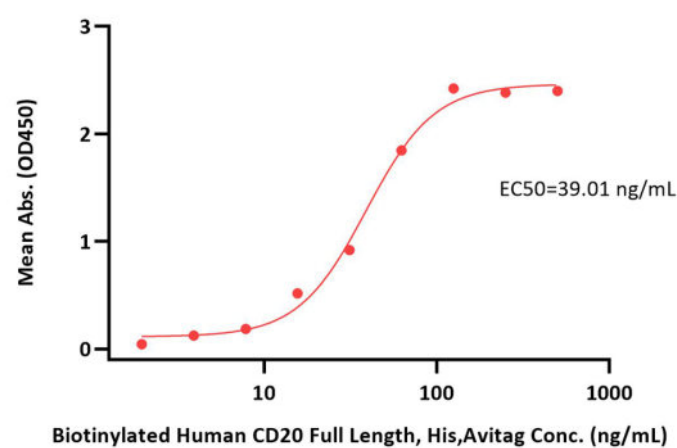
**Bioactivity-ELISA**

Biotinylated Human CD20 Full Length, His,Avitag ELISA  
0.2 µg of Rituximab per well



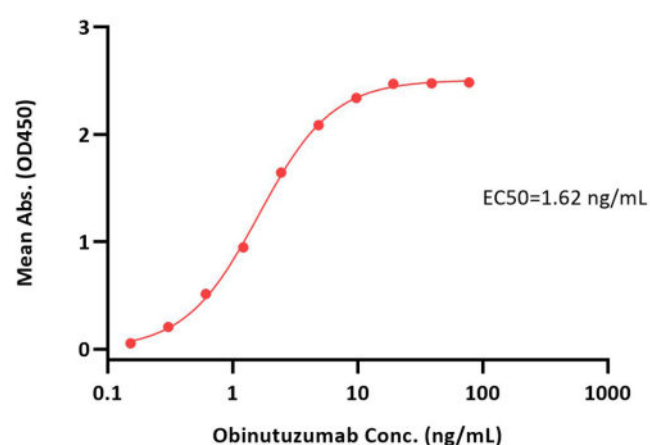
Immobilized Rituximab at 2 µg/mL (100 µL/well) can bind Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) with a linear range of 4-63 ng/mL (in presence of DDM and CHS) (QC tested).

Biotinylated Human CD20 Full Length, His,Avitag ELISA  
0.2 µg of Ofatumumab per well



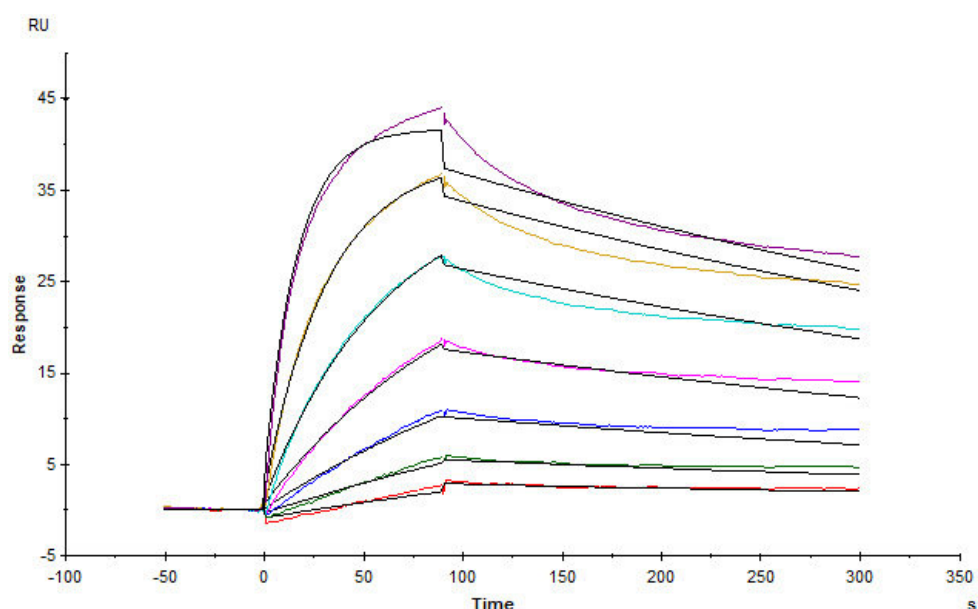
Immobilized Ofatumumab at 2 µg/mL (100 µL/well) can bind Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) with a linear range of 4-63 ng/mL (in presence of DDM and CHS) (QC tested).

Biotinylated Human CD20 Full Length, His,Avitag ELISA  
0.1 µg of Biotinylated Human CD20 Full Length, His,Avitag per well

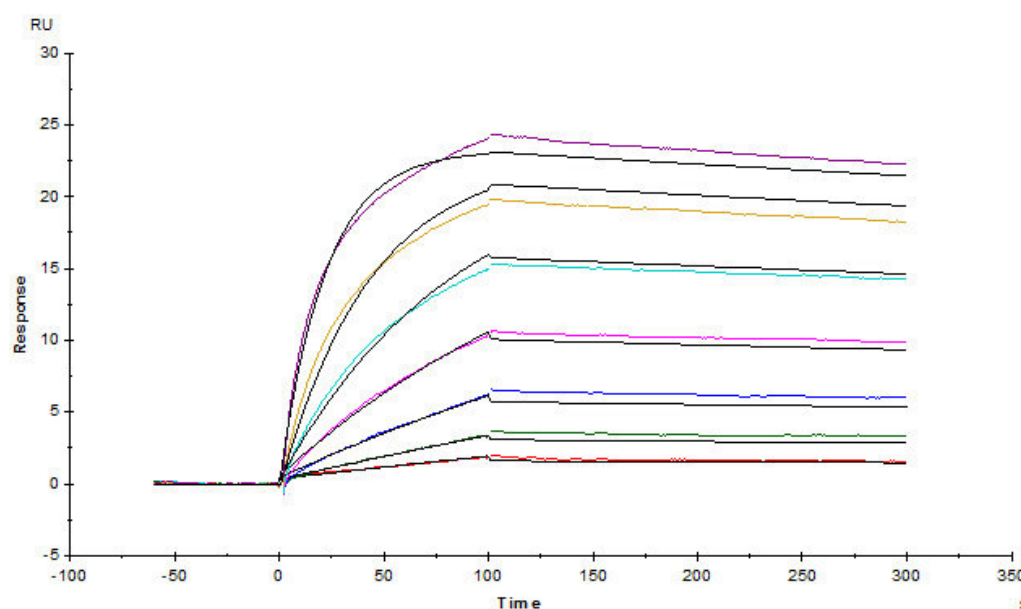


Immobilized Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) at 1 µg/mL (100 µL/well) on streptavidin (Cat. No. STN-N5116) precoated (0.5 µg/well) plate can bind Obinutuzumab with a linear range of 1.2-2 ng/mL (Routinely tested).

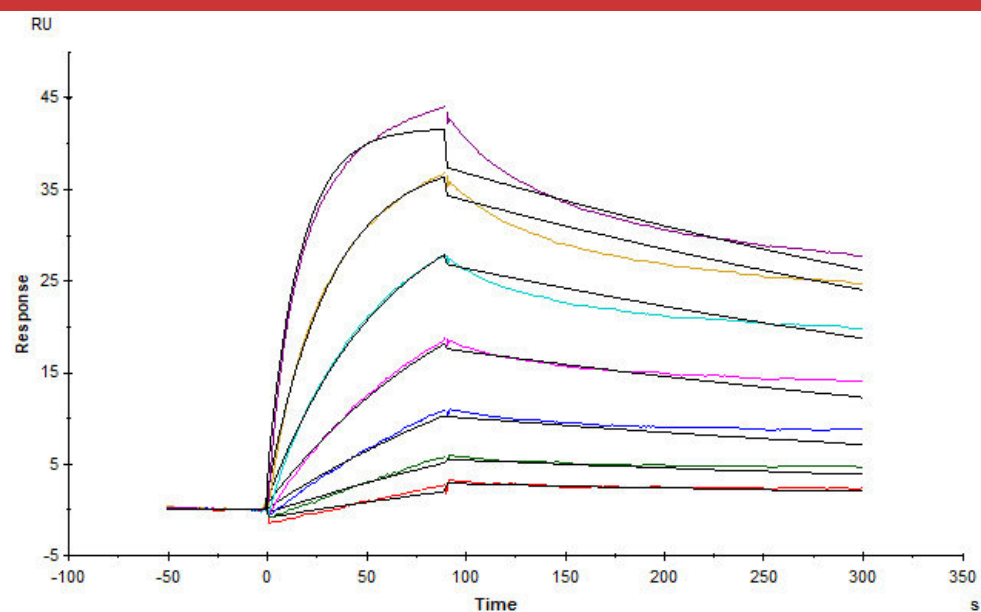
**Bioactivity-SPR**



Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) captured on Biotin CAP-Series S Sensor Chip can bind Rituximab with an affinity constant of 1.73 nM as determined in a SPR assay (in presence of DDM and CHS) (Biacore T200) (QC tested).

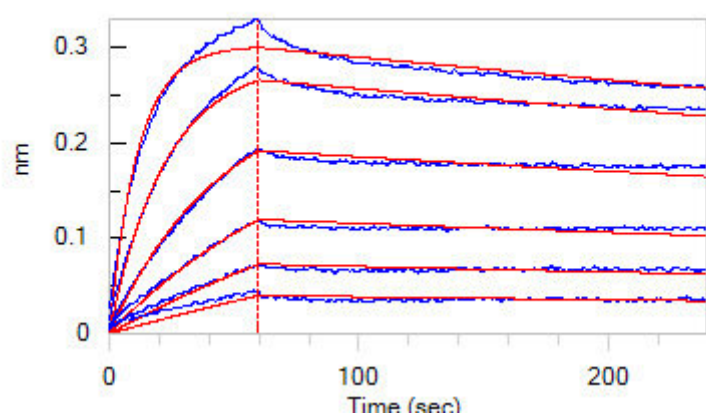


Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) captured on Biotin CAP-Series S Sensor Chip can bind Ofatumumab (Human IgG1) with an affinity constant of 1.03 nM as determined in a SPR assay (in presence of DDM and CHS) (Biacore T200) (QC tested).

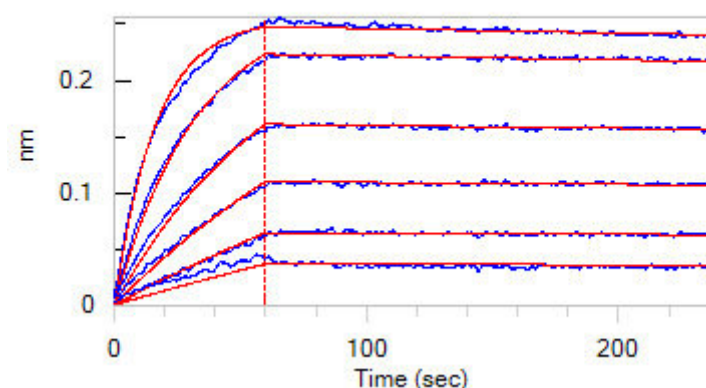


Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) captured on Biotin CAP-Series S Sensor Chip can bind Obinutuzumab with an affinity constant of 0.721 nM as determined in a SPR assay (in presence of DDM and CHS) (Biacore T200) (Routinely tested).

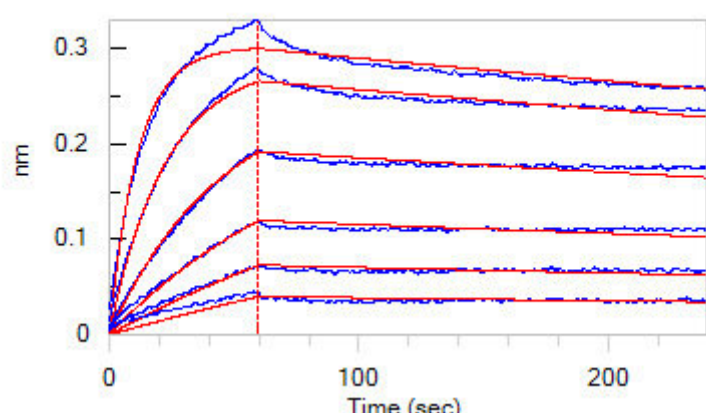
### Bioactivity-BLI



Loaded Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) on SA Biosensor, can bind Rituximab with an affinity constant of 0.247 nM as determined in BLI assay (ForteBio Octet Red96e) (Routinely tested).



Loaded Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) on SA Biosensor, can bind Ofatumumab (Human IgG1) with an affinity constant of 0.277 nM as determined in BLI assay (ForteBio Octet Red96e) (Routinely tested).



Loaded Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E5) on SA Biosensor, can bind Biosimilar of Obinutuzumab with an affinity constant of 0.197 nM as determined in BLI assay (ForteBio Octet Red96e) (Routinely tested).

### Background

B-lymphocyte antigen CD20 is also known as B-lymphocyte surface antigen B1, Leukocyte surface antigen Leu-16, Membrane-spanning 4-domains subfamily A member 1 and MS4A1, is an activated-glycosylated phosphoprotein expressed on the surface of all B-cells beginning at the pro-B phase (CD45R+, CD117+) and progressively increasing in concentration until maturity. CD20 is expressed on all stages of B cell development except the first and last; it is present from late pro-B cells through memory cells, but not on either early pro-B cells or plasma blasts and plasma cells. It is found on B-cell lymphomas, hairy cell leukemia, B-cell chronic lymphocytic leukemia, and melanoma cancer stem cells. The protein has no known natural ligand and its function is to enable optimal B-cell immune response, specifically against T-independent antigens. It is suspected that it acts as a calcium channel in the cell membrane. CD20 / MS4A1 is the target of the monoclonal antibodies (mAb) rituximab, Ibritumomab tiuxetan, and tositumomab, which are all active agents in the treatment of all B cell lymphomas and leukemias. Defects in CD20 / MS4A1 are the cause of immunodeficiency common variable type 5 (CVID5); also called antibody deficiency due to CD20 defect. CVID5 is a primary immunodeficiency characterized by antibody deficiency, hypogammaglobulinemia, recurrent bacterial infections and an inability to mount an antibody response to antigen.

### **Clinical and Translational Updates**

Please contact us via [TechSupport@acrobiosystems.com](mailto:TechSupport@acrobiosystems.com) if you have any question on this product.