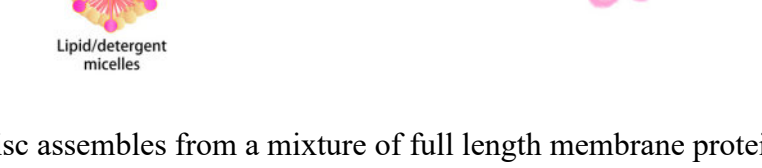
Synonym

MS4A1,CD20,MS4A-1

Source

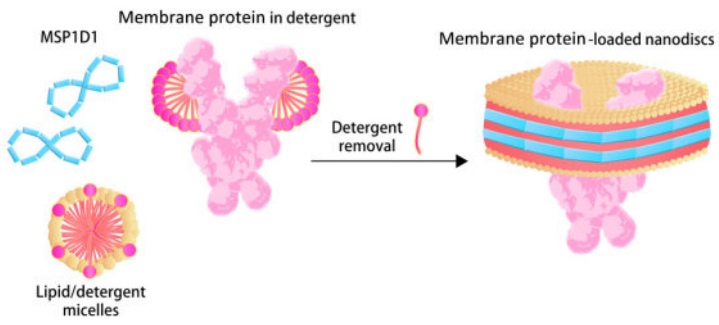
Biotinylated Human CD20 Full Length, His,Avitag(CD0-H82E3) is expressed from human 293 cells (HEK293). It contains AA Met 1 - Pro 297 (Accession # P11836-1).
Predicted N-terminus: Met 1

Molecular Characterization



The CD20 carries a polyhistidine tag at the C-terminus followed by an Avi tag with calculated MW of 36.9 kDa and migrates as 43 kDa when calibrated against Star Ribbon Pre-stained Protein Marker under reducing (R) condition (SDS-PAGE) due to glycosylation. The membrane scaffold protein (MSP1D1) has calculated MW of 24.7 kDa, and it migrates as 25 kDa under reducing (R) condition (SDS-PAGE).

Nanodiscs are a new class of model membranes that are being used to solubilize and study a range of integral membrane proteins and membrane-associated proteins. The Nanodisc bilayer is bounded by a membrane scaffold protein (MSP1D1) coat that confers enhanced stability and a narrow particle size distribution.



The nanodisc assembles from a mixture of full length membrane protein in detergent, phospholipid micelles and membrane scaffold protein(MSP1D1) upon removal of the detergent.

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 isotype control of empty/mock nanodisc (Cat. No. APO-H81Q5) is sold separately and not included in protein, you can follow this link for product information.

Purity

>90% as determined by SDS-PAGE.

Formulation

Supplied as 0.2 μm filtered solution in 20 mM HEPES, 150 mM NaCl, pH7.5 with trehalose as protectant.

Contact us for customized product form or formulation.

Shipping

This product is supplied and shipped with dry ice, please inquire the shipping cost.

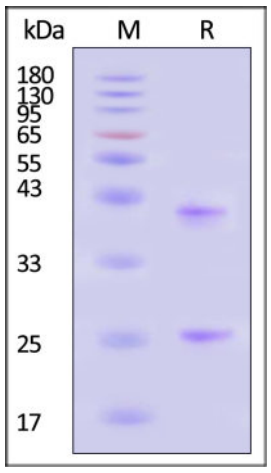
Storage

Please avoid repeated freeze-thaw cycles.

This product is stable after storage at:

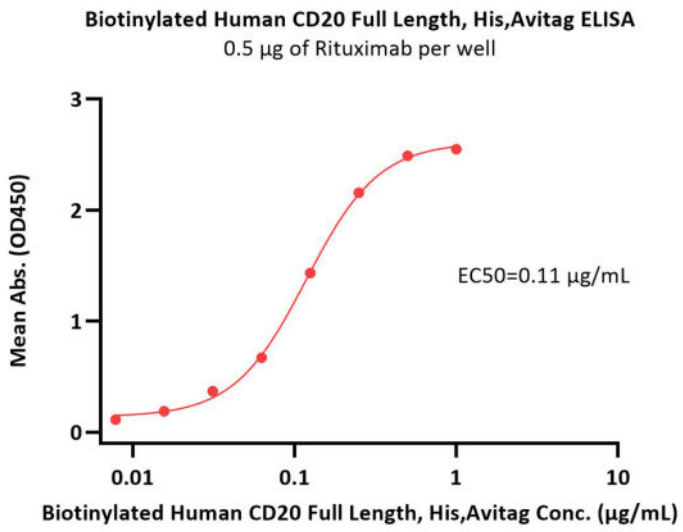
- The product MUST be stored at -70°C or lower upon receipt;
- -70°C for 3 months under sterile conditions.

SDS-PAGE



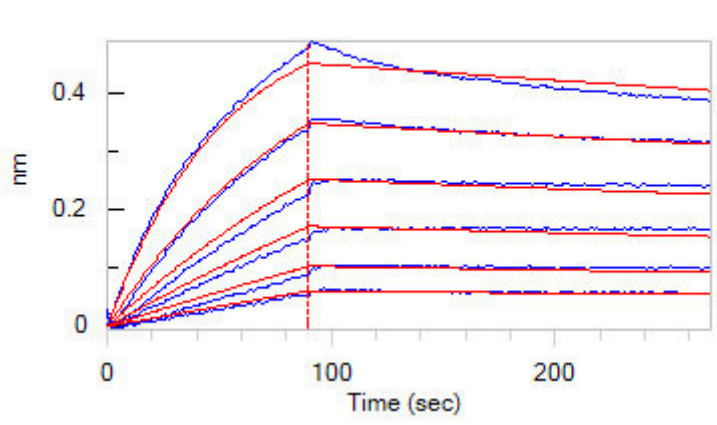
Biotinylated Human CD20 Full Length, His,Avitag on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 90% (With Star Ribbon Pre-stained Protein Marker).

Bioactivity-ELISA



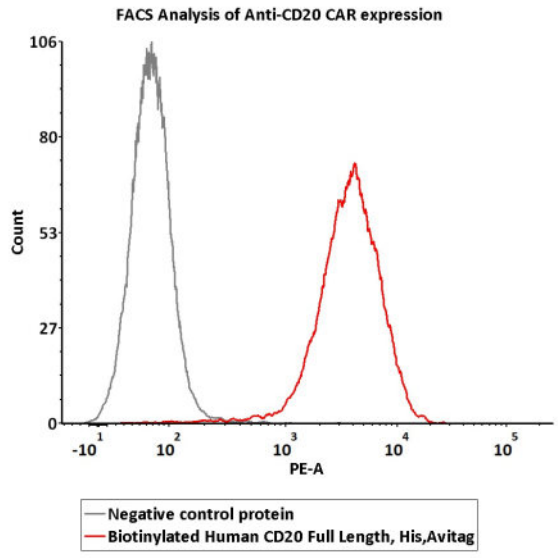
Immobilized Rituximab biosimilar at 5 μg/mL (100 μL/well) can bind Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E3) with a linear range of 2-62.5 ng/mL (QC tested).

Bioactivity-BLI



Loaded Rituximab on Protein A Biosensor, can bind with Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E3) an affinity constant of 31.3 nM as determined in BLI assay (ForteBio Octet Red96e) (Routinely tested).

Bioactivity-FACS



2e5 of anti-CD20 CAR-293 cells were stained with 100 μL of 3 μg/mL of Biotinylated Human CD20 Full Length, His,Avitag (Cat. No. CD0-H82E3) and negative control protein respectively, washed and then followed by PE-SA and analyzed with FACS (QC 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