

**DESCRIPTION**

<b>Source</b>	Chinese Hamster Ovary cell line, CHO-derived human Siglec-2/CD22 protein			
	Human Siglec-2/CD22 (Asp20-Arg687) Accession # CAA42006.1	IEGRMD	Human IgG <sub>1</sub> (Pro100-Lys330)	Avi-tag
	N-terminus		C-terminus	
<b>N-terminal Sequence Analysis</b>	Asp20			
<b>Structure / Form</b>	Disulfide-linked homodimer, biotinylated via Avi-tag			
<b>Predicted Molecular Mass</b>	104 kDa			

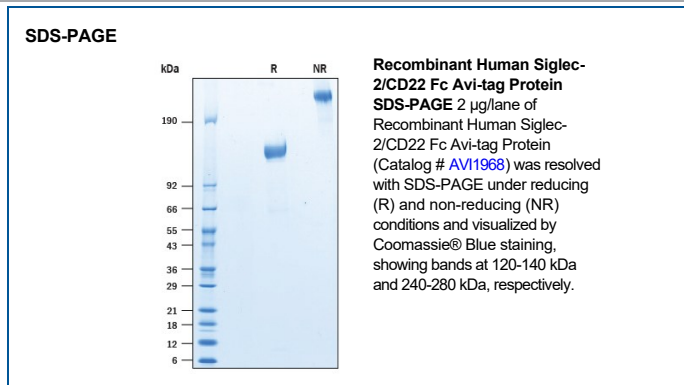
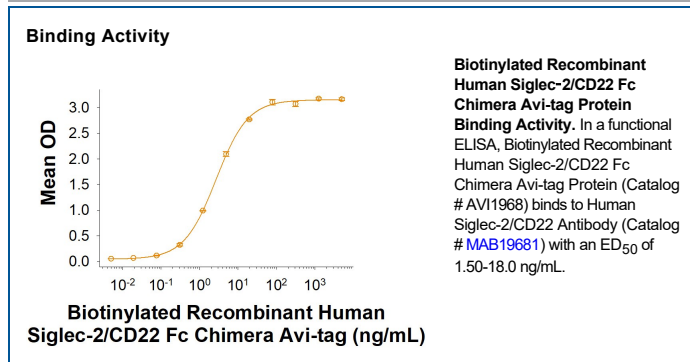
**SPECIFICATIONS**

<b>SDS-PAGE</b>	120-140 kDa, under reducing conditions.
<b>Activity</b>	Measured by the ability of the immobilized protein to support the adhesion of human red blood cells. Kelm, S. <i>et al.</i> (1994) Current Biology 4:965. The ED <sub>50</sub> for this effect is 0.1-0.9 µg/mL.  Measured by its binding ability in a functional ELISA. Biotinylated Recombinant Human Siglec-2/CD22 Fc Chimera Avi-tag (Catalog # AVI1968) binds to Human Siglec-2/CD22 Antibody (Catalog # MAB19681) with an ED <sub>50</sub> of 1.50-18.0 ng/mL.
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 500 µg/mL in PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**DATA**



**BACKGROUND**

Sialic acid-binding immunoglobulin-like lectin 2 (Siglec-2), also known as B-cell receptor CD22 or B-lymphocyte cell adhesion molecule (BL-CAM), is a I-type (Ig-type) lectin belonging to the sialoadhesin subclass of the immunoglobulin superfamily (1). Fourteen human and nine mouse Siglecs have been characterized and are divided into 2 families: CD33 related and evolutionarily conserved (2, 3). The extracellular domain (ECD) of Siglecs are characterized by an N-terminal Ig-like V-type domain, which mediates sialic acid binding, followed by varying numbers of Ig-like C2-type domains (1-3). The predominant form of human Siglec-2 contains a N-terminal Ig-like V-type domain, six Ig-like C2-type domains, a transmembrane region and a cytoplasmic tail with six tyrosine residues and four immunoreceptor tyrosine-based inhibition motifs (ITIMs) (1-3). A variant form of Siglec-2 missing two Ig-like C2-type domains along with a truncated cytoplasmic tail has also been identified (4). The mature ECD of human Siglec-2 shares 59% and 58% amino acid sequence identity with mouse and rat Siglec-2, respectively. Siglec-2 is an adhesion molecule that preferentially binds alpha 2,6- linked sialic acid on the same (cis) or adjacent (trans) cells (5). Besides its role as an adhesion molecule, Siglec-2 is a coreceptor that physically interacts with B-cell receptor (BCR), negatively regulating BCR signals by recruiting tyrosine phosphatase SHP-1 to its ITIMs. Phosphorylated Siglec-2 can also interact with other intracellular effector proteins such as Syk, PLC gamma, PI3 kinase and Grb-2, suggesting it may play a role in positive signaling (2). Another function of Siglec-2 is that it mediates the anti-phagocytic effect of  $\alpha$ 2,6-linked sialic acid, and inhibition of Siglec-2 promotes the clearance of myelin debris, amyloid- $\beta$  oligomers and  $\alpha$ -synuclein fibrils *in vivo* (6). Siglec-2 also plays a role in autoimmunity and has great potential for Siglec-2-based immunotherapeutics for the treatment of autoimmune diseases such as systemic lupus erythematosus (SLE) (7). Our Avi-tag Biotinylated Recombinant Human Siglec-2 features biotinylation at a single site contained within the Avi-tag, a unique 15 amino acid peptide. Protein orientation will be uniform when bound to streptavidin-coated surface due to the precise control of biotinylation and the rest of the protein is unchanged so there is no interference in the protein's bioactivity.

**References:**

1. Sato, S. *et al.* (1996) *Immunity*. **5**:551.
2. Crocker, P.R. and A. Varki (2001) *Trends Immunol.* **22**:337.
3. Macauley, M.S. *et al.* (2014) *Nature Rev Imm.* **14**:653.
4. Stamenkovic, I. and B. Seed (1990) *Nature* **345**:74.
5. Collins, B.E. *et al.* (2004) *Proc. Natl. Acad. Sci.* **101**:6104.
6. Pluinage, J.V. *et al.* (2019) *Nature*. **568**:7751.
7. Clark, E.A. *et al.* (2018) *Front Immunol.* **9**:2235.