

## Siglec-2/CD22 Protein, Rat, Recombinant (His)

### General Information

Synonyms:	CD22 molecule
Protein Construction:	A DNA sequence encoding the rat Cd22 (NP_001100973.1) (Met1-Arg692) was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: Trp 24
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	A6JA30
Molecular Weight:	76.7 kDa (predicted)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 95 % as determined by SDS-PAGE.
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

CD22 is a member of the immunoglobulin superfamily, SIGLEC family of lectins. It is first expressed in the cytoplasm of pro-B and pre-B cells, and on the surface as B cells mature to become IgD+. CD22 serves as an adhesion receptor for sialic acid-bearing ligands expressed on erythrocytes and all leukocyte classes. In addition to its potential role as a mediator of intercellular interactions, signal transduction through CD22 can activate B cells and modulate antigen receptor signaling in vitro. The phenotype of CD22-deficient mice suggests that CD22

is primarily involved in the generation of mature B cells within the bone marrow, blood, and marginal zones of lymphoid tissues. CD22 recruits the tyrosine phosphatase Src homology 2 domain-containing phosphatase 1 (SHP-1) to immunoreceptor tyrosine-based inhibitory motifs (ITIMs) and inhibits B-cell receptor (BCR)-induced Ca<sup>2+</sup> signaling on normal B cells. CD22 interacts specifically with ligands carrying alpha2-6-linked sialic acids. As an inhibitory coreceptor of the B-cell receptor (BCR), CD22 plays a critical role in establishing signalling thresholds for B-cell activation. Like other coreceptors, the ability of CD22 to modulate B-cell signalling is critically dependent upon its proximity to the BCR, and this in turn is governed by the binding of its extracellular domain to alpha2,6-linked sialic acid ligands. However, genetic studies in mice reveal that some CD22 functions are regulated by ligand binding, whereas other functions are ligand-independent and may only require expression of an intact CD22 cytoplasmic domain at the B-cell surface. CD19 regulates CD22 phosphorylation by augmenting Lyn kinase activity, while CD22 inhibits CD19 phosphorylation via SHP-1. Cancer Immunotherapy/Immune Checkpoint Immunotherapy/Targeted Therapy

### Reference

- Tedder TF, et al. (1997) CD22, a B lymphocyte-specific adhesion molecule that regulates antigen receptor signaling. *Annu Rev Immunol.* 15: 481-504.
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- Fujimoto M, et al. (2007) B cell signaling and autoimmune diseases: CD19/CD22 loop as a B cell signaling device to regulate the balance of autoimmunity. *J Dermatol Sci.* 46(1): 1-9.
- Walker JA, et al. (2008) CD22: an inhibitory enigma. *Immunology.* 123(3): 314-25.
- Nitschke L. (2009) CD22 and Siglec-G: B-cell inhibitory receptors with distinct functions. *Immunol Rev.* 230(1): 128-43.

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