

## DESCRIPTION

**Source** Mouse myeloma cell line, NS0-derived  
Ser22-Ser301, with a C-terminal 6-His tag  
Accession # AAH03786

**N-terminal Sequence** Ser22

## Analysis

**Predicted Molecular Mass** 32.3 kDa

## SPECIFICATIONS

**SDS-PAGE** 45-47 kDa, reducing conditions

**Activity** Measured by its binding ability in a functional ELISA.  
When Recombinant Mouse FCRN is immobilized at 0.5 µg/mL (100 µL/well), the concentration of human IgG that produces 50% of the optimal binding response is found to be approximately 2-10 µg/mL.

**Endotoxin Level** <0.10 EU per 1 µg of the protein by the LAL method.

**Purity** >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**Formulation** Lyophilized from a 0.2 µm filtered solution in PBS, NaCl and Triton See Certificate of Analysis for details.

## PREPARATION AND STORAGE

**Reconstitution** Reconstitute at 250 µg/mL in PBS.

**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

## BACKGROUND

The neonatal Fc receptor (FCRN) is an approximately 45 kDa transmembrane glycoprotein with structural homology to MHC class I proteins. It is widely expressed in endothelial and epithelial cells and plays an important role in IgG homeostasis (1). Mature mouse FCRN consists of a 276 amino acid (aa) extracellular domain (ECD) with two N-terminal alpha domains, one α/immunoglobulin-like domain, a 24 aa transmembrane segment, and a 44 aa cytoplasmic domain (2). Within the ECD, mouse FCRN shares 69% and 91% aa sequence identity with human and rat FCRN, respectively. Mouse FCRN binds with high affinity to IgG from mouse, human, rat, rabbit, guinea pig, bovine, and sheep, while human FCRN binds IgG with significantly lower affinity and is much more restricted in terms of species recognition (3). It does not bind the structurally related chicken IgY (4). FCRN additionally binds to albumin, and both it and IgG are bound at pH 5.0 but not at pH 8.0 (2, 5). FCRN associates noncovalently with beta 2-Microglobulin, and this interaction is important for the intracellular trafficking of FCRN (6 - 9). FCRN cycles between the plasma membrane and acidified intracellular compartments of endothelial cells and epithelial cells (4, 7). It binds endocytosed IgG and albumin in the low pH vesicles and transports them to the plasma membrane for extracellular release at higher pH. This protects IgG and albumin from lysosomal degradation and helps maintain the circulating levels of both proteins (4, 5). This mechanism is involved in the bidirectional transport of IgG across epithelial and endothelial barriers including neonatal IgG absorption in the intestine and fetal uptake of maternal antibodies through the placenta (4, 7, 10, 11). In the kidney, FCRN recycles albumin to the serum but removes IgG from the glomerular basement membrane and promotes its excretion into the urine (12, 13). FCRN is also expressed in neutrophils and myeloid antigen presenting cells (6, 14, 15). It can enhance IgG-mediated phagocytosis and antigen presentation by these cells, but it promotes the degradation of opsonizing IgG rather than returning it to the circulation (14, 15).

## References:

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