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Application Note

Recombinant Mouse IgG

Introduction to HAMA blocker performance

Recombinant mouse immunoglobulin (mouse IgG) prevents human anti-mouse antibodies from binding to the capture or detection antibodies in an immunoassay. It is a novel and sustainable replacement blocking solution to serum-derived mouse IgG, providing manufacturers with a tightly controlled, non-animal derived antibody to efficiently reduce nonspecific interference in immunoassays. Recombinant mouse IgG improves lot reproducibility and test accuracy while simplifying import regulations and reducing mouse serum supply risks.

Construction of a recombinant mouse IgG blocker establishes high levels of consistency and reproducibility between lots while maintaining high specificity and affinity through stringent clonal selection. The recombinant antibody blocker is offered in two proprietary IgG subclass blend combinations to consider and optimize for best performance results within an immunoassay. Blend B1 is similar to the mouse IgG derived from serum with passive blocking capability to eliminate interfering anti-mouse antibodies. Blend B2 is designed in a similar formulation as B1 but with targeted antibody blocking capability. The formulas are both designed to deliver equivalent or better blocking efficiency compared to serum-derived mouse IgG.

The value of recombinant mouse IgG over serum HAMA blockers

IVD assay manufacturers currently use large volumes of mouse IgG in their immunoassay protocols to block the interference caused by Human Anti-Mouse Antibodies (HAMA) in patient samples. This interference is caused by the interaction of HAMA with the detection and capture antibodies in the assay that can cause false positive or false negative test results **(Figure 1)** and ultimately lead to higher background signal or lower specificity and sensitivity.

How Interfering Antibodies Impact Results

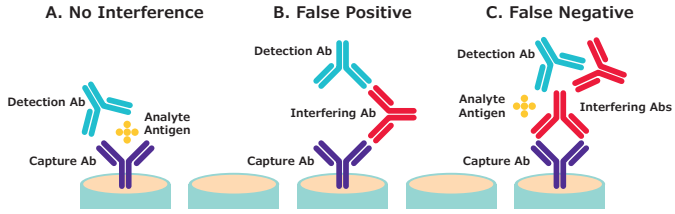

Figure 1:

A. Normal sandwich assay with no antibody interference.

B. False positive result with the interfering antibody (Ab) forming a bridge between the detection and capture Abs instead of the analyte/antigen.

C. False negative result where the interfering Ab binds to the detector or capture Abs, prohibiting the target analyte from binding correctly.

Traditional serum derived HAMA blockers are complex and variable natural solutions that are animal intensive to produce. Engineered HAMA blockers such as the recombinant mouse IgG B1 and recombinant mouse IgG B2 are less complex, animal-free solutions that precisely and consistently prevent binding of HAMA to assay components **(Figure 2)**.

How Recombinant Mouse IgG Blocking Antibodies Prevent False Results

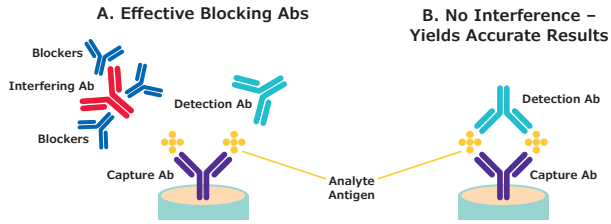

Figure 2: Blocking antibodies neutralize the interfering antibodies present in serum samples resulting in accurate binding of the analyte of interest by the capture and detection antibodies.

HAMA blocker assay method

Recombinant mouse IgG B1 and B2 and serum-derived mouse IgG were tested using a HAMA ELISA Kit and HAMA serum. All materials were warmed to room temperature prior to use. Each mouse IgG sample was incubated with HAMA serum at room temperature for one hour before being applied to an ELISA plate.

Recombinant mouse IgG performance

The recommended starting concentration of the recombinant mouse IgG B1 and B2 formulations in immunoassays is 1mg/mL but results will vary for each application and test method. In-house tests comparing recombinant mouse IgG B1 and B2 demonstrate the products are as effective as native mouse serum IgG **(Figure 3)**. At lower concentrations the recombinant mouse IgG B1 and B2 display greater effectivity than the native mouse serum IgG. In-house testing also shows that in an ELISA platform at a concentration of 1 mg/mL, the recombinant mouse IgG B1 and B2 are comparable with competitor products including active HAMA blocker blends. Where possible, the competitor samples were standardized to 1 mg/mL **(Figure 4)**.

Conclusions on recombinant mouse IgG HAMA blockers

Recombinant mouse IgG B1 and recombinant mouse IgG B2 show improved blocking capability over native serum IgG and are comparable with competitor products including active HAMA blockers in our in-house testing studies. They are sustainable, animal-free blocking solutions that reduce nonspecific antibody interference within immunoassays. Recombinant IgG production allows for consistent blocking antibody performance and reliable supply-chain making it an ideal model to support robust immunoassay manufacturing specifications.

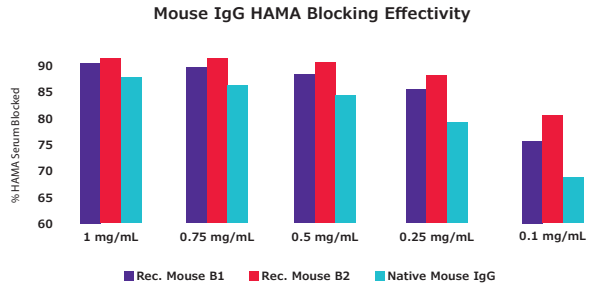

Figure 3: Comparison of HAMA blocking effectiveness between recombinant mouse IgG B1 and B2 and serum-derived mouse IgG

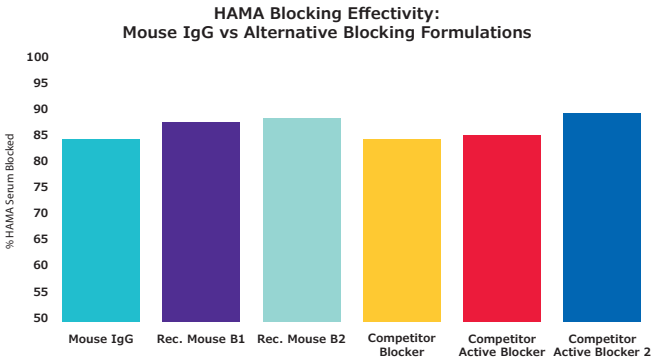

Figure 4: Comparison of HAMA blocking effectiveness between recombinant mouse IgG B1 and B2, serum-derived mouse IgG, and competitor blockers in ELISA.

Ordering Information

Description	Pack Size
Recombinant Mouse IgG B1	
ZP-10MG-PUR	10 MG
ZP-100MG-PUR	100 MG
ZP-1G-PUR	1 G
ZP-5G-PUR	5 G
Recombinant Mouse IgG B2	
ZZ-10MG-PUR	10 MG
ZZ-100MG-PUR	100 MG
ZZ-1G-PUR	1 G
ZZ-5G-PUR	5 G

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