



PERFINITY
BIOSCIENCES

APPLICATION NOTES

Perfinity Mag G

Made with Proteins in Mind

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Introduction

Perfinity Mag G enables simplified enrichment of target proteins by immunoprecipitation or pull-down applications. Made with proteins in mind, Perfinity Mag G beads have been tested and designed with both proteins and peptides specifically to achieve the highest loading capacity and lowest non-specific binding for proteomics applications. Antibodies immobilized to Mag G beads can be used to capture target proteins, after which magnetic handling can be used for rapid, easy cleanup. Additionally, Mag G beads can be used for the enrichment of antibodies from complex matrices. The beads have been optimized for rapid handling and results obtained are highly reproducible.

Mag G is...

- Easy to use
- High loading capacity
- Low non-specific binding
- Rapid handling
- Reproducible

The isolation of proteins from complex matrices is critical to effective detection at low abundances. While instrumentation for protein analysis has improved in sensitivity, many critical biomarkers and compounds of interest are still found at levels below the detectable range without the application of an enrichment step, such as biomarkers for cancer, diabetes, and Alzheimer's disease. Many magnetic beads exhibit significant non-specific binding in order to obtain high protein load capacity, leaving samples with more background noise that limits lower levels of detection. Mag G utilizes a proprietary magnetic bead technology and Protein G in order to bind antibodies, whether for their direct capture or for the subsequent cross-linking and capture of the protein of interest with both high capacity and low non-specific binding.

Easy to use

Mag G beads are large (approx 20 μ m dia.) and superparamagnetic. They clear rapidly when a magnetic field is applied and can be pulled to the side of the tube for ease of pipetting, more complete washing of the beads, and applications involving very small volumes. Afterwards they easily resuspend for further capture, washing, or elution.

High loading capacity

Perfinity Mag G has a binding capacity of at least 10 μ g /15 μ L (750 μ g) of beads. After washing, the beads remaining in the tube are >1% captured antibody.

Low non-specific binding

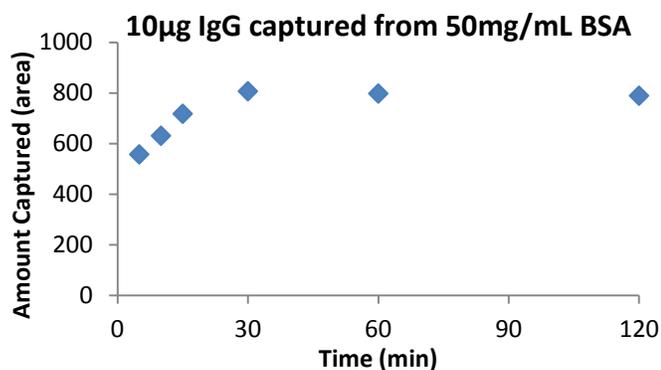
Perfinity Mag G beads have been intentionally and extensively optimized for low non-specific binding. Both whole protein retention and peptide retention with multiple proteins and peptides have been tested to ensure minimal post-purification contamination.

Rapid handling

Binding of antibody occurs in less than 30 minutes in simple or complex matrices. This is seen in the figure beside using 50 mg/mL BSA as a surrogate matrix. The magnetic beads are highly responsive and clear from the solution in seconds for rapid washing.

Reproducible

Every lot of Mag G beads is tested for responsiveness and loading capacity. Binding and elution tests show CVs of <3% between samples.



Cross-linking

If you are using an antibody bound to Mag G beads to capture your protein of interest from a matrix which also contains antibodies, it is advised that the capture antibody be cross-linked to the beads to prevent its exchange with native antibodies during protein capture. The cross-linking protocol below is one of numerous published methods that may be used for this purpose.

After loading, incubate the beads with antibody cross-linking solution (12 mg/mL DSS in 100 mM TEA, 0.25-5 mM DSS in DMF or DMSO, or 0.25-5 mM BS³ in water or 20 mM sodium phosphate buffer; DSS & BS³ reactions require a 5-10 minute quench with 20-50 mM Tris buffer) for 45-60 minutes. Follow incubation with a 10 mM TBS pH=7.4 wash. As with all cross-linking protocols, actual times may vary by antibody and linker and should be verified by the user.

Conclusion

There are many magnetic bead types on the market today with a variety of adaptations and for a variety of applications. Perfinity Mag G beads are made specifically with the necessary criteria for high quality proteomics workflows in mind, making them the perfect fit for the proteomics lab.

Ordering Information

www.perfinity.com/Mag-Beads

www.perfinity.com

Toll free phone: 888.775.1026

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