

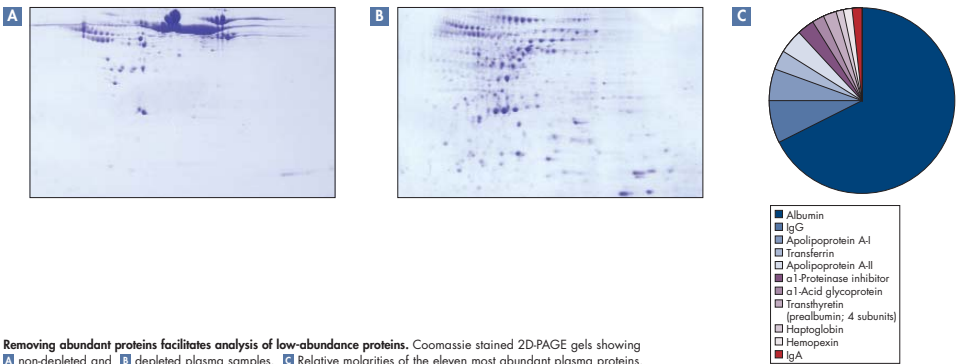
Medium- and high-throughput depletion using the QIAcube instrument and a 96-well format



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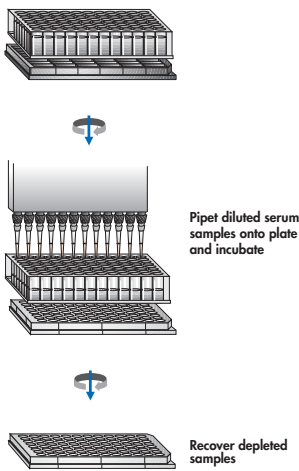
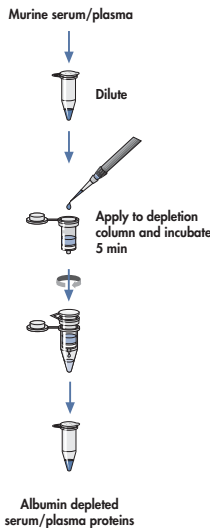
Introduction

- Body fluids, such as serum and plasma, are widely used in clinical research and diagnostic procedures. A major problem in analyzing the makeup of these samples is the huge dynamic range of concentrations of their constituent proteins.
- Highly abundant proteins such as albumin and immunoglobulins, which can constitute up to 60% and 40% of the total blood proteins respectively, can mask or swamp spots/signals from lower-abundance proteins.
- We set out to develop solutions for automated and high-throughput depletion of albumin and IgG from serum and plasma. Our goals were to increase convenience, throughput, and reproducibility in preparing protein samples for further analysis.



Simple procedures

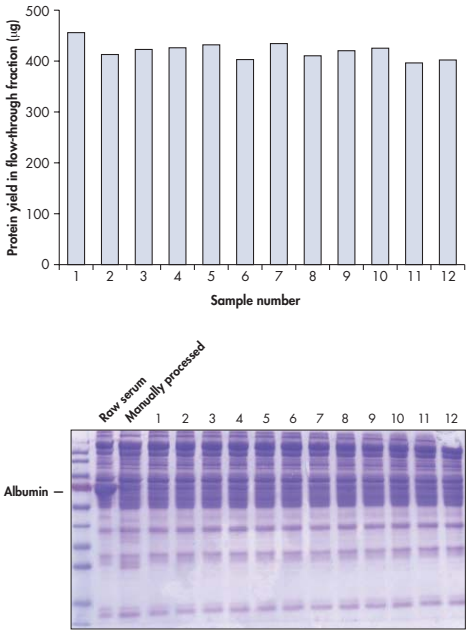
Albumin Depletion Procedure



Reproducible, automated depletion using the QIAcube

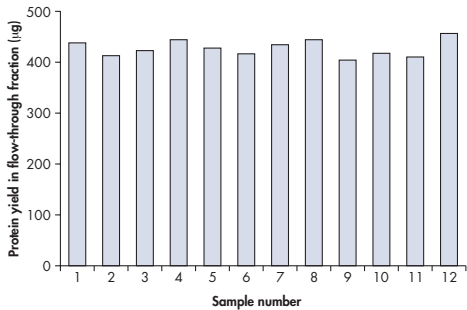
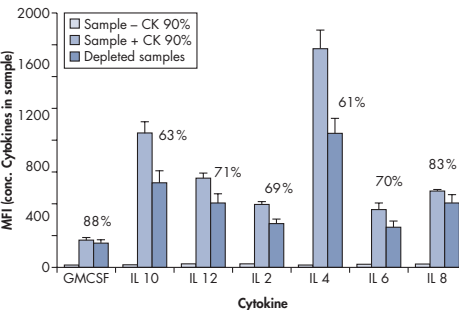
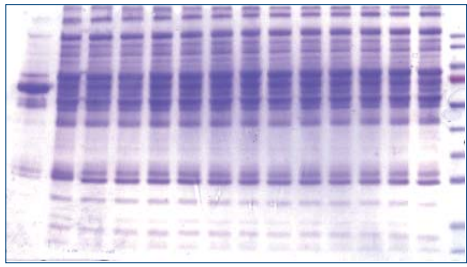


- Twelve rat serum samples (30 µl) were processed simultaneously using the Murine Albumin Depletion Kit and the QIAcube.
- The fully automated procedure delivered highly reproducible yields of depleted serum proteins (Average total yield = 420 µg, CV = 4.0%).
- Efficiency of depletion was comparable to that seen in a manual procedure.



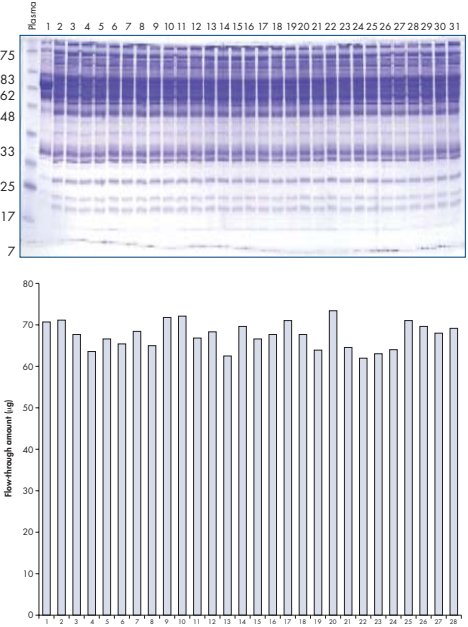
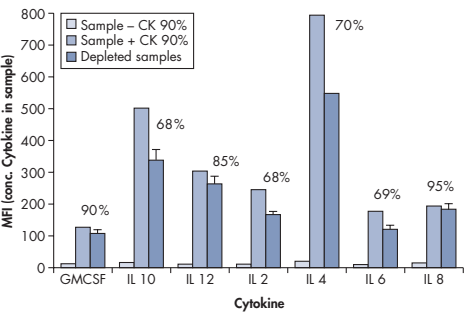
Reproducible, automated depletion using the QIAcube II

- Twelve 30 µl human serum samples were spiked with 900 pg of seven different cytokines, diluted, and simultaneously processed using the Albumin/IgG Depletion Kit and the QIAcube.
- The fully automated procedure delivered highly reproducible yields of depleted serum proteins (Average total yield = 430 µg, CV = 3.7%).
- Recoveries of the spiked cytokines ranged from 61% to 88%.



High-throughput depletion in 96-well format

- 28 human serum samples (5 µl) were spiked with 100 pg of seven different cytokines, diluted, and processed on a Qproteome Albumin/IgG Depletion Plate.
- The procedure delivered highly reproducible yields of depleted serum proteins (Average total yield = 70 µg, CV = 4.6%).
- Recoveries of the spiked cytokines ranged from 68% to 95%.



Conclusions

Qproteome Albumin/IgG Depletion Kits and plates provide:

- A standardized kit-based solution for serum and albumin depletion
- Efficient removal of human albumin and IgG to facilitate analysis of less-abundant proteins
- Highly specific depletion through use of immobilized monoclonal antibodies

Automating depletion on the QIAcube enables:

- Walkaway processing of serum or plasma samples
- Highly reproducible procedure (CV = <4%)
- Efficiencies comparable to the manual procedure
- Simultaneous processing of 12 samples in less than 30 minutes

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