Agilent Multiple Affinity Removal System (MARS) and Proteomics Reagents

Applications

– LC/MS analysis of biological samples

– Preparation for electrophoretic analysis

– Sample preparation for biomarker discovery

– Instrument and workflow validation

– Cost-effective immunodepletion

– Sample desalting, concentration, and fractionation

Figure 1. Multiple Affinity Removal column and spin cartridges.

Introduction

In order to more easily isolate and identify proteins in biological samples, such as serum, plasma, and cerebro-spinal fluid (CSF), the Agilent Multiple Affinity Removal System is designed to chromatographically eliminate interfering high-abundance proteins from biological samples. Removal of these abundant proteins improves the subsequent LC/MS and electrophoretic analysis of the sample by effectively expanding the dynamic range.

For sample fractionation and desalting, the Agilent mRP-C18 High-Recovery Protein column is designed to simultaneously desalt, concentrate, and fractionate in one easy step with extremely high recovery of samples as compared to conventional RP HPLC columns that are fully compatible with LC/MS analysis.

In addition, validated reagents for sample preparation in biomarker discovery and other proteomics applications are also available, including a standard for proteomic workflows. For your convenience, these reagents are fully compatible with Agilent LC/MS methods and require no additional sample pretreatments.

Immunodepletion columns and cartridges

Multiple Affinity Removal System columns and spin cartridges

The Human 14 (Hu-14) columns and cartridges can be used to eliminate 14 of the highest abundance proteins in plasma or serum, removing approximately 94% of the proteins (see Figure 2) that can interfere with your analysis. They are available in both HPLC column and spin cartridge formats for your convenience. If you prefer removal of fewer high abundance proteins, we also offer columns and cartridges for removing albumin alone, the top 2, 6, or 7 human proteins, or the top 3 mouse proteins. In addition, since they can be used for more than 200 runs, they provide cost-effective immunodepletion. The resulting samples produced are compatible with the Agilent 3100 Offgel Fractionator and Macroporous Reverse Phase-C18 column.

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Trusted Answers

Multiple Affinity Removal System products

Columns

Product Description	Part Number
Hu-14, 4.6 x 50 mm	5188-6557
Hu-14, 4.6 x 100 mm	5188-6558
Hu-14, 10 x 100 mm	5188-6559
Hu-7, 4.6 x 50 mm	5188-6409
Hu-7, 4.6 x 100 mm	5188-6410
Hu-7, 10 x 100 mm	5188-6411
Hu-6, 4.6 x 50 mm	5185-5984
Hu-6, 4.6 x 100 mm	5185-5985
Hu-6HC, 4.6 x 50 mm	5188-5332
Hu-6HC, 4.6 x 100 mm	5188-5333
Hu-6HC, 10 x 100 mm	5188-5336
Hu-2, 4.6 x 50 mm	5188-8826
Hu-Albumin, 4.6 x 50 mm	5188-6562
Ms-3, 4.6 x 50 mm	5188-5217
Ms-3, 4.6 x 100 mm	5188-5218

Spin Cartridges

Product Description	Part Number
Hu-14	5188-6560
Hu-7	5188-6408
Hu-6	5188-5230
Hu-6HC	5188-5341
Hu-2	5188-8825
Hu-Albumin	5188-5334
Ms-3	5188-5289

Multiple Affinity Removal System Ancillary products

Buffers and Accessories

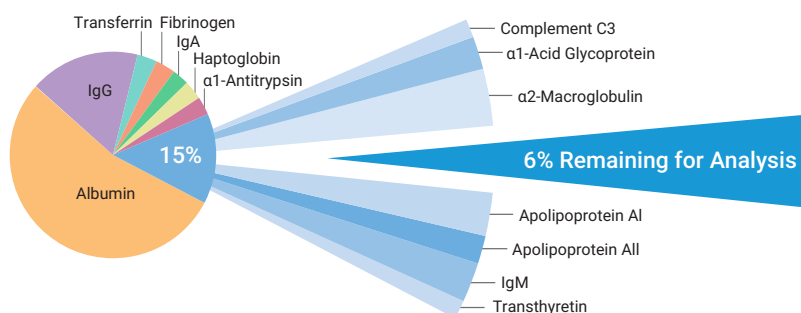| Product Description	Part Number
Buffer A, 1L	5185-5987
Buffer B, 1L	5185-5988
Column Starter Reagent Kit	5185-5986
Cartridge Starter Reagent Kit	5188-5254
HC Sample Dilution Buffer, 50 mL	5188-8283
Human Serum Albumin (HSA) Standard	5185-5989
Spin Filters	5185-5990
Concentrators	5185-5991

Figure 2. Illustration of high abundance proteins that can be removed by Agilent Multiple Affinity Removal columns and spin cartridges.

Custom configurations

Custom column and bioreagent configurations are available for all products described here. For more information, please contact us at www.agilent.com/genomics/custom_ manufacturing.

Protein fractionation columns

mRP-C18 high-recovery protein fractionation and desalting HPLC columns

These high performance Macroporous Reversed-Phase C18 columns recover >98% of proteins and peptides. They offer an easy, automated one-step solution by simultaneously desalting, concentrating, and fractionating samples. The Agilent mRP High-Recovery Protein column can be used with a wide variety of sample types, including whole-cell lysates, lipid rafts, and membrane preparations. When used with membrane protein fractions, they achieve >95% recovery.

mRP-C18 columns

Product Description	Part Number
mRP 0.5 x 100 mm column	5188-6510
mRP 2.1 x 75 mm column	5188-6511
mRP 4.6 x 50 mm column	5188-5231

Proteomics reagents for LC/MS analysis

Agilent Complex Proteomics Standard and Proteomics Grade Trypsin are essential tools for protein characterization and shotgun proteomics applications. These validated reagents are compatible with Agilent LC/MS methods and require no additional sample pretreatments.

Complex proteomics standard

– Ideal for workflow validation over time and across multiple instruments

– Useful for comparing methods and equipment between laboratories

– Soluble *Pfu* protein extract mimics high complexity and diversity of samples typically used for biomarker discovery and other proteomics studies

– Contains over 1,500 proteins representing a wide range of sizes and properties

Proteomics grade trypsin

– High specificity and purity reduces autolysis and ensures consistent performance

– Treated with TPCK to prevent generation of autolytic peptide fragments

– Qualified for use with Agilent 1260 Infinity HPLC-Chip/MS and 6000 Series LC/MS systems

– Includes protocols for in-solution and in-gel digestion

Proteomics reagents

Product Description	Part Number
Complex Proteomics Standard	400510
Trypsin	204310

www.agilent.com/en-us/solutions/proteomics

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