

Agilent AssayMAP Bravo Cartridges for Automated Protein Sample Preparation Workflows



Introduction

The Agilent AssayMAP platform is a powerful yet easy-to-use automation solution specifically designed for biomolecule sample preparation. AssayMAP microchromatography cartridges combined with optimized protocols enable non-automation experts to use automation to increase precision and scalability while at the same time decreasing the labor and human error so you have more confidence in your results and more time to analyze your biomolecule. The AssayMAP platform supports a broad range of protein quantification and characterization workflows including affinity purification, enzymatic digestion, protein and peptide cleanup, peptide mapping, peptide fractionation, N-Glycan analysis, and phosphopeptide enrichment.

Cartridge types

Product	Application	Resin Bed Volume	
		5 μ L	25 μ L
C18	Desalting mixtures of peptides and small proteins prior to analysis by mass spectrometry.	5190-6532	G5496-60017
Fe(III)-NTA	Phosphopeptide enrichment prior to analysis by mass spectrometry.	G5496-60085	–
Protein A (PA-W)	Purification of monoclonal and polyclonal antibodies and Fc fusion proteins with affinity for Protein A.	G5496-60000	G5496-60018
Protein G (PG-W)	Purification of monoclonal and polyclonal antibodies and Fc fusion proteins with affinity for Protein G.	G5496-60008	–
Resin-Free	Placeholder when working with sample numbers that are not a multiple of eight.	G5496-60009	–
Reversed Phase (RP-S)	Desalting or fractionating mixtures of peptides and small proteins prior to analysis by mass spectrometry.	G5496-60033	G5496-60023
Reverse Phase (RP-W)	Desalting of denatured proteins (antibodies) prior to trypsin digestion.	G5496-60086	–
Streptavidin (SA-W)	Generation of affinity cartridges by immobilizing biotinylated molecules. Affinity cartridges can subsequently be used to purify target molecules from complex matrices.	G5496-60010	G5496-60021
Strong Cation Exchange (SCX)	Fractionating mixtures of peptides and small proteins prior to analysis by mass spectrometry.	5190-6536	–
TiO2	Phosphopeptide enrichment prior to analysis by mass spectrometry.	G5496-60016	–

Starter kits (including cartridges and required labware)

Product	Description	Application	Catalog Number
AssayMAP Digestion and C18 Cleanup Starter Kit	1 rack of C18 cartridges plus labware for digestion and cleanup protocols	Protein digestion and subsequent peptide cleanup prior to analysis by mass spectrometry.	G5496-60013
AssayMAP Digestion and RP-S Cleanup Starter Kit	1 rack of RP-S cartridges plus labware for digestion and cleanup protocols	Protein digestion and subsequent peptide cleanup prior to analysis by mass spectrometry.	G5496-60034
AssayMAP SCX Fractionation Starter Kit	1 rack of SCX cartridges plus labware for digestion and cleanup protocols	Protein digestion and subsequent peptide fractionation prior to analysis by mass spectrometry.	G5496-60014

Supplemental items

Product	Description	Application	Catalog Number
Syringe Test Kit	96 resin free cartridges (1 rack plus enough syringe test solution to perform 20 tests)	Routine verification that all 96 the AssayMAP syringes.	G5496-60050
Syringe Replacement Kit	10 replacement syringes plus the tools required to replace faulty syringes.	Allows customers to replace the syringes on site to avoid costly down time.	G5409-68002
AssayMAP Syringes	10 AssayMAP syringes	AssayMAP syringes for use with the syringe replacement kit.	G5496-60007
Bravo Plate Risers	1 Plate Riser	Accessory Required for normalization, serial dilution, and reformatting utilities.	G5498B#061
Bravo Closed Corner Plate Pad	Plate pad designed to minimize the risk of plate misalignment.	Alternative for standard Bravo plate pads.	G5498B#125
PCR Plate Thermal Insert	Thermal insert for the Peltier heater/cooler to improve heat transfer to the plate wells.	For In-Solution Digestion Single plate and On-Cartridge Reaction applications.	G5498B#013
96 well Greiner U,V-Bottom Plate Thermal Insert	Thermal insert for the Peltier heater/cooler to improve heat transfer to the plate wells.	For In-Solution Digestion Single plate and On-Cartridge Reaction applications.	G5498B#126
96 well Abgene Deep Well Plate Thermal Insert	Thermal insert for the Peltier heater/cooler to improve heat transfer to the plate wells.	For In-Solution Digestion Single plate and On-Cartridge Reaction applications.	G5498B#127
Wide-Bore Chimneys	100 pack wide-bore chimneys	25 μ L cartridges require wash station to be equipped with wide-bore chimneys*	G5409-68004

* For instructions on upgrading, see the 96 Channel Wash Station Maintenance Guide on Agilent.com

Additional cartridge details

Cartridge	
C18 5 µL	
Part Number	5190-6532
Bead Type	Silica (20 µm diameter)
Pore Size	150 Å
Surface Chemistry	C18 (reversed-phase)
Dynamic Binding Capacity	400 µg of human insulin (≤10% breakthrough when loading up to 400 µg of human insulin per cartridge) Approximately 150 to 200 µg of digested BSA (loading more than 150 µg of digested BSA results in loss of very hydrophilic peptides)
Saturation Binding Capacity	Approximately 450 µg of human insulin
Storage Temperature	Room temperature
pH Stability	2 to 7 for routine use
C18 25 µL	
Part Number	G5496-60017
Bead Type	Silica (20 µm diameter)
Pore Size	150 Å
Surface Chemistry	C18 (reversed-phase)
Dynamic Binding Capacity	1,800 µg of human insulin (≤10% breakthrough when loading up to 1,800 µg of human insulin per cartridge) Approximately 700 to 900 µg of digested BSA (loading more than 700 µg of digested BSA results in loss of very hydrophilic peptides)
Saturation Binding Capacity	Approximately 2,000 µg of human insulin
Storage Temperature	Room temperature
pH Stability	2 to 7 for routine use
Fe(III)-NTA	
Part Number	G5496-60085
Bead Type	Synthetic Polymer (50 µm diameter)
Pore Size	Large enough for large biomolecules
Surface Chemistry	Fe(III) chelated to nitrilotriacetic acid
Dynamic Binding Capacity	20 µg of adenosine monophosphate (≥ 90% recovery when 20 µg of adenosine monophosphate is loaded per cartridge) Up to approximately 800 µg of digested yeast extract can be loaded per cartridge with minimal phosphopeptide breakthrough
Saturation Binding Capacity	Approximately 25 µg of adenosine monophosphate
Storage Temperature	Room temperature
pH Stability	2 to 11 (cartridge will turn more yellow/gold with increasing pH)
PA-W 5 µL	
Part Number	G5496-60000
Bead Type	Synthetic polymer (53 to 61 µm diameter)
Pore Size	Large enough for large biomolecules such as antibodies
Surface Chemistry	Recombinant Protein A
Dynamic Binding Capacity	100 µg of human IgG1 (≤10% breakthrough when loading up to 100 µg of human IgG1 per cartridge)
Saturation Binding Capacity	Approximately 125 µg of hIgG1
Storage Temperature	Room temperature
pH Stability	6 to 8 for routine use, 3 to 11 for short exposure
PA-W 25 µL	
Part Number	G5496-60018
Bead Type	Synthetic polymer (53 to 61 µm diameter)
Pore Size	Large enough for large biomolecules such as antibodies
Surface Chemistry	Recombinant Protein A
Dynamic Binding Capacity	800 µg of human IgG1 (10% breakthrough when loading up to 800 µg of human IgG1 per cartridge)
Saturation Binding Capacity	Approximately 1,000 µg of hIgG1
Storage Temperature	Room temperature
pH Stability	6 to 8 for routine use, 3 to 11 for short exposure

PG-W	
Part Number	G5496-60008
Bead Type	Synthetic polymer (45 to 53 µm diameter)
Pore Size	Large enough for large biomolecules such as antibodies
Surface Chemistry	Recombinant Protein G
Dynamic Binding Capacity	100 µg human IgG (≤10% breakthrough when loading up to 100 µg of human IgG per cartridge)
Saturation Binding Capacity	Approximately 150 µg of IgG
Storage Temperature	Room temperature
pH Stability	6 to 8 for routine use, 3 to 11 for short exposure
Resin Free	
Part Number	G5496-60009
Bead Type	NA
Pore Size	NA
Surface Chemistry	NA
Dynamic Binding Capacity	NA
Saturation Binding Capacity	NA
Storage Temperature	Room temperature
pH Stability	NA
RP-S 5 µL	
Part Number	G5496-60033
Bead Type	Synthetic polymer (15 to 20 µm diameter)
Pore Size	100 Å
Surface Chemistry	Underivatized polystyrene-divinylbenzene (reversed-phase)
Dynamic Binding Capacity	400 µg of human insulin (≤10% breakthrough when loading up to 400 µg of human insulin per cartridge) Approximately 150 to 200 µg of digested BSA (loading more than 150 µg of digested BSA results in loss of very hydrophilic peptides)
Saturation Binding Capacity	Approximately 500 µg of human insulin
Storage Temperature	Room temperature
pH Stability	1 to 14
RP-S 25 µL	
Part Number	G5496-60023
Bead Type	Synthetic polymer (15 to 20 µm diameter)
Pore Size	100 Å
Surface Chemistry	Underivatized polystyrene-divinylbenzene (reversed-phase)
Dynamic Binding Capacity	2,300 µg of human insulin (≤10% breakthrough when loading up to 2,200 µg of human insulin per cartridge) Approximately 850 to 1,100 µg of digested BSA (loading more than 850 µg of digested BSA results in loss of very hydrophilic peptides)
Saturation Binding Capacity	Approximately 2,300 µg of human insulin
Storage Temperature	Room temperature
pH Stability	1 to 14
RP-W	
Part Number	G5496-60086
Bead Type	Synthetic polymer (30 µm diameter)
Pore Size	Large enough for large biomolecules such as antibodies
Surface Chemistry	Underivatized polystyrene-divinylbenzene (reversed-phase)
Dynamic Binding Capacity	75 µg of denatured human IgG1 (≤10% breakthrough when loading up to 75 µg of denatured human IgG1 per cartridge)
Saturation Binding Capacity	Approximately 90 µg of denatured human IgG1
Storage Temperature	Room temperature
pH Stability	1 to 14

SA-W 5 µL	
Part Number	G5496-60010
Bead Type	Synthetic polymer (45 to 53 µm diameter)
Pore Size	Large enough for large biomolecules such as antibodies
Surface Chemistry	Recombinant Streptavidin
Dynamic Binding Capacity	50 µg of biotinylated BSA (≤10% breakthrough when loading up to 50 µg of biotinylated BSA per cartridge) Approximately 90 µg of biotinylated IgG
Saturation Binding Capacity	Approximately 60 µg of biotinylated BSA Approximately 100 µg of biotinylated IgG
Storage Temperature	4 to 10 °C
pH Stability	6 to 8 for routine use, 3 to 11 for short exposure
SA-W 25 µL	
Part Number	G5496-60021
Bead Type	Synthetic polymer (45 to 53 µm diameter)
Pore Size	Large enough for large biomolecules such as antibodies
Surface Chemistry	Recombinant Streptavidin
Dynamic Binding Capacity	350 µg of biotinylated BSA (≤10% breakthrough when loading up to 350 µg biotinylated BSA per cartridge)
Saturation Binding Capacity	Approximately 450 µg of biotinylated BSA
Storage Temperature	4 to 10 °C
pH Stability	6 to 8 for routine use, 3 to 11 for short exposure
SCX	
Part Number	5190-6536
Bead Type	Silica (20 µm diameter)
Pore Size	300 Å
Surface Chemistry	Polysulfoethyl A (strong cation exchange)
Dynamic Binding Capacity	800 µg of human insulin (≤10% breakthrough when loading up to 800 µg of human insulin per cartridge) Approximately 400 to 500 µg of digested BSA
Saturation Binding Capacity	Approximately 1,000 µg human insulin
Storage Temperature	Room temperature
pH Stability	2 to 7 for routine use
TiO ₂	
Part Number	G5496-60016
Bead Type	Ceramic titanium dioxide (20 µm diameter)
Pore Size	100 Å
Surface Chemistry	Titanium dioxide
Dynamic Binding Capacity	80 µg of phenyl phosphate (≥ 90% recovery when 80 µg of phenyl phosphate is loaded per cartridge) Up to approximately 1,000 µg of digested α-casein can be loaded per cartridge with minimal phosphopeptide breakthrough
Saturation Binding Capacity	Approximately 115 µg of phenyl phosphate
Storage Temperature	Room temperature
pH Stability	1 to 14

www.agilent.com/chem

For Research Use Only. Not for use in diagnostic procedures.

DE.281944444

This information is subject to change without notice.

© Agilent Technologies, Inc. 2015, 2016, 2019, 2020, 2021
Printed in the USA, September 23, 2021
5991-4863EN