Sepax Technologies

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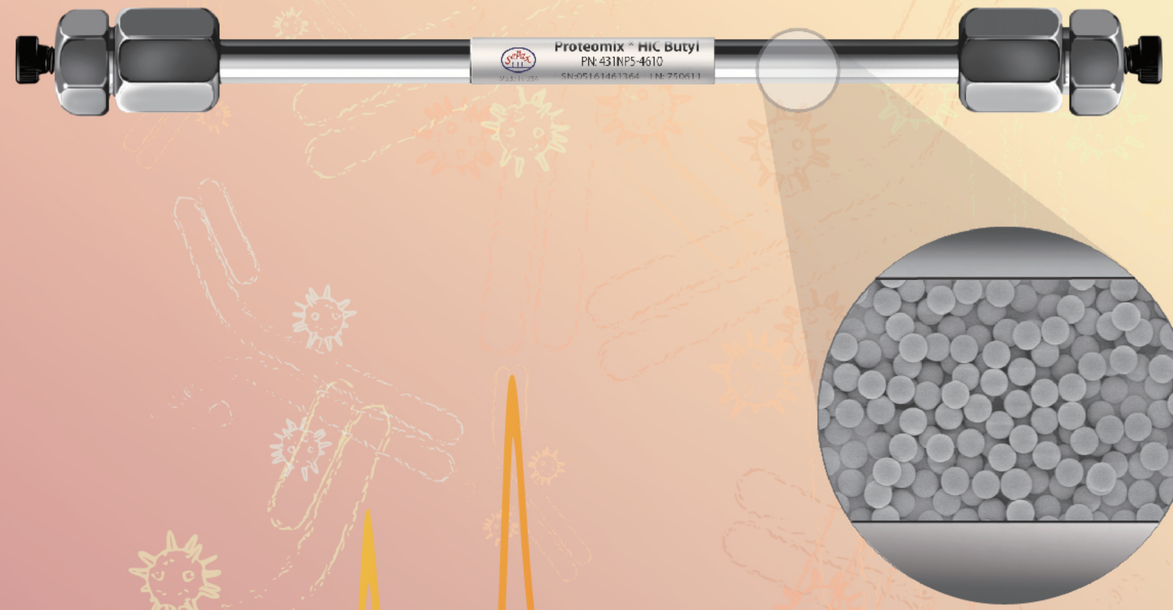
Hydrophobic Interaction Chromatography

Sepax Technologies

Proteomix ® HIC



Better Surface Chemistry for Better Separation

Sepax Technologies, Inc.

Sepax Technologies, Inc. develops and manufactures products in the area of chemical and biological separations, biosurfaces and proteomics. Sepax product portfolio includes 1) liquid chromatography columns and media, 2) SPE and Flash chromatography columns and tubes, 3) bulk resin for preparative separation and process chromatography, and 4) natural product and Chinese traditional medicine separation and purification.

Leader in Biological Separations

Sepax develops and manufactures wide range of biological separation products using both silica and polymeric resins as the support. The selection of particle size is from 1 µm to 100 µm and pore size from non-porous to 2000 Å. Unique and proprietary resin synthesis and surface technologies have been developed for solving the separation challenges in biological area.

Bioseparation Products

Size Exclusion
SRT®
SRT®-C
Nanofilm®
Zenix®
Zenix®-C

Ion Exchange
Proteomix® IEX
Antibodix®WCX

Hydrophobic Interaction
Proteomix®HIC

Carbohydrate Separation
Carbomix®

Analytical, Semi-prep and Preparative

Proteomix® HIC Phases

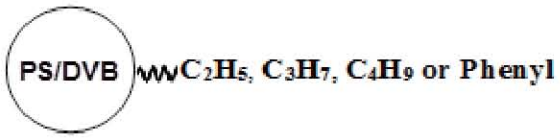
Polymer Based Hydrophobic Interaction Chromatography Media and Column

General Description

Proteomix® HIC columns are specially designed for high resolution and high efficiency separations of proteins, monoclonal antibodies (mAbs), antibody drug conjugates (ADCs), oligonucleotides and peptides via a hydrophobic interaction chromatography (HIC) mechanism. Utilizing proprietary surface technologies, *Proteomix*® HIC-NP resin is made of non-porous polystyrenedivinylbenzene (PS/DVB) beads with narrow-dispersed particle size distribution. The PS/DVB bead is modified with alkyl groups or aryl groups that provide hydrophobic interaction with analytes (Figure 1).

Proteomix® HIC-NP resin is highly rigid and mechanically stable. In comparison to silica-based HIC phase media, *Proteomix*® HIC-NP phases have advantages for biomolecule separations with a wide pH range (2-12) and high chemical stability. The nonporous structure and unique chemistry, and narrow particle distribution offer special selectivity, high-resolution separation of proteins such as mAb, ADC and related protein fragments, DNA and oligonucleotides. *Proteomix*® HIC-NP media is applicable for laboratory discovery, laboratory-scale purification and preparative chromatography for the production of several milligrams to grams of proteins. Sepax also provides polymethacrylate-based Generik MC and Polar MC HIC 30 µm media which offers similar characteristics to the *Proteomix*® HIC-NP but is designed for process-scale applications from grams to kilograms of proteins.

Figure 1. Structure of *Proteomix*® HIC resin



Featured Characteristics

- Highest capacity and resolution
- High protein recovery with intact biological activity
- High stability and lot-to-lot reproducibility
- High pressure and high temperature tolerance
- Ideal for separation and analysis of hydrophobic proteins, monoclonal antibodies and their derivatives such as antibody drug conjugates, and organic molecules derivatized with polymer branches

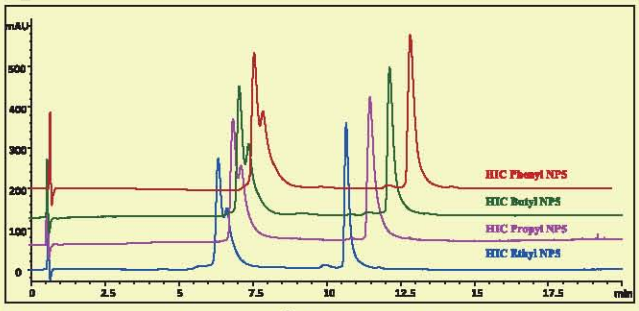
Technical Specifications

Resin Matrix:	Spherical, highly cross-linked PS/DVB
Pore Size:	Nonporous
Particle Size:	1.7, 5 and 10 µm
Phase Structure:	Ethyl, Propyl, Butyl and Phenyl (5, 10 µm) Ethyl and Butyl (1.7 µm)
Separation Mechanism:	Hydrophobic interaction
pH Stability:	2-12
Operating Temperature:	Up to 80 ˚C
Operating Pressure:	6000 psi (5, 10 µm) 8000 psi (1.7 µm)
Mobile Phase Compatibility:	Compatible with aqueous solution, a mixture of water and acetonitrile, acetone, methanol, or THF

Hydrophobicity Order of the four HIC NP phases

HIC Ethyl<Propyl<Butyl<Phenyl

Figure 2. Protein Mixture on Four *Proteomix*® HIC NP5 Phases

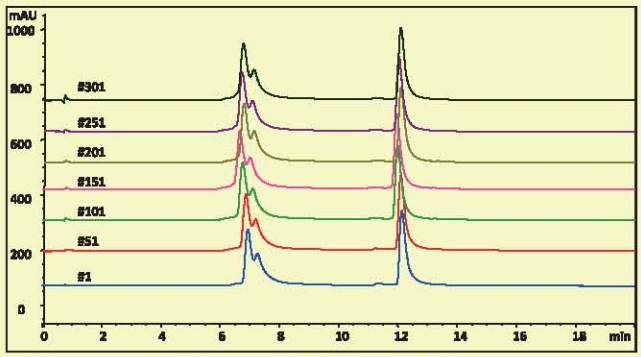


Column:	*Proteomix*® HIC NP5 (5 µm, 4.6 x 35 mm) Phenyl, Butyl, Propyl and Ethyl phases
Flow rate:	0.4 mL/min
Detector:	UV 214 nm
Temperature:	25 ˚C
Mobile phase:	A: 2 M ammonium sulfate in 0.1M sodium phosphate, pH 7.0 B: 0.1 M sodium phosphate, pH 7.0
Sample:	Ovalbumin 1.0 mg/mL Chymotrypsinogen 0.5 mg/mL
Injection:	4 µL

High Stability and Lot-to-Lot Reproducibility

Proteomix® HIC columns are based on PS/DVB resin and all the surface coatings are chemically bonded onto PS/DVB support, which allows exceptionally high stability, resulting in a high number of injections per column life. The columns are compatible with most aqueous buffers, such as ammonium sulfate, sodium acetate, phosphate, Tris as well as a mixture of water and acetone, methanol, acetonitrile and THF.

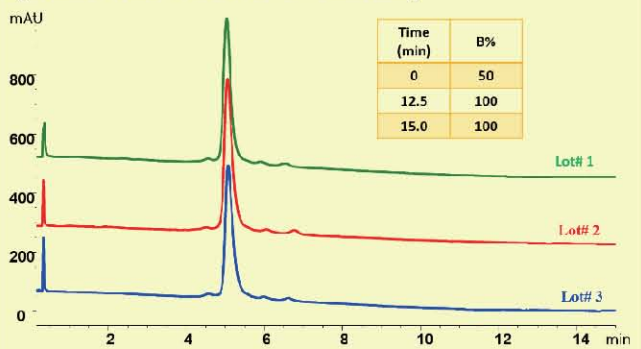
Figure 3. *Proteomix*® HIC Butyl-NP5 Life Time Test on Protein Mixture



Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603
Flow rate:	0.4 mL/min
Detector:	UV 214 nm
Temperature:	25 ℃
Mobile phase:	A: 2 M ammonium sulfate in 0.1M sodium phosphate, pH 7.0 B: 0.1 M sodium phosphate, pH 7.0
Sample:	Ovalbumin 1.0 mg/mL Chymotrypsinogen 0.5 mg/mL
Injection:	4 µL

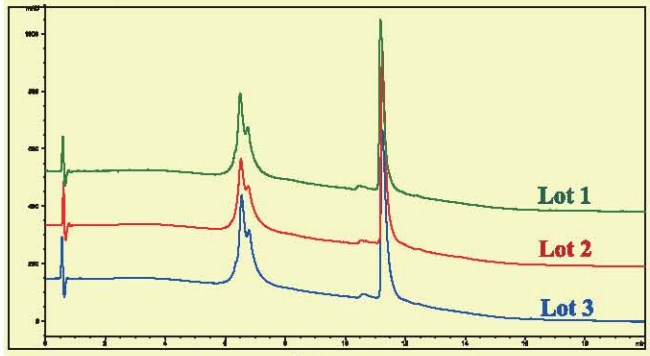
With a well-controlled synthesis process of surface chemistry, *Proteomix*® HIC phases, the resin production is highly reproducible, leading to consistent column manufacturing, thus high lot-to-lot consistency on the separation of biomolecules like mAb, ADC and proteins (Figure 4-6).

Figure 4. *Proteomix*® HIC Butyl NP5 for Rituximab-mAb separation. Three resin lot to lot consistency



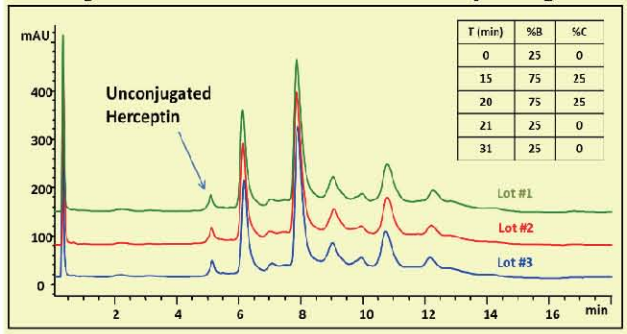
Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 ℃
Mobile phase:	A: 2 M ammonium sulfate in 0.1M sodium phosphate, pH 7.0 B: 0.1 M sodium phosphate, pH 7.0
Sample:	Rituximab, 1.3 mg/mL dilute in water
Injection:	4 µL

Figure 5. *Proteomix*® HIC Butyl NP1.7 - Three Resin Lot to Lot Consistency Test on Protein Mixture



Column:	*Proteomix*® HIC Butyl NP1.7 (1.7 µm, 4.6 x 35 mm), PN: 431NP2-4603
Flow rate:	0.4 mL/min
Detector:	UV 214 nm
Temperature:	25 ℃
Mobile phase:	A: 2 M ammonium sulfate in 0.1 M sodium phosphate, pH 7.0 B: 0.1 M sodium phosphate, pH 7.0
Gradient:	0-100% B in 15 min. 100% B 5 min
Sample:	Ovalbumin 1.0 mg/mL Chymotrypsinogen 0.5 mg/mL
Injection:	4 µL

Figure 6. *Proteomix*® HIC Butyl-NP5 for Herceptin-Cysteine ADC separation-Three resin lot to lot consistency testing



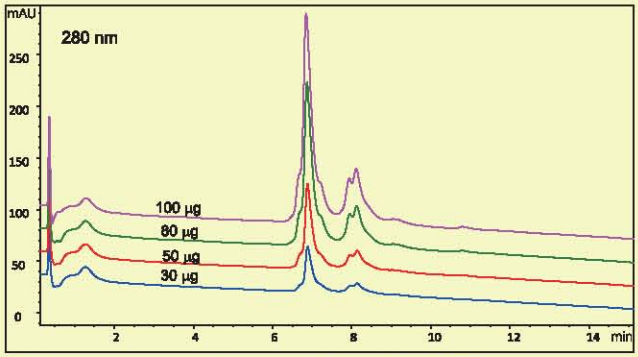
Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 ℃
Mobile phase:	A: 2 M ammonium sulfate in 0.025M sodium phosphate, pH 7.0 B: 0.025 M sodium phosphate, pH 7.0 C: 100% IPA

Sample:	ADC, 1.0 mg/mL in 1.0 M ammonium sulfate
Injection:	10 µL

High Loading Capacity

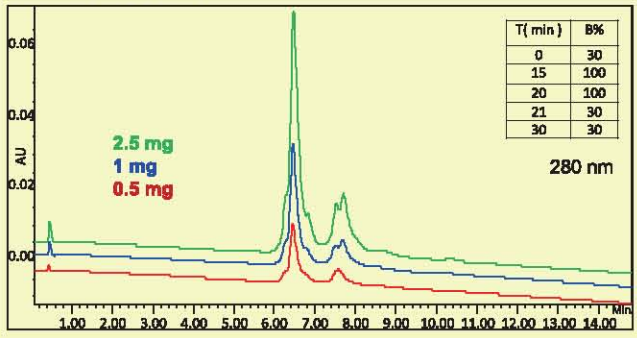
Loading Capacity is critical for hydrophobic interaction separation and purification. *Proteomix*® HIC columns have high loading capacity for biomolecules such as mAb (Figure 7-8).

Figure 7. MAb Loading Test on *Proteomix*® HIC Butyl NP5 4.6 x 50 mm size column



Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 50 mm, 0.83 mL resin) PN: 431NP5-4605
Flow rate:	1.0 mL/min
Detector:	UV 280 nm
Temperature:	25 ℃
Mobile phase:	A: 2 M ammonium sulfate in 0.1 M sodium phosphate, pH 7.0 B: 0.1 M sodium phosphate, pH 7.0
Sample:	2.5 mg/mL mAb in 50% A
Injection:	12, 20, 32, 40 µL
Column Pressure:	105 Bar

Figure 8. MAb Loading Test on *Proteomix*® HIC Butyl NP5 21.2 x 50 mm size column



Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 21.2 x 50 mm, 17.7 mL resin) PN: 431NP5-21205
Flow rate:	20.0 mL/min
Detector:	UV 280 nm
Temperature:	25 ℃
Mobile phase:	A: 2 M ammonium sulfate in 0.1 M sodium phosphate, pH 7.0 B: 0.1 M sodium phosphate, pH 7.0

Sample:	2.5 mg/mL mAb in 50% A
Injection:	200, 400 and 1000 µL
Column Pressure:	90 Bar

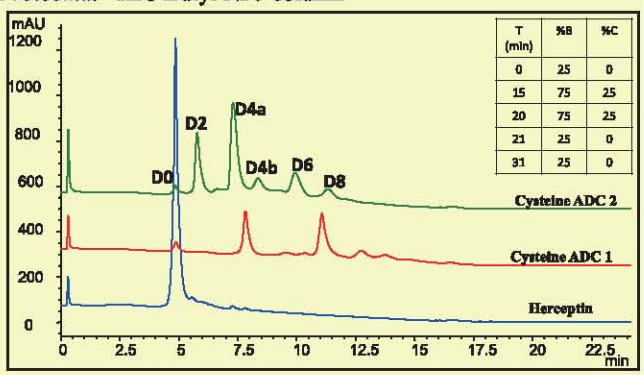
Applications

With its unique surface technology the *Proteomix*® HIC column offers special selectivity and high-resolution separation of biomolecules such as mAb, ADC and related protein fragments, DNA and oligonucleotides.

Separation of ADCs (Antibody Drug Conjugates)

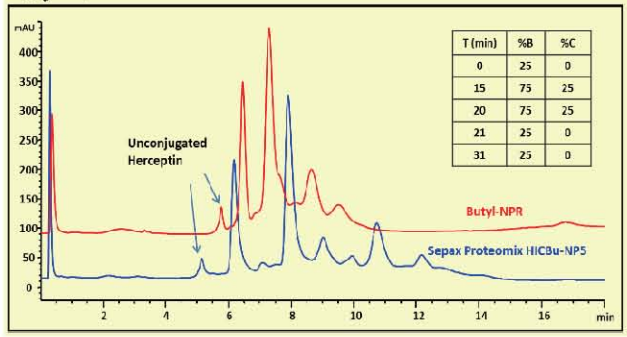
The *Proteomix*® HIC Butyl columns provide effective and efficient separation of mAb and Antibody Drug Conjugates with different Drug-to-Antibody Ratio (DAR) species (Figure 9-11).

Figure 9. Herceptin and its cysteine ADCs separation on *Proteomix*® HIC Butyl NP5 column



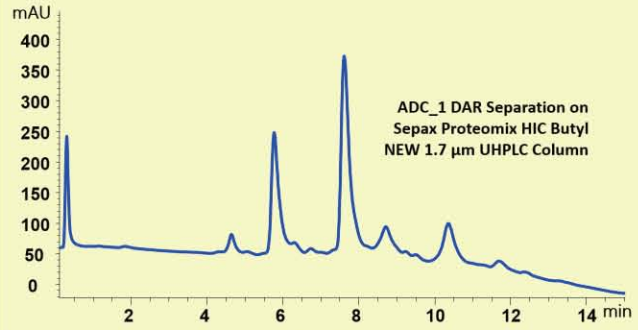
Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603
Mobile phase:	A: 2 M ammonium sulfate in 0.025 M sodium phosphate, pH 7.0 B: 0.025 M sodium phosphate, pH 7.0 C: 100% IPA
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Sample:	Herceptin/ADC1/ADC2, 1.0 mg/mL in 25 mM sodium phosphate
Injection:	10 µL

Figure 10. Herceptin-cysteine ADC separation on *Proteomix*® HIC Butyl NP5 - Competition Comparison with other vendor Butyl-NPR



Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603 Other Vendor Butyl-NPR
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Mobile phase:	A: 2 M ammonium sulfate in 0.025 M sodium phosphate, pH 7.0 B: 0.025 M sodium phosphate, pH 7.0 C: 100% IPA
Sample:	ADC, 1.0 mg/mL in 1.0 M ammonium sulfate
Injection:	10 µL

Figure 11. ADC_1 Separation - *Proteomix*® HIC Butyl NP1.7

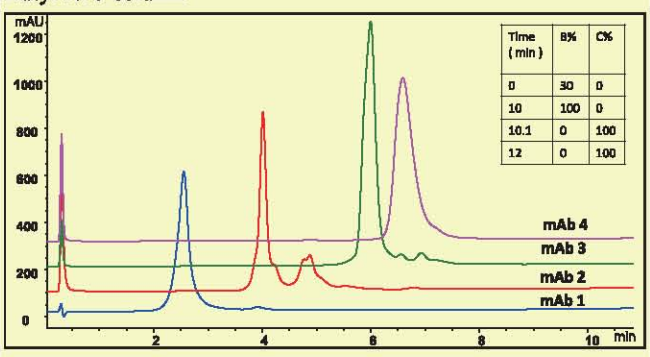


Column:	*Proteomix*® HIC Butyl NP1.7 (1.7 µm, 4.6 x 35 mm), PN: 431NP2-4603
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Mobile phase:	A: 2 M ammonium sulfate in 0.025 M sodium phosphate, pH 7.0 B: 0.025 M sodium phosphate, pH 7.0 C: 100% IPA
Sample:	ADC_1, 1.0 mg/mL in 1.0 M ammonium sulfate.
Injection:	20 µL

Separations of Intact MAbs (Monoclonal Antibodies)

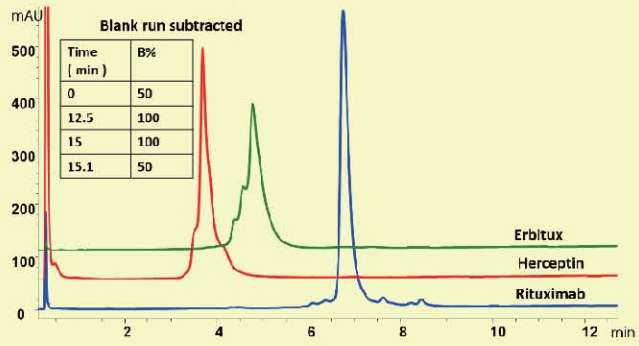
The *Proteomix*® HIC Butyl columns provide high resolution and separation of intact mAbs under native conditions. It can also be used for mAb hydrophobicity screening for monoclonal antibody species with differing hydrophobicities.

Figure 12. Separation of four different mAbs on Proteomix® HIC Butyl NP5 column



Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603
Flow rate:	1.0 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Mobile phase:	A: 100 mM sodium phosphate buffer, 2 M ammonium sulfate, pH 7.0 B: 100 mM sodium phosphate buffer, pH 7.0 C: B + 1.0 M NaCl
Injection:	15 µg mAb samples

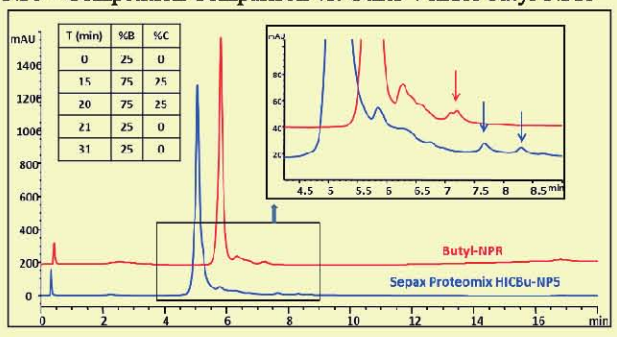
Figure 13. MAb (Erbitux, Herceptin and Rituximab) Separation on Proteomix® HIC Butyl NP1.7



Column:	*Proteomix*® HIC Butyl NP1.7 (1.7 µm, 4.6 x 35 mm), PN: 431NP2-4603
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Mobile phase:	A: 100 mM sodium phosphate buffer, 2 M ammonium sulfate, pH 7.0 B: 100 mM sodium phosphate buffer, pH 7.0;
Sample:	1 mg/mL Erbitux, 0.5 mg/mL Herceptin in 1 M ammonium sulfate, 50 mM phosphate buffer, 2.5 mg/mL rituximab in 500 mM ammonium sulfate, 25 mM phosphate buffer
Injection:	10 µg

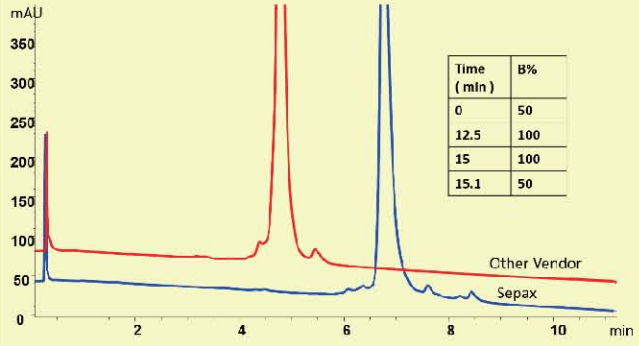
Comparison of the separation of Herceptin and Rituximab between Proteomix® HIC Butyl and another vendor's Butyl-NPR column demonstrates that higher resolution can be achieved on both Proteomix® HIC Butyl NP 5 and 1.7 µm columns (Figure 14-15).

Figure 14. Herceptin (mAb) separation on *Proteomix*® HIC Butyl NP5 - Competition Comparison vs. Other Vendor butyl-NPR



Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603 Other Vendor Butyl-NPR
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Mobile phase:	A: 2 M ammonium sulfate in 0.025 M sodium phosphate, pH 7.0 B: 0.025 M sodium phosphate, pH 7.0 C: 100% IPA
Sample:	Herceptin, 1.0 mg/mL in 1.0 M ammonium sulfate
Injection:	5 µL

Figure 15. Rituximb (mAb) separation on *Proteomix*® HIC Butyl-NP1.7 - Competition Comparison vs. Other Vendor butyl-NPR

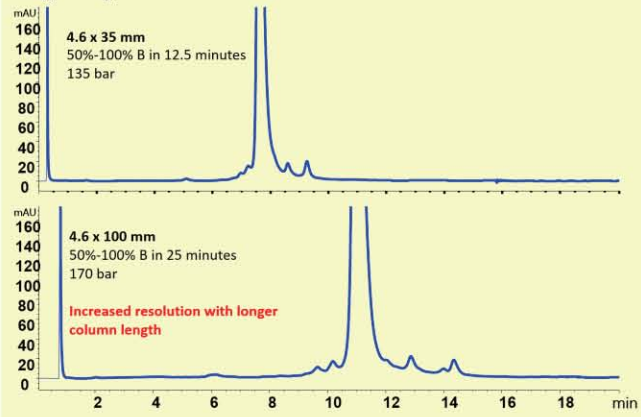


Column:	*Proteomix*® HIC Butyl NP1.7 (1.7 µm, 4.6 x 35 mm), PN:431NP2-4603 Other Vendor Butyl NPR, 2.5 µm, 4.6 x 35 mm
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Mobile phase:	A: 100 mM sodium phosphate buffer, 2 M ammonium sulfate, pH 7.0 B: 100 mM sodium phosphate buffer, pH 7.0
Injection:	10 µg mAb samples, 2.5 mg/mL rituximab in 500 mM ammonium sulfate, 25 mM phosphate buffer

Impact of Column Length

For higher resolution and separation of difficult samples, longer columns are recommended. The higher aspect ratio can be achieved with our mechanically stable resin allowing for longer contact time and hydrophobic resolving power. A 100 mm length *Proteomix*® HIC Butyl-NP5 column increases the resolution in comparison to a 35 mm length column (Figure 16).

Figure 16. Rituximab - *Proteomix*® HIC Butyl-NP5 Column Length Impact – 4.6 x 100 mm vs 4.6 x 35 mm

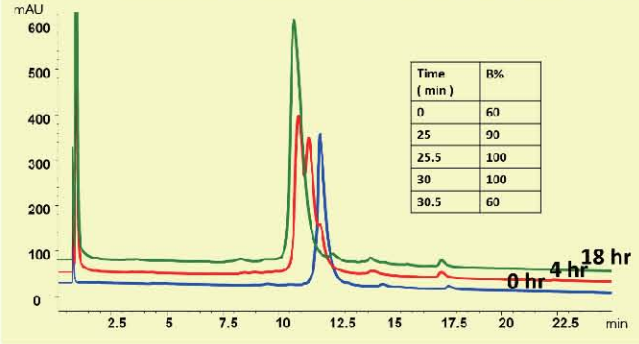


Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603 (5 µm, 4.6 x 100 mm), PN: 431NP5-4610
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
System:	UHPLC
Temperature:	25 °C
Mobile phase:	A: 100 mM sodium phosphate buffer, 2 M ammonium sulfate, pH 7.0 B: 100 mM sodium phosphate buffer, pH 7.0;
Sample:	2.5 mg/mL rituximab in 500 mM ammonium sulfate, 25 mM phosphate buffer
Injection:	10 µg mAb for 4603, 20 µg for 4610

MAb Oxidation Variants Analysis

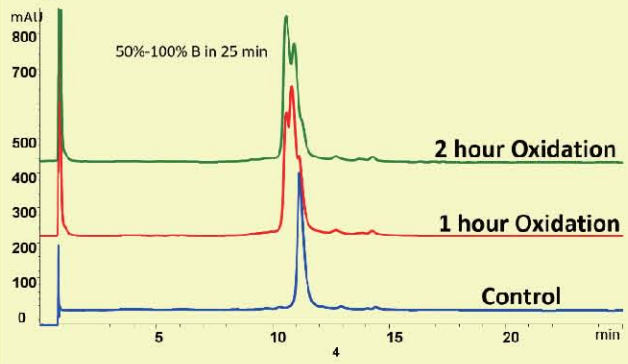
HIC can be used as an orthogonal chromatographic method to assess the populations and potency of the biomolecules in native molecule structure under native conditions. Different forms of mAb oxidation can be monitored in a time course of mAb oxidation process by *Proteomix*® HIC Butyl columns to gain a better understanding of the composition of species in the drug product. Partially oxidized mAbs can be separated into different peaks at several time points. An 18-hour reaction with t-BHP offers almost complete oxidation, which can be resolved from unoxidized mAb to a great degree (Figure 17-18).

Figure 17. Rituximab oxidation on *Proteomix*® HIC Butyl NP1.7



Column:	*Proteomix*® HIC Butyl NP1.7 (1.7 µm, 4.6 x 100 mm), PN: 431NP2-4610
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Pressure:	560 bar
Mobile phase:	A: 100 mM sodium phosphate buffer, 2 M ammonium sulfate, pH 7.0 B: 100 mM sodium phosphate buffer, pH 7.0
MAb oxidation:	10 mg/mL was diluted to 2.5 mg/mL with water and 70% t-BHP was added to a final 5% concentration, incubate in dark and take time point, dilute to 2.5 mg/mL in 500 mM ammonium sulfate, 25 mM phosphate buffer
Injection:	12.5 µg mAb sample, 25 µg oxidized mAb

Figure 18. *Proteomix*® HIC Butyl NP5 Rituximab Oxidation Analysis

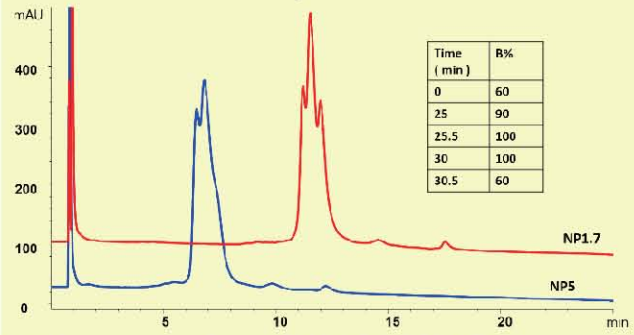


Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 100 mm), PN: 431NP5-4610
Flow rate:	0.8 mL/min
Pressure:	170 bar
System:	UHPLC
Detector:	UV 214 nm
Temperature:	25 °C
Mobile phase:	A: 100 mM sodium phosphate buffer, 2 M ammonium sulfate, pH 7.0 B: 100 mM sodium phosphate buffer, pH 7.0;
MAb oxidation:	10 mg/mL was diluted to 5 mg/mL with water and 70% t-BHP was added to a final 5% concentration, incubate in dark and take time point, dilute to 2.5 mg/mL in 500 mM ammonium sulfate, 25 mM phosphate buffer
Injection:	10 µg mAb sample, 20 µg oxidized mAb

Impact of Particle Size

The smaller particle size of *Proteomix*® HIC Butyl NP1.7 makes it more sensitive to capture small changes of biomolecule variants, which provides superior ability to achieve a higher resolution separation of a wide range of protein variants and impurities than the NP 5um column. *Proteomix*® HIC Butyl NP1.7 is an excellent choice for highest resolution separations of mAb oxidation and other protein variants analysis.

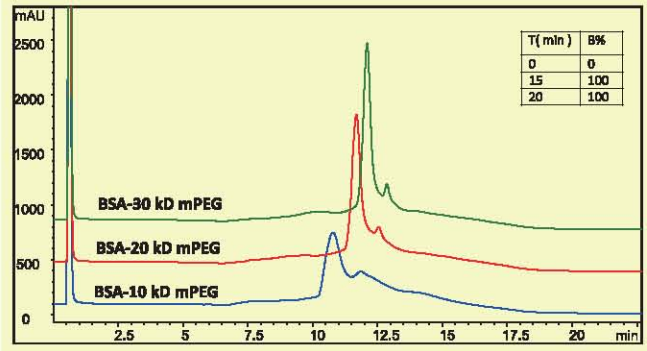
Figure 19. Rituximab oxidation- *Proteomix*® HIC Butyl NP5 and NP1.7 – 2 hour oxidation analysis



Column:	*Proteomix*® HIC Butyl NP1.7 (1.7 µm, 4.6 x 100 mm), PN: 431NP2-4610 *Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 100 mm), PN: 431NP5-4610
Flow rate:	0.8 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Pressure:	560 bar
Mobile phase:	A: 100 mM sodium phosphate buffer, 2 M ammonium sulfate, pH 7.0 B: 100 mM sodium phosphate buffer, pH 7.0
mAb oxidation:	10 mg/mL was diluted to 2.5 mg/mL with water and 70% t-BHP was added to a final 5% concentration, incubate in dark and take time point, dilute to 2.5 mg/mL in 500 mM ammonium sulfate, 25 mM phosphate buffer
Injection:	25 µg mAb 2 hour oxidation sample

Separations of PEGylated Proteins

Figure 20. PEGylated BSA Separation - *Proteomix*® HIC Butyl NP5



Column:	*Proteomix*® HIC Butyl NP5 (5 µm, 4.6 x 35 mm), PN: 431NP5-4603
Flow rate:	0.4 mL/min
Detector:	UV 214 nm
Temperature:	25 °C
Mobile phase:	A: 2 M ammonium sulfate in 0.025 M sodium phosphate, pH 7.0 B: 0.1 M sodium phosphate, pH 7.0
Sample:	10 kD, 20 kD and 30 kD PEGylated BSA diluted with mobile phase A
Injection:	20 µL

Ordering Information

Proteomix® HIC Phase Screening Kit

P/N	Phases	Particle Size	Column Size (mm)
HICKIT-4603	Butyl Phenyl Ethyl Propyl	5 µm	4.6 x 35
HICKIT-4610		5 µm	4.6 x 100

**Hydrophobicity Order: Ethyl<Propyl<Butyl<Phenyl*

Proteomix® HIC Butyl

P/N	Particle Size	Column Size (mm)
431NP2-4603	1.7 µm	4.6 x 35
431NP2-4605	1.7 µm	4.6 x 50
431NP2-4610	1.7 µm	4.6 x 100
431NP2-4001C	1.7 µm	4.0 x 10 (Guard)
431NP5-4603	5 µm	4.6 x 35
431NP5-4605	5 µm	4.6 x 50
431NP5-4610	5 µm	4.6 x 100
431NP5-4001C	5 µm	4.0 x 10 (Guard)
431NP5-7805	5 µm	7.8 x 50
431NP5-7810	5 µm	7.8 x 100
431NP510005	5 µm	10.0 x 50
431NP5-10010	5 µm	10.0 x 100
431NP5-10015	5 µm	10.0 x 150
431NP5-21205	5 µm	21.2 x 50
431NP5-21210	5 µm	21.2 x 100
431NP5-21215	5 µm	21.2 x 150
431NP5-30005	5 µm	30.0 x 50
431NP5-30010	5 µm	30.0 x 100
431NP5-30015	5 µm	30.0 x 150

Proteomix® HIC Ethyl

P/N	Particle Size	Column Size (mm)
432NP2-4603	1.7 µm	4.6 x 35
432NP2-4605	1.7 µm	4.6 x 50
432NP2-4610	1.7 µm	4.6 x 100
432NP2-4001C	1.7 µm	4.0 x 10 (Guard)
432NP5-4603	5 µm	4.6 x 35
432NP5-4605	5 µm	4.6 x 50
432NP5-4610	5 µm	4.6 x 100
432NP5-4001C	5 µm	4.0 x 10 (Guard)
432NP5-7805	5 µm	7.8 x 50
432NP5-7810	5 µm	7.8 x 100
432NP510005	5 µm	10.0 x 50
432NP5-10010	5 µm	10.0 x 100
432NP5-10015	5 µm	10.0 x 150
432NP5-21205	5 µm	21.2 x 50
432NP5-21210	5 µm	21.2 x 100
432NP5-21215	5 µm	21.2 x 150
432NP5-30005	5 µm	30.0 x 50
432NP5-30010	5 µm	30.0 x 100
432NP5-30015	5 µm	30.0 x 150

Proteomix® HIC Phenyl

P/N	Particle Size	Column Size (mm)
433NP5-4603	5 µm	4.6 x 35
433NP5-4605	5 µm	4.6 x 50
433NP5-4610	5 µm	4.6 x 100
433NP5-4001C	5 µm	4.0 x 10 (Guard)
433NP5-7805	5 µm	7.8 x 50
433NP5-7810	5 µm	7.8 x 100
433NP510005	5 µm	10.0 x 50
433NP5-10010	5 µm	10.0 x 100
433NP5-10015	5 µm	10.0 x 150
433NP5-21205	5 µm	21.2 x 50
433NP5-21210	5 µm	21.2 x 100
433NP5-21215	5 µm	21.2 x 150
433NP5-30005	5 µm	30.0 x 50
433NP5-30010	5 µm	30.0 x 100
433NP5-30015	5 µm	30.0 x 150

Proteomix® HIC Propyl

P/N	Particle Size	Column Size (mm)
434NP5-4603	5 µm	4.6 x 35
434NP5-4605	5 µm	4.6 x 50
434NP5-4610	5 µm	4.6 x 100
434NP5-4001C	5 µm	4.0 x 10 (Guard)
434NP5-7805	5 µm	7.8 x 50
434NP5-7810	5 µm	7.8 x 100
434NP510005	5 µm	10.0 x 50
434NP5-10010	5 µm	10.0 x 100
434NP5-10015	5 µm	10.0 x 150
434NP5-21205	5 µm	21.2 x 50
434NP5-21210	5 µm	21.2 x 100
434NP5-21215	5 µm	21.2 x 150
434NP5-30005	5 µm	30.0 x 50
434NP5-30010	5 µm	30.0 x 100
434NP5-30015	5 µm	30.0 x 150

** 10 µm particle size columns and other column dimensions available upon request*

How to Order

Please contact Sepax Sales Department:

Phone: (302)366-1101 1-877-SEPAX-US
Fax: (302)366-1151
Email: sales@sepax-tech.com

5 Innovation Way, Suite 100
Delaware 19711 USA

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- Prior authorization required for all returns. Please contact your local sales manager for prior authorization and Return Authorization Number.
- 15% restocking charge will be made on all returns.
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- Return and refund to be made with same method of purchase, i.e. through distributor if purchased through distributor.

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