

Columns for Anion Exchange Chromatography

Features

QA-825 DEAE-825	<ul style="list-style-type: none"> Suitable for analysis of relatively high molecular weight compounds: proteins, peptides, DNA, and RNA Usable in a wide pH range from pH 2 to 12 QA-825 corresponds to USP L23
DEAE3N-4T	<ul style="list-style-type: none"> Non-porous base material For rapid analysis
DEAE-2B	<ul style="list-style-type: none"> Non-porous base material Supports UHPLC (available under hyperbaric conditions up to 30 MPa)
ES-502N 7C	<ul style="list-style-type: none"> Compared to IEC series columns, polyvinyl alcohol is used as base material and this offers different separation pattern Low hydrophobic interaction of proteins allows analysis under mild conditions
WA-624	<ul style="list-style-type: none"> Suitable for anion exchange analysis of low molecular weight compounds such as nucleotides

Standard columns

● Strong anion exchange resin [Functional Group : Quaternary ammonium]

Product Code	Product Name	Ion Exchange Capacity (meq/g)	Base Material	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F6110011	IEC QA-825	0.45	Polyhydroxymethacrylate	12	5,000	8.0 × 75	50mM Na ₂ SO ₄ aq.

● Weak anion exchange resin [Functional Group : Diethylaminoethyl]

Product Code	Product Name	Ion Exchange Capacity (meq/g)	Base Material	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F6118255	IEC DEAE-825	0.6	Polyhydroxymethacrylate	8	5,000	8.0 × 75	50mM Na ₂ SO ₄ aq.
F6112100	IEC DEAE3N-4T	0.4	Polyhydroxymethacrylate	2.5	–	4.6 × 35	H ₂ O
F7640002	Asahipak ES-502N 7C	0.55	Polyvinyl alcohol	9	2,000	7.5 × 100	50mM 1,3-Diaminopropane + 50mM NaCl (pH10.0)
F6356240	AXpak WA-624	1.2	Polyhydroxymethacrylate	10	2,000	6.0 × 150	0.1M Sodium phosphate buffer (pH3.0)/CH ₃ CN =80/20
F6700245	AXpak WA-G	(guard column)	Polyhydroxymethacrylate	10	–	4.6 × 10	0.1M Sodium phosphate buffer (pH3.0)/CH ₃ CN =80/20

● Weak anion exchange resin [Functional Group : Diethylaminoethyl] : For UHPLC column

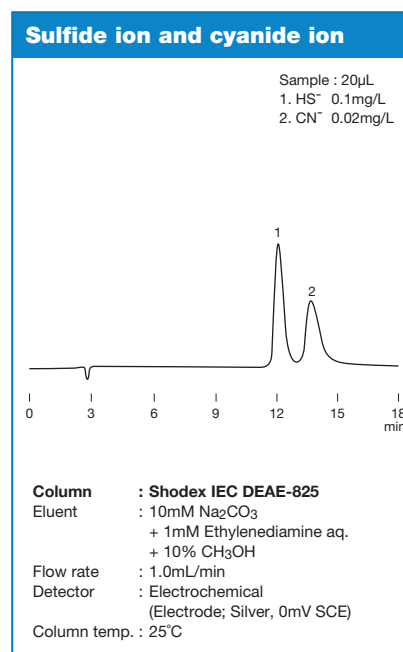
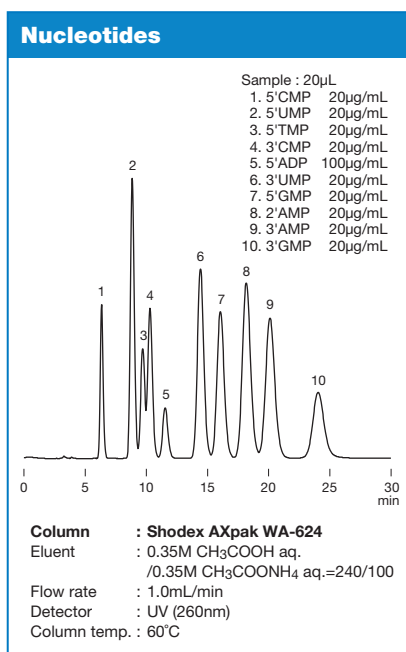
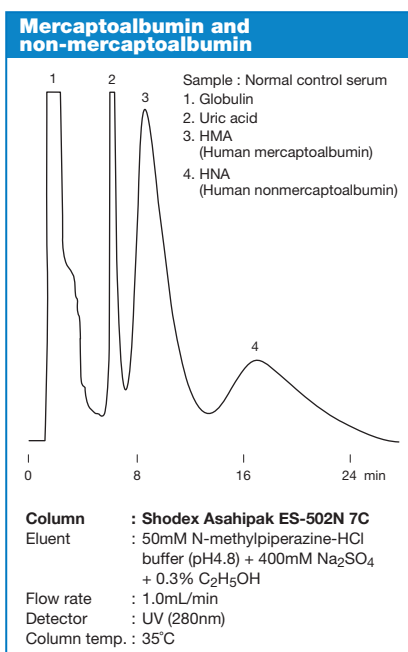
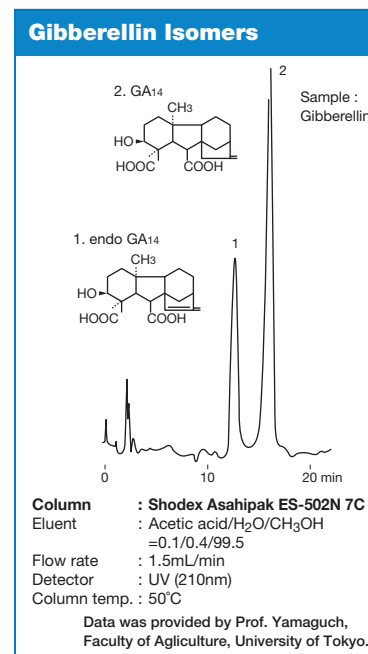
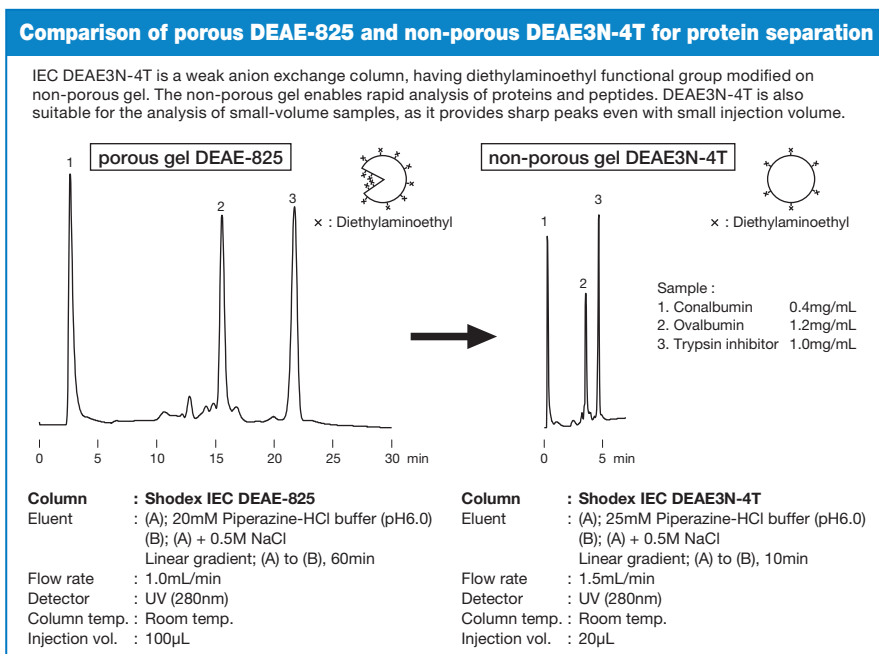
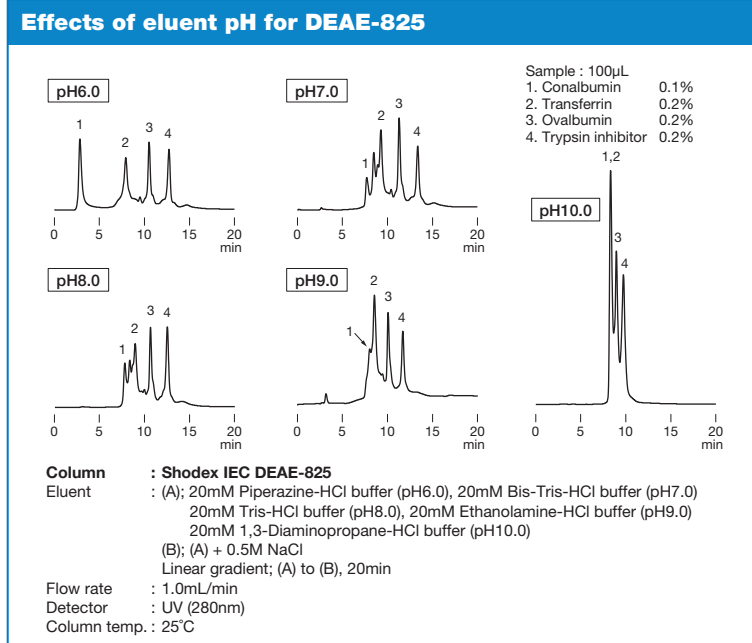
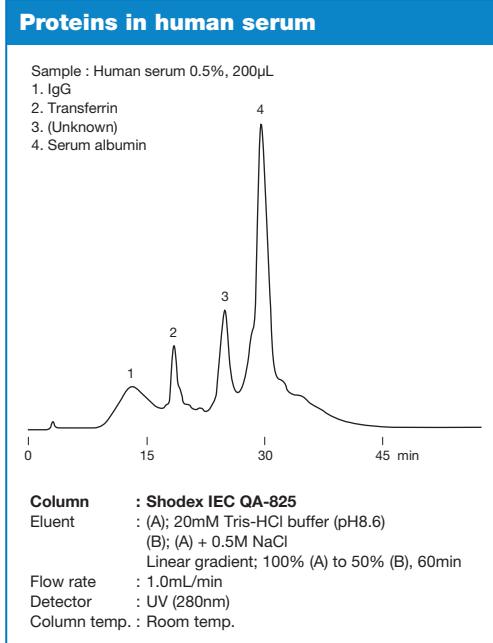
Product Code	Product Name	Ion Exchange Capacity (meq/g)	Base Material	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F6112110	PIKESS DEAE-2B	0.4	Polyhydroxymethacrylate	2.5	–	2.0 × 50	H ₂ O

Semi-micro columns * The following semi-micro columns are made to order.

Product Code	Product Name	Ion Exchange Capacity (meq/g)	Base Material	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length
F7960122	DEAE9A-2D	0.55	Polyvinyl alcohol	9	2,000	2.0 × 150

Preparative columns * Preparative columns are made to order.

Product Code	Product Name	Particle Size (µm)	Column Size (mm) I.D. x Length	Standard columns
F6548000	IEC QA-2025	20	20.0 × 150	QA-825
F6548050	IEC QA-5025	37	50.0 × 300	QA-825
F6709602	IEC QA-LG	20	8.0 × 50	(guard column)
F6548001	IEC DEAE-2025	20	20.0 × 150	DEAE-825
F6548051	IEC DEAE-5025	37	50.0 × 300	DEAE-825
F6709603	IEC DEAE-LG	20	8.0 × 50	(guard column)
F6840004	Asahipak ES-502N 20C	13	20.0 × 100	ES-502N 7C
F6710021	Asahipak GS-20G 7B	20	7.5 × 50	(guard column)



Columns for Cation Exchange Chromatography

Features

SP-825 CM-825	<ul style="list-style-type: none"> Suitable for analysis of relatively high molecular weight compounds: proteins, peptides, DNA, and RNA Usable in a wide pH range from pH 2 to 12
SP-420N	<ul style="list-style-type: none"> Non-porous base material For rapid analysis
SP-2B	<ul style="list-style-type: none"> Non-porous base material Supports UHPLC (available under hyperbaric conditions for up to 30 MPa)
ES-502C 7C	<ul style="list-style-type: none"> Compared to IEC series columns, polyvinyl alcohol is used as base material offering different separation pattern Low hydrophobic interaction with proteins allows analysis under mild conditions
P-421S	<ul style="list-style-type: none"> Column for amino acids analysis by cation exchange mode Supports simultaneous analysis of different amino acids Corresponds to USP L22 and L58

Standard columns

● Strong cation exchange resin [Functional Group : Sulfopropyl]

Product Code	Product Name	Ion Exchange Capacity (meq/g)	Base Material	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F6118250	IEC SP-825	0.4	Polyhydroxymethacrylate	8	5,000	8.0 x 75	50mM Na ₂ SO ₄ aq.
F6113000	IEC SP-420N	0.3	Polyhydroxymethacrylate	2.5	–	4.6 x 35	20mM Sodium acetate buffer + 0.5M Na ₂ SO ₄ (pH5.0)

● Strong cation exchange resin [Functional Group : Sulfopropyl] : For UHPLC column

Product Code	Product Name	Ion Exchange Capacity (meq/g)	Base Material	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F6113110	PIKESS SP-2B	0.3	Polyhydroxymethacrylate	2.5	–	2.0 x 50	20mM Sodium acetate buffer + 0.5M Na ₂ SO ₄ (pH5.0)

● Weak cation exchange resin [Functional Group : Carboxymethyl]

Product Code	Product Name	Ion Exchange Capacity (meq/g)	Base Material	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F6110002	IEC CM-825	0.4	Polyhydroxymethacrylate	8	5,000	8.0 x 75	50mM Na ₂ SO ₄ aq.
F7640001	Asahipak ES-502C 7C	0.55	Polyvinyl alcohol	9	2,000	7.5 x 100	0.1M Sodium phosphate buffer (pH4.4)

● For amino acids [Functional Group : Sulfo (Na⁺)]

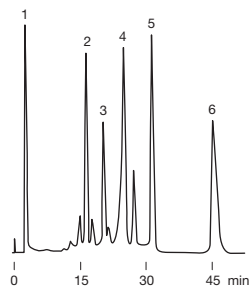
Product Code	Product Name	Plate Number (TP/column)	Base Material	Particle Size (µm)	Column Size (mm) I.D. x Length	Shipping Solvent
F6354211	CXpak P-421S	≥ 3,500	Styrene divinylbenzene copolymer	6	4.6 x 150	H ₂ O
F6700210	CXpak P-G	(guard column)	Styrene divinylbenzene copolymer	6	4.6 x 10	H ₂ O

Preparative columns * Preparative columns are made to order.

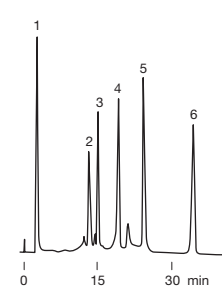
Product Code	Product Name	Particle Size (µm)	Column Size (mm) I.D. x Length	Standard columns
F6548002	IEC SP-2025	20	20.0 x 150	SP-825
F6548052	IEC SP-5025	37	50.0 x 300	SP-825
F6709604	IEC SP-G 8B (IEC SP-LG)	20	8.0 x 50	(guard column)
F6548003	IEC CM-2025	20	20.0 x 150	CM-825
F6548053	IEC CM-5025	37	50.0 x 300	CM-825
F6709605	IEC CM-LG	20	8.0 x 50	(guard column)
F6840003	Asahipak ES-502C 20C	13	20.0 x 100	ES-502C 7C
F6710021	Asahipak GS-20G 7B	20	7.5 x 50	(guard column)

Protein separation using cation exchange columns

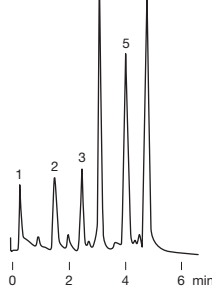
(I) CM-825
(Weak cation exchange)
90 μ L injection



(II) SP-825
(Strong cation exchange)
30 μ L injection



(III) SP-420N
(Strong cation exchange)
non-porous type gel



Column : (I) Shodex IEC CM-825, (II) Shodex IEC SP-825,
(III) Shodex IEC SP-420N

Eluent : (A); 20mM Sodium phosphate buffer (pH7.0)
(B); (A) + 0.5M NaCl
(I,II) Linear gradient; (A) to (B), 60min (III) Linear gradient; (A) to (B), 10min

Flow rate : (I,II) 1.0mL/min (III) 1.5mL/min

Detector : UV (280nm)

Column temp. : Room temp.

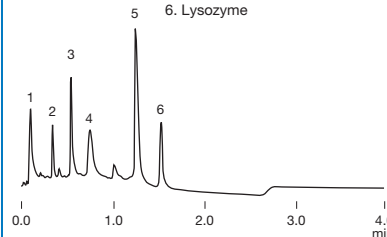
Sample :

1. Myoglobin
2. Trypsinogen
3. Ribonuclease A
4. α -Chymotrypsinogen A
5. Cytochrome c
6. Lysozyme

Rapid analysis of proteins using UHPLC

Sample : 5 μ L (13mg total protein)

1. Myoglobin
2. Trypsinogen
3. Ribonuclease A
4. α -Chymotrypsinogen A
5. Cytochrome c
6. Lysozyme



Column : Shodex PIKESS SP-2B

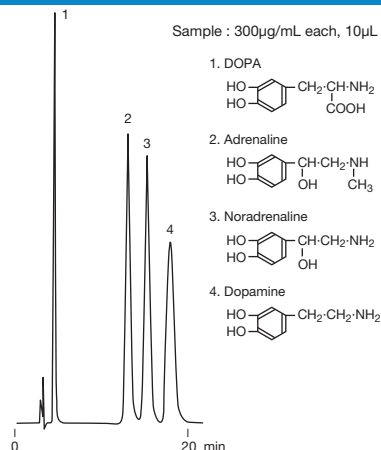
Eluent : (A); 20mM Sodium phosphate buffer (pH 7.0)
(B); (A) + 0.5 M NaCl
Linear gradient; 100% (A) to 50% (B), 2.5min

Flow rate : 1.2mL/min

Detector : UV (280nm)

Column temp. : 25°C

Catecholamines



Column : Shodex Asahipak ES-502C 7C

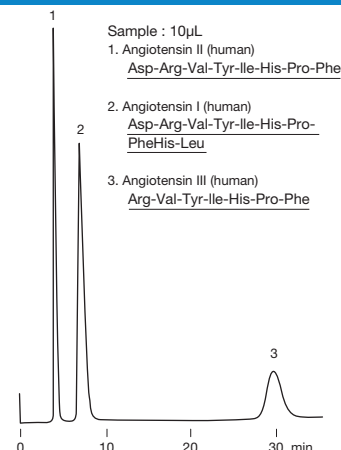
Eluent : 20mM Sodium malonate buffer + 0.5M NaCl (pH6.0)

Flow rate : 1.0mL/min

Detector : UV (280nm)

Column temp. : 30°C

Angiotensins



Column : Shodex Asahipak ES-502C 7C

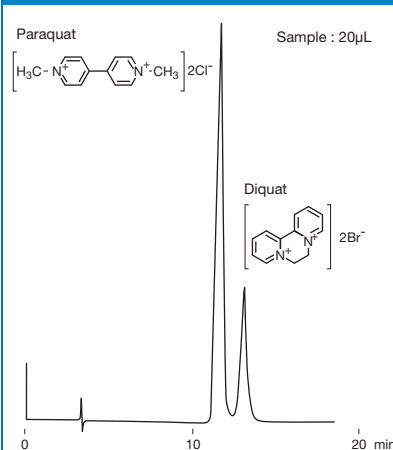
Eluent : 50mM Sodium malonate buffer (pH6.0) /CH₃CN=80/20

Flow rate : 1.0mL/min

Detector : UV (280nm)

Column temp. : 30°C

Paraquat and diquat



Column : Shodex Asahipak ES-502C 7C

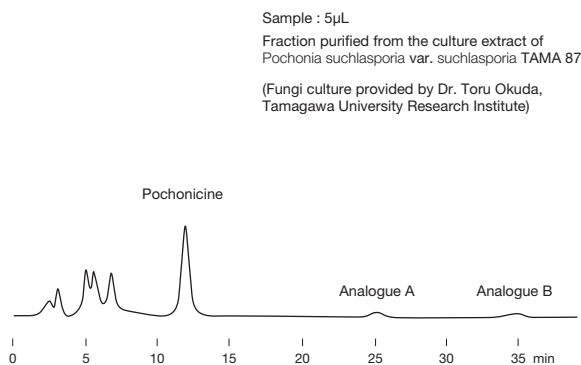
Eluent : 50mM Sodium phosphate buffer + 150mM NaCl (pH7.0)

Flow rate : 1.0mL/min

Detector : UV (288nm)

Column temp. : 30°C

Analysis of pochonicine and its analogues in filamentous fungi culture extract



Column : Shodex Asahipak ES-502C 7C

Eluent : 10mM Ammonium bicarbonate aq.

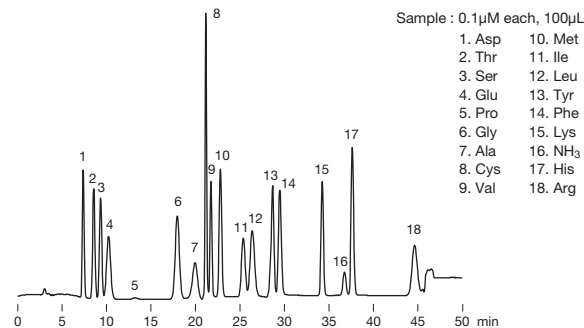
Flow rate : 0.6mL/min

Detector : UV (210nm)

Column temp. : 40°C

Data provided by Dr. Teruhiko Nitoda,
Faculty of Agriculture, Okayama University.

Standard amino acids



Column : Shodex CXpak P-421S

Eluent : MCI Buffer L-8500-PH Kit (Mitsubishi Chemical Corporation)
Low pressure gradient:
0min; PH-1, 0.2min; PH-2, 12.5min; PH-3, 22.7min; PH-4 40.0-53.0min; PH-RG

Reagent : Ninhydrin Coloring Solution Kit for HITACHI (Wako Pure Chemical Industries, Ltd.)
0-52min; R1:R2=50:50

Flow rate : (Eluent) 0.5mL/min
(Reagent) 0.35mL/min

Detector : VIS (570nm)

Column Temp. : 63°C

Reaction Temp. : 120°C