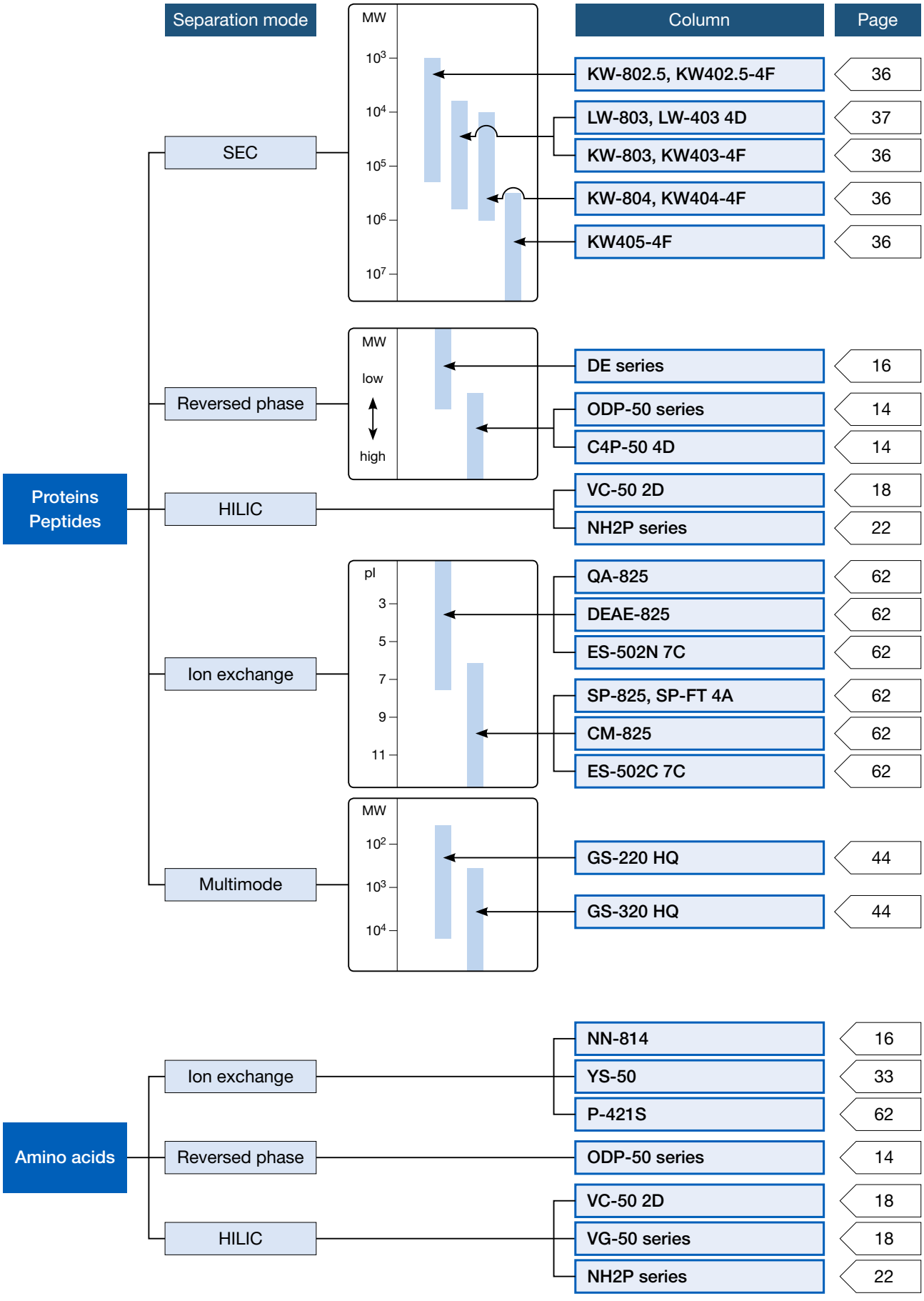
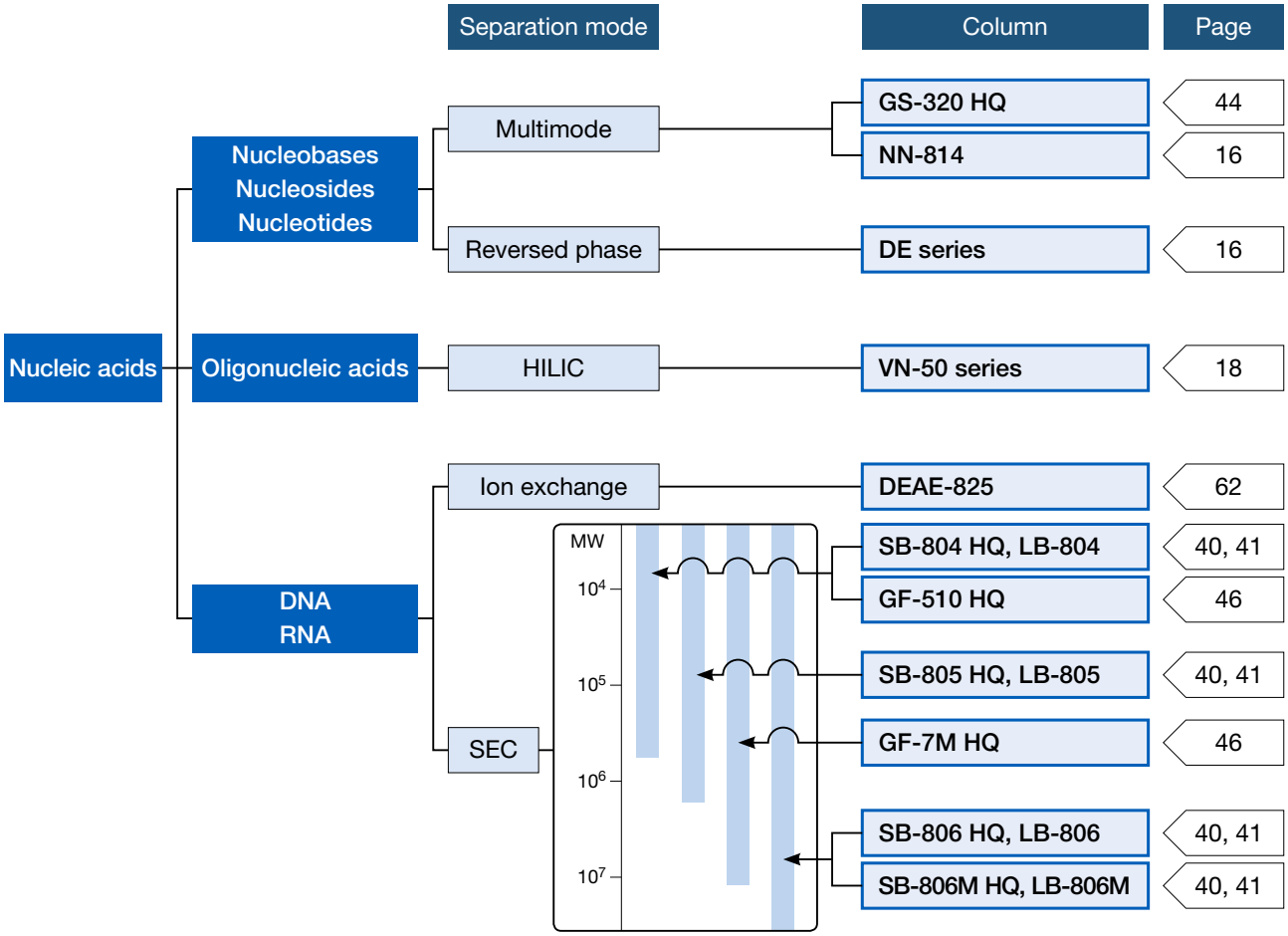
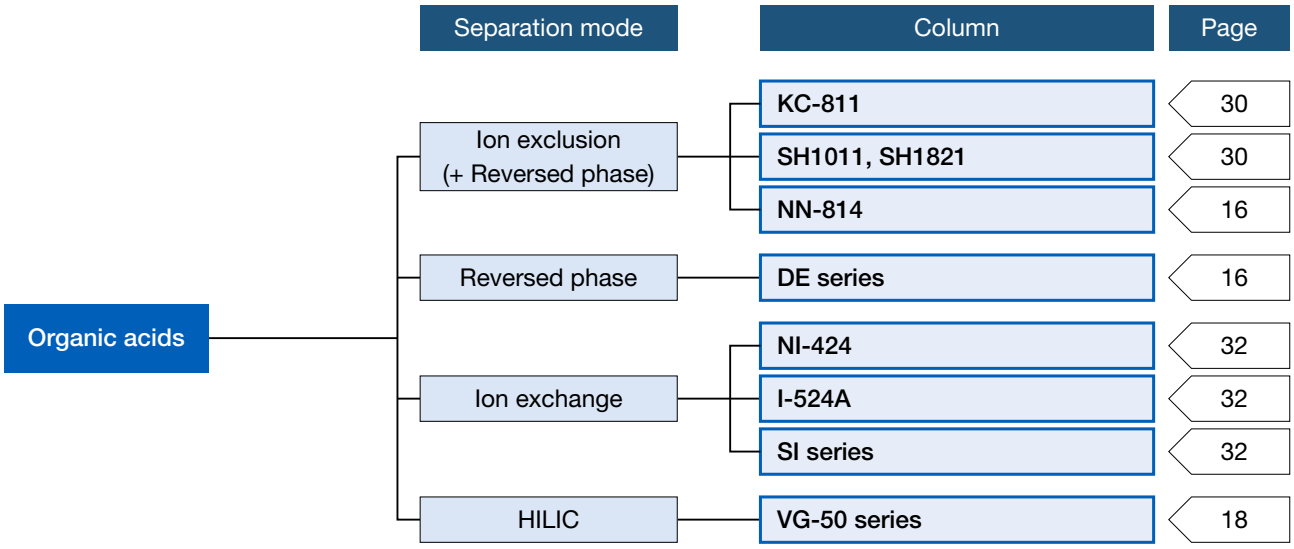
Column Selection (Proteins, Peptides, and Amino Acids)



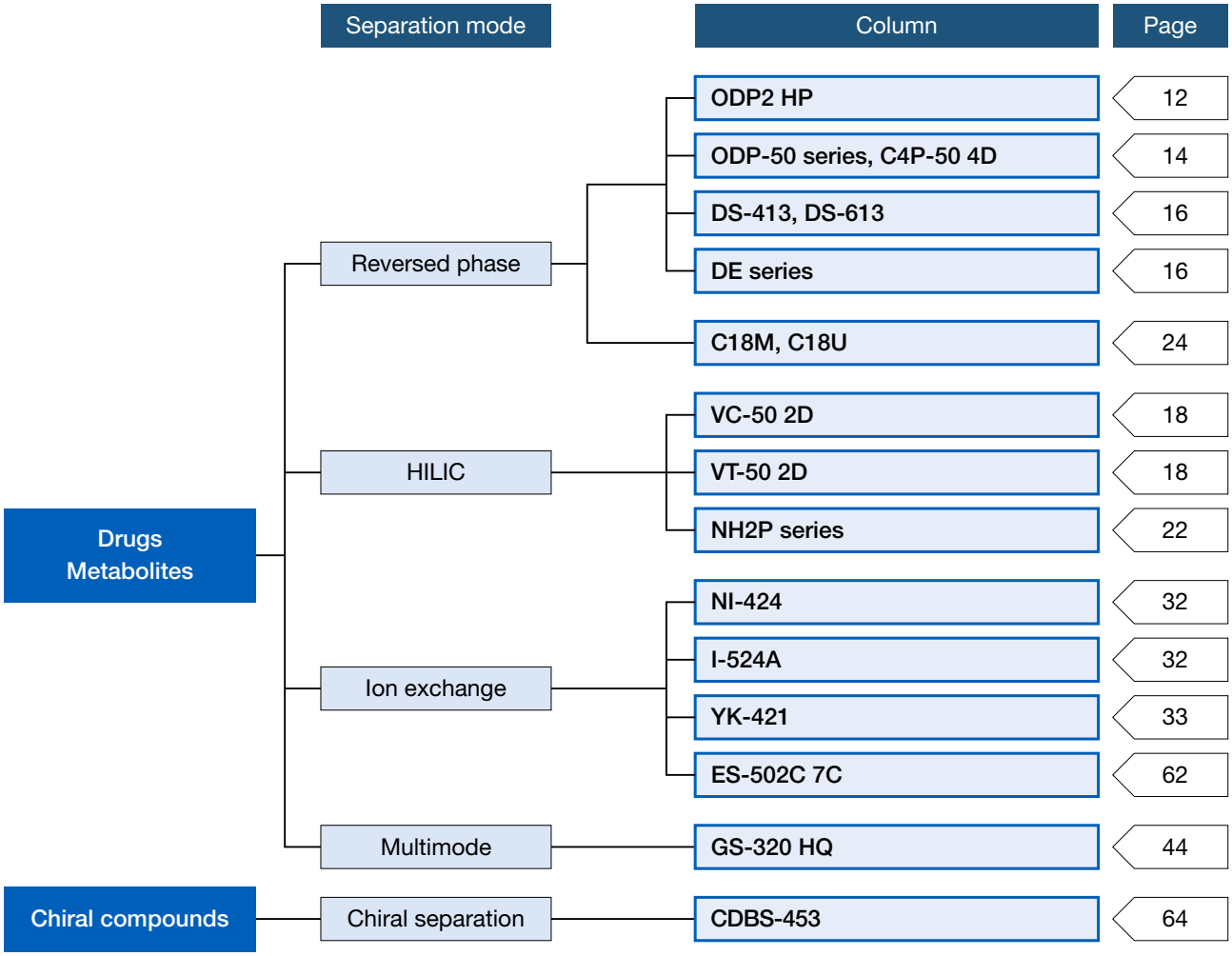
Column Selection (Nucleic Acids)



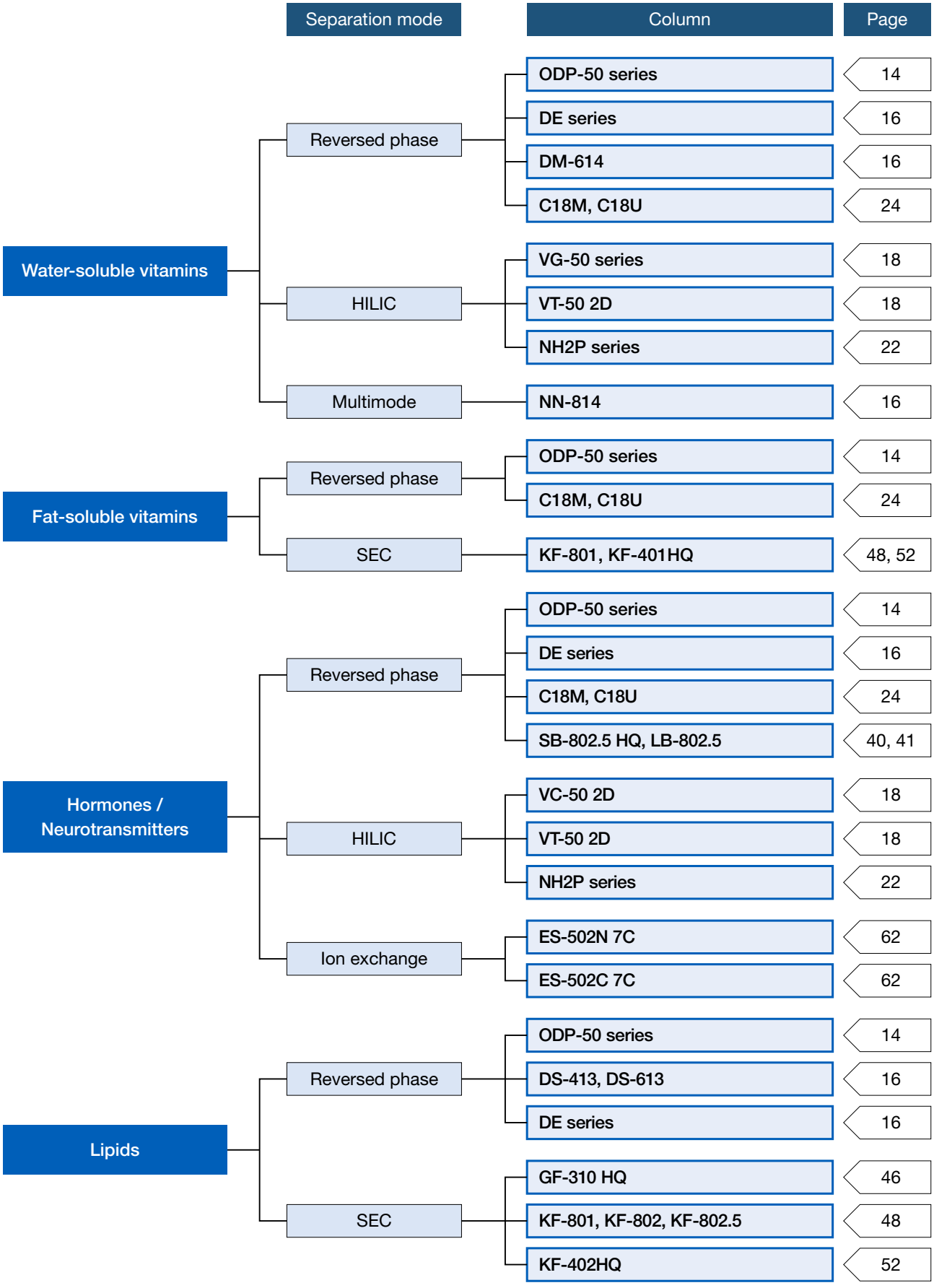
Column Selection (Organic Acids)



Column Selection (Drugs, Metabolites and Chiral Compounds)



Column Selection (Vitamins, Hormones / Neurotransmitters and Lipids)



Polymer-based Reversed Phase Chromatography Columns (ODP2 HP)

https://www.shodex.de/odp2-hp-columns

Features

ODP2 HP

- Provides a large theoretical plate number nearly twice as much as generally available polymer-based reversed phase columns do
- Offers enhanced retention of high polar substances compared to ODS columns
- Suitable for the analysis of small molecules such as pharmaceuticals in the presence of protein matrix
- Ideal for LC/MS analysis of high polar compounds
- Fulfills USP-NF L39 requirements

Standard columns

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7622001	**ODP2 HP-4B**	≥ 3,500	—	5	40	**4.6 x 50**	H_2O/CH_3CN = 55/45
F7622002	**ODP2 HP-4D**	≥ 10,000	—	5	40	**4.6 x 150**	H_2O/CH_3CN = 55/45
F7622003	**ODP2 HP-4E**	≥ 17,000	—	5	40	**4.6 x 250**	H_2O/CH_3CN = 55/45
F6714010	**ODP2 HPG-4A**	(guard column)	—	5	—	**4.6 x 10**	H_2O/CH_3CN = 55/45

Base Material: Polyhydroxymethacrylate

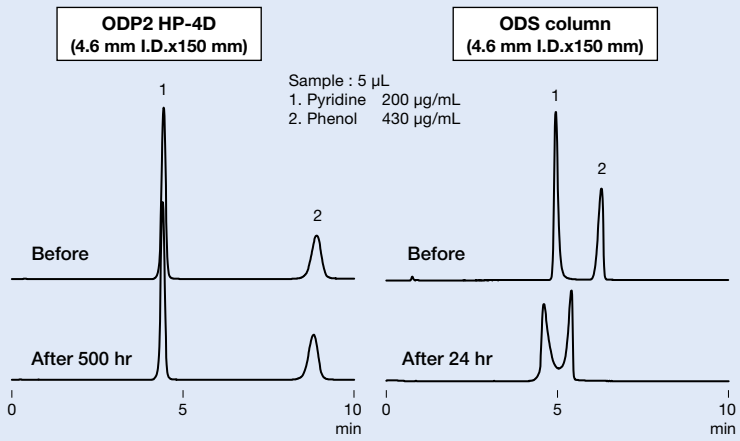
Semi-micro columns

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (µm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7622004	**ODP2 HP-2B**	≥ 3,000	—	5	40	**2.0 x 50**	H_2O/CH_3CN = 55/45
F7622005	**ODP2 HP-2D**	≥ 7,000	—	5	40	**2.0 x 150**	H_2O/CH_3CN = 55/45
F6714011	**ODP2 HPG-2A**	(guard column)	—	5	—	**2.0 x 10**	H_2O/CH_3CN = 55/45

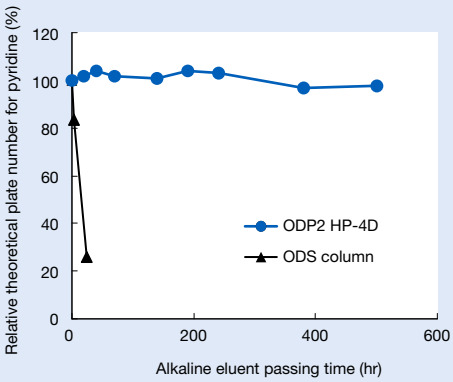
Base Material: Polyhydroxymethacrylate

Comparison between ODP2 HP-4D and an ODS column for their alkaline tolerances

Chromatograms obtained before and after passing alkaline eluent



Correlation between alkaline eluent passing time and relative theoretical plate number



Analysis condition

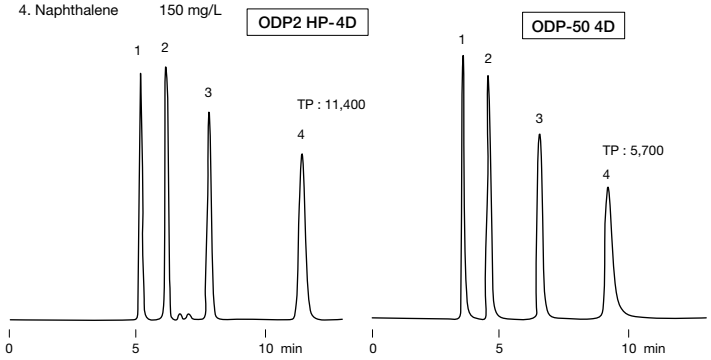
Column : **Shodex ODP2 HP-4D**
ODS column from other manufacturer
Eluent : H_2O/CH_3OH = 70/30
Flow rate : 1.0 mL/min
Detector : UV (254 nm)
Column temp. : 40 ℃

Eluent passing conditions for an alkaline tolerance test

Column : **Shodex ODP2 HP-4D**
ODS column from other manufacturer
Eluent : 10 mM Sodium phosphate buffer (pH12)
/CH_3CN = 45/55
Flow rate : 0.6 mL/min
Column temp. : 30 ℃

Comparison between ODP2 HP and ODP-50

Sample : 5 µL
1. Phenol 300 mg/L
2. Methyl benzoate 350 mg/L
3. Toluene 1000 mg/L
4. Naphthalene 150 mg/L

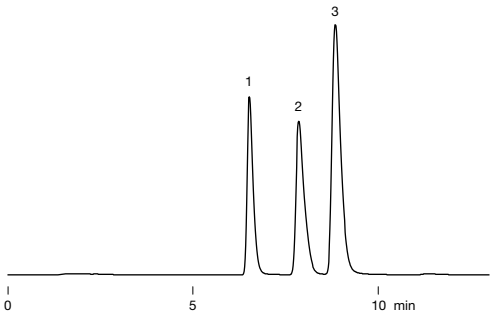


Column : Shodex ODP2 HP-4D
Eluent : H_2O/CH_3CN = 55/45
Flow rate : 0.6 mL/min
Detector : UV (254 nm)
Column temp. : 40 ℃

Column : Shodex Asahipak ODP-50 4D
Eluent : H_2O/CH_3CN = 35/65
Flow rate : 0.6 mL/min
Detector : UV (254 nm)
Column temp. : 40 ℃

Imidazoles

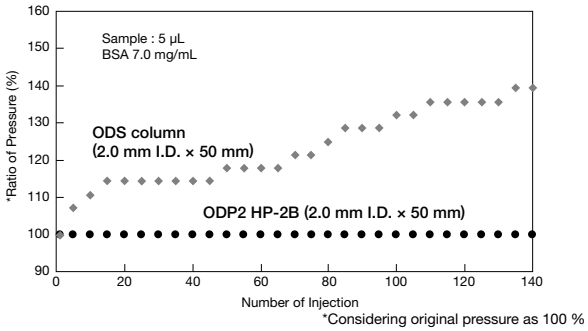
Sample : 0.1 % each, 10 µL
1. Imidazole
2. 2-Methylimidazole
3. 4-Methylimidazole



Column : Shodex ODP2 HP-4E
Eluent : 10 mM Na_2HPO_4 aq./CH_3CN = 90/10
Flow rate : 0.8 mL/min
Detector : UV (220 nm)
Column temp. : 40 ℃

Influence of repeated protein injection on column pressure

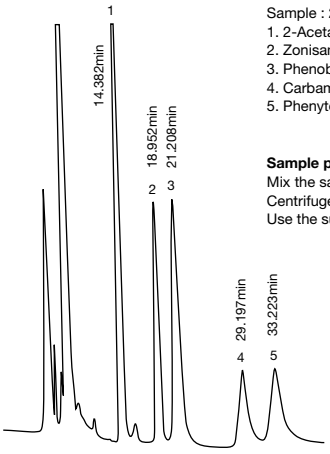
ODP2 HP columns are packed with gels with increased surface polarity and smaller pore size which prevent the adsorption of proteins.
BSA was injected multiple times to both ODS and ODP2 HP columns.
A significant column pressure increase was observed for the ODS column, while no considerable change was observed for the ODP2 HP column even after 140 injections.



*Considering original pressure as 100 %

Column : Shodex ODP2 HP-2B
ODS column from other manufacturer
Eluent : 1 mM CH_3COONH_4 aq./CH_3CN = 90/10
Flow rate : 0.2 mL/min
Detector : UV (220 nm)
Column temp. : 30 ℃

Anticonvulsant in serum



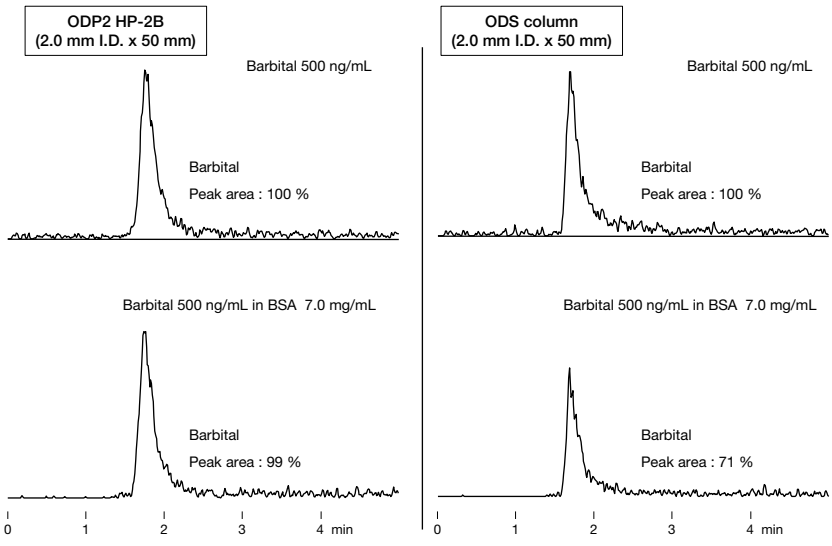
Sample : 20 µL
1. 2-Acetaminophenol (I.S.) 10 µg/mL
2. Zonisamide 13.0 µg/mL
3. Phenobarbital 19.0 µg/mL
4. Carbamazepine 4.5 µg/mL
5. Phenytoin 9.0 µg/mL

Sample pretreatment:
Mix the same volumes of serum and acetonitrile. Centrifuge the mixture at 6000 x *g* for 5 minutes. Use the supernatant as sample.

Data provided by Katsuko Hara.MT Yutaka Komiyama .Ph.D., Department of Clinical Sciences and Laboratory Medicine, Kansai Medical University.

Column : Shodex ODP2 HP-4E
Eluent : 25 mM Sodium phosphate buffer (pH5.2)/CH_3CN = 680/320
Flow rate : 0.35 mL/min
Detector : UV (210 nm)
Column temp. : 40 ℃

Comparison of barbital recovery rate using ODP2 HP-2B and ODS in the presence of BSA



LC/MS analysis of drugs in biological samples is often interfered by ion suppression caused by presence of protein when using general ODS columns. However, ODP2 HP does not retain proteins and elutes them at the void volume. Thus, elution of barbital is not affected when using the ODP2 HP and provides better recovery rate than that of an ODS column.

Column : Shodex ODP2 HP-2B
ODS column from other manufacturer
Eluent : 10 mM CH_3COONH_4 aq. /CH_3CN = 70/30
Flow rate : 0.2 mL/min
Detector : ESI-MS (SIM Negative: m/z 183)
Column temp. : 30 ℃
Injection vol. : 10 µL