SHIMADZU
Excellence in Science

S-COS-B18B
#2021 Issue

Shimadzu Consumables Catalogue

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S-COS-B18B #2021 Issue

CoreFocus

The Smart Choice In Consumables SHIMADZU

For over 140 years, Shimadzu has continued to be your trusted partner by providing leading-edge analytical instruments. Now we further support your success through borderless delivery of the high quality consumable products that solve everyday challenges. All this is for the pursuit of our corporate philosophy "Contributing to Society through Science and Technology".

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UHPLC/HPLC Columns and LC Accessories

Column Selection Guide

Selection by Support Materials

Packing Materials

- **Silica Gel Type**
  - Shim-pack XR, VP, MAqC-ODS, G Series, FC-ODS, Velox Series, Arata C18
  - Shim-pack UC Series
  - Shim-pack Diol Series
  - Shim-pack WAX/WCX Series
- **Organic Silica Hybrid**
  - Shim-pack Scepter Series
- **Polymer Type**
  - Shim-pack GPC Series
  - Shim-pack IC Series
  - Shim-pack Amino, SCR, ISA/ISC Series

Selection by Separation Modes

Silica Gel Type

- **Reversed Phase**
  - ODS/C18 (Shim-pack XR, VP, MAqC, G, FC Series, Velox, Scepter)
  - Shim-pack GIST C18-AQ
  - Shim-pack GIS C18-P
  - Shim-pack GIS RP-Shield
  - C8 (Shim-pack XR, VP, G Series)
  - Phenyl (Shim-pack XR, VP, G Series)
  - Shim-pack GIST Phenyl-Hexyl
  - Shim-pack Velox Biphenyl
  - Shim-pack Velox PFPP, Shim-pack Scepter PFPP

  } Low molecular-weight compounds
- **Normal Phase**
  - Shim-pack GIS CN ..... Steroid hormones
  - Shim-pack XR-SIL ..... Phospholipids
  - Shim-pack GIST NH2 ..... Saccharides, tocopherols
- **HILIC Mode**
  - Shim-pack GIS HILIC, Velox HILIC, Scepter HILIC ..... Polar compounds
- **Ion Exchange**
  - Shim-pack WAX (weakly basic anion exchange) ..... Nucleotides, proteins
  - Shim-pack WCX (weakly acidic cation exchange) ..... Proteins
- **Gel Filtration**
  - Shim-pack Diol Series ..... Proteins
  - Shim-pack Bio Diol Series ..... MAb, oligonuclestides, carbonydrates, proteins

Polymer Type

- **Ion Exchange**
  - Shim-pack IC Series ..... Inorganic ions
  - Shim-pack Amino, ISC Series ..... Amino acids, guanidines
  - Shim-pack ISA Series ..... Saccharides
  - Shim-pack Bio IEX ..... Peptides, oligonuclestides, biopharmaceutical, proteins, nucleic acids
- **Ion Exclusion**
  - Shim-pack SCR-101H, SCR-102H ..... Organic acids
  - Shim-pack Fast-OA ..... Organic acids
- **GPC**
  - Shim-pack GPC Series ..... Synthetic high polymers

Selection by Column Particle Sizes

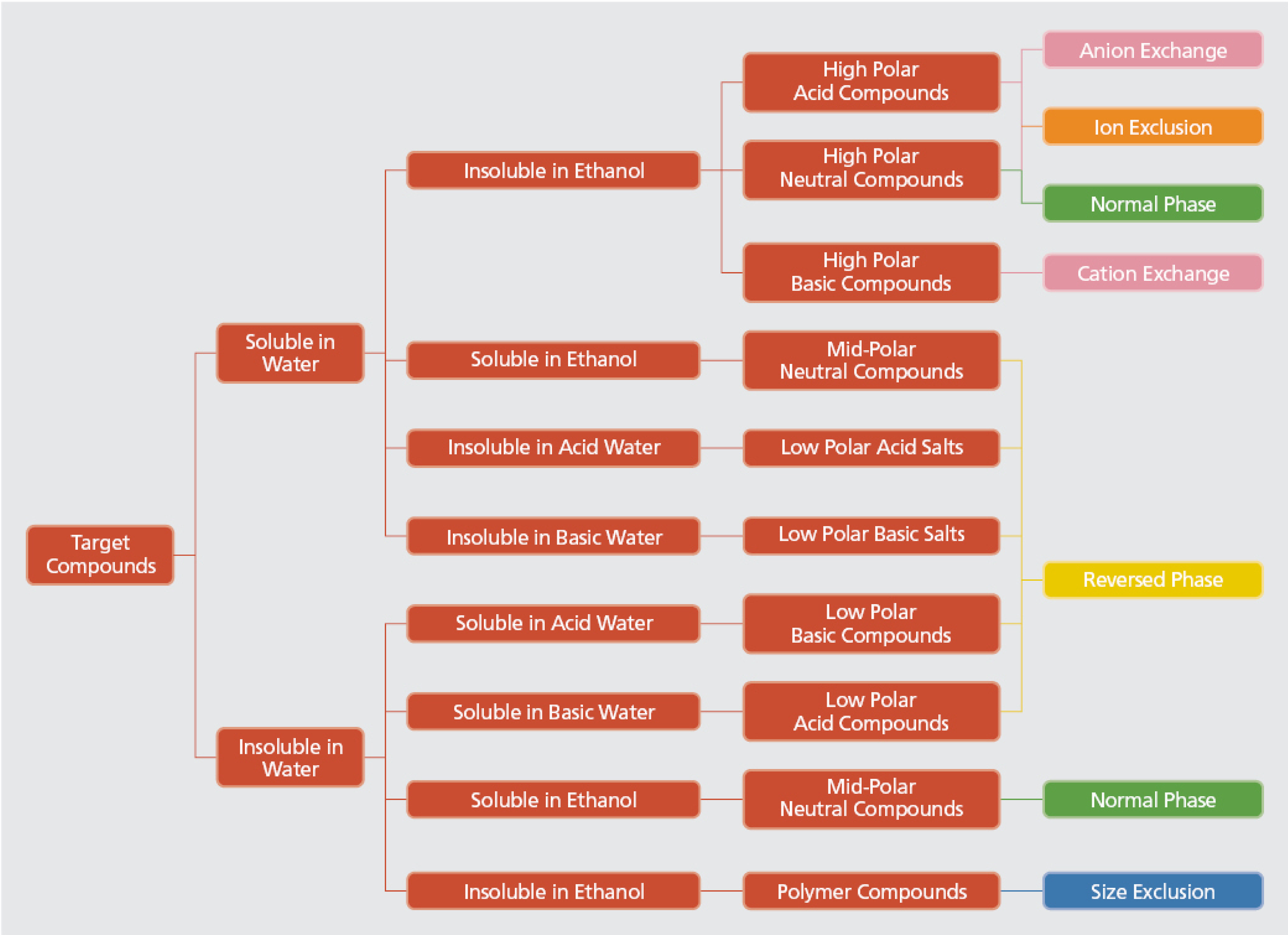
- HPLC Columns
  - Analytical Columns
    - High-Speed Analysis
      - 1.6 µm, 2.2 µm — Shim-pack XR-ODS III, Arata C18
      - 1.8 µm, 2.7 µm — Shim-pack Velox Series
      - 1.9 µm, 2 µm, 2.2 µm, 3 µm — Shim-pack G, XR Series, Scepter Series
    - Conventional Analysis
      - ≥3 µm — Shim-pack VP, MAqC-ODS, G Series, FC-ODS, Arata C18, Velox Series, Scepter Series
  - Preparative Columns
    - 5 µm, 10 µm — Shim-pack G Series, Scepter Series
    - 15 µm — Shim-pack PREP Series

Selection of ODS columns

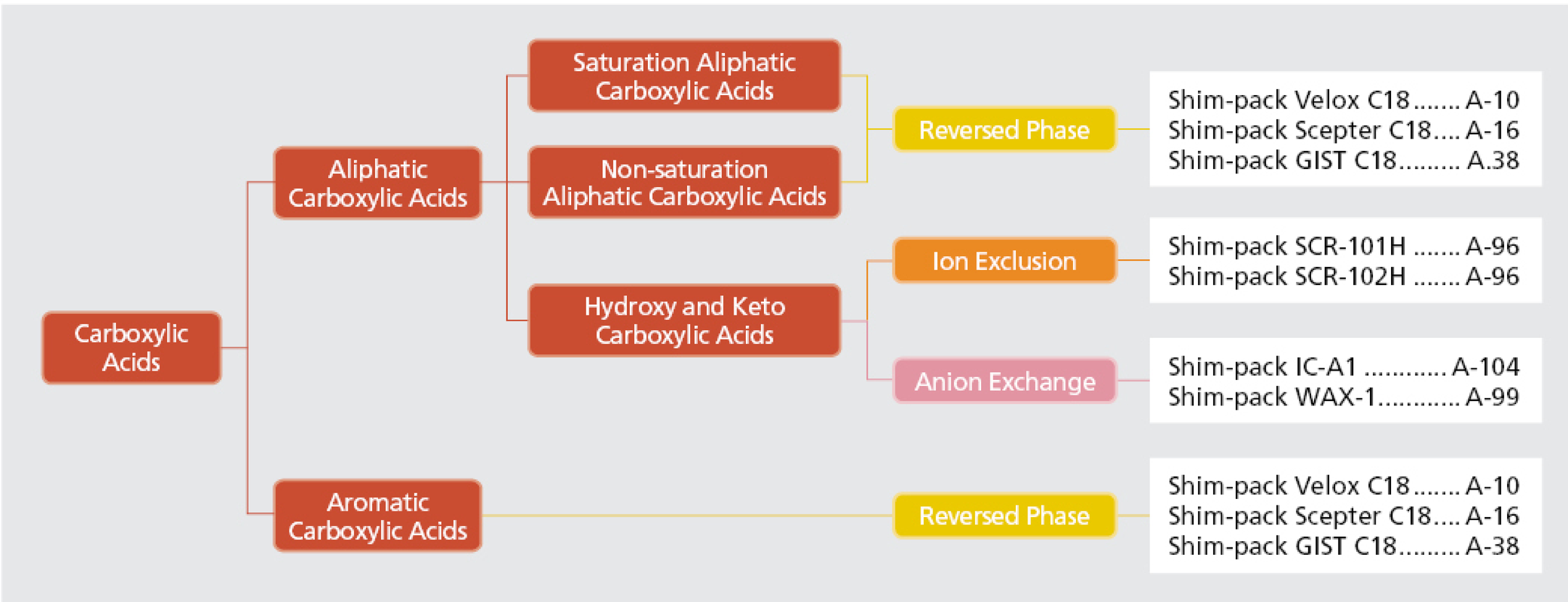
- High-Speed Analysis
  - With Certificate of Compliance for Validation
    - Shim-pack XR-ODS (Pressure tolerance: 35MPa) A-28
    - Shim-pack XR-ODS II (Pressure tolerance: 60MPa) A-30
    - Shim-pack XR-ODS III (Pressure tolerance: 100MPa) A-30
  - Wider pH Range
    - Shim-pack Scepter C18 / HD-C18 (pH range: 1 - 12) A-16
    - Shim-pack GIST/GIST-HP C18 (pH range: 1 - 10) A-38
  - Rapid Separation and Wider pH Range
    - Shim-pack GISS/GISS-HP C18 (pH range: 1 - 10) A-42
  - Stronger Retentivity
    - Shim-pack Scepter C18 / HD-C18 ..... A-16
    - Shim-pack GIS/GIS-HP C18 ..... A-44
  - Strong Retentivity of Highly Polar Compounds
    - Shim-pack GIST/GIST-HP C18-AQ A-38
- Conventional Analysis
  - With Certificate of Compliance for Validation
    - Shim-pack VP-ODS A-32
  - Wider pH Range
    - Shim-pack Scepter C18 / HD-C18 (pH range: 1 - 12) A-16
    - Shim-pack GIST C18 (pH range: 1 - 10) A-38
  - Stronger Retentivity
    - Shim-pack GIS C18 ..... A-44
    - Shim-pack FC-ODS (pH range: 1.5 - 9) A-67
    - Shim-pack Scepter HD C18 ..... A-17
  - Higher Steric Selectivity
    - Shim-pack GIS C18-P A-46
  - Different Elution Pattern
    - Shim-pack GIS RP-Shield A-48
  - Higher Cost-Performance
    - Shim-pack GWS C18 ..... A-49
  - Strong Retentivity of Basic Compounds
    - Shim-pack MAqC-ODS A-36

Column Selection Guide

Column Selection by Target Compounds



Column Selection by Target Compounds



Column Selection by Target Compounds

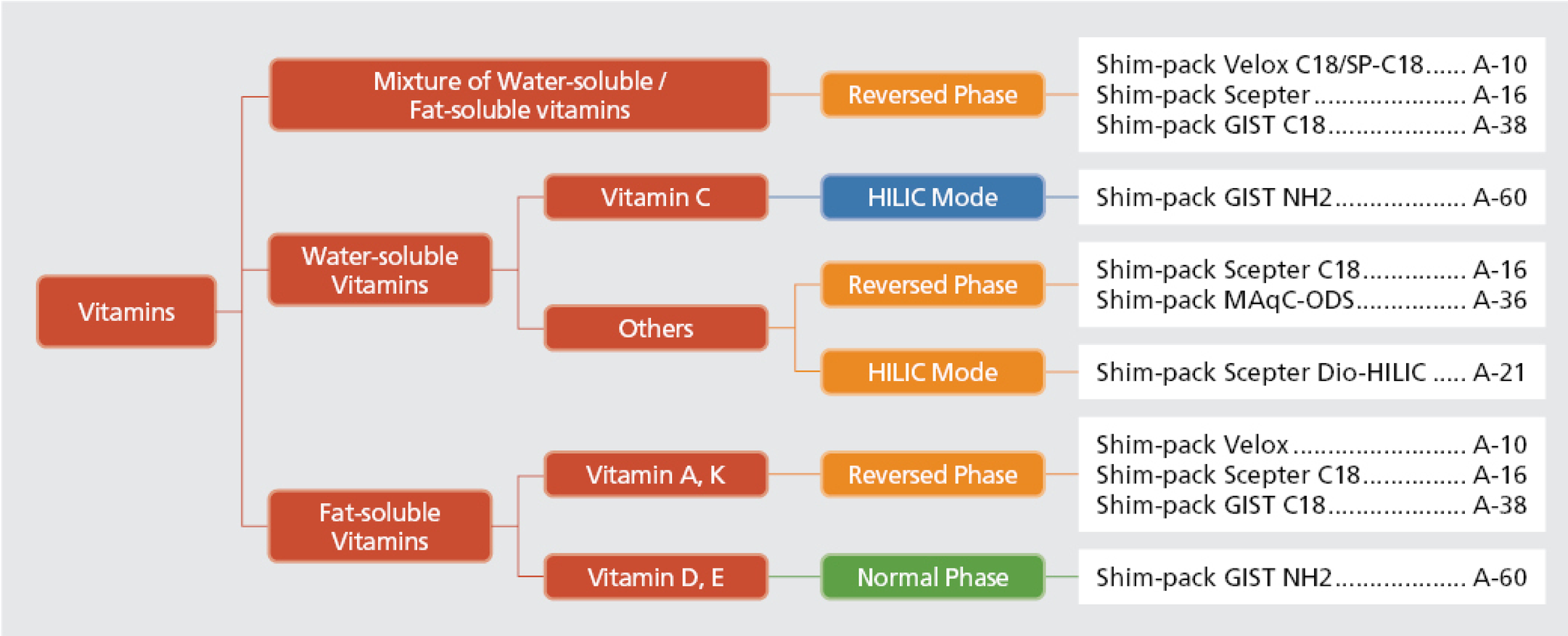
- **Amino Acids**
  - **Free Amino Acids**
    - **HILIC Mode**
      - Shim-pack Scepter Dio-HILIC A-21
    - **Cation Exchange**
      - Shim-pack AMINO-LI ..... A-95 (Post-column derivation fluorescing with OPA)
  - **Protein-hydrolyzed Amino Acids**
    - **Cation Exchange**
      - Shim-pack AMINO-NA ..... A-95 (Post-column derivation fluorescing with OPA)
    - **Reversed Phase (Pre-column derivatization)**
      - Shim-pack Velox C18 ..... A-10
      - Shim-pack Scepter C18 ..... A-16
      - Shim-pack GIST C18 ..... A-38
    - **Reversed Phase + Ion Pair**
      - Shim-pack Velox C18 ..... A-10
      - Shim-pack Scepter C18 ..... A-16
      - Shim-pack GIST C18 ..... A-38

- **Peptides Proteins**
  - **Peptides**
    - **Reversed Phase**
      - Shim-pack Velox C18 ..... A-10
      - Shim-pack Scepter C18 ..... A-16
      - Shim-pack Arata Peptide C18 ..... A-27
      - Shim-pack GIST C18 ..... A-38
      - Shim-pack GISS C18 ..... A-42
  - **Proteins**
    - **Reversed Phase**
      - Shim-pack Scepter C4 ..... A-22
    - **Gel Filtration**
      - Shim-pack Diol Series A-85
      - Shim-pack Bio Diol A-77
    - **Cation Exchange**
      - Shim-pack Bio IEX SP/SP-NP A-77
      - Shim-pack WCX-1 ..... A-99
    - **Anion Exchange**
      - Shim-pack Bio IEX Q/Q-NP A-77
      - Shim-pack WAX-2 ..... A-99
    - **Hydrophobic Interaction**
      - Shim-pack Bio HIC A-133

- **Sugars**
  - **Monosaccharides**
    - **HILIC Mode**
      - Shim-pack GIST NH2 ..... A-60
    - **Gel Filtration + Ligand Exchange**
      - Shim-pack SCR-101N/C/P A-96
  - **Mono- to tri-saccharides**
    - **Anion Exchange**
      - Shim-pack ISA-07 ..... A-97
  - **Oligosaccharides**
    - **HILIC Mode**
      - Shim-pack GIST NH2 ..... A-60
  - **Derivatized Sugars**
    - **Reversed Phase**
      - Shim-pack Velox C18 ..... A-10
      - Shim-pack Scepter C18 ..... A-16
      - Shim-pack GIST C18 ..... A-38

Column Selection Guide

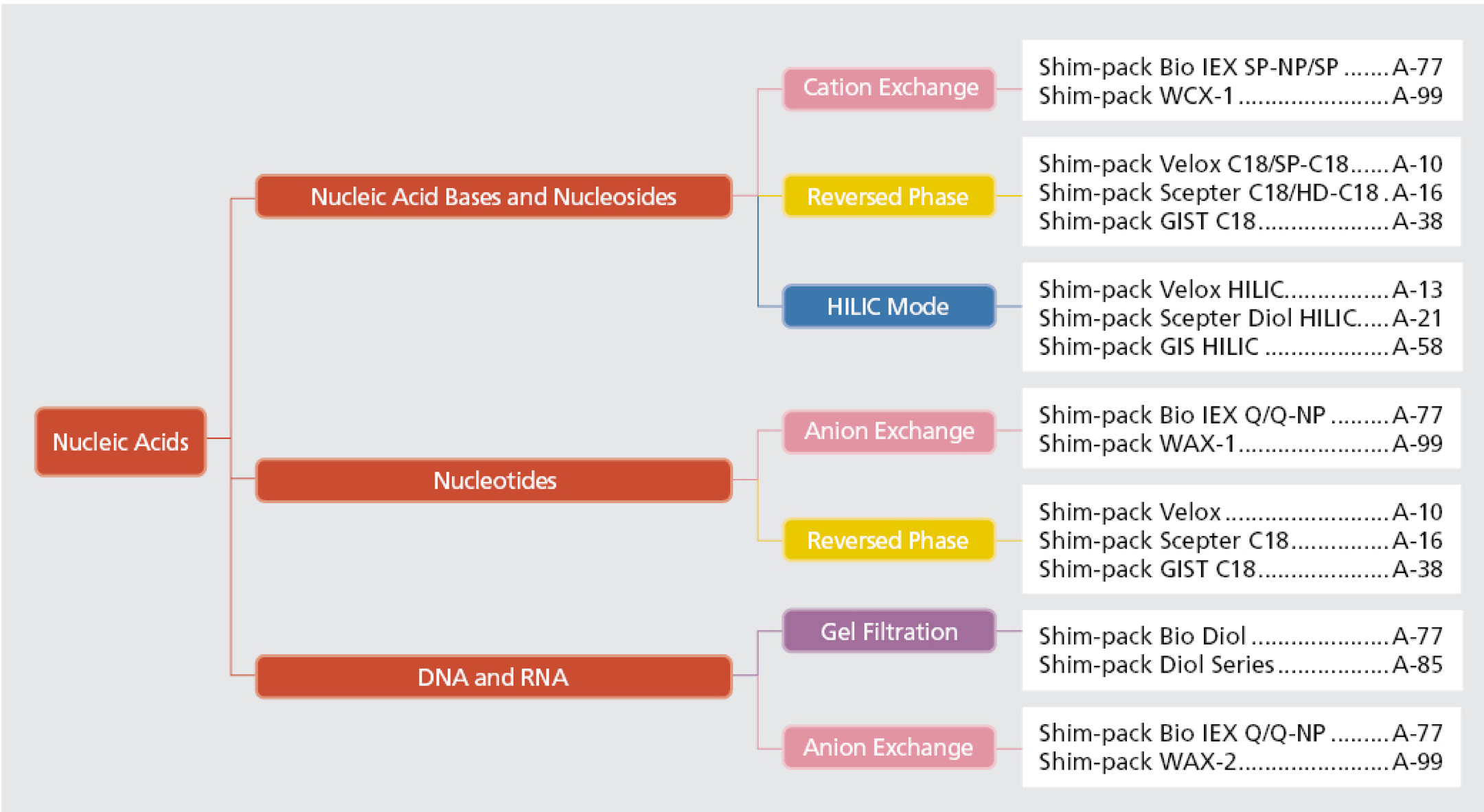
Column Selection by Target Compounds



Water-soluble Vitamins	
Vitamin B1 (thiamin)	UV (270 nm) RF (Post-column derivatization)
Vitamin B2 (riboflavin)	UV (270 nm) RF (Post-column derivatization)
Vitamin B3 (niacin)	UV (260 nm)
Vitamin B5 (pantothenic acid)	UV (205 nm)
Vitamin B6 (pyridoxine)	UV (290 nm)
Vitamin B12 (cyanocobalamine)	UV (280 nm)
Vitamin BT (carnitine)	UV (210 nm) RI
Vitamin C (ascorbic acid)	UV (245 nm)
Vitamin H (biotin)	UV (210 nm)
Vitamin M (folic acid)	UV (280 nm)
Vitamin P (hesperidin)	UV (265 nm)

Fat-soluble Vitamins	
Vitamin A (retinol)	UV (325 nm) RF (Ex. 340 nm, Em. 460 nm)
Vitamin D	UV (265 nm)
Vitamin E (tocopherol)	UV (295 nm) RF (Ex. 295 nm, Em. 325 nm)
Vitamin K	UV (250 nm) RF (Post-column derivatization)

* The above wavelength values are approximate values. It is possible to be influenced by the state of mobile phase.



Selection by USP

USP Code	Packing	Shim-pack HPLC Columns	Page
L1	Octadecyl silane chemically bonded to porous or non-porous silica or ceramic micro-particles, 1.5 to 10 µm in diameter, or a monolithic rod.	Shim-pack Velox C18	A-10
		Shim-pack Velox SP-C18	A-11
		Shim-pack Scepter C18	A-16
		Shim-pack Scepter HD-C18	A-17
		Shim-pack Arata C18	A-25
		Shim-pack XR-ODS	A-28
		Shim-pack XR-ODS II	A-30
		Shim-pack XR-ODS III	A-30
		Shim-pack VP-ODS	A-32
		Shim-pack GIST C18	A-38
		Shim-pack GIST C18-AQ	A-40
		Shim-pack GISS C18	A-42
		Shim-pack GIS C18	A-44
		Shim-pack GIS C18-P	A-46
		Shim-pack GIS RP-Shield	A-48
		Shim-pack GWS C18	A-49
		Shim-pack Solar C18	A-66
		Shim-pack FC-ODS	A-67
		Shim-pack UC GIS II	A-90
		Mastro2™ C18	A-88
		ULTRON VX-ODS	A-116
		STR ODS-II	A-119
		STR ODS-M	A-120
L3	Porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Shim-pack Velox HILIC	A-13
		Shim-pack XR-SIL	A-28
		Shim-pack UC Sil	A-90
		Shim-pack UC Sil II	A-91
		ULTRON VX-SIL	A-115
L7	Octylsilane chemically bonded to totally or superficially porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Shim-pack Scepter C8	A-18
		Shim-pack XR-C8	A-28
		Shim-pack VP-C8	A-33
		Shim-pack GIST C8	A-50
		Shim-pack Solar C8	A-66
		ULTRON VX-Octyl	A-117
L8	An essentially monomolecular layer of aminopropylsilane chemically bonded to totally porous silica gel support, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Shim-pack GIST NH2	A-60
		Shim-pack UC NH2	A-90
L10	Nitrile groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Shim-pack GIS CN	A-64
		Shim-pack UC CN	A-90
L11	Phenyl groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Shim-pack Velox Biphenyl	A-12
		Shim-pack Scepter Phenyl	A-20
		Shim-pack XR-Phenyl	A-28
		Shim-pack VP-Phenyl	A-32
		Shim-pack GIST Phenyl	A-52
		Shim-pack GIST Phenyl-Hexyl	A-54
		Shim-pack UC Phenyl	A-90
L17	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form, 6 to 12 µm in diameter.	Shim-pack SCR-101H	A-96
		ULTRON PS-80H	A-105
L19	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the calcium form, 5 - 15 µm in diameter.	Shim-pack SCR-101C	A-96
		ULTRON PS-80C	A-113
L20	Dihydroxypropane groups chemically bonded to porous silica or hybrid particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Shim-pack Scepter Diol-HILIC	A-21
		Shim-pack GIS HILIC	A-58
		Shim-pack UC Diol	A-90
		Shim-pack UC Diol II	A-91
		Shim-pack Diol-150	A-85
		Shim-pack Diol-300	A-85
		Shim-pack Bio Diol	A-77
L21	A rigid, spherical styrene-divinylbenzene copolymer, 3 to 30 µm in diameter.	Shim-pack GPC Series	A-83
L22	A cation-exchange resin made of porous polystyrene gel with sulfonic acid groups, 5 - 15 µm in diameter.	Shim-pack IC-C1	A-101
		Shim-pack AMINO-LI	A-95
		Shim-pack AMINO-NA	A-95
		Shim-pack ISC	A-97
L23	An anion-exchange resin made of porous polymethacrylate or polyacrylate gel with quartenary ammonium groups, 7 - 12 µm in size.	Shim-pack IC-A1	A-104
L26	Butyl silane chemically bonded to totally porous silica particles, 1.5 to 10 µm in diameter.	Shim-pack Scepter C4	A-22
L33	Packing having the capacity to separate dextrans by molecular size over a range of 4,000 to 500,000 Da. It is spherical, silica-based, and processed to provide pH stability.	Shim-pack Bio Diol	A-77
L34	Strong cation exchange resin consisting of sulfonated crosslinked styrene-divinylbenzene copolymer in the lead form, 9µm in diameter.	ULTRON PS-80P	A-113
L43	Pentafluorophenyl groups chemically bonded to silica particles by a propyl spacer, 1.5 to 10 µm in diameter.	Shim-pack Velox PFPP	A-12
		Shim-pack Scepter PFPP	A-19
		Shim-pack GIST PFPP	A-56
		Mastro2™ PFP	A-88
L45	Beta cyclodextrin bonded to porous silica particles, 5 to 10 µm in diameter.	ULTRON ES-CD	A-112
		ULTRON ES-PhCD	A-112
L57	A chiral-recognition protein, ovomucoid, chemically bonded to silica particles, about 5 µm in diameter, with a pore size of 120 Å.	ULTRON ES-OVM	A-110
L58	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the sodium form, about 6 to 30 µm diameter.	Shim-pack SCR-101N	A-96
		ULTRON PS-80N	A-113
L59	Packing for the size-exclusion separations of proteins (separation by molecular weight) over the range of 5 to 7000 kDa. The packing is spherical 1.5 - 10 µm, silica or hybrid packing with a hydrophilic coating.	Shim-pack Diol-150	A-85
		Shim-pack Diol-300	A-85
		Shim-pack Bio Diol	A-77
L68	Spherical, porous silica, 10 µm or less in diameter, the surface of which has been covalently modified with alkyl amide groups and not endcapped.	Shim-pack GIST Amide	A-62
L101	Cholesteryl groups bonded to porous or non-porous silica or ceramic micro-particles, 1.5 to 10 µm in diameter, or a monolithic rod.	Shim-pack UC-Choles	A-91
L104	Triazole groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter.	Shim-pack UC-Triazole	A-91