

BioLC columns

DNAPac RP columns

Quick start guide

Overview

The Thermo Scientific™ DNAPac™ RP columns are reversed-phase (RP) liquid chromatography (LC) columns designed for analysis of nucleic acids using liquid chromatography interfaced to ultraviolet detection (LC/UV) or liquid chromatography-mass spectrometry (LC/MS). The unique column chemistry provides excellent performance under a broad range of pH, temperature, and mobile phase compositions. In addition, the supermacroporous size of the resin provides excellent separation of both short and long single- and double-stranded nucleic acids including RNA modalities such as intact mRNA.

Main features

- Designed for high resolution separations of both oligonucleotides and large double-stranded nucleic acids
- Wide operating pH range (0–14) and high temperature stability (up to 110 °C)
- Excellent MS compatibility
- High efficiency and high throughput

Specifications and operational parameter recommendations

| Parameter | Recommended operational parameters |
|------------------------|---|
| Flow rate range | Recommended flow rates when running at 60 °C: 0.2–0.6 mL/min for the 2.1 mm I.D. columns 0.4–1.0 mL/min for the 3.0 mm I.D. columns 1.0–5.0 mL/min for the 10.0 mm I.D. columns 5.0–10.0 mL/min for the 21.2 mm I.D. columns |
| Column storage | Long term: water/acetonitrile (50:50 v/v) Short term: mobile phase |
| Common mobile phases | Mobile phase for LC/UV Mobile phase A: 100 mM TEAA ¹ Mobile phase B: 100 mM TEAA in water/acetonitrile (75:25 v/v) Mobile phase for LC/MS Mobile phase A: 15 mM TEA ² , 400 mM HFIP ³ Mobile phase B: 15 mM TEA, 400 mM HFIP/methanol (50:50 v/v) |
| Solvents compatibility | Compatible with 100% acetonitrile, isopropanol, and methanol |
| Temperature range | Up to 110 °C |
| Pressure limit | > 4,000 psi |
| pH range | 0–14 |

¹TEAA: triethylammonium acetate

²TEA: triethylamine

³HFIP: hexafluoroisopropanol

Operational guidelines

- Operate the column within specifications and recommended operational parameters (see section above)
- Slowly increase the flow rate to avoid sudden pressure surges
- Use a guard column when injecting crude samples to protect the analytical column and to extend column lifetime. Note that the guard cartridge requires the cartridge holder (Cat. no [069580](#) for 3.0 and 2.1 mm I.D. analytical columns or Cat. no [950-00](#) for 21.2 mm I.D. semi-preparative columns). Dirty particulate samples should be cleaned with a 0.2 µm filter before applying onto the column.
- Use the column in the direction of flow, marked on the column label
- Use of a pre-column heater is essential for high resolution work (Cat. no [6732.0110](#))
- Adjust mobile phase, temperature, flow rate, and gradient slope for best resolution and fast separation: refer to the manual method development section for further details
- Column conditioning: when using the column for the first time or using the column after storage, condition the column by following the washing procedure below and run 1–2 blank runs with the desired mobile phase before running the sample
- Column equilibration: for reproducible results, pass at least 10 column volumes of initial mobile phase for single-stranded oligonucleotide samples and 20 column volumes for double-stranded nucleic acids
- Column washing procedure: carryover may occur if the system is not clean or components from the previous sample have not completely eluted from the column. Wash the system and the column with 90% acetonitrile for 15–30 minutes at 0.2 mL/min for 2.1 mm I.D. columns, 0.4 mL/min for 3.0 mm I.D. columns, 1.0 mL/min for 10.0 mm I.D. and 5.0 mL/min for 21.2 mm I.D. columns at 60 °C
- Do not expose the column to the following organic solvents: tetrahydrofuran, dioxane, or methylene chloride

Ordering information

| Description | Particle size | Dimensions | Cat. no |
|--|---------------|---------------|--------------------------------|
| DNAPac RP semi-preparative column | 4 µm | 21.2 x 150 mm | 080922-1521232 |
| DNAPac RP semi-preparative guard cartridges (2/pack) | 4 µm | 21.2 x 10 mm | 080922-0121232 |
| DNAPac RP semi-preparative guard cartridge holder | 4 µm | 21.2 mm | 950-00 |
| DNAPac RP semi-preparative column | 4 µm | 10.0 x 150 mm | SP6998 |
| DNAPac RP analytical column | 4 µm | 3.0 x 100 mm | 088919 |
| DNAPac RP analytical column | 4 µm | 3.0 x 50 mm | 088920 |
| DNAPac RP analytical column | 4 µm | 2.1 x 250 mm | 303324 |
| DNAPac RP analytical column | 4 µm | 2.1 x 100 mm | 088923 |
| DNAPac RP analytical column | 4 µm | 2.1 x 50 mm | 088924 |
| DNAPac RP guard cartridges (2/pack)* | 4 µm | 3.0 x 10 mm | 088921 |
| DNAPac RP guard cartridges (2/pack)* | 4 µm | 2.1 x 10 mm | 088925 |

*Requires guard holder Cat. no [069580](#)

| Description | Volume | Dimensions | Cat. no |
|---|--------|---------------|---------------------------|
| Thermo Scientific™ Vanquish™ Active Pre-Heaters | – | 0.10 x 380 mm | 6732.0110 |

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