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Read This First!

DNAPac RP COLUMNS

Quick Start

DNAPac RP, 4 µm, 3.0 × 100 mm (P/N: 088919)
DNAPac RP, 4 µm, 3.0 × 50 mm (P/N: 088920)
DNAPac RP, 4 µm, 2.1 × 100 mm (P/N: 088923)
DNAPac RP, 4 µm, 2.1 × 50 mm (P/N: 088924)
DNAPac RP, 4 µm, 3.0 × 10 mm Guard Cartridges 2/pk (P/N: 088921)
DNAPac RP, 4 µm, 2.1 × 10 mm Guard Cartridges 2/pk (P/N: 088925)

1. Overview

The Thermo Scientific™ DNAPac™ RP is a reversed phase (RP) liquid chromatography column designed for analysis of oligonucleotides and double-stranded (ds) DNA fragments using LC/UV or LC/MS. The unique column chemistry provides excellent performance under a broad range of pH, temperature, and mobile phase compositions. In addition, the wide pore size of the resin provides excellent separation of large double-stranded nucleic acids up to 10k base pairs.

2. Main features of the DNAPac RP Column

- 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 100 ºC)
- Excellent MS compatibility
- High efficiency and high throughput

3. Specifications and Recommended Operational Parameters

Parameter	Recommendation
Flow Rate Range:	The following flow rates are recommended when running at 60 °C. 0.4-1.0 mL/min for the 3.0 mm I.D. columns 0.2-0.6 mL/min for the 2.1 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* Mobile phase B: 100 mM TEAA in Water / Acetonitrile (75:25 v/v) **Mobile phase for LC/MS** Mobile phase A: 15 mM TEA**, 400 mM HFIP*** 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 100 °C
Pressure Limit	4,000 psi
pH Range	0-14

*TEAA: triethylammonium acetate
**TEA: triethylamine
***HFIP: hexafluoroisopropanol

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4. Operational Guidelines

- Operate the column within operating parameters and specifications (described in Section 3).
- Slowly ramp up 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 (P/N 069580). 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 (see part numbers in section 5).
- 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 of 10 column volumes of initial mobile phase for single-stranded oligonucleotide samples and 20 column volumes for double-stranded nucleic acids.
- Column washing procedure: carry-over 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 ID columns and 0.4 mL/min for 3.0 mm ID columns at 60 °C.
- Do not expose the column to the following organic solvents: tetrahydrofuran, dioxane, or methylene chloride.

5. Ordering Information

	Particle Size	Column Dimensions	P/N
Analytical Column	4 µm	3.0 × 100mm	088919
		3.0 × 50mm	088920
		2.1 × 100mm	088923
		2.1 × 50mm	088924
Guard Column	4 µm	3.0 × 10mm	088921
		2.1 × 10mm	088925
Guard Holder			069580

	Volume	Dimensions	P/N
Pre-Column Heater	11 µL	0.25 mm ID	6723.0252
Active Pre-Heater (For Vanquish Systems)		0.10 × 380 mm	6732.0110