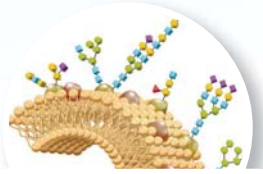
Columns for Biomolecules
BioLC Column Lines

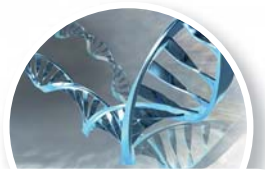
Monoclonal Antibodies

- **MAbPac**
  - MAbPac Protein A
  - MAbPac SEC-1
  - MAbPac SCX-10
  - MAbPac HIC
    - MAbPac HIC-10
    - MAbPac HIC-20
    - MAbPac HIC-Butyl
  - MAbPac RP



Glycans

- **GlycanPac**
  - Accucore Amide-HILIC
  - GlycanPac AXH-1
  - GlycanPac AXR-1



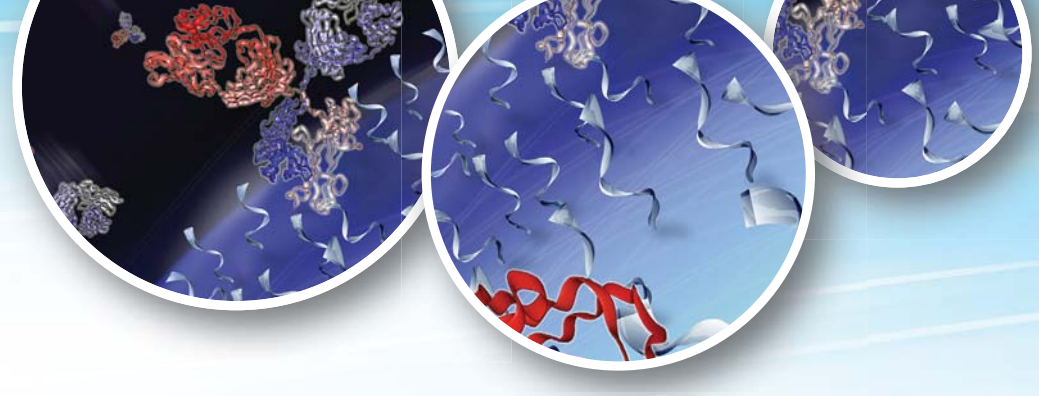
Nucleic Acids

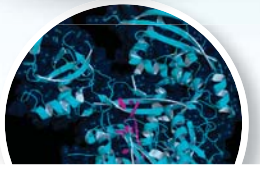
- **DNAPac**
  - DNAPac PA100
  - DNAPac PA200
  - DNAPac RP

Associated products

pH Gradient Buffers

WebSeal Well Plates and Mats





Proteins / Peptides

ProPac

- ProPac Ion Exchange
- ProPac HIC Hydrophobic Interaction
- ProPac IMAC

ProSwift/ PepSwift

- ProSwift Ion Exchange
- ProSwift Rev Phase
- PepSwift Rev Phase
- ProSwift Con A

Others

- Accucore 150
- BioBasic
- Acclaim 300

Associated products

SOLAμ SPE Plates

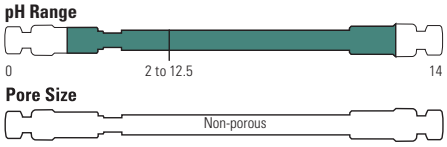
SMART Digest Kit

Viper Fingertight Fittings

DNAPac HPLC and UHPLC Columns

DNAPac PA100

A strong anion exchange column developed to provide high-resolution analysis and purification of synthetic oligonucleotides

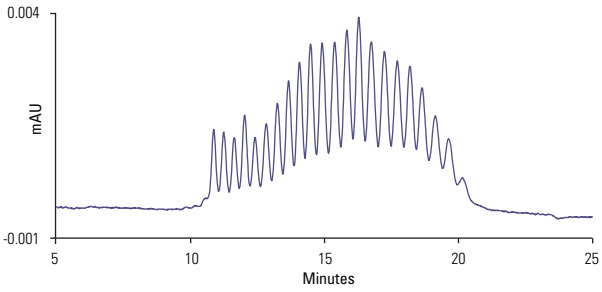


Particle Size 13µm

- High-resolution oligonucleotide separations
- Achieve n, n-1 resolution for oligonucleotides
- Resolves oligonucleotides with secondary structures
- Suitable for the analysis of phosphorothioate-based clinical samples
- Easy scale-up from 2.0mm to 22mm ID column (>100x)

The DNAPac PA100 is a high-resolution anion-exchange column that provides single-base resolution. It is stable under denaturing conditions, rugged, reliable, and can be readily scaled up. The DNAPac PA100 is a 13µm pellicular, nonporous polymeric resin with bound quaternary amine-functionalized Thermo Scientific™ Dionex™ MicroBeads™. The rapid mass-transport characteristics of this resin result in very high-resolution oligonucleotide separations. DNAPac PA100 can resolve full length from n–1, n+1, and other failure sequences.

Oligonucleotides



DNAPac PA100, 13µm, 250 x 4.0mm

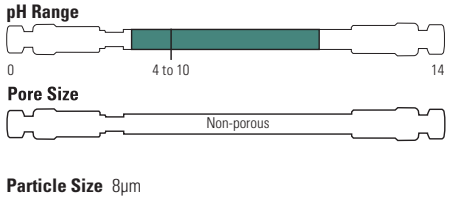
Mobile Phase:	410-510mM NaCl in 25mM Tris-Cl, pH 8.0
Flow Rate:	1.5mL/min
Detection:	UV, 260nm
Sample:	$pd(A)_{40-60}$

DNAPac PA100

Particle Size (µm)	Format	Length (mm)	2.0mm ID	4.0mm ID	9.0mm ID	22.0mm ID
13	Guard Column	50	**088761**	**043018**	**088764**	**088765**
	HPLC Column	250	**088760**	**043010**	**043011**	**088759**

DNAPac PA200

A strong anion exchange column developed to provide the best resolution for analysis and purification of synthetic oligonucleotides

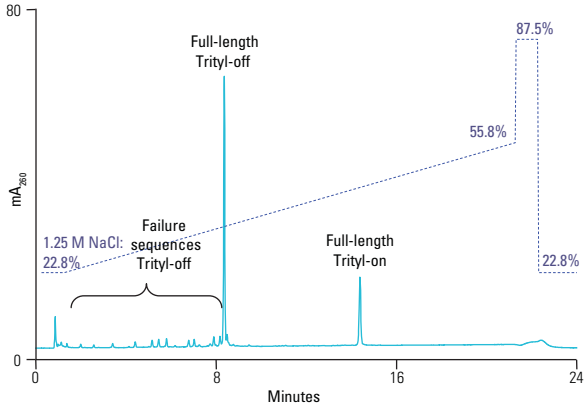


Particle Size 8µm

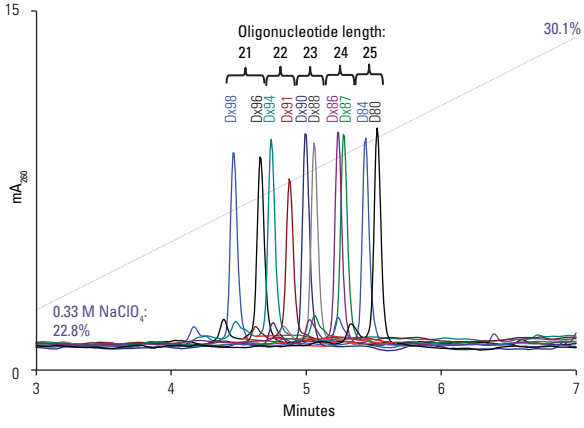
- Achieve n, n-1 resolution for oligonucleotides
- Resolve oligonucleotides with secondary structures
- Assay phosphorothioate purity
- Selectivity control with eluent pH, salt, and solvent
- Resolve RNA with aberrant (2', 5') links from normal ssRNA
- Separate individual phosphorothioate diastereoisomers
- HR/AM AXLC/MS via automated desalting

The DNAPac PA200 is packed with a pellicular anion-exchange resin composed of an 8µm diameter nonporous polymeric substrate to which quaternary amine-functionalized Dionex MicroBeads are bound. The rapid mass transport characteristics of this resin result in high-resolution oligonucleotide separations. DNAPac PA200 can resolve full length from n–1, n+1, and other failure sequences not possible with other columns.

Target, failure and trityl-on oligonucleotides



Separation of oligonucleotides by length



DNAPac® PA200, 8µm, 250 x 4.0mm

Mobile Phase:	$NaClO_4$, pH 6.5 with 20% CH_3CN
Flow Rate:	1.2mL/min
Injection Volume:	8µL
Detection:	UV, 260nm

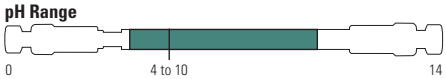
DNAPac PA200

Particle Size (µm)	Format	Length (mm)	2.0mm ID	4.0mm ID	9.0mm ID	22.0mm ID
8	Guard Column	50	**063423**	**062998**	**063419**	**088780**
	HPLC Column	250	**063425**	**063000**	**063421**	**088781**

DNAPac PA200 RS

UHPLC Solutions for nucleic acid analysis

pH Range



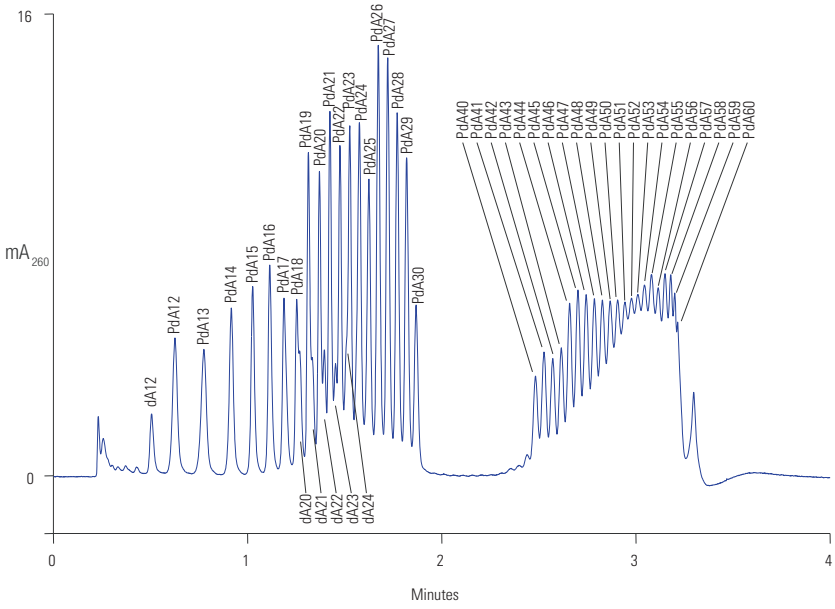
Pore Size

Particle Size 4µm

- Provide single base resolution of oligonucleotides
- Higher efficiency to improve resolution
- Improved throughput
- Ruggedness consistent with the DNAPac PA200 column line
- Stable to 10,000 psi

DNAPac PA200 RS columns are packed with smaller, 4µm particles, for improved resolution and better performance. The smaller particles also allow shorter columns to provide significantly higher throughput. These columns are packed in bio-inert PEEK-lined stainless steel (SST) bodies, designed to protect from unwanted interactions of eluents and analytes with metals, while maintaining 10,000 psi stability. These columns offer exceptional resolution of oligonucleotides, including isomer separations; and are able to resolve full length oligonucleotides from n-1 and n+1 oligonucleotides and other failure sequences.

Partial resolution of 46 oligonucleotides



DNAPac PA200 RS, 4µm, 50 x 4.6mm

Mobile Phase A:	20 mM Tris pH 8
Mobile Phase B:	A + 1.25 M NaCl
Gradient:	28–43% B in 4 CV* (2.56 min) curve 3**
Temperature:	30°C
Flow Rate:	1.30mL/min
Injection Volume:	2.5µL
Sample:	PdA12–30, 40–60

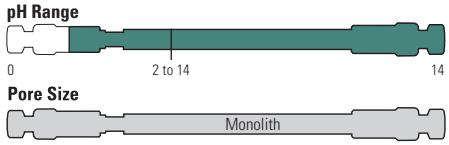
*CV = column volumes
**Curve 3 indicates continuously changing gradient, asymptotically approaching a maximum salt concentration. Programed in Chromeleon 6.8.

DNAPac PA200 RS

Particle Size (µm)	Format	Length (mm)	4.6mm ID
4	BioRS column	50	**082508**
		150	**082509**
		250	**082510**

DNASwift SAX-1S

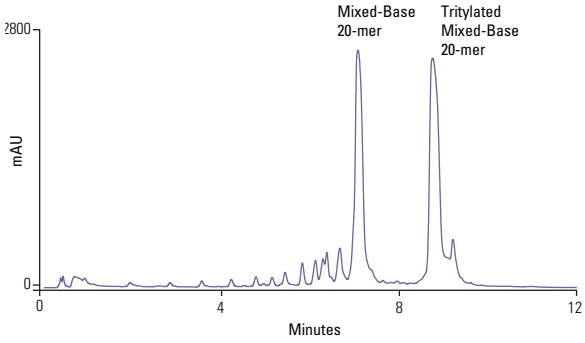
A strong anion exchange monolith column that provides improved capacity and industry-leading oligonucleotide yield-purity performance.



- Micromole purifications in a 5mm ID column body
- Substantial capacity in a small format
- Tunable selectivity control, like the DNAPac columns, for high resolution
- Compatible with high pH mobile phases, solvents, or high temperatures
- Ideal for therapeutic and diagnostic oligonucleotide research
- Purify difficult oligonucleotide products

The DNASwift column is a unique porous polymer monolith coated with functionalized latex nanobeads, optimized for oligonucleotide separations. The monolith, a polymer cylinder with interconnected flow through channels, provides fast mass transfer, low back pressure (for increased flow rates), very high capacity, and refined selectivity control.

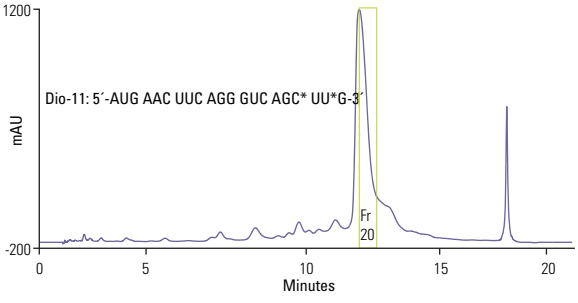
Tritylated oligonucleotide



DNASwift SAX-1S, 150 x 5.0mm

Mobile Phases A:	15mM Tris, pH 8
Mobile Phases B:	15mM Tris, pH 8, 1.25 M NaCl
Gradient:	8–64% B in 10 min
Flow Rate:	1.5mL/min
Injection Volume:	20µL
Detection:	UV, 260nm
Sample:	Derivatized mixed-base 20mer, 20mg/mL

Purification of a 21-base RNA Sample with aberrant 2'-5' linkages at the 1 and 3 positions from the 3' end



DNASwift SAX-1S, 150 x 5.0mm

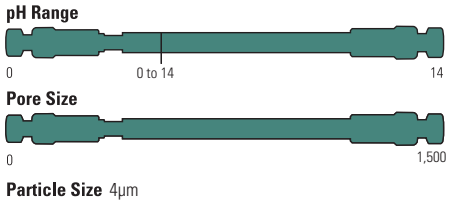
Mobile Phase A:	40mM Tris, pH 7
Mobile Phase B:	40mM Tris, pH 7 + 1.25 M NaCl
Gradient:	26–42% B in 10 column volumes
Temperature:	30°C
Flow Rate:	1.5mL/min
Injection Volume:	125µg
Detection:	UV, 260nm

DNASwift SAX-1S

Length (mm)	5.0mm ID
150	**066766**

DNAPac RP

Reverse phase (RP) column specifically for analysis of oligonucleotides and double stranded (ds) DNA and RNA fragments.

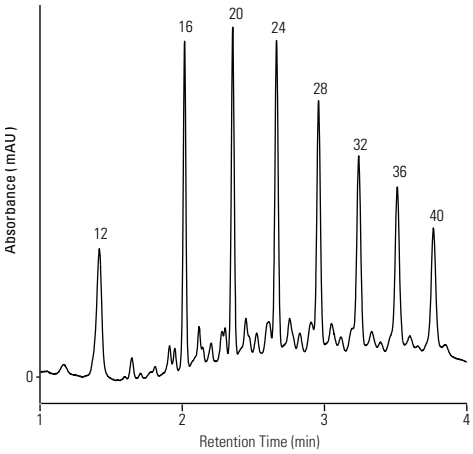


Particle Size 4µm

- Excellent MS compatibility
- Wide operating pH range: 0–14
- High temperature stability: up to 110°C
- High throughput

The DNAPac RP is based on wide-pore, 4µm polymer particles. The unique column chemistry provides excellent performance under a broad range of pH (0-14), high temperature (up to 110°C) and mobile phase composition. The large pore size of the resin enables efficient separation of small to large oligonucleotides.

Fast analysis of mixed base DNA



DNAPac RP, 4µm, 50 x 2.1mm

Mobile Phase A:	25 mM HAA, pH 8.5		
Mobile Phase B:	25 mM HAA, pH 8.5 / Acetonitrile (50:50 v/v)		
Gradient:	Time (min)	%A	%B
	-0.1	67	33
	0.0	67	33
	3.0	41	59
	3.1	5	95
	4.9	5	95
	5.0	67	33
	8.5	67	33
Gradient Curve:	3		
Temperature:	65°C		
Flow Rate:	0.8mL/min		
Injection Volume:	4µL		
Detection:	UV, 260 nm		
Sample:	8-Combo DNA		
Peak Label:	Length of DNA		

DNAPac RP

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID
4	Guard Cartridges (2/pk)	10	**088925**	**088921**
	HPLC Column	50	**088924**	**088920**
		100	**088923**	**088919**
	Guard Cartridge Holder		**069580**	**069580**