

Ultra Capacity RNA/DNA Columns For Scalable Nucleic Acid Separations

ADS Biotec's **RNAsep™ Ultra & DNasep™ Ultra** preparative columns are designed specifically for high-performance, scalable purification of RNA and DNA molecules using HPLC-based separation.

Stationary Phase and Performance

These columns are packed with uniform alkylated nonporous or macro-porous polystyrene-divinylbenzene (PS-DVB) copolymer microspheres, which provide high binding capacity, excellent resolution, and robust sensitivity for nucleic acids. This packing chemistry supports fast, high-resolution separations and is stable over a wider pH range than silica-based columns, making it suitable for demanding downstream applications.

Scalability and System Compatibility

RNAsep™ Ultra and **DNasep™ Ultra** preparative columns are compatible with most preparative HPLC and FPLC systems, enabling scalable purification from mg-scale process development to larger-scale production supporting both analytical-grade purity assessment and preparative-scale purification.

Impurity Removal and Applications

These columns efficiently separate mRNA from DNA and other RNA impurities (such as truncated or mis-folded species), delivering high-purity product suitable for in vivo application, including mRNA-based drugs and vaccines. Because they integrate with standard HPLC buffers and workflows, they are widely used for method development, validation, and scale up of mRNA purification processes in biopharma and vaccine R&D.

RNASEP™ **Ultra** Capacity Column

- ✓ Targeted for RNA Purification for downstream biological use
- ✓ Create mRNA vaccines and other drugs
- ✓ RNA purity assessment
- ✓ Excellent sensitivity and resolution
- ✓ Useful for HPLC method validation prior to scale-up
- ✓ Can directly inject IVTs for cleaning and purification

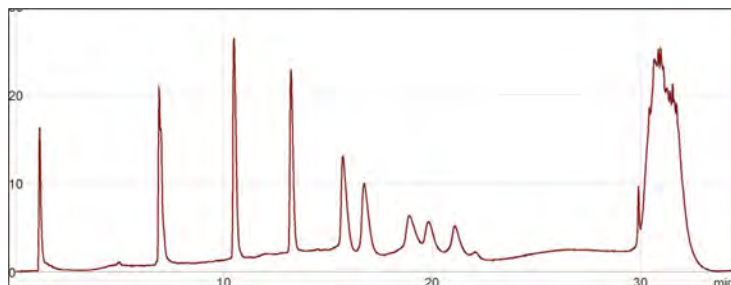
Catalogue Number: UHC-99-3810

7.8 x 50 mm, non-porous PS/DVB resin matrix

**Column capacity: ~4.25 mg total RNA
~2 mg Bacterial IVT**



RNA Ladder on 3810 Column - RNA fragments on RNA Column



RNA Ladder: 8 RNA sequences 200-6000bp, TEAA Gradient 38% to 53% Buffer B (25% Acn) over 25.8 minutes, 0.75mL/min at 50°C.

Step	Time	%A	%B
Loading	0	67	33
1	1	62	38
2	10.3	53.6	46.4
3	26.8	47	53
Start Clean	26.9	0	100
Stop Clean	28.9	0	100
Start Equilibrate	29	67	33
Stop Equilibrate	32	67	33

Ultra Capacity DNA/RNA Columns

For Scalable Nucleic Acid Separations



DNAsep™ Ultra Capacity Column

- ✓ DNA/Oligo purity assessment
- ✓ Excellent sensitivity and resolution
- ✓ Superior DNA sizing
- ✓ Robust, long lifetime
- ✓ Can directly inject crudely purified plasmid DNA, or kit purified DNA

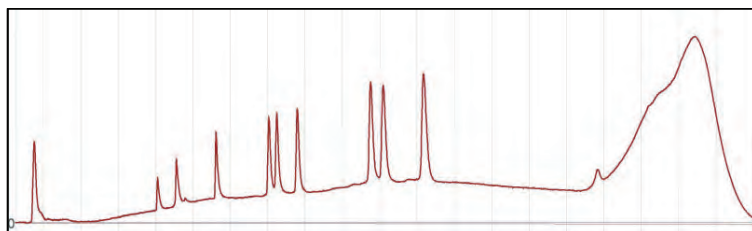
Catalogue Number: UHC-99-3510

4.6 x 50 mm, non-porous PS/DVB resin matrix

**Column capacity: ~ 1.7 mg total DNA
~300 µg Crude DNA**



DNA Calibration on 3510 Column - DNA fragments on DNA Column



DNA Calibration Standard: 9 DNA fragments 80-587bp, TEAA Gradient 55% to 65% Buffer B (25% Acn) over 10.5 minutes, 0.75mL/min at 50°C.

Step	Time	%A	%B
Loading	0	65	35
1	3	45	55
2	10	35	65
4	13.5	35	65
Start Clean	15	0	100
Stop Clean	16.5	0	100
Start Equilibrate	17.5	65	35
Stop Equilibrate	19.5	65	35

Column Order Information

Product Description	Use	Column Dimensions	Catalogue Numbers
RNAsep™ Ultra Capacity Column	Separation, purification and QC of RNA molecules	7.8 x 50 mm	UHC-99-3810
DNAsep™ Ultra Capacity Column	High resolution ds/ssRNA and DNA analysis High resolution RNA analysis	4.6 x 50 mm	UHC-99-3510

HPLC Buffer Order Information

Product Description	Size	Catalogue Numbers
Mobile Phase for Nucleic Acid Analysis - Buffer A (0.1 M TEAA in water)	4 x 2.5 L	553421
Mobile Phase for Nucleic Acid Analysis - Buffer B (0.1 M TEAA in 25% Acetonitrile)	4 x 2.5 L	553422
Column Wash Solution D (75% acetonitrile)	4 x 2.5 L	553423
Mobile Phase for Nucleic Acid Analysis - Buffer HA A (0.1 M HAA in 10% Acetonitrile)	4 x 2.5 L	553424
Mobile Phase for Nucleic Acid Analysis - Buffer HA B (0.1 M HAA in 50% Acetonitrile)	4 x 2.5 L	553425
2 M TEAA Solution	6 x 200 mL	SP5890
2 M HAA Solution	6 x 200 mL	SP5892
Triethylammonium Acetate (TEAA) Buffer Trial Pack	1x2.5L Buffer A, 1x2.5L Buffer B, 1x2.5L Solution D	SP2038
Hexylammonium Acetate (HAA) Buffer Trial Pack	1x2.5L HAA Buffer A, 1x2.5L HAA Buffer B, 1x2.5L Column Wash Solution D	SP2039