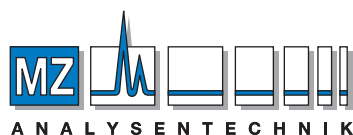




 **Imtakt**

HPLC TECHNICAL INFORMATION

Nucleic Acids Related Compounds



AUTHORIZED DISTRIBUTOR

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e-mail: info@mz-at.de, www.mz-at.de

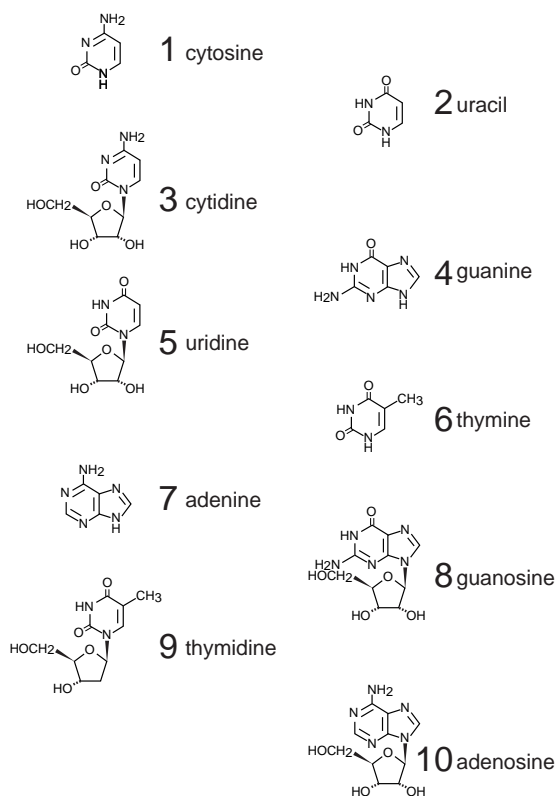
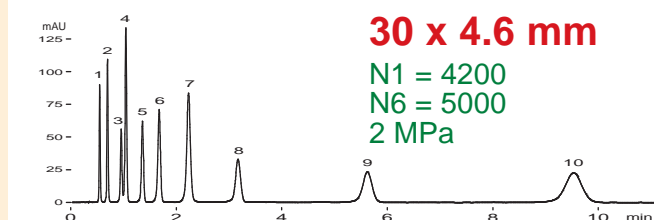
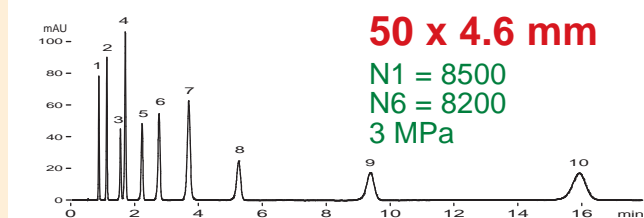
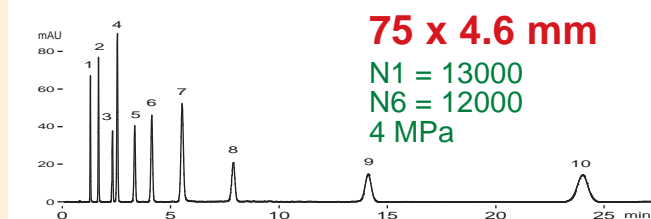
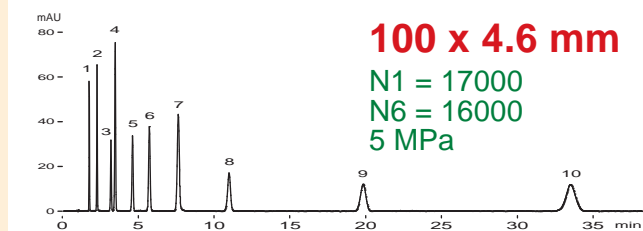
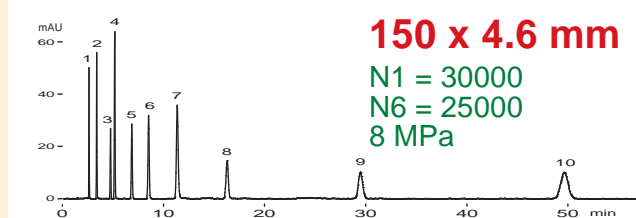
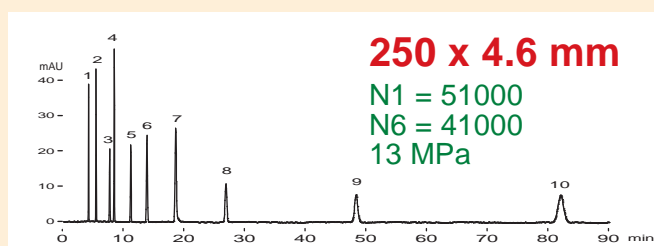
Unison UK-C18

30 - 250 x 4.6 mm

Technical

Column performance in an aqueous elution

Revolutionary 3µm technology ... more theoretical plates with Unison



25mM KH₂PO₄-Na₂HPO₄ (1:1, pH 6.8)
 1 mL/min, 40 °C, 254 nm

Unison UK-C18, finely packed with high-performance 3µm particles, offers the high-performance shown in the example here not only in our laboratories but when you test it in our 100% aqueous elution in your own laboratory.

Typical high-polarity compounds such as nucleic acid bases and nucleotides require aqueous elutions without an organic solvent because the polarity is very high. Conventional ODS column struggles in this analysis due to a decrease in retention brought on by phase collapse.

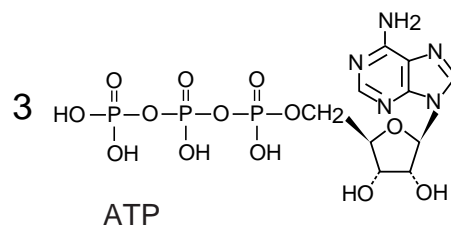
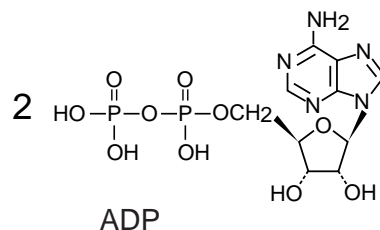
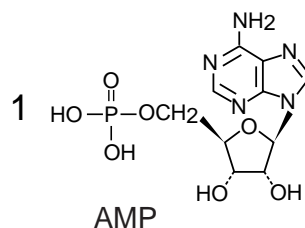
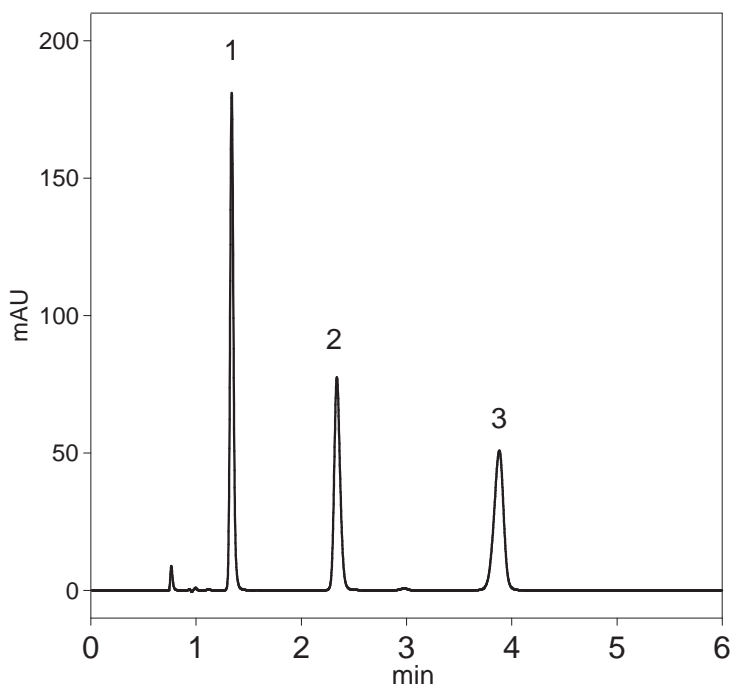
Our 250 x 4.6mm column offers up to 50,000 theoretical plates with these high-polarity compounds. Moreover, each size column provides the low pressure and performance suitable to that length. Our columns can handle a wide range of analysis with the highest of performance.

Cadenza CD-C18

75 x 4.6 mm

Application

Nucleotides



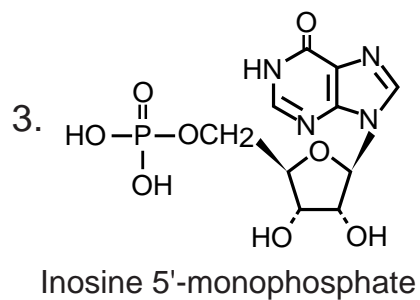
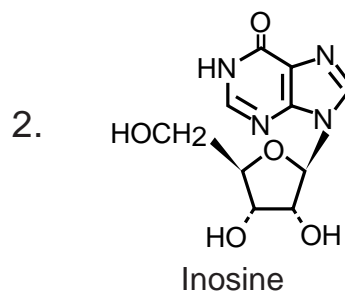
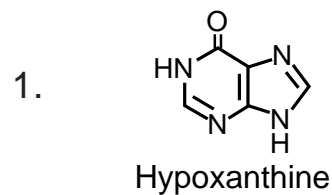
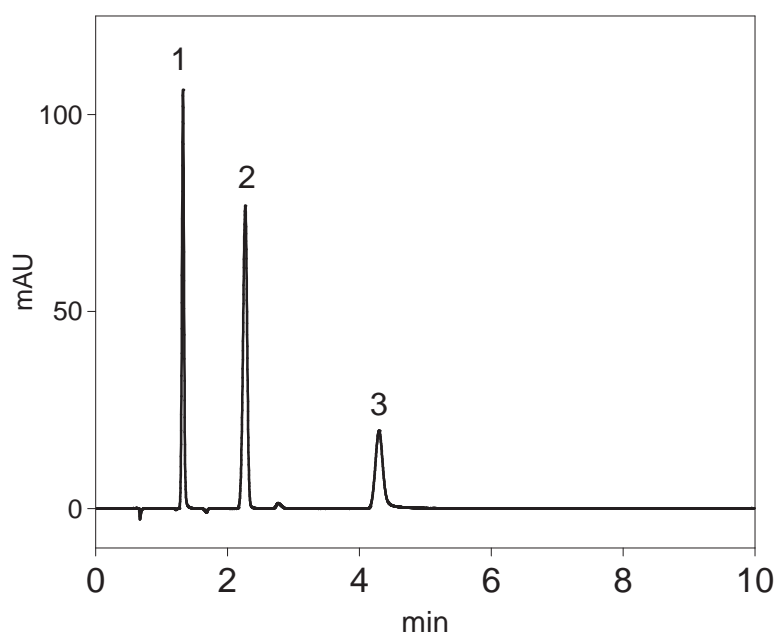
Cadenza CD-C18, 75 x 4.6 mm
 acetonitrile / 5 mM TBA-Br,
 20mM (NH₄)₂HPO₄ = 20 / 80
 1.0 mL/min, 37 °C
 7.9 MPa, UV at 225 nm
 each 0.2 mg/mL, 2.0 uL

Cadenza CD-C18

75 x 4.6 mm

Application

Inosinic acid and metabolites



Cadenza CD-C18, 75 x 4.6 mm
IPA / 5mM dibutylamine acetate +
20mM ammonium acetate = 1 / 100
1.0 mL/min, 7.5 MPa, 37 °C, UV at 225 nm

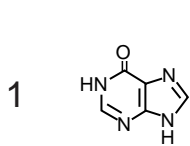
Unison US-C18

150 x 4.6 mm

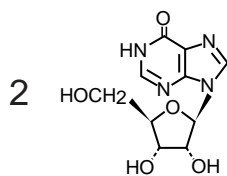
Application

Purine Nucleotides

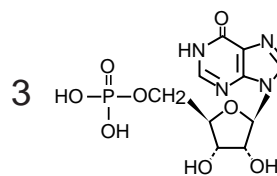
プリンヌクレオチド



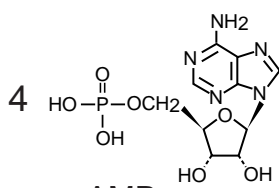
Hypoxanthine



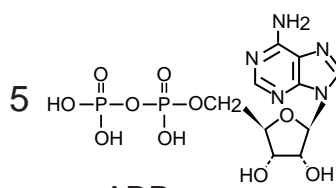
Inosine



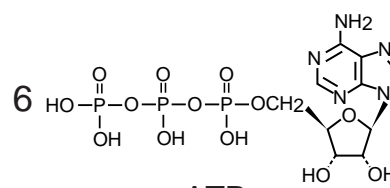
Inosine 5'-monophosphate



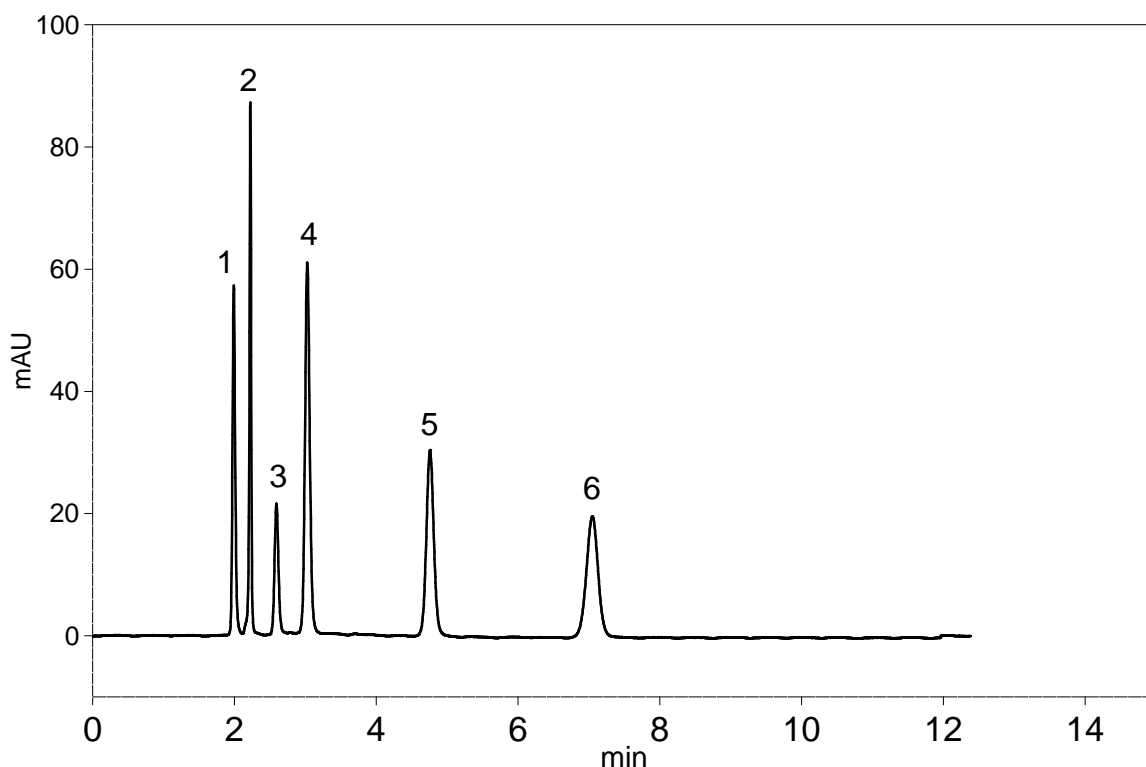
AMP



ADP



ATP



Unison US-C18, 150 x 4.6 mm
 20 mM (NH₄)₂HPO₄ + 10mM DBA-Acetate / ACN = 91 / 9
 1.0 mL/min, 37 °C, 6.9 MPa, 260 nm, 2 uL (0.1-0.3ug)

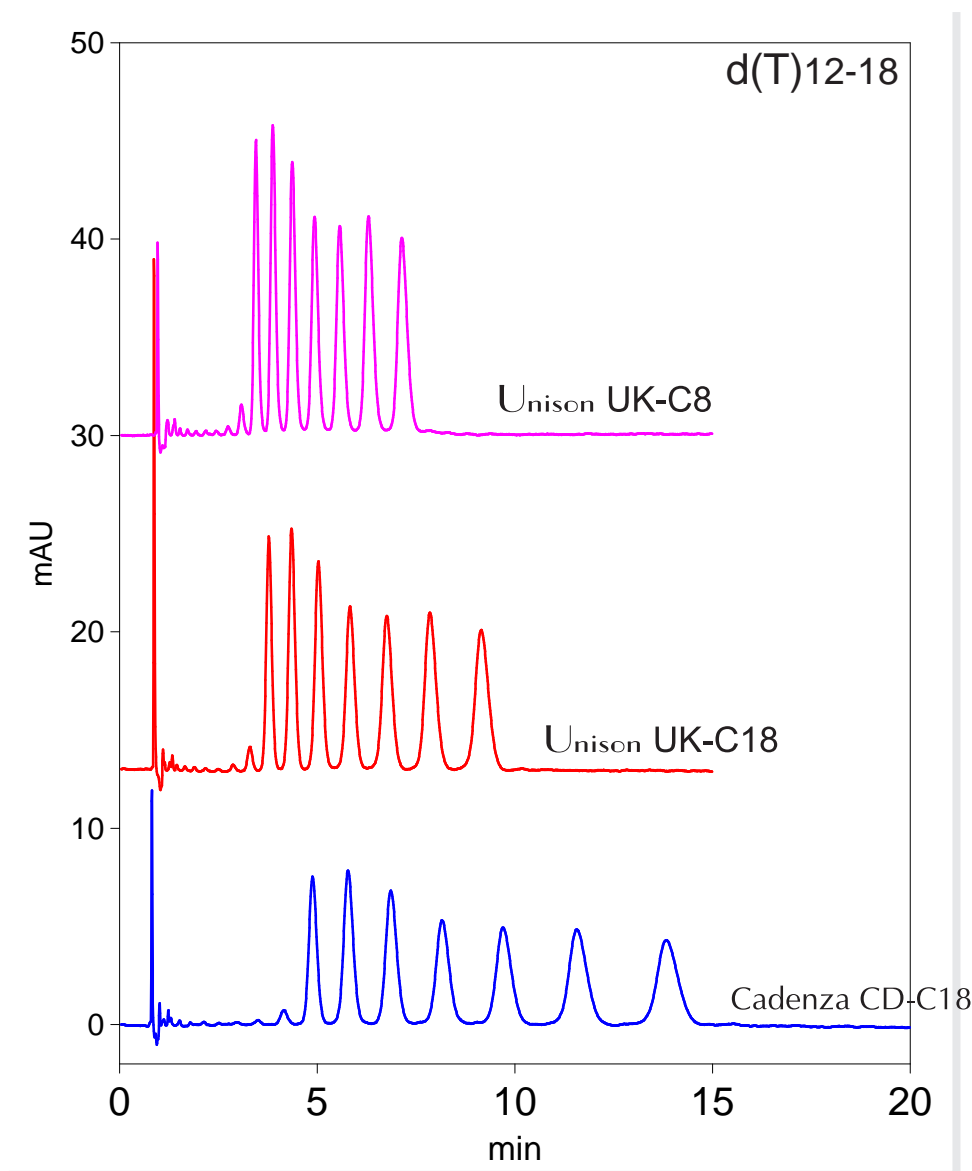
Courtesy of Prof. Dr. K. Hosokawa , Hyogo Univ.

Unison UK-C8
Unison UK-C18
Cadenza CD-C18

75 x 4.6 mm

Application

Oligo Nucleotides
オリゴヌクレオチド



75 x 4.6 mm
10 mM dibutylammonium acetate / ACN = 73 / 27
1.0 mL/min, 37 °C, UV at 260 nm

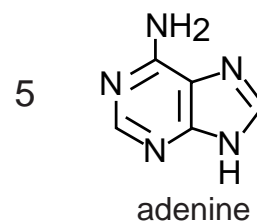
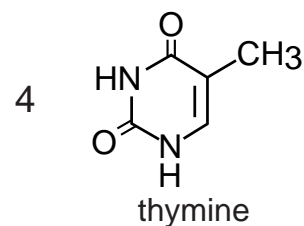
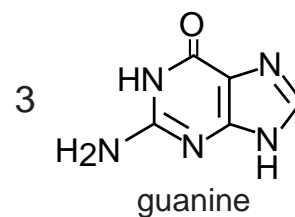
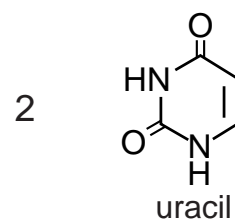
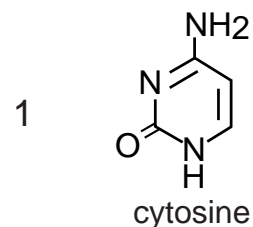
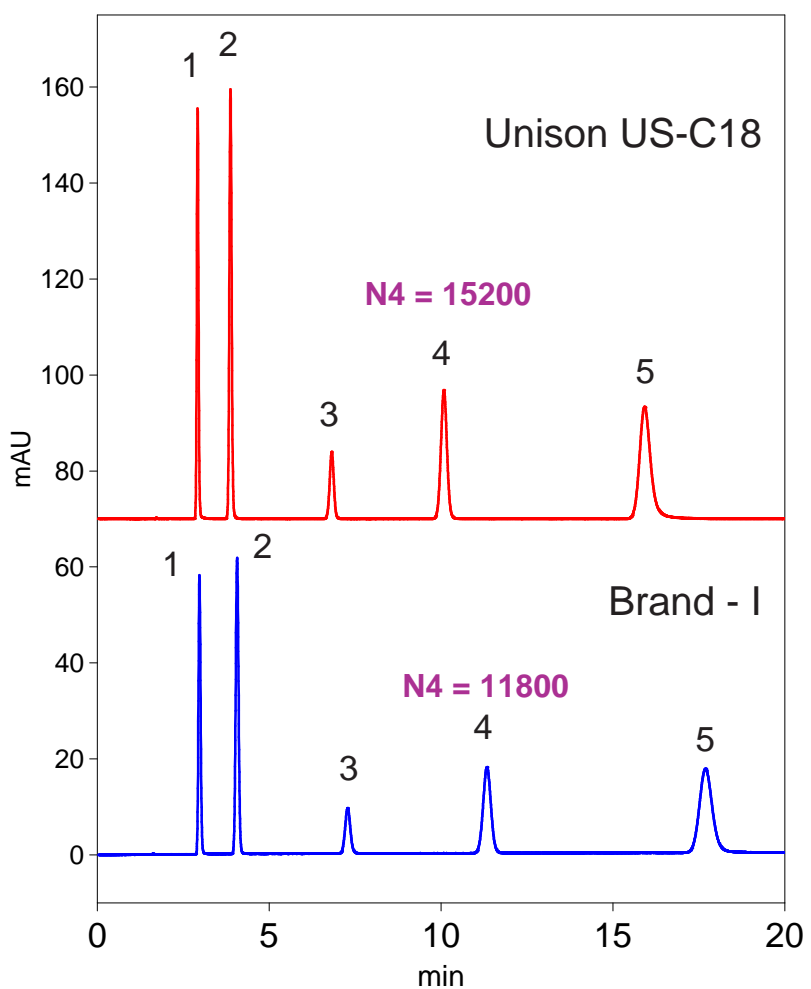
Unison US-C18

150 x 4.6 mm

Application

Nucleic Acid Bases

核酸塩基

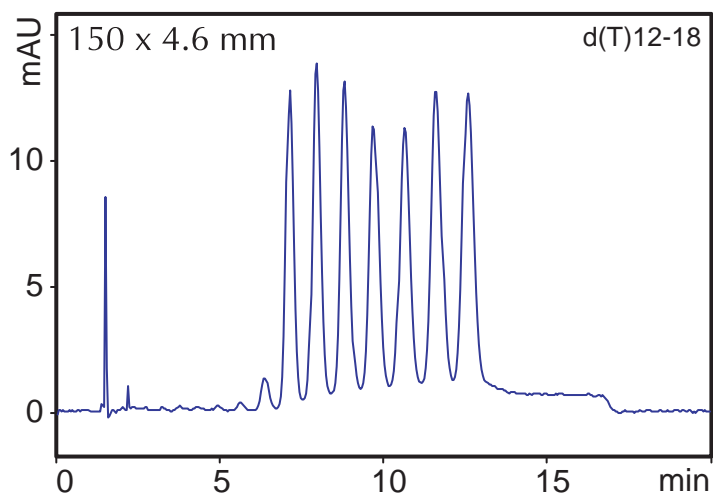


150 x 4.6 mm
 20 mM CH₃COONH₄
 1.0 mL/min, 37 °C
 UV at 260 nm

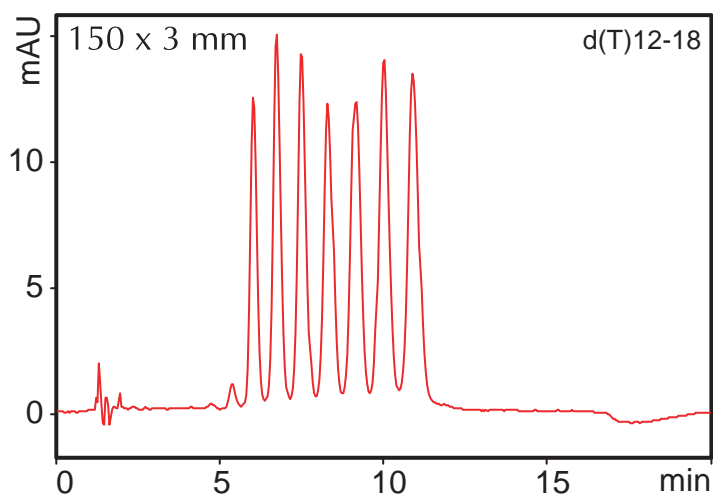
Unison US-C18 150 x 4.6 mm 150 x 3 mm 150 x 2 mm Application

Oligo Nucleotides

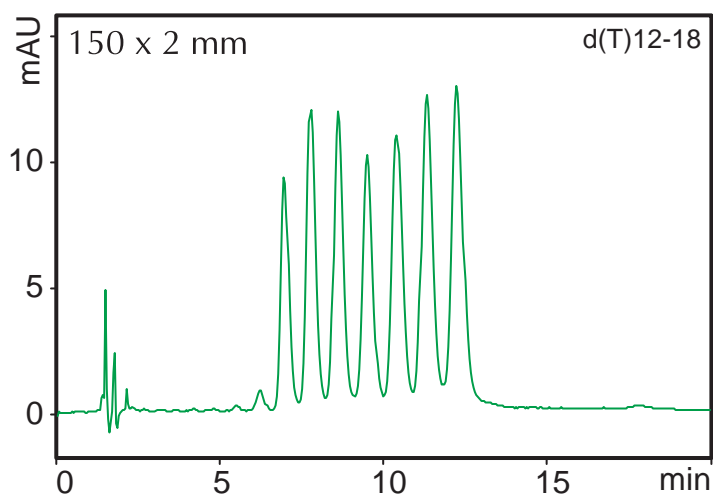
オリゴヌクレオチド



Unison US-C18, 150 x 4.6 mm
 A: 10mM dibutylammonium acetate
 B: acetonitrile
 28-32%B (0-10min)
 1.2 mL/min, 37 °C, 260 nm, 7.8 MPa



Unison US-C18, 150 x 3 mm
 A: 10mM dibutylammonium acetate
 B: acetonitrile
 28-32%B (0-10min)
 0.6 mL/min, 37 °C, 260 nm, 7.2 MPa



Unison US-C18, 150 x 2 mm
 A: 10mM dibutylammonium acetate
 B: acetonitrile
 28-32%B (0-10min)
 0.24 mL/min, 37 °C, 260 nm, 7.3 MPa

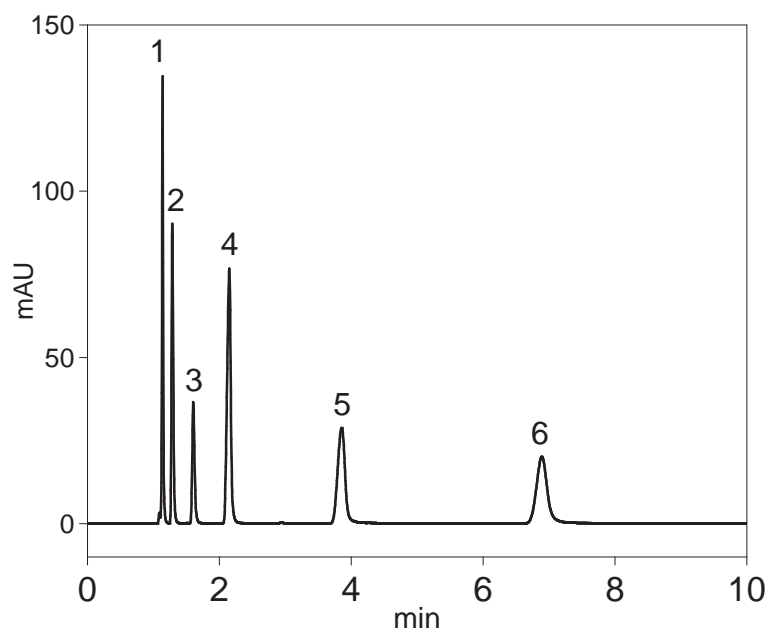
Unison UK-C18

75 x 4.6 mm

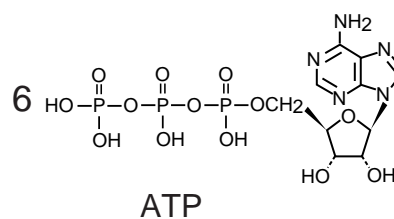
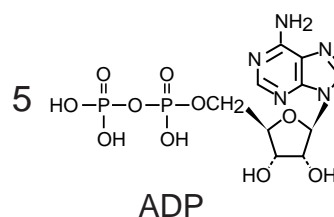
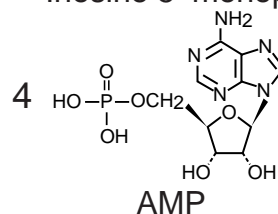
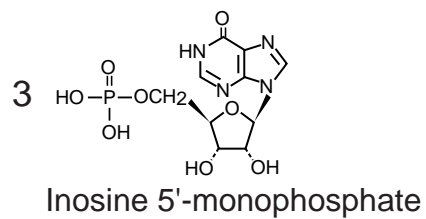
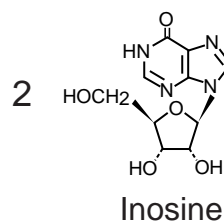
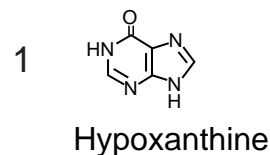
Application

Purine Nucleotides

プリンヌクレオチド



Unison UK-C18, 75 x 4.6 mm
 20 mM CH₃COONH₄ + 10mM DBA-Acetate / ACN = 93 / 7
 1.0 mL/min, 37 °C, 6.3 MPa, 260 nm



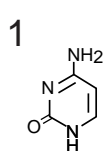
Unison UK-C18

500 x 4.6 mm

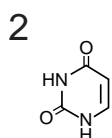
Application

Nucleosides and Bases

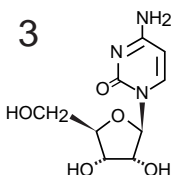
核酸塩基・ヌクレオシド



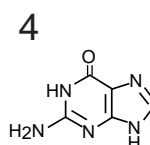
cytosine



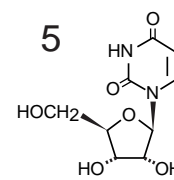
uracil



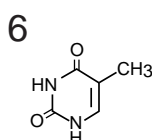
cytidine



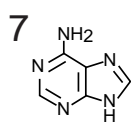
guanine



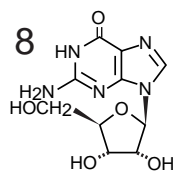
uridine



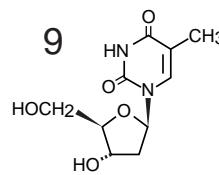
thymine



adenine

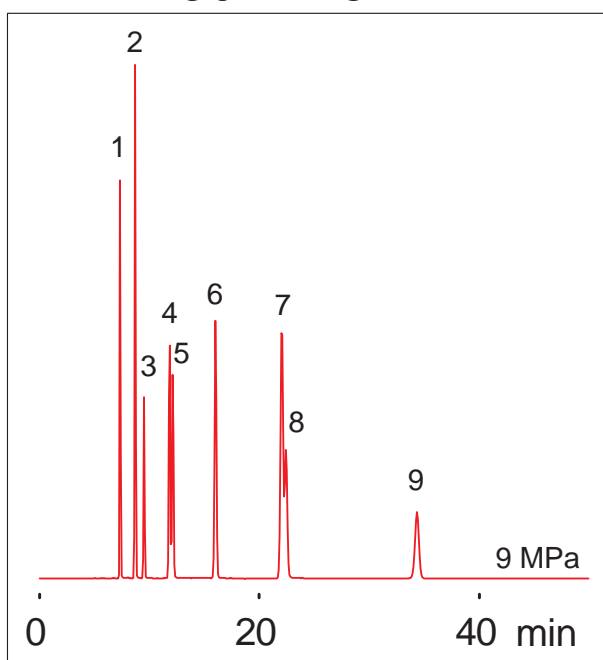


guanosine

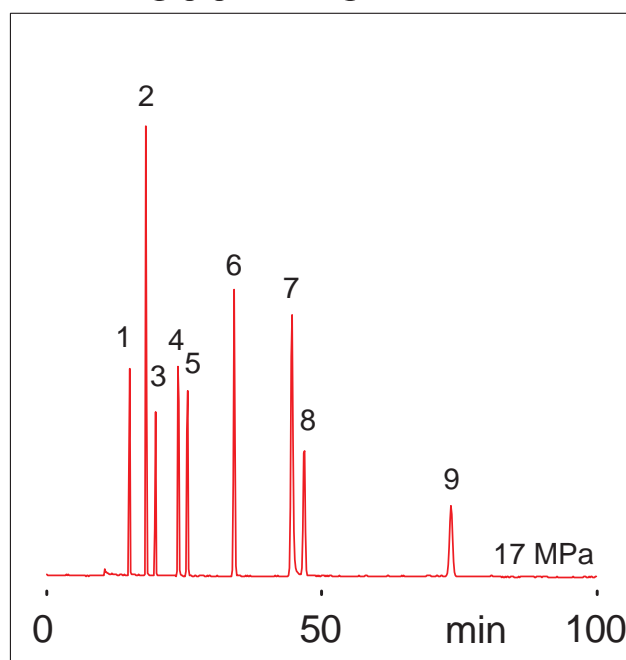


thymidine

250 x 4.6 mm



500 x 4.6 mm



Unison UK-C18

20mM HCOONH₄ / acetonitrile = 97 / 3

0.5 mL/min, room temp., 260 nm, 70 ng (0.4 μL)

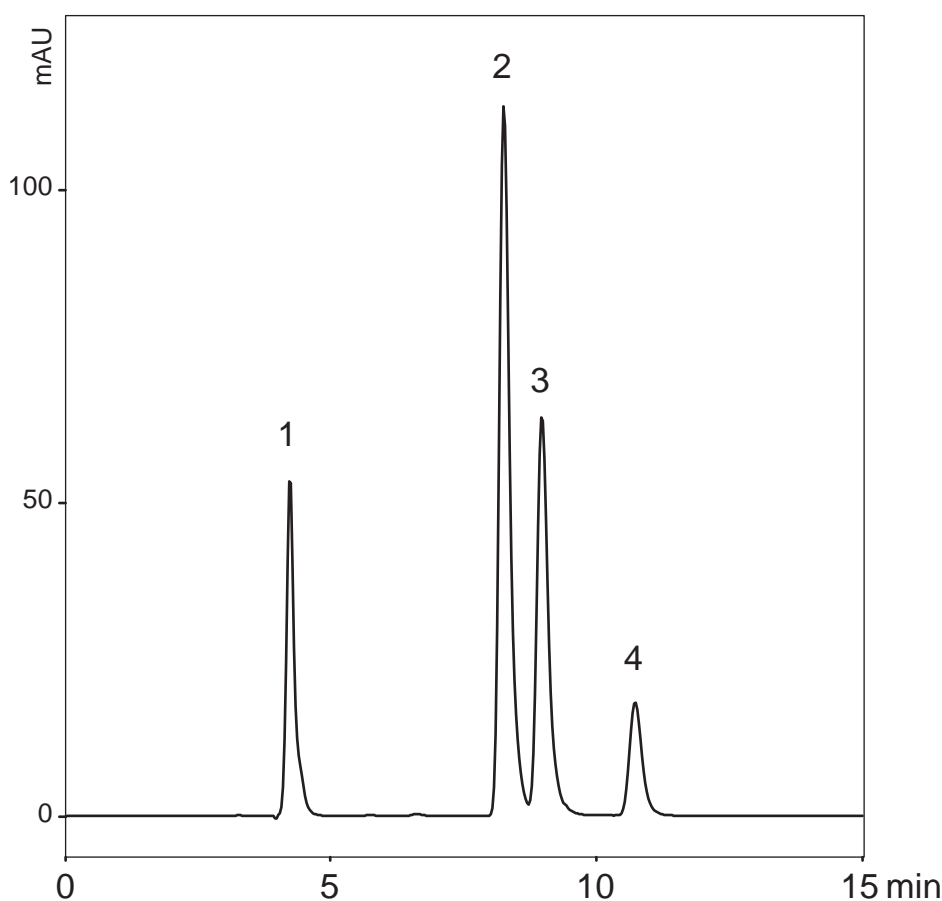
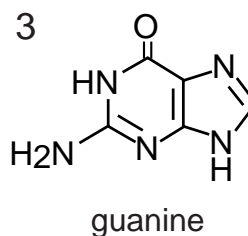
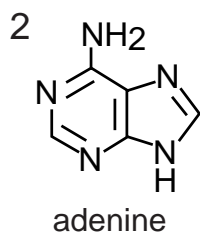
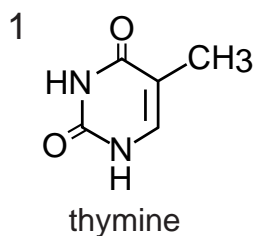
Unison UK-Silica

250 x 2 mm

Application

Nucleic Acid Bases

核酸塩基



Unison UK-Silica, 250 x 2 mm
 acetonitrile / 20mM ammonium acetate = 90 / 10
 0.2 mL/min (5.9MPa), 37 °C, 260 nm
 0.4µL (0.04-0.08µg)

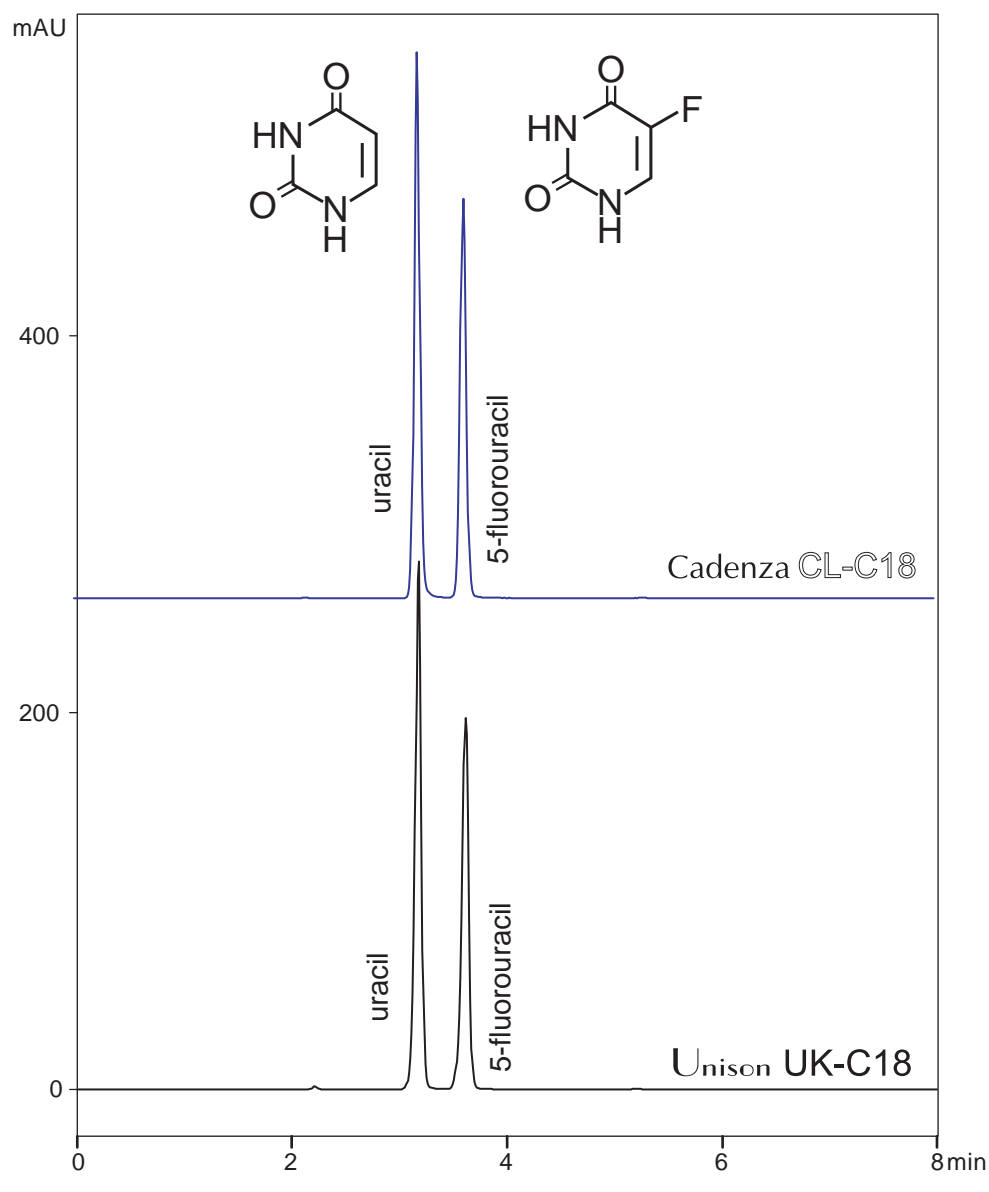
Cadenza CL-C18
Unison UK-C18

150 x 3 mm

Application

Uracil, 5-Fluorouracil

ウラシル, 5-フルオロウラシル



150 x 3 mm, 20 mM ammonium acetate
0.5 mL/min, 37 °C, 260 nm, 0.4 µg (0.4 µL)

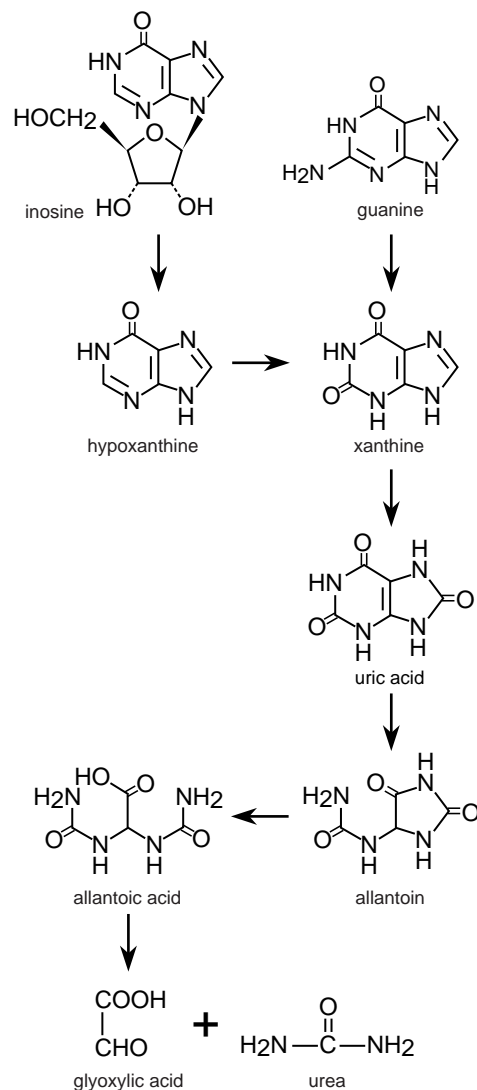
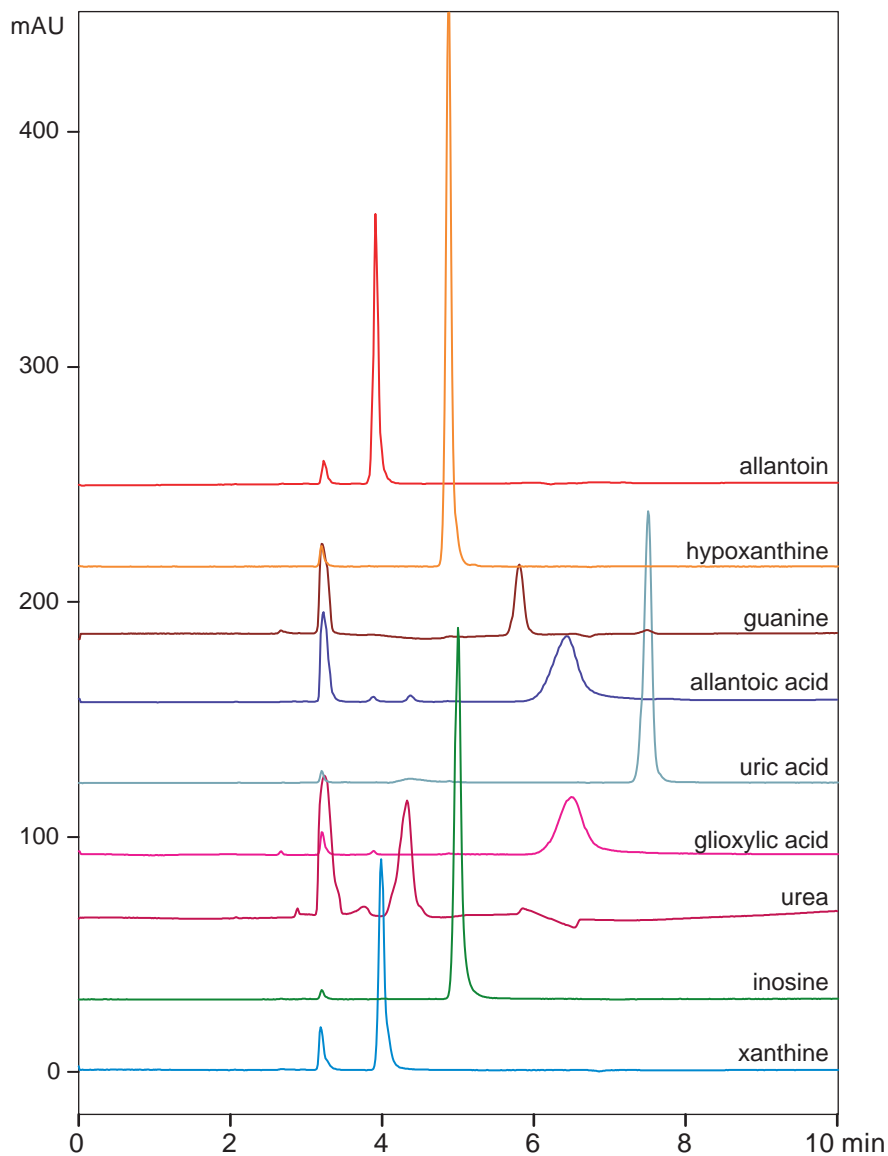
Unison UK-Silica

250 x 3 mm

Application

Purine Nucleotide Metabolites

プリンヌクレオチドの代謝物



Unison UK-Silica, 250 x 3 mm
 acetonitrile / 20mM ammonium formate = 90 / 10
 0.5 mL/min, 50 °C, 210 nm

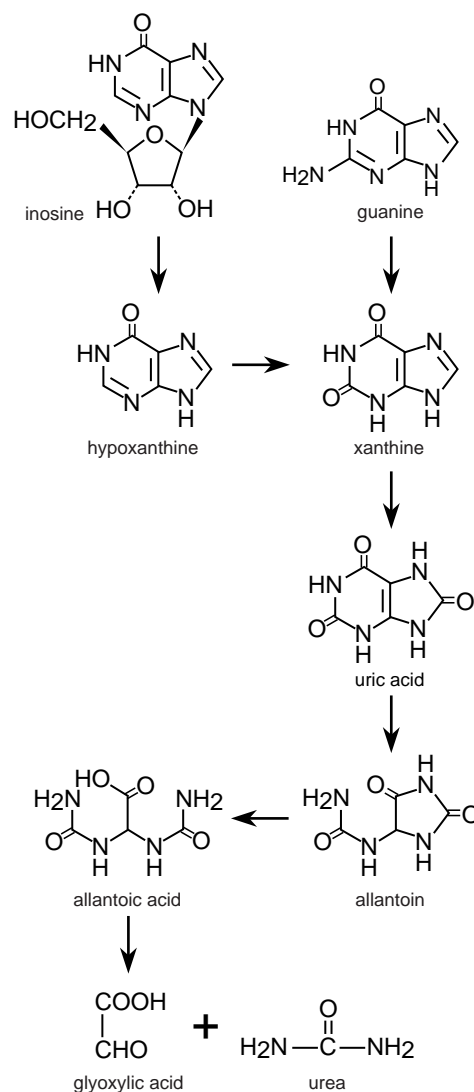
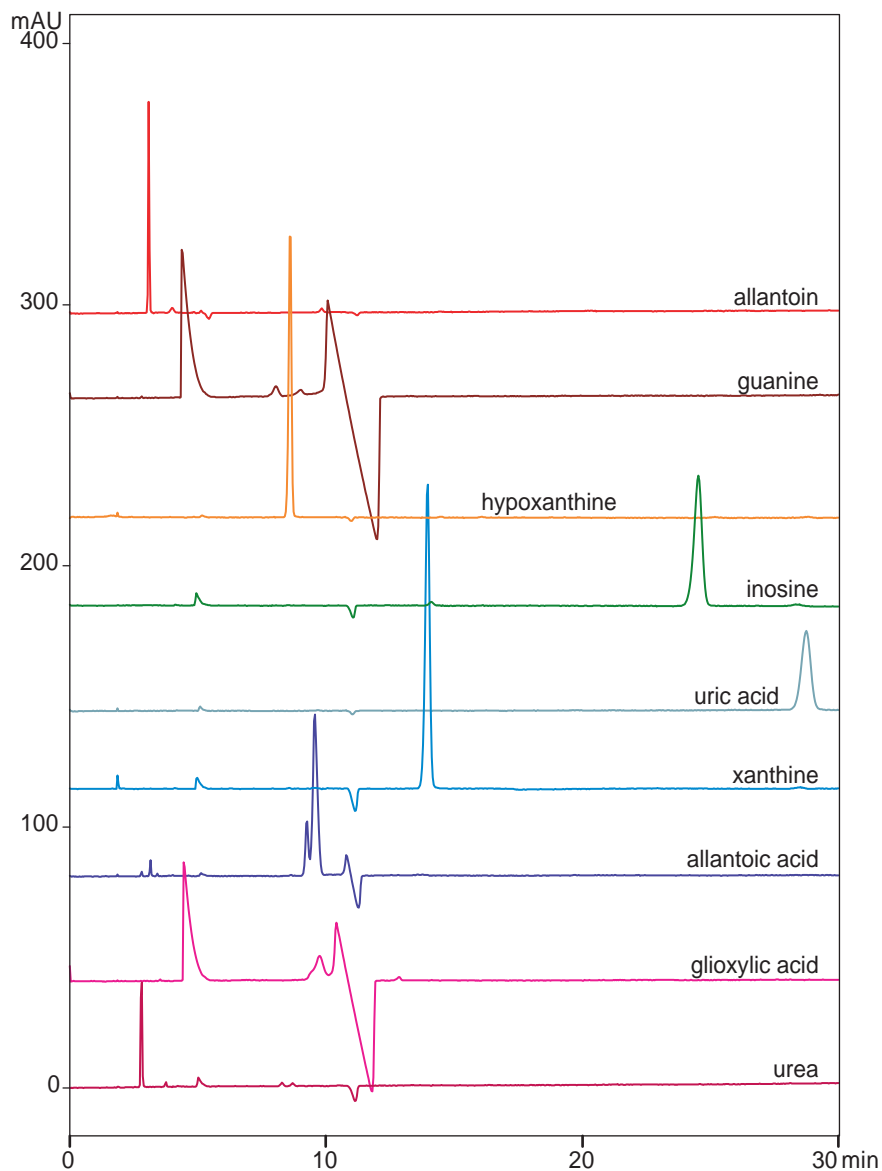
Unison UK-C18

250 x 3 mm

Application

Purine Nucleotide Metabolites

プリンヌクレオチドの代謝物



Unison UK-C18, 250 x 3 mm
 10mM dibutylammonium acetate
 0.45 mL/min, 37 °C, 210 nm

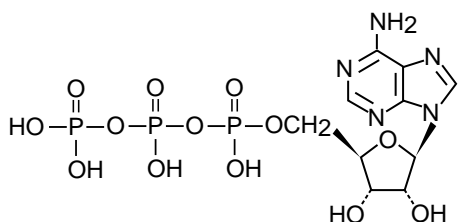
Unison UK-Silica

250 x 3 mm

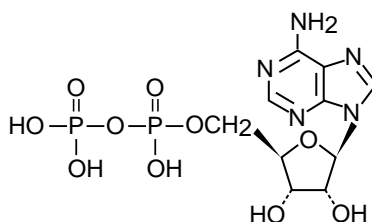
Application

Nucleotides

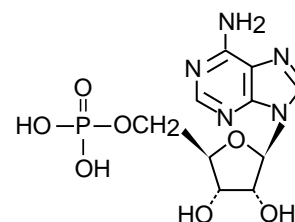
ヌクレオチド



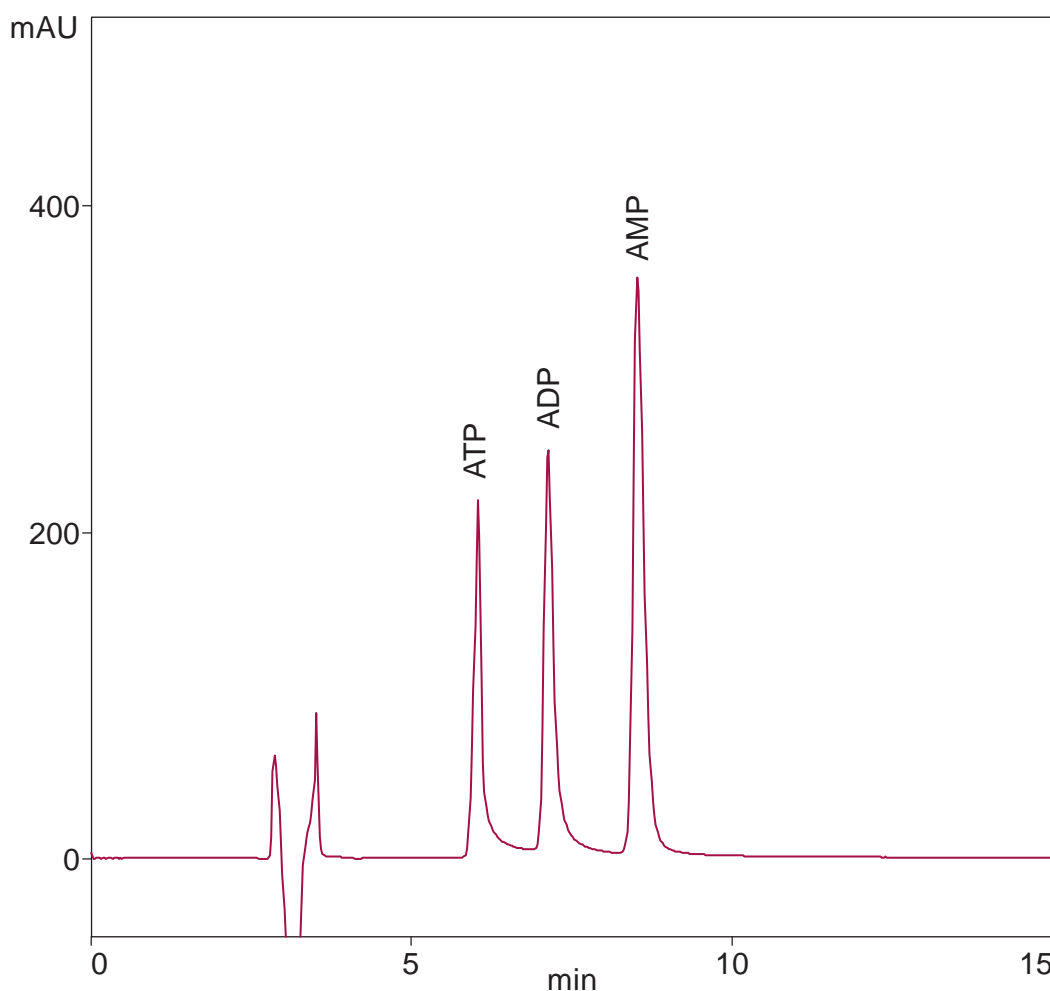
ATP



ADP



AMP



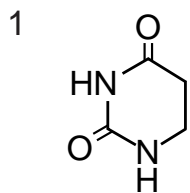
Unison UK-Silica, 250 x 3mm
 acetonitrile / water / triethylamine / acetic acid
 = 75 / 25 / 5 / 2
 0.5mL/min(11MPa), 37 deg.C, 260nm, 2.5ug(5uL)

Unison UK-C18
Cadenza CD-C18

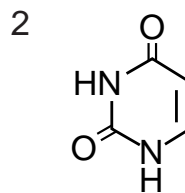
250 x 4.6 mm

Application

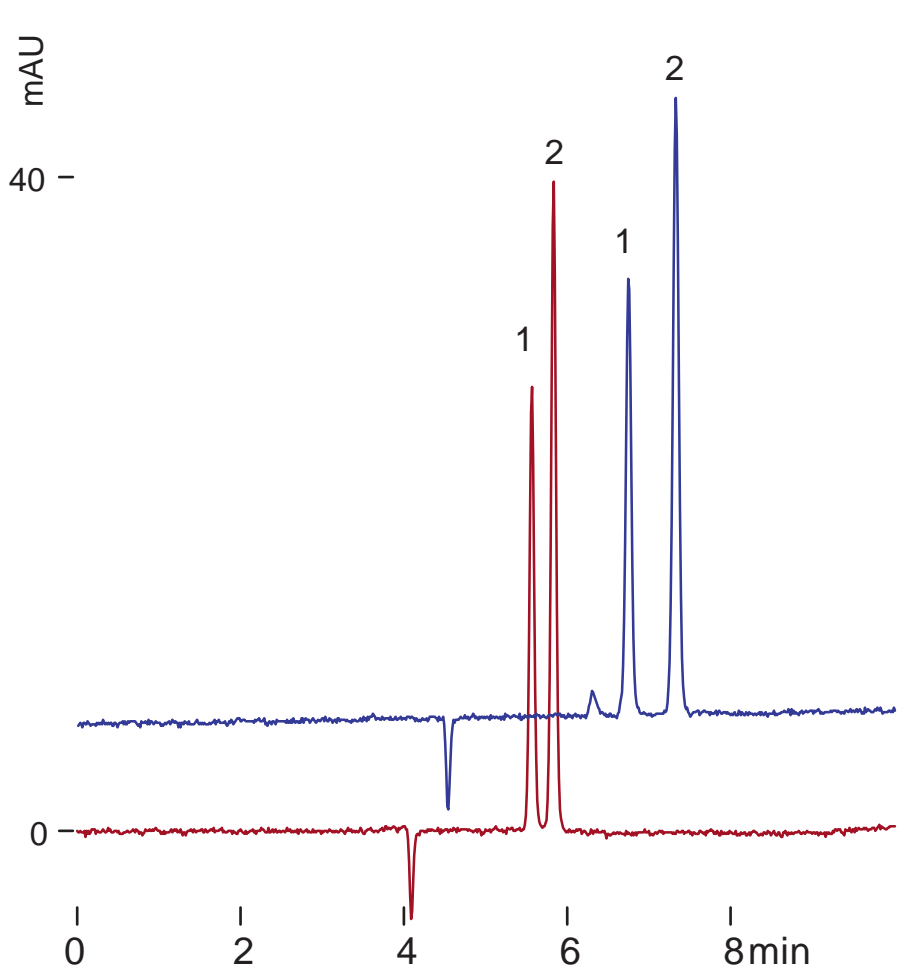
Dihydrouracil
ジヒドロウラシル



dihydrouracil



uracil



250 x 4.6 mm
20mM ammonium acetate / isopropanol = 99 / 1
0.6 mL/min, 37 deg.C, 210 nm, 1uL(0.1ug)

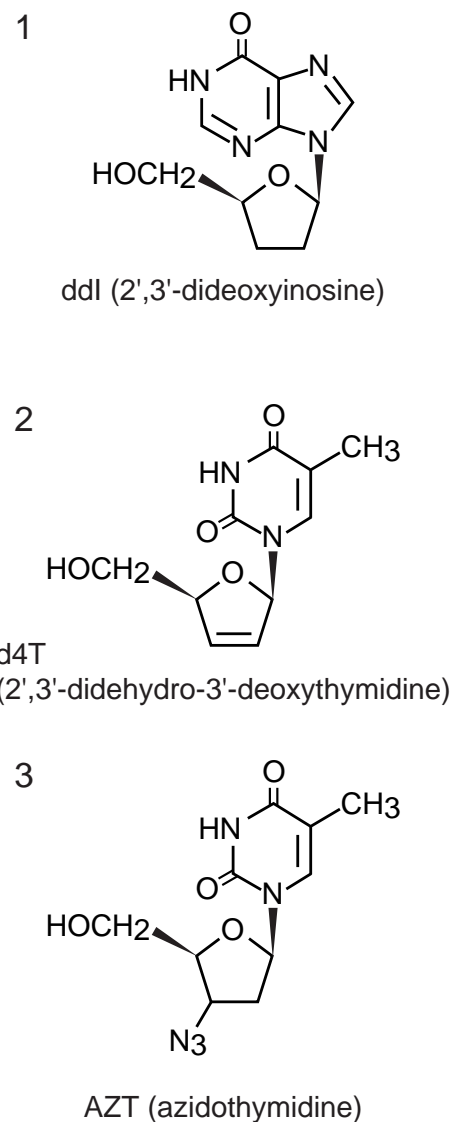
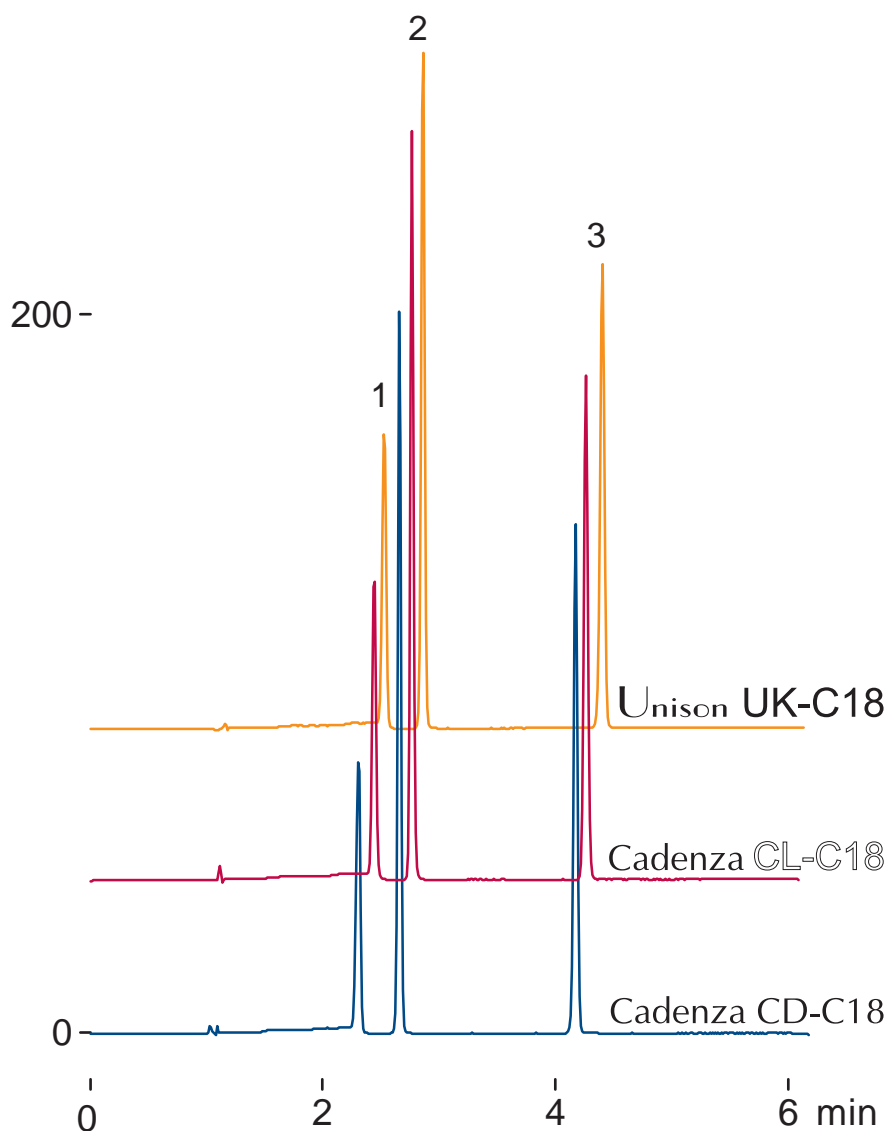
Unison UK-C18
Cadenza CL-C18
Cadenza CD-C18

75 x 4.6 mm

Application

Anti-HIV Nucleosides

抗HIVヌクレオシド



75 x 4.6 mm

A: water / trifluoroacetic acid = 100 / 0.1

B: acetonitrile / trifluoroacetic acid = 100 / 0.1

5-30%B (0-5min), 1mL/min (5MPa),

37 deg.C, 260 nm, 2uL (0.4ug)

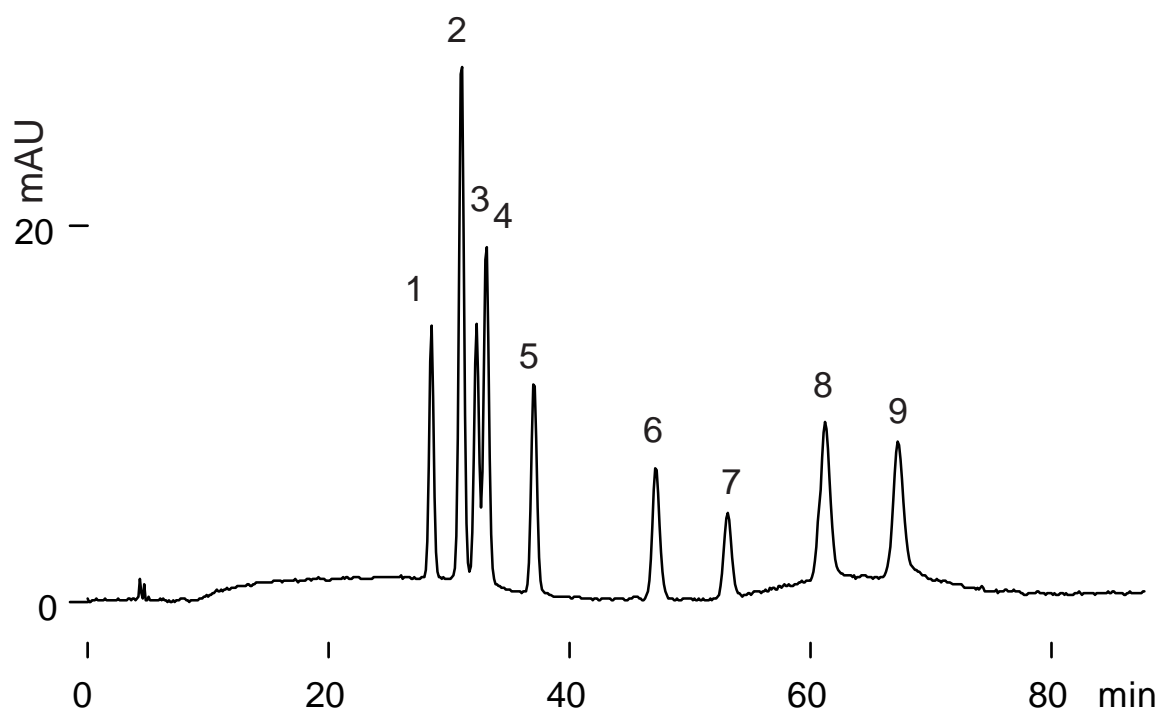
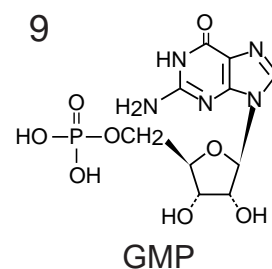
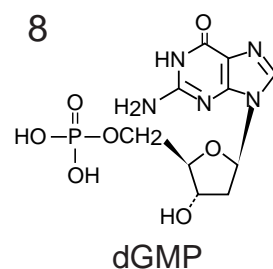
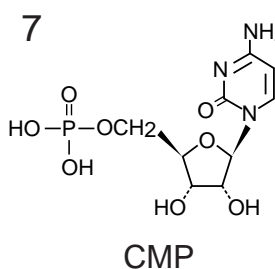
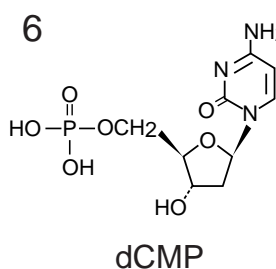
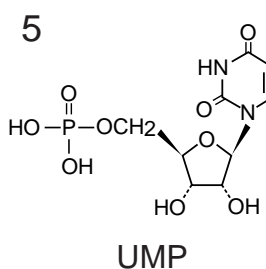
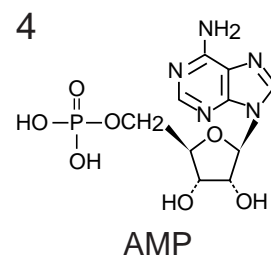
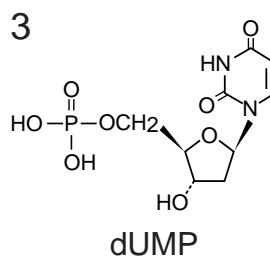
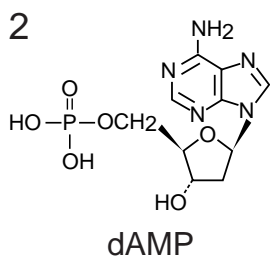
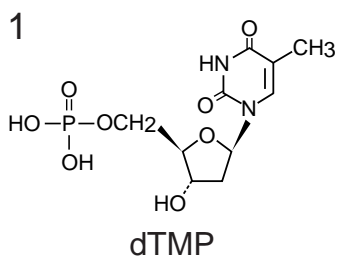
Unison UK-Amino

250 x 4.6 mm

Application

Mononucleotides

モノヌクレオチド



Unison UK-Amino, 250 x 4.6 mm
 tetrahydrofuran / acetonitrile / 50mM NH₄HCO₃ = 55 / 10 / 35
 0.7 mL/min (15MPa), 37 deg.C, 260 nm, 2 uL (0.4ug)

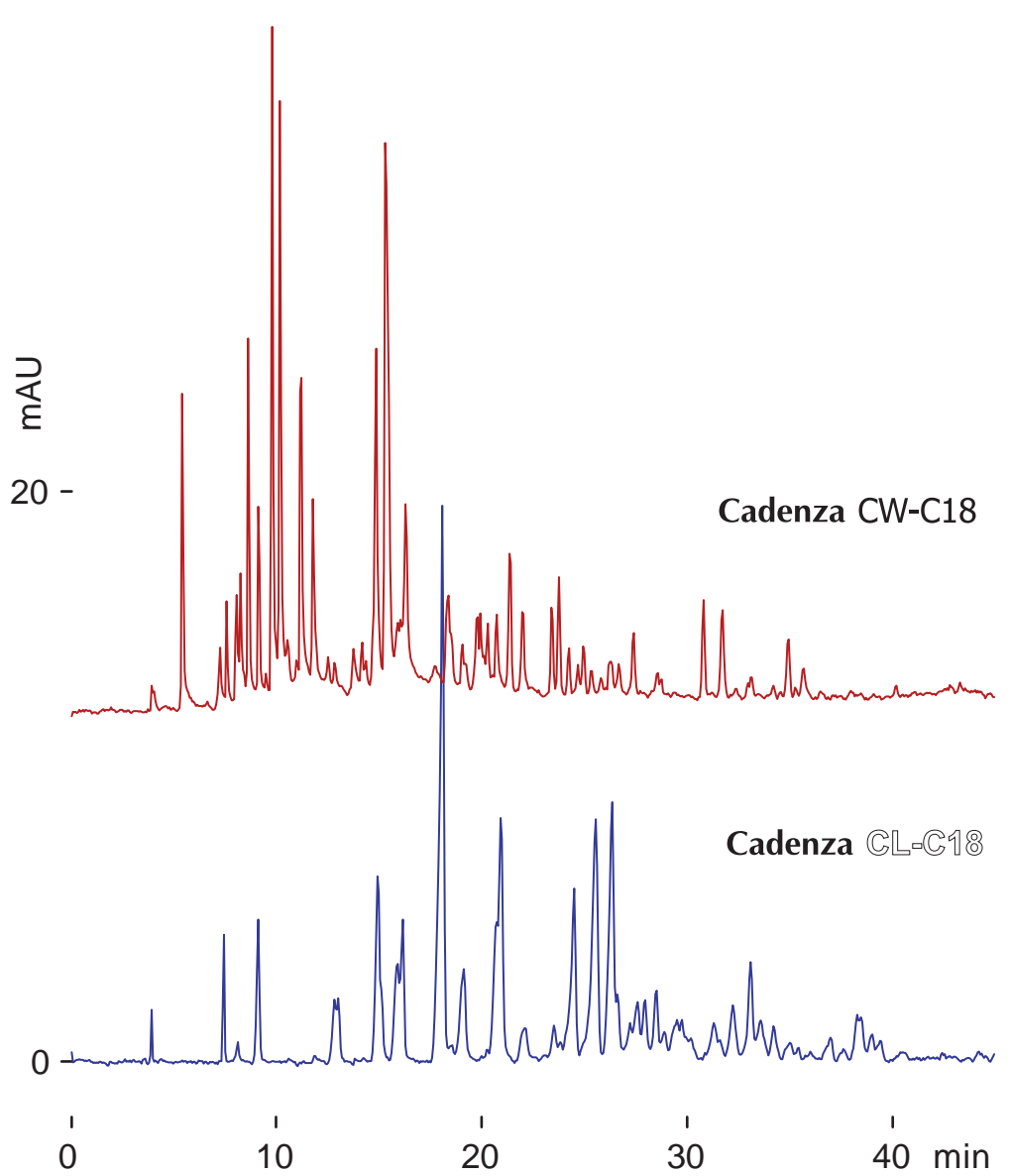
Cadenza CW-C18
Cadenza CL-C18

250 x 4.6 mm

Application

Double-Stranded DNA Fragments

二重鎖DNAフラグメント



250 x 4.6 mm

A: 100mM ammonium acetate, B: acetonitrile, 1-7%B(0-40min)
0.8 mL/min, 50 deg.C, 260 nm, 1 uL (salmon DNA / DNase)

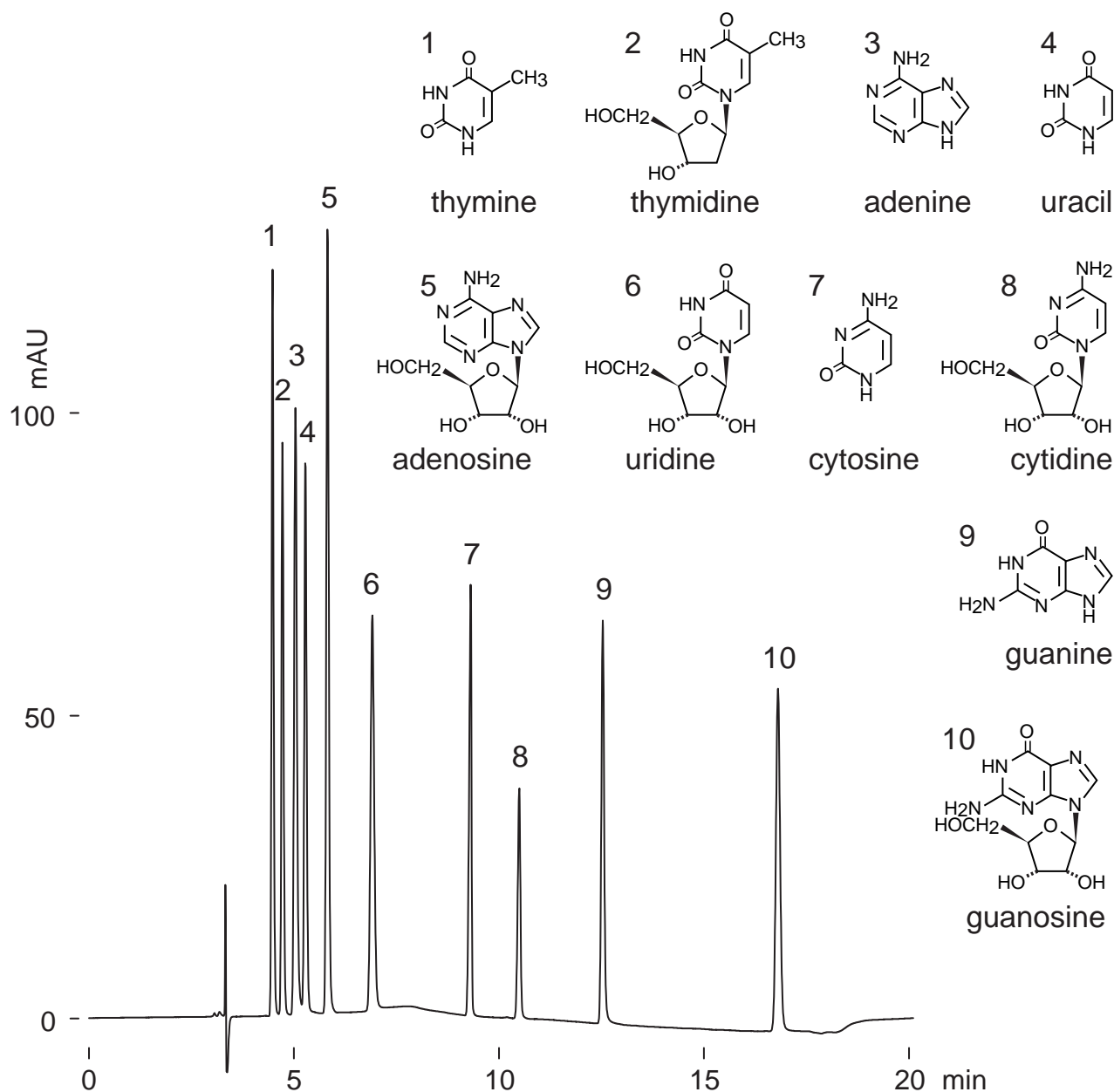
Unison UK-Amino

250 x 3 mm

Application

Nucleosides and Bases

核酸塩基・ヌクレオシド



Unison UK-Amino, 250 x 3 mm

A: hexane /tetrahydrofuran /water /trifluoroacetic acid = 5 /91 /4 /0.15

B: tetrahydrofuran /water /trifluoroacetic acid = 50 /50 /0.1

0-33%B(0-15min)

0.4 mL/min (7MPa), 60 deg.C, 260nm

1uL (0.05-0.14ug, diluted with acetonitrile /TFA)

Unison UK-Amino

250 x 3 mm

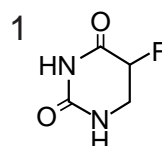
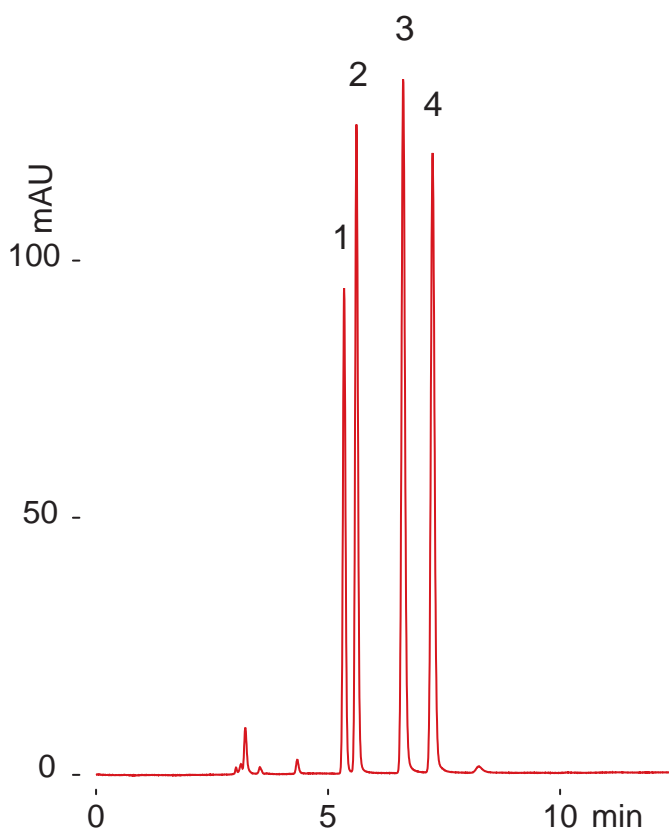
Unison UK-Phenyl

250 x 4.6 mm

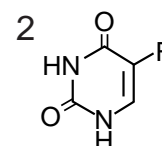
Application

5-Fluorouracil and Related Compounds

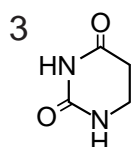
5-フルオロウラシルと関連化合物



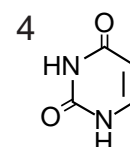
dihydrofluorouracil



5-fluorouracil



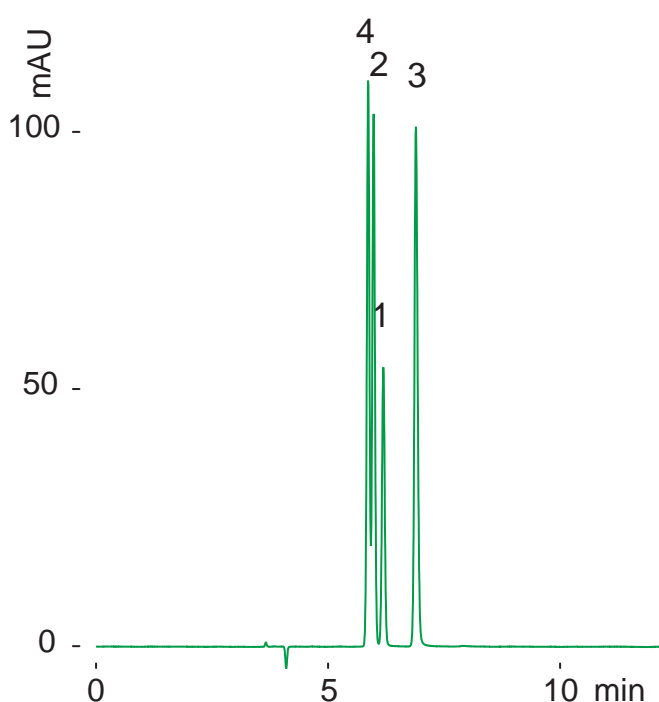
dihydrouracil



uracil

normal phase

Unison UK-Amino, 250 x 3 mm
hexane /tetrahydrofuran /water /TFA
= 15 /83 /2 /0.15
0.4 mL/min (6MPa), 60 deg.C, 210 nm
2.5 uL (0.3-1.4ug, diluted with eluent)



reversed phase

Unison UK-Phenyl, 250 x 4.6 mm
10 mM TFA-ammonium
0.8 mL/min (13 MPa), 37 deg.C, 210 nm
0.8 uL (0.2-0.4ug)

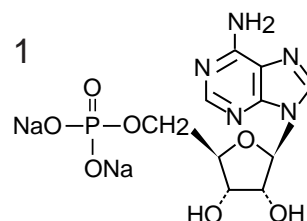
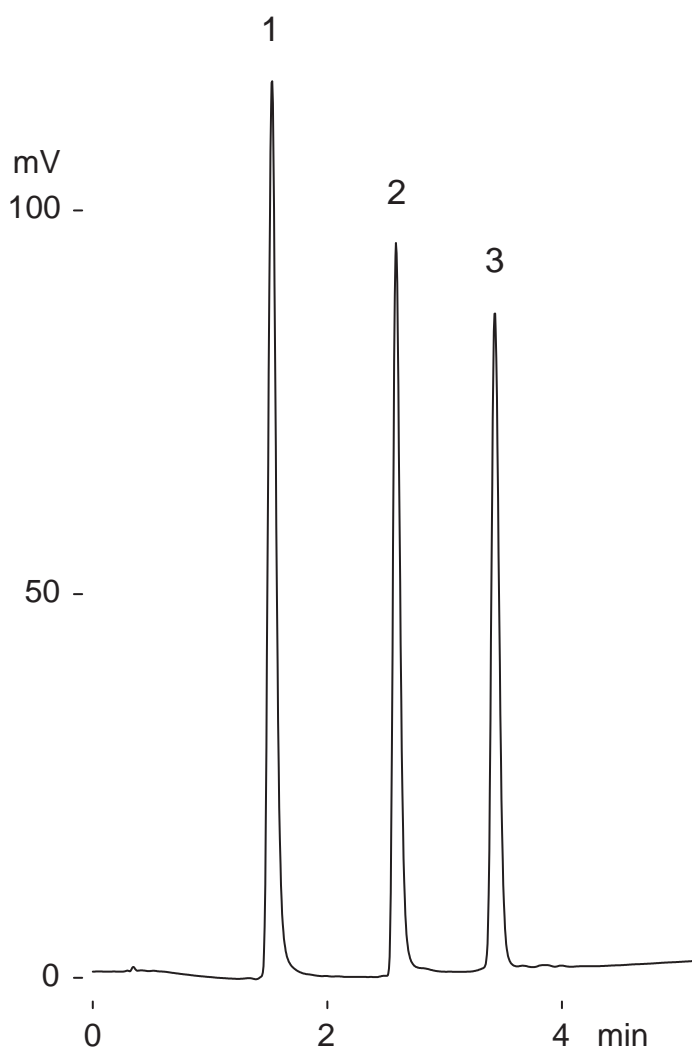
Unison UK-Amino

30 x 3 mm

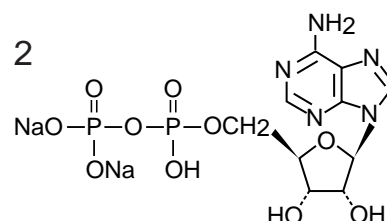
Application

Adenosine phosphates (AMP, ADP, ATP)

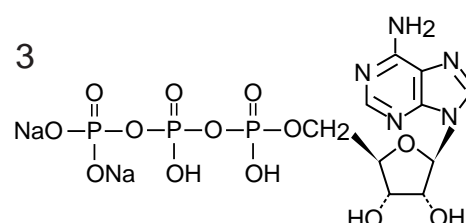
アデノシンリン酸 (AMP, ADP, ATP)



adenosine 5'- monophosphate disodium (AMP)



adenosine 5'- diphosphate disodium (ADP)



adenosine 5'- triphosphate disodium (ATP)

Unison UK-Amino, 30 x 3 mm

A: acetonitrile

B: water /triethylamine /acetic acid = 100 /4.1 /1.6
30-100%B (0-5min), 0.6 mL/min (2MPa), 50 deg.C
260 nm, 0.6 uL (1ug)

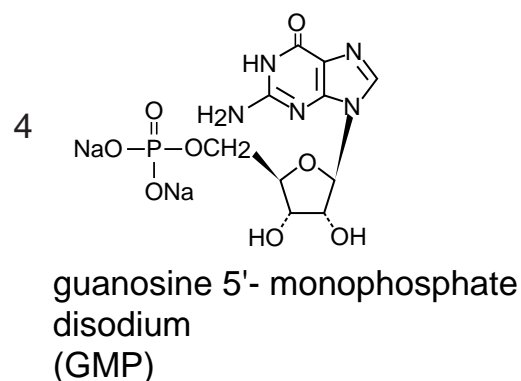
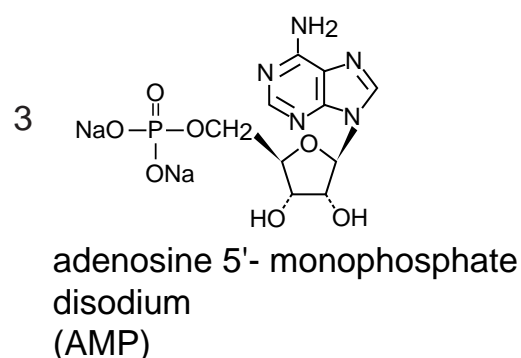
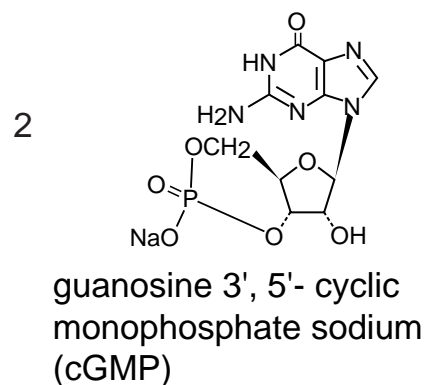
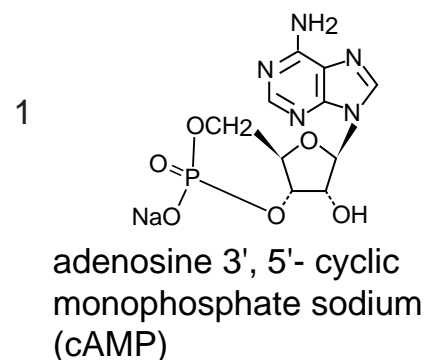
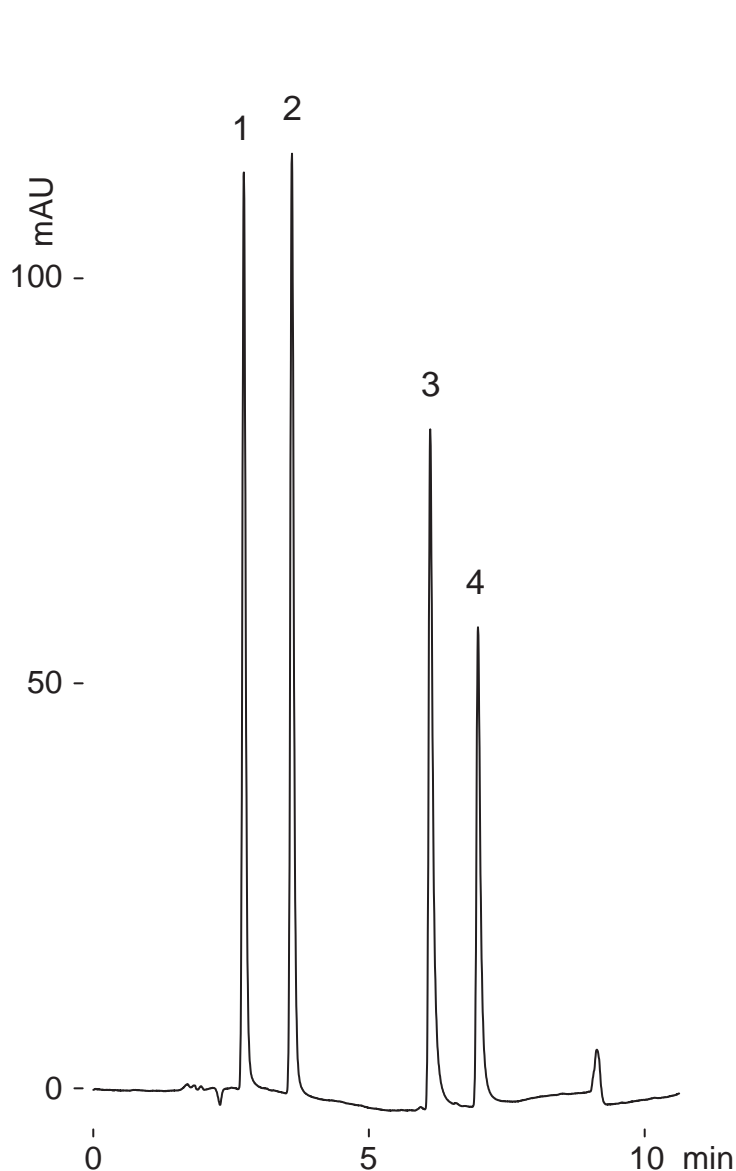
Unison UK-Amino

100 x 3 mm

Application

Cyclic Mononucleotides(cAMP, cGMP)

サイクリックモノヌクレオチド (cAMP, cGMP)



Unison UK-Amino, 100 x 3 mm

A: acetonitrile

B: water /triethylamine /acetic acid = 100 /4.1 /1.6
25-90%B (0-7min), 0.3 mL/min (5MPa), 50 deg.C
260 nm, 0.6 uL (0.2ug)

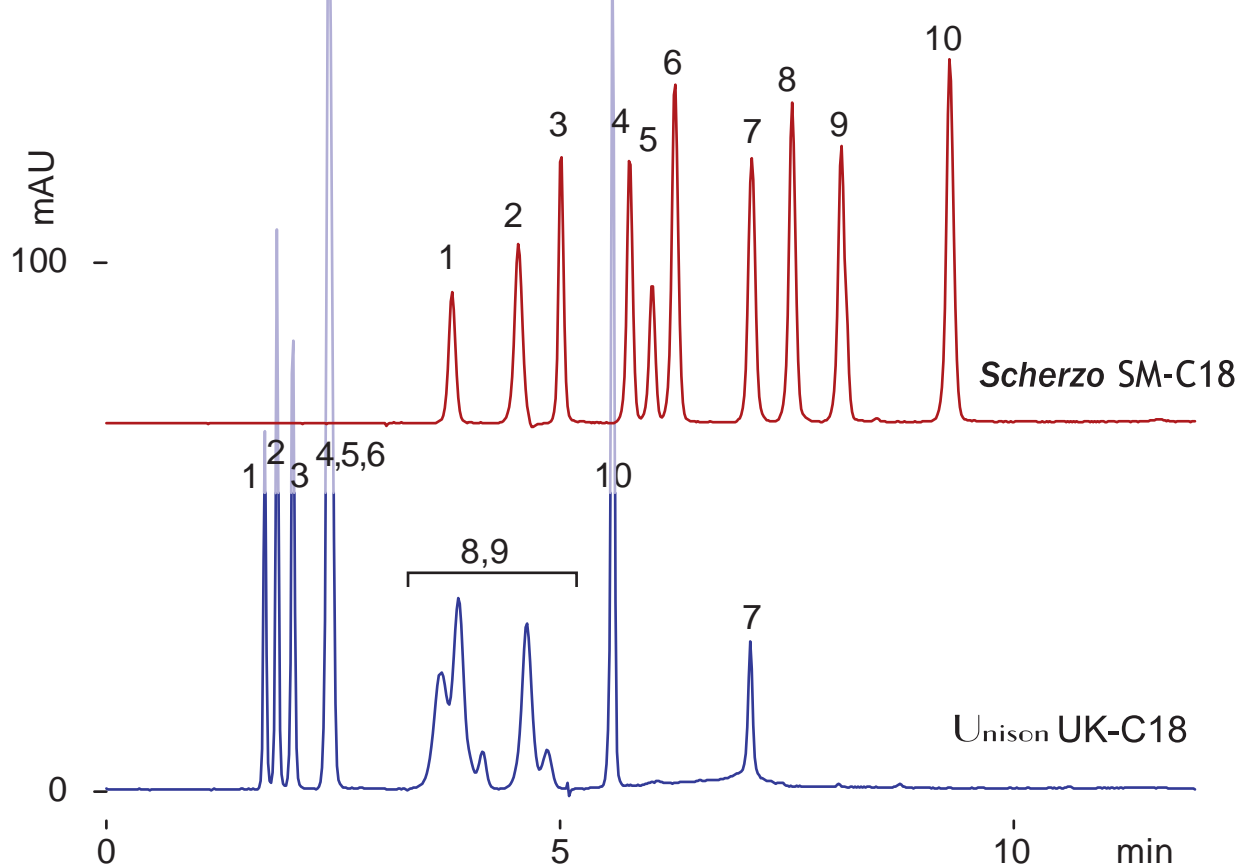
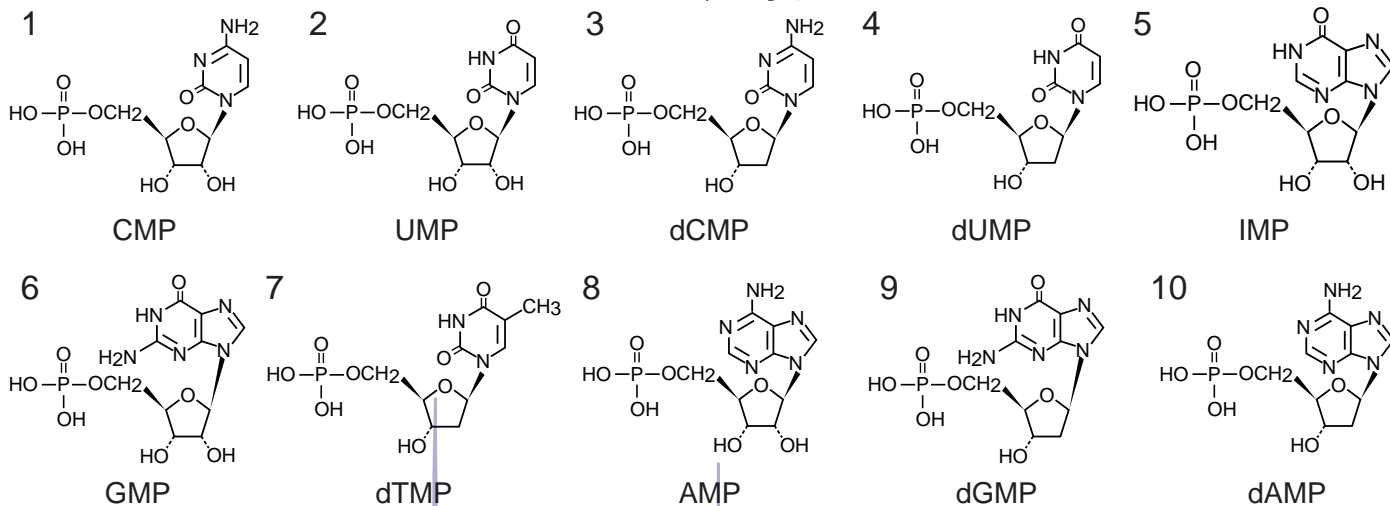
Scherzo SM-C18
Unison UK-C18

150 x 3 mm

Application

Mononucleotides

モノヌクレオチド



150 x 3 mm

A: 5mM NH₄H₂PO₄ : 5mM (NH₄)₂HPO₄ = 1 : 1, pH 6.8

B: (10mM NH₄H₂PO₄ : 10mM (NH₄)₂HPO₄ = 1 : 1, pH 6.8) /acetonitrile = 50 /50
0-30 %B (0-10min), 0.4 mL/min (10MPa), 37 deg.C, 260 nm, 1 uL (0.2ug)

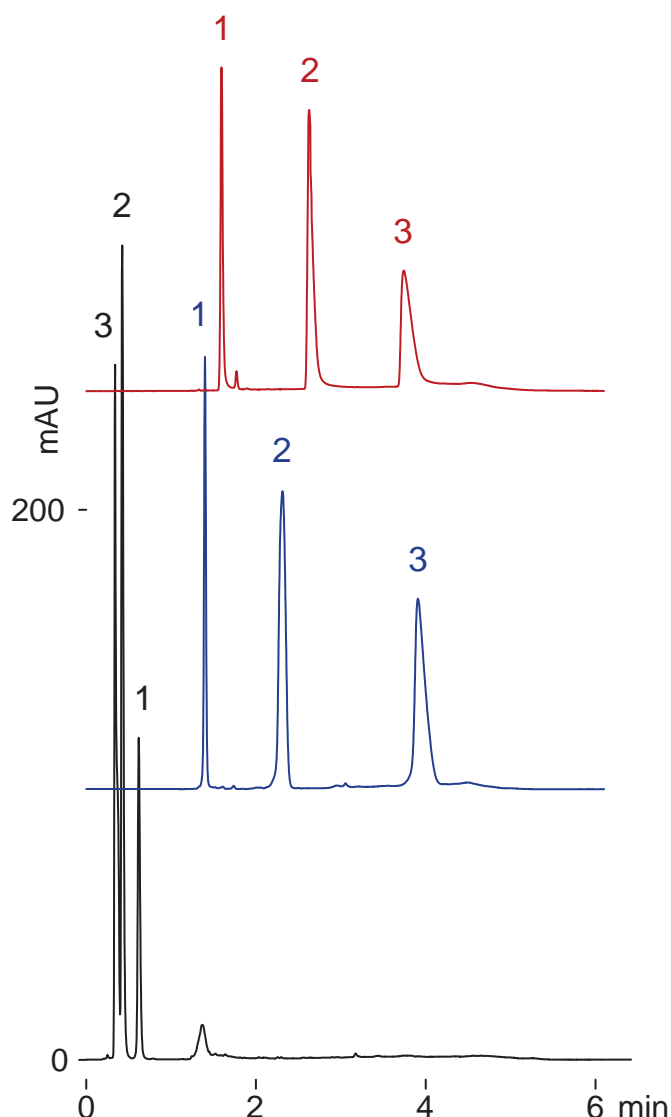
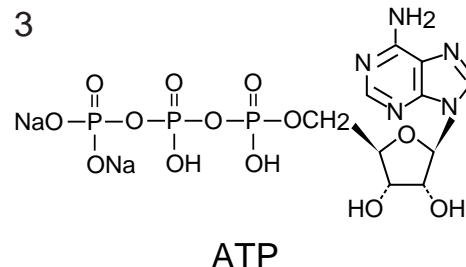
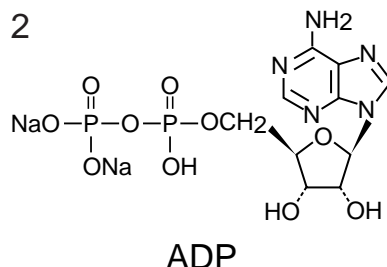
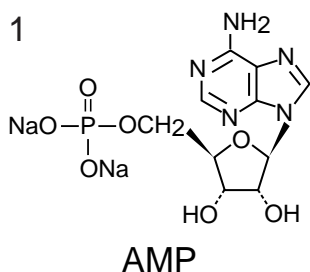
Scherzo SM-C18
Unison UK-C18

30 x 3 mm

Application

Adenosine phosphates (AMP, ADP, ATP)

アデノシンリン酸 (AMP, ADP, ATP)



Scherzo SM-C18

A: 20mM CH₃COONH₄

B: 200mM CH₃COONH₄ /ACN = 70 /30

Scherzo SM-C18

A: 5mM NH₄H₂PO₄ : 5mM (NH₄)₂HPO₄
= 1:1, pH6.8

B: (20mM NH₄H₂PO₄ : 20mM (NH₄)₂HPO₄
= 1:1, pH6.8) /ACN = 50 /50

Unison UK-C18

A: 5mM NH₄H₂PO₄ : 5mM (NH₄)₂HPO₄
= 1:1, pH6.8

B: (20mM NH₄H₂PO₄ : 20mM (NH₄)₂HPO₄
= 1:1, pH6.8) /ACN = 50 /50

30 x 3 mm

0-100 %B (0-10min)

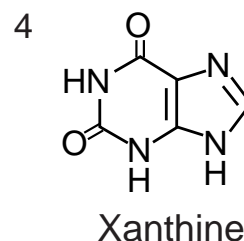
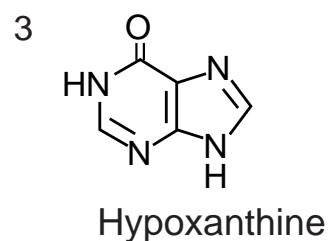
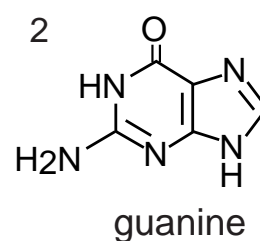
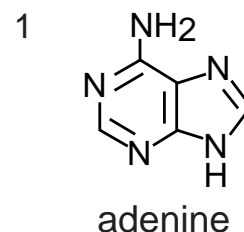
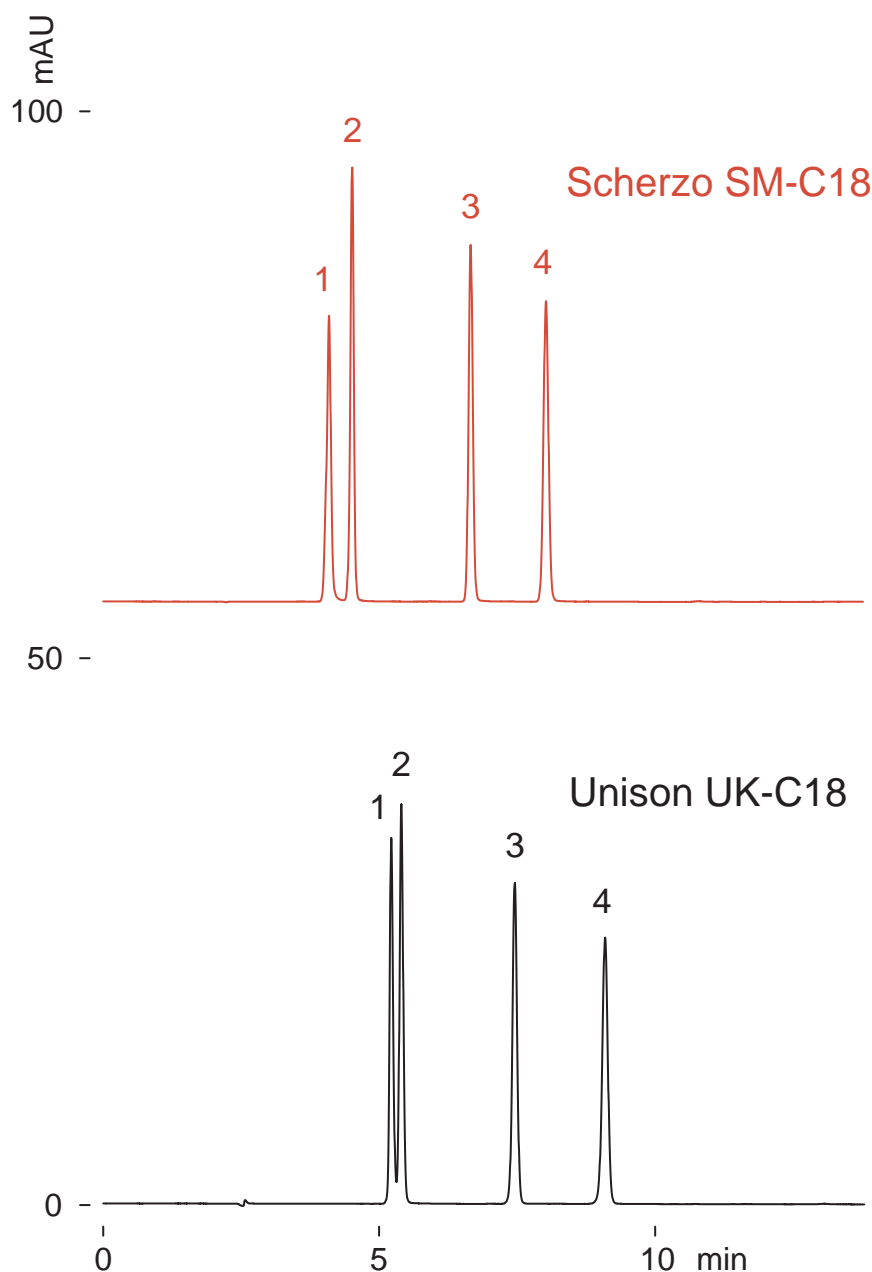
0.6 mL/min (5-6 MPa), 37deg.C, 260 nm, 0.8 uL (0.1-0.3ug)

Scherzo SM-C18
Unison UK-C18

250 x 4.6 mm

Application

Purine bases
プリン塩基



250 x 4.6 mm
 A: water / acetic acid = 100 / 1
 B: acetonitrile / acetic acid = 100 / 1
 0 %B (0-8min), 70 %B (8-13min)
 1 mL/min (15MPa), 37 deg.C, 260 nm
 0.6 uL (0.09-0.17ug)

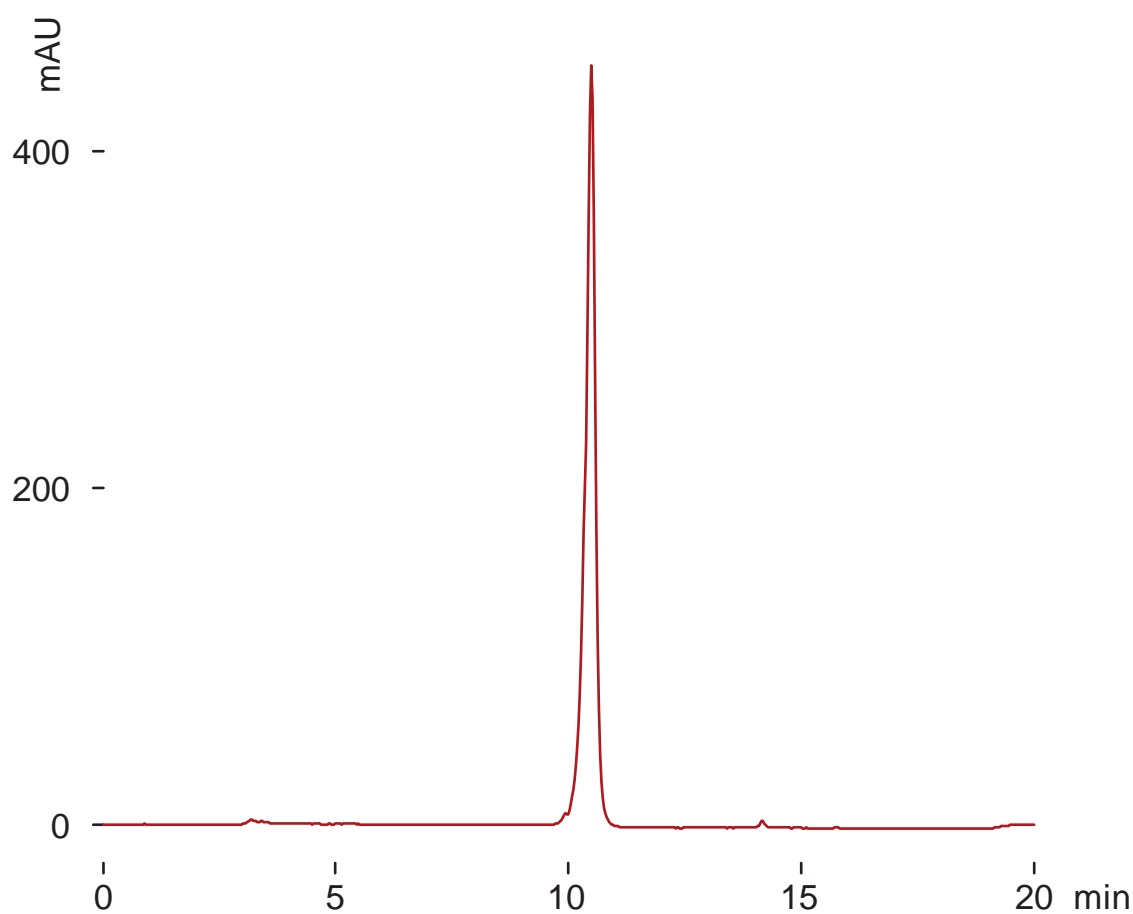
Presto FF-C18

150 x 4.6 mm

Application

DNA from salmon spermary

DNA(サケ精巢由来), MW: 20,000,000~30,000,000



Presto FF-C18, 150 x 4.6 mm

A: 50mM ammonium acetate, B: acetonitrile, 0-50 %B (0-15min)

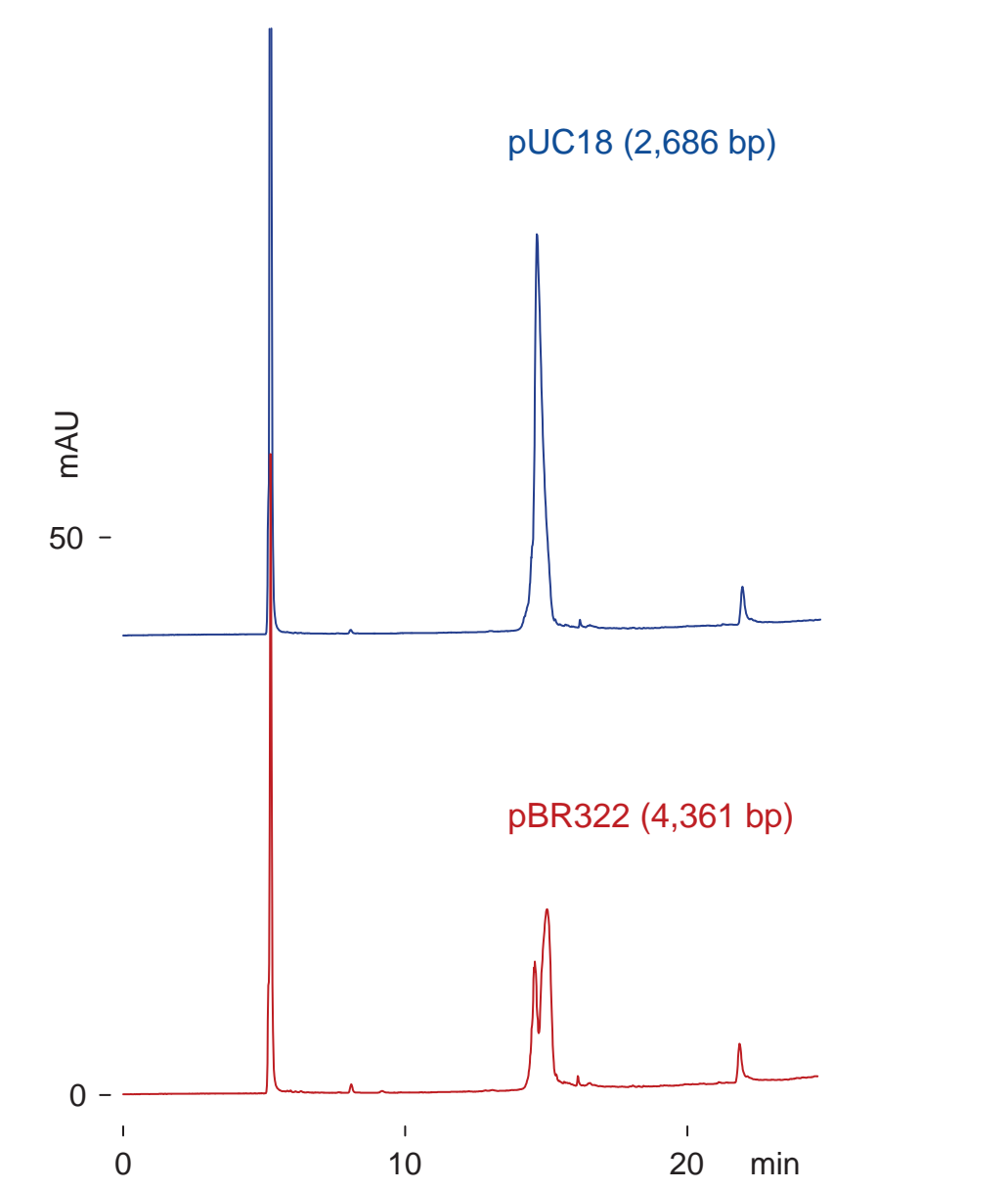
0.3 mL/min (12MPa), 37 deg.C, 260 nm

1 uL (4ug, 50mM ammonium acetate)

Presto FF-C18

250 x 4.6 mm

Application

Plasmid DNA
プラスミド DNA

Presto FF-C18, 250 x 4.6 mm
A: 200mM ammonium acetate
B: acetonitrile
0-30 %B (0-20min)
0.3 mL/min (17MPa), 50 deg.C, 260 nm, 1 uL (4ug)

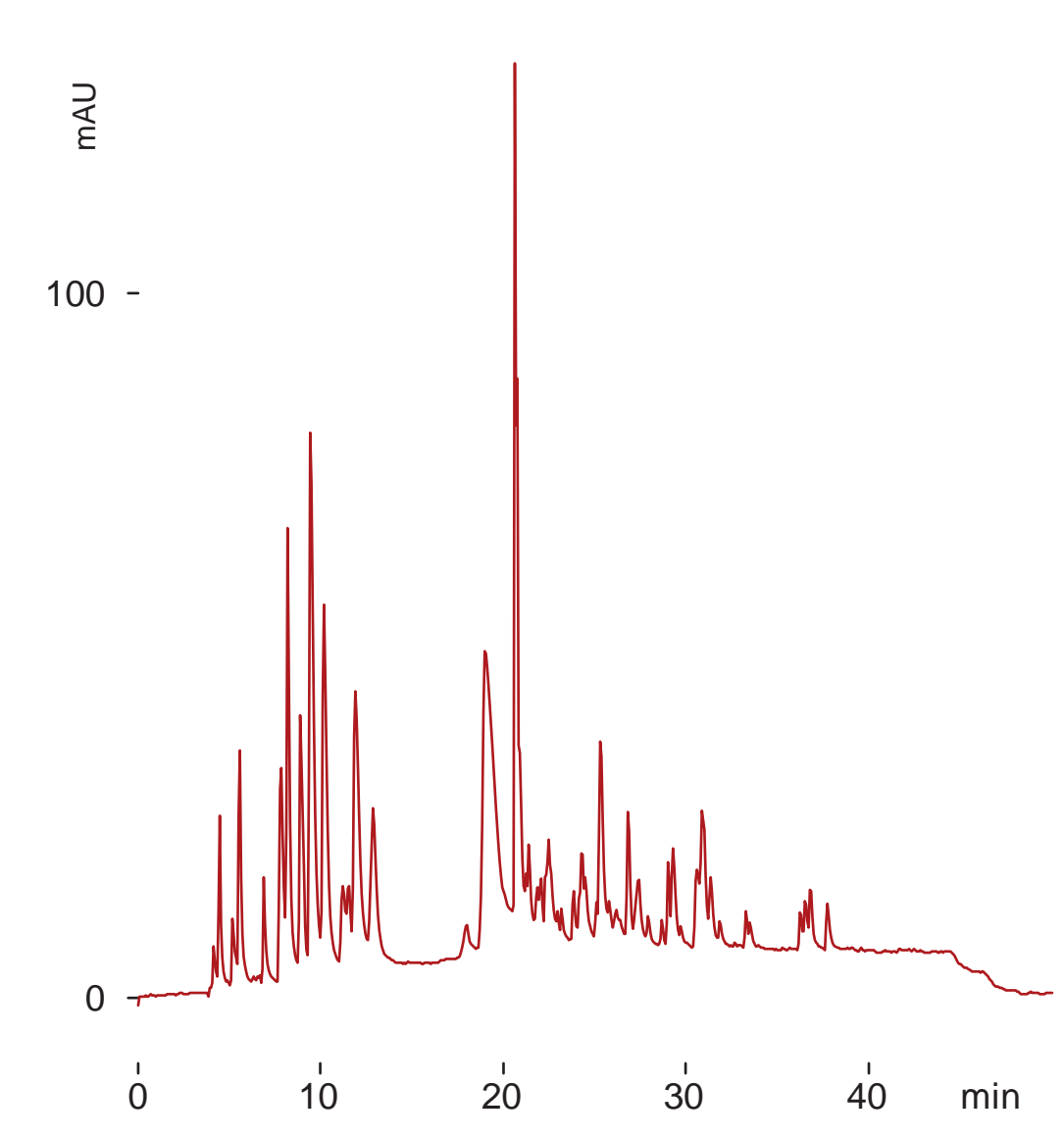
Presto FF-C18

250 x 4.6 mm

Application

Double-stranded DNA fragments

二重鎖DNAフラグメント



Presto FF-C18, 250 x 4.6 mm

A: water / triethylamine / acetic acid = 100 / 1.1 / 0.5

B: eluent A / acetonitrile = 90 / 10

0-40 %B (0-40min), 0.8 mL/min (24MPa), 50 deg.C, 260 nm

2 uL (salmon DNA / DNase)

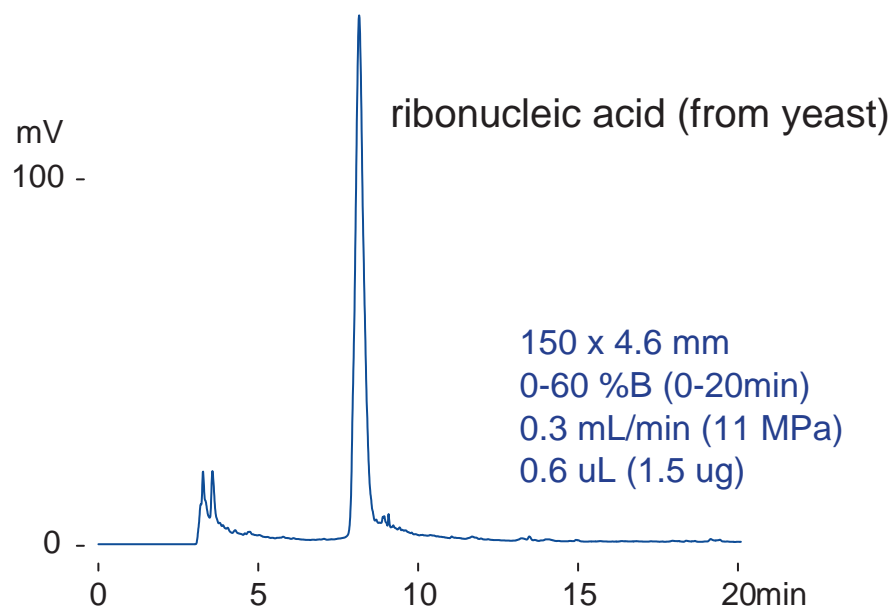
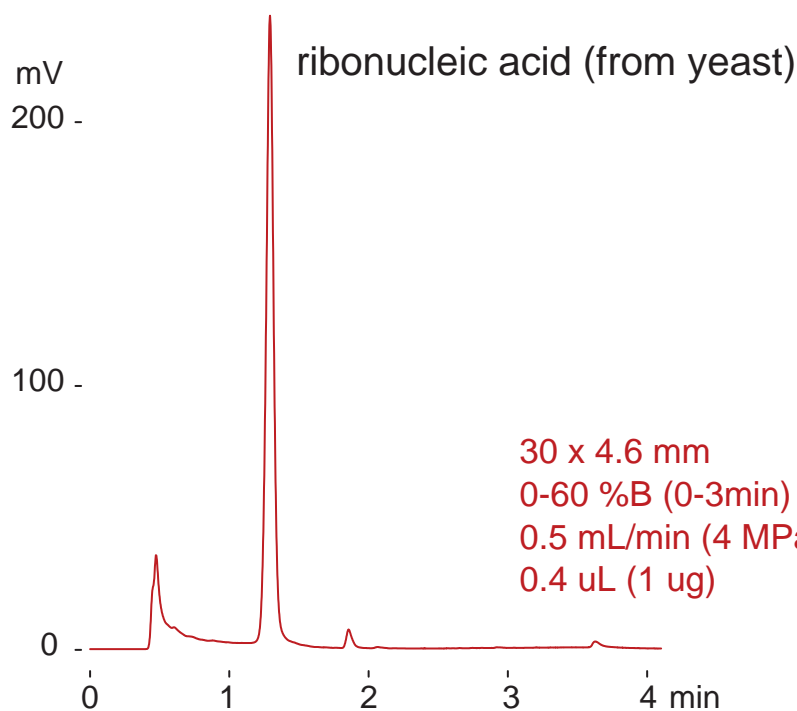
Presto FF-C18

30 x 4.6 mm
150 x 4.6 mm

Application

Ribonucleic acid (RNA)

リボ核酸



Presto FF-C18
A: 50 mM ammonium acetate
B: acetonitrile
50 deg.C, 260 nm

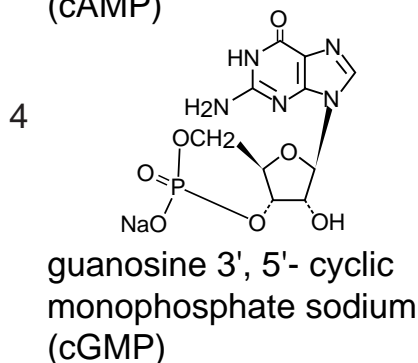
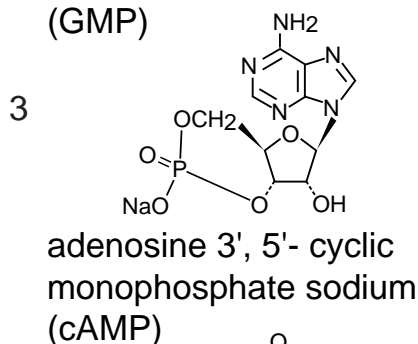
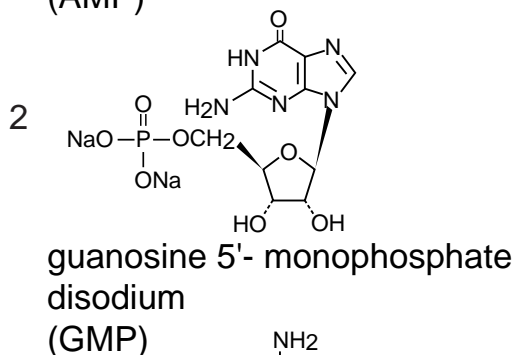
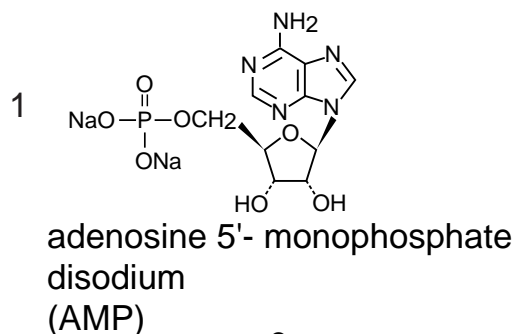
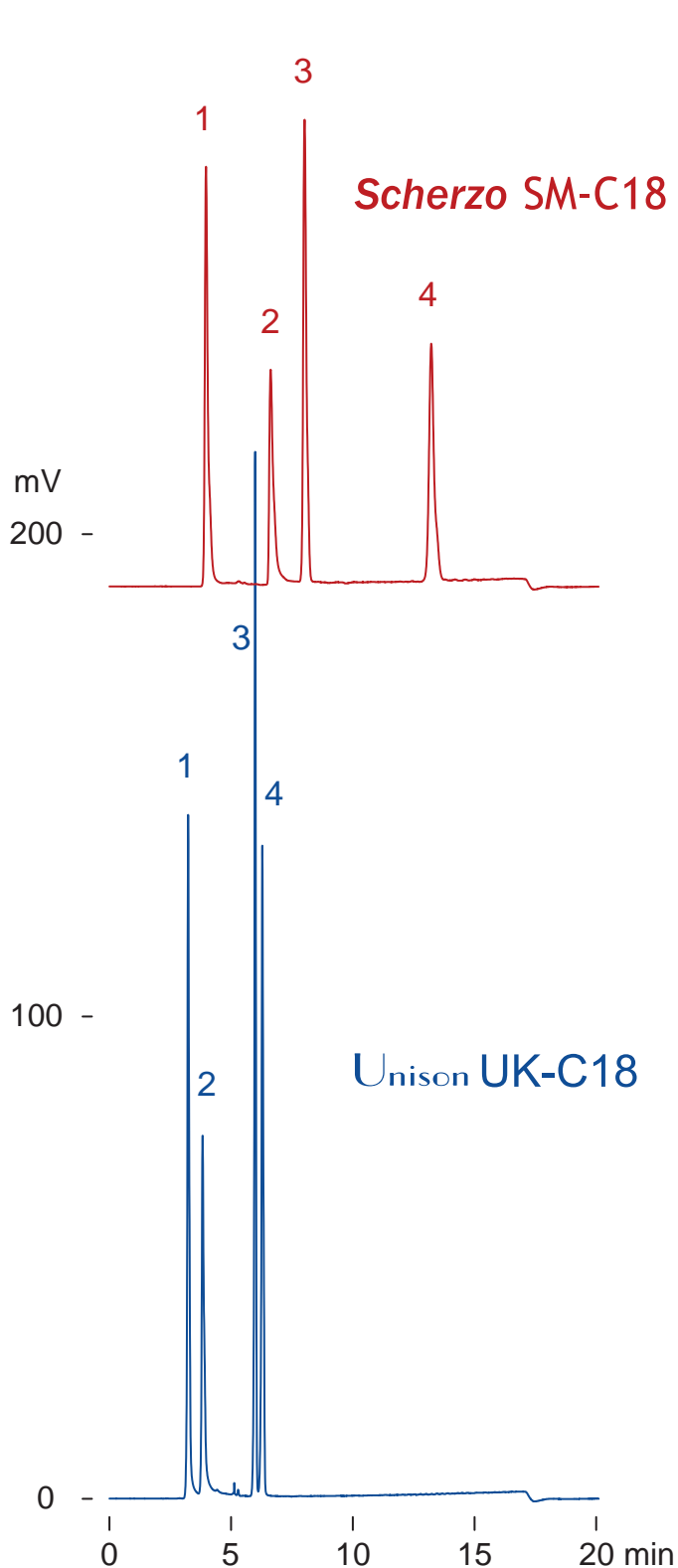
Scherzo SM-C18
Unison UK-C18

150 x 3 mm

Application

Cyclic mononucleotides (cAMP, cGMP)

サイクリックモノヌクレオチド



150 x 3 mm

A: water / formic acid = 100 / 0.7

B: acetonitrile / formic acid = 100 / 2

0-15 %B (0-15min)

0.4 mL/min (7 MPa), 50 deg.C, 260 nm

0.2 uL (0.25 ug)

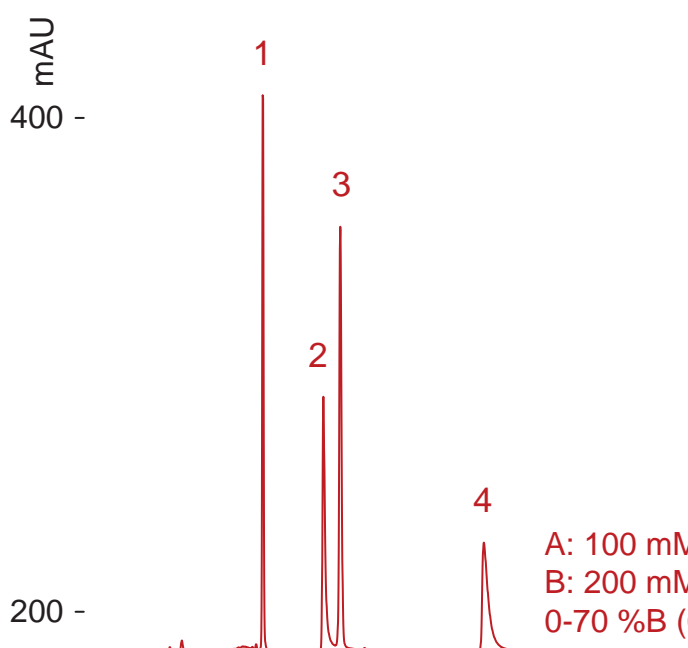
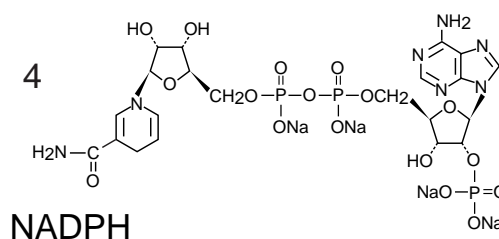
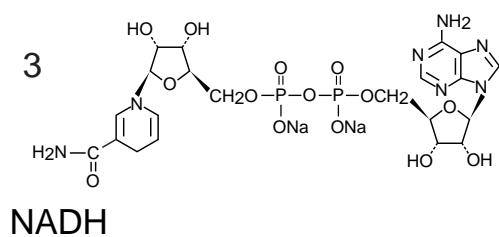
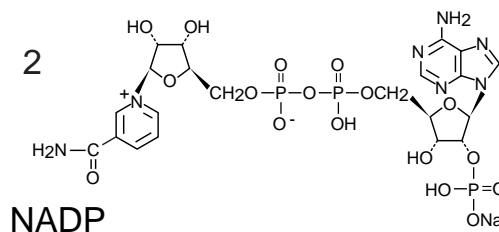
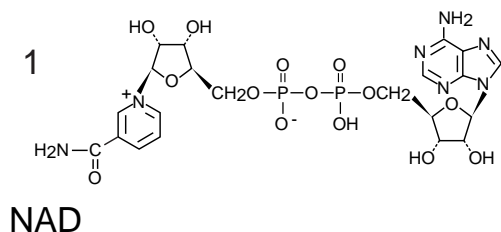
Scherzo SM-C18

150 x 3 mm

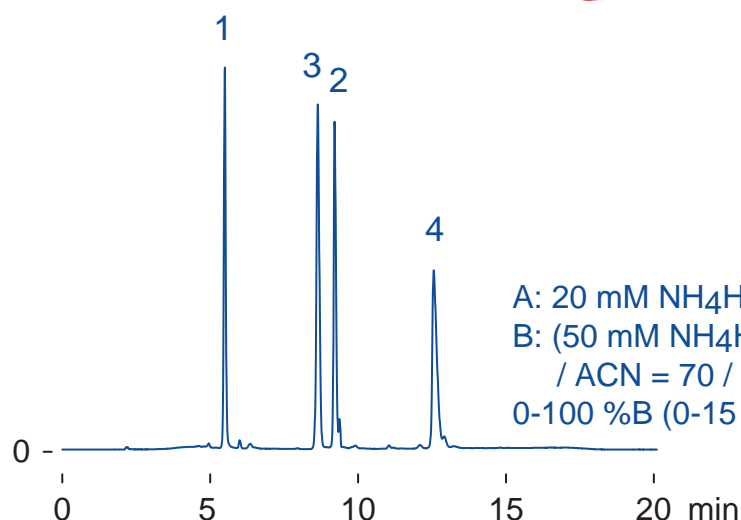
Application

Coenzymes (Nicotinamide adenine dinucleotides)

補酵素 (ニコチンアミド アデニン ジヌクレオチド)



A: 100 mM HCOOH
 B: 200 mM HCOONH₄ / ACN = 70 / 30
 0-70 %B (0-15 min), 8 MPa



A: 20 mM NH₄H₂PO₄
 B: (50 mM NH₄H₂PO₄ : 50 mM (NH₄)₂HPO₄ = 1 : 1)
 / ACN = 70 / 30
 0-100 %B (0-15 min), 9 MPa

Scherzo SM-C18, 150 x 3 mm

0.4 mL/min, 37 deg.C, 260 nm, 1.6 uL (0.3 - 0.6 ug, 1 % formic acid)

Scherzo SM-C18

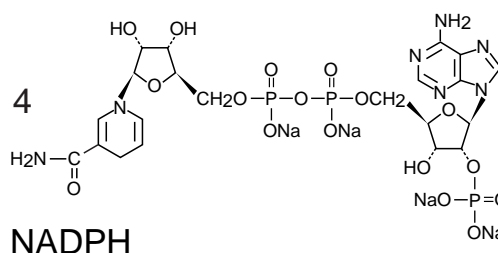
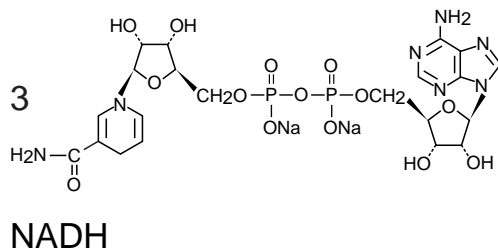
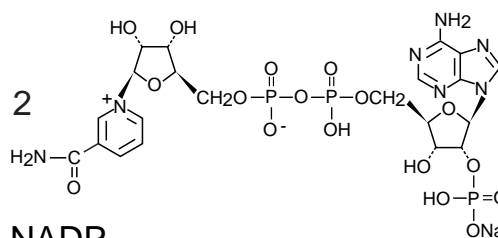
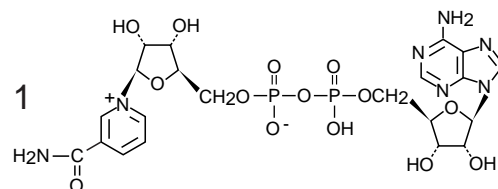
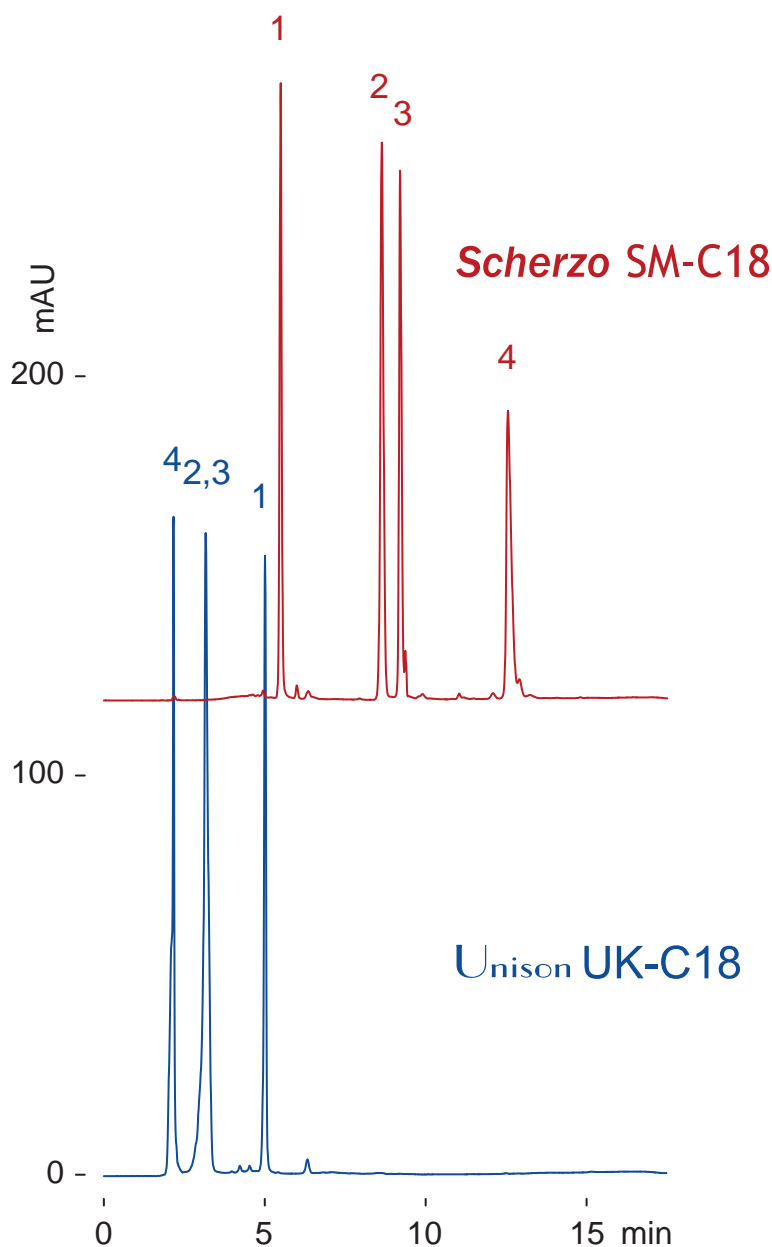
Unison UK-C18

150 x 3 mm

Application

Coenzymes (Nicotinamide adenine dinucleotides)

補酵素 (ニコチンアミド アデニン ジヌクレオチド)



150 x 3 mm

A: 20 mM NH₄H₂PO₄

B: (50 mM NH₄H₂PO₄ : 50 mM (NH₄)₂HPO₄ = 1 : 1) / ACN = 70 / 30

0-100 %B (0-15 min)

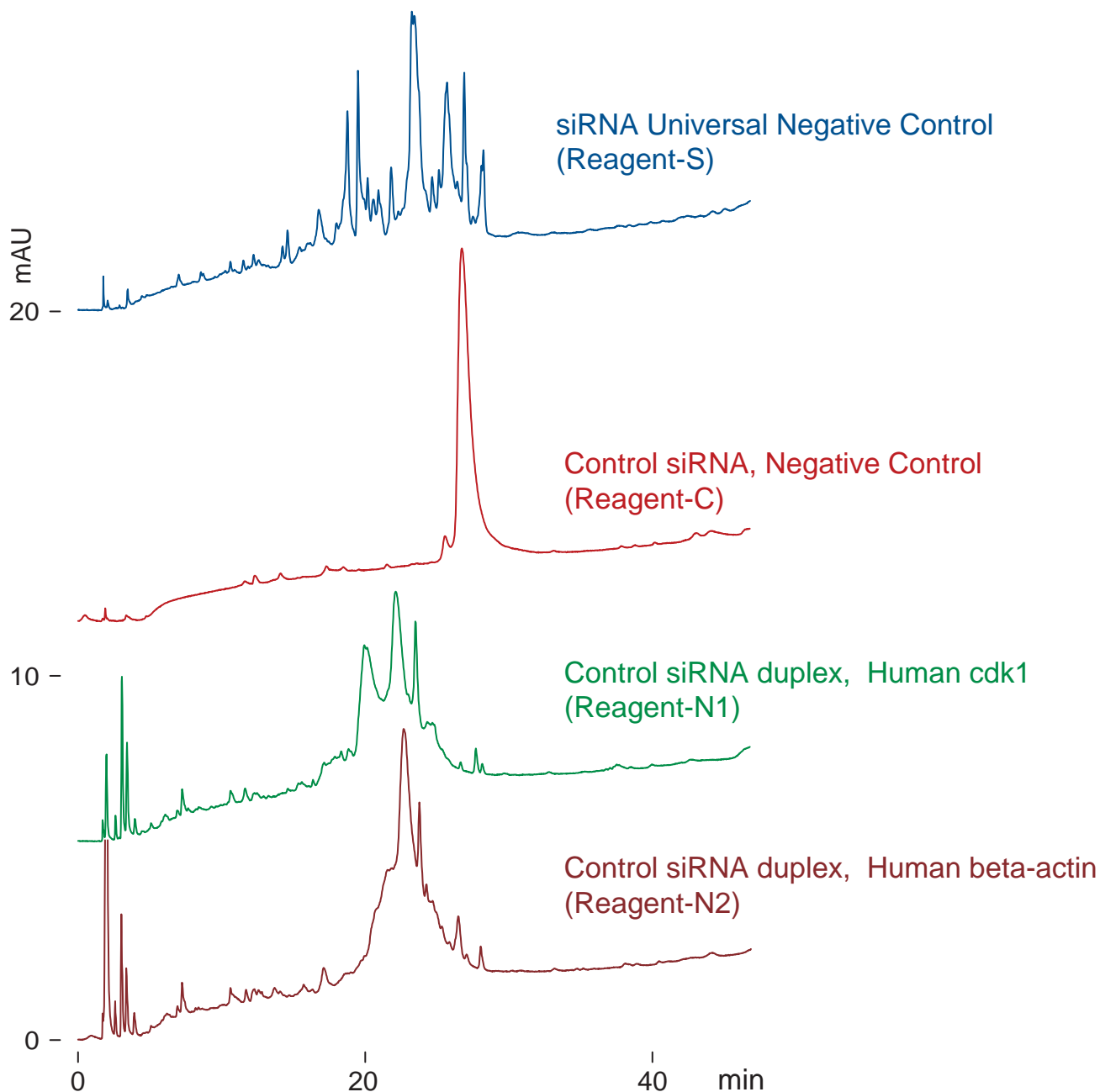
0.4 mL/min (9 MPa), 37 deg.C, 260 nm, 1.6 uL (0.3 - 0.6 ug, 1 % formic acid)

Scherzo SW-C18

150 x 3 mm

Application

siRNA



Scherzo SW-C18, 150 x 3 mm

A: 10 mM ammonium acetate

B: 200 mM ammonium acetate / acetonitrile = 85 / 15

0-100 %B (0-45 min)

0.4 mL/min (10 MPa), 37 deg.C, 260 nm, 0.5-1 uL (35 - 70 ng)

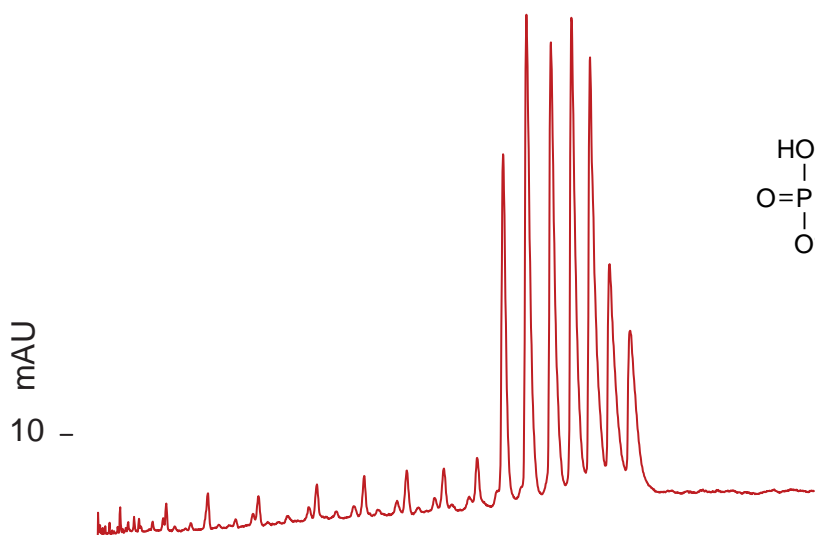
Scherzo SW-C18

150 x 3 mm

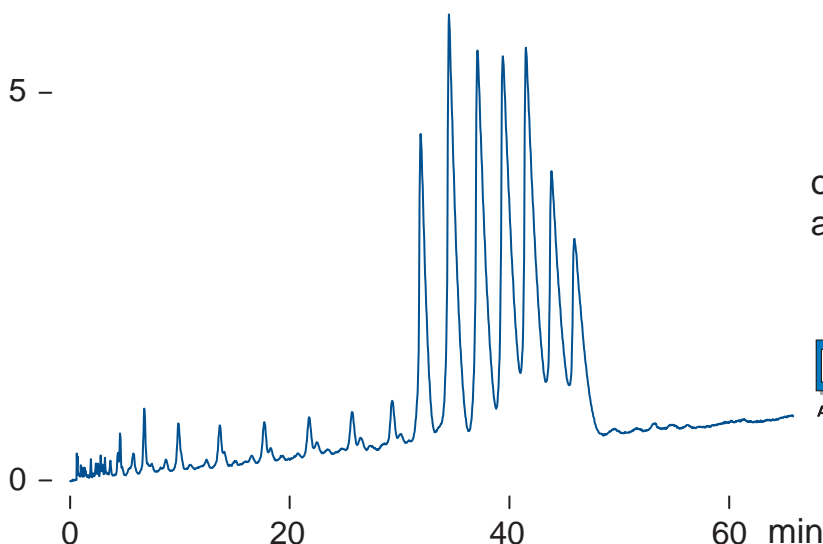
Application

Oligonucleotides

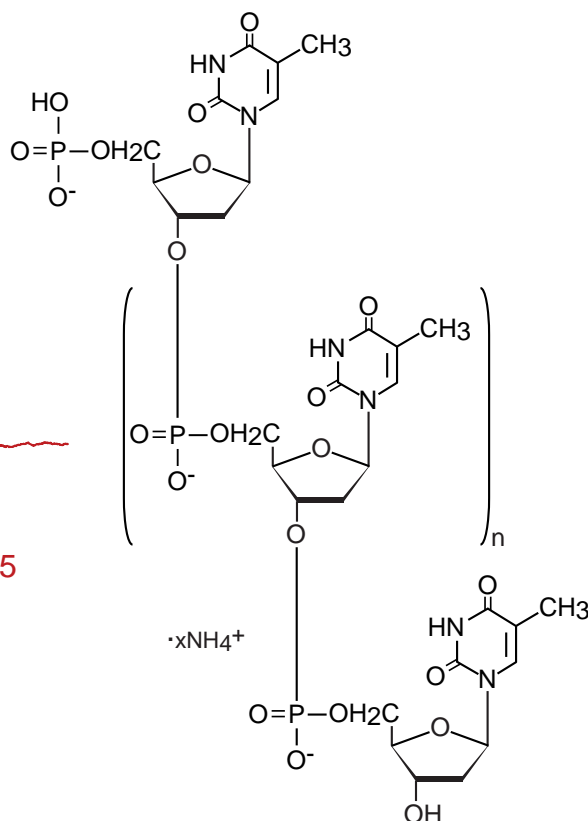
オリゴヌクレオチド



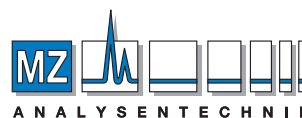
A: 10 mM ammonium acetate
 B: 200 mM ammonium acetate / acetonitrile = 85 / 15
 40-70 %B (0-65 min)



A: 10mM NH₄H₂PO₄ : 10mM (NH₄)₂HPO₄ = 1 : 1 (pH6.8)
 B: (100mM NH₄H₂PO₄ : 100mM (NH₄)₂HPO₄ = 1 : 1 (pH6.8)) / acetonitrile = 85 / 15
 45-75 %B (0-65 min)



oligothymidylic acid d(pT)₁₂₋₁₈
 ammonium salt



AUTHORIZED DISTRIBUTOR

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Scherzo SW-C18, 150 x 3 mm
 1 mL/min (20 MPa), 50 deg.C, 260 nm, 1 uL (1 ug)