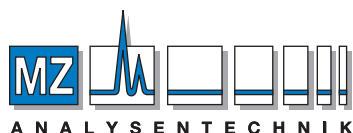


 **Imtakt**

## HPLC TECHNICAL INFORMATION

# Pharmaceutical Compounds Cosmetics



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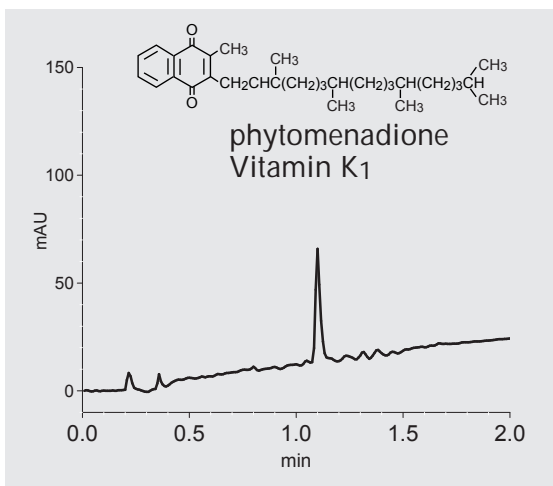
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**Presto FT-C18**

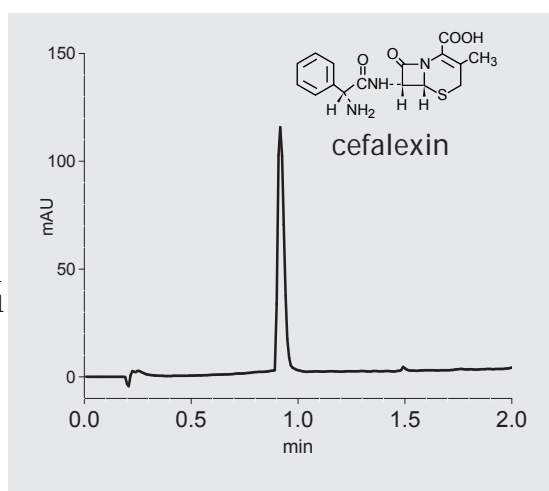
30 x 4.6 mm

Application

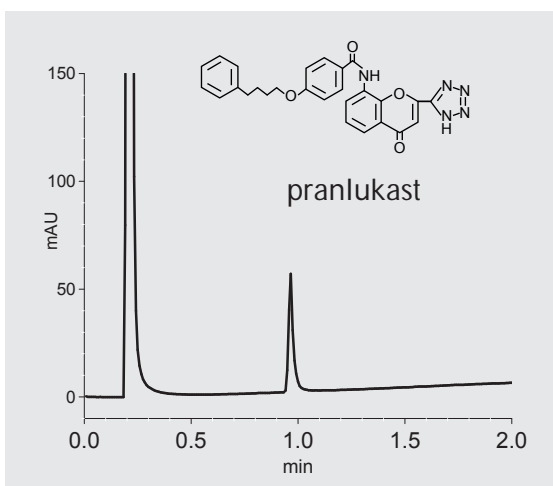
**Pharmaceutical compounds (1)**



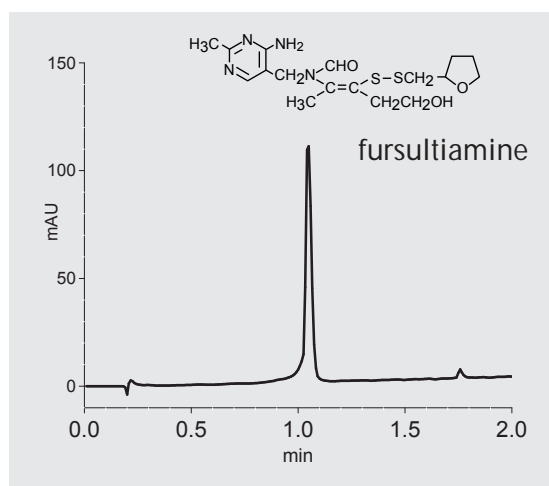
**A: H<sub>2</sub>O/TFA = 100/0.1**  
**B: ACN/TFA = 100/0.1**  
**75-100%B (0-2min)**  
**1.0 mL/min**  
**UV at 220nm**  
**37 deg.C**



**A: H<sub>2</sub>O/TFA = 100/0.1**  
**B: ACN/TFA = 100/0.1**  
**0-30%B (0-2min)**  
**1.0 mL/min**  
**UV at 220nm**  
**37 deg.C**



**A: H<sub>2</sub>O/TFA = 100/0.1**  
**B: ACN/TFA = 100/0.1**  
**30-55%B (0-2min)**  
**1.0 mL/min**  
**UV at 220nm**  
**37 deg.C**



**A: H<sub>2</sub>O/TFA = 100/0.1**  
**B: ACN/TFA = 100/0.1**  
**2-20%B (0-2min)**  
**1.0 mL/min**  
**UV at 220nm**  
**37 deg.C**

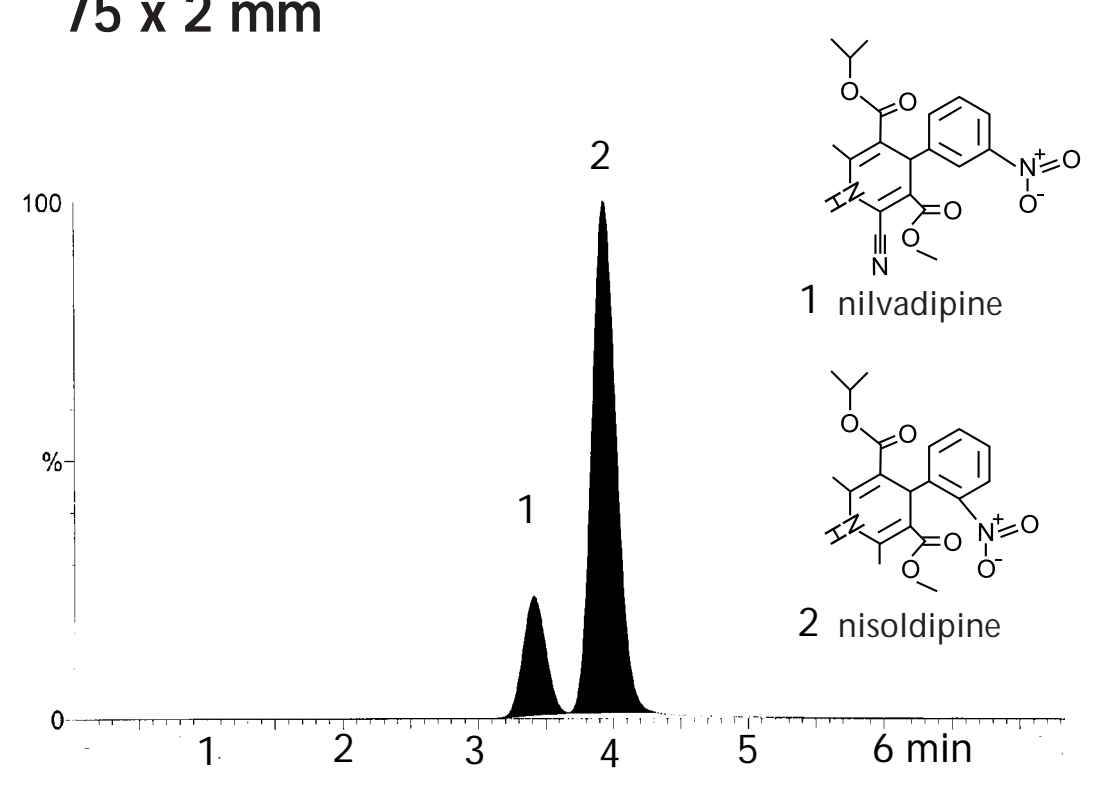
Cadenza CD-C18

75 x 2 mm

Application

LC-ESI-MS application

75 x 2 mm



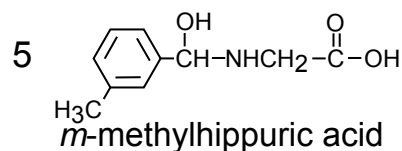
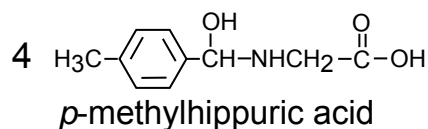
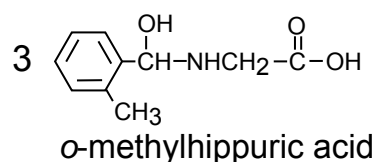
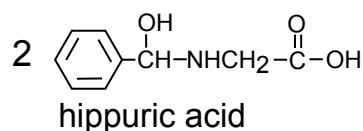
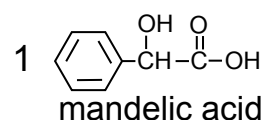
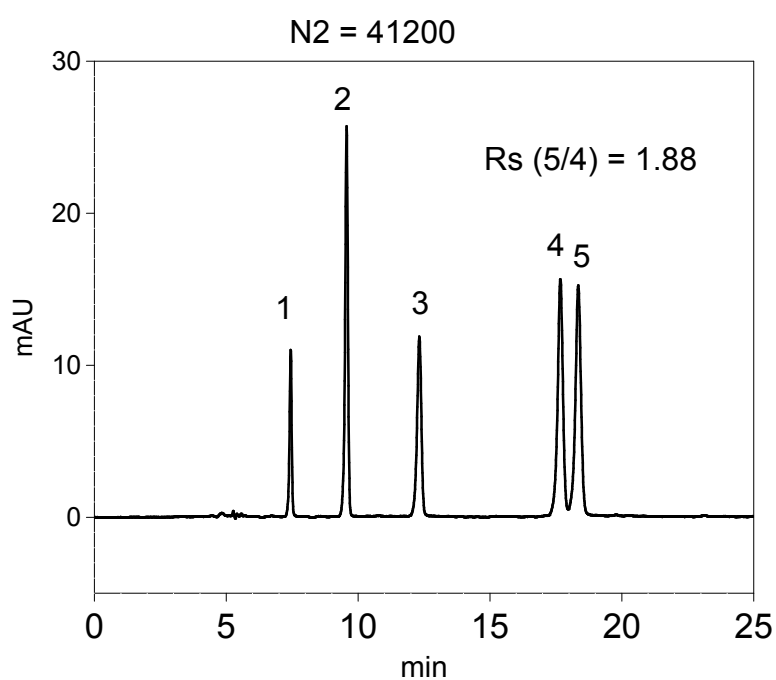
Cadenza CD-C18, 75 x 2.0 mm  
60% acetonitrile, 0.2 mL/min, 40 °C  
Negative-ESI

Cadenza CD-C18

250 x 4.6 mm

Application

### Metabolites of organic solvents



Cadenza CD-C18, 250 x 4.6 mm  
methanol / 20 mM KH<sub>2</sub>PO<sub>4</sub> = 30 / 70  
0.5 mL/min, 30 °C  
UV at 225 nm  
16.2 MPa

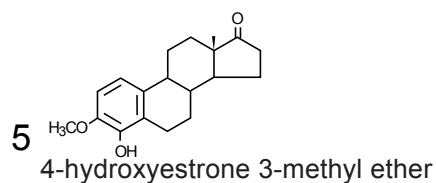
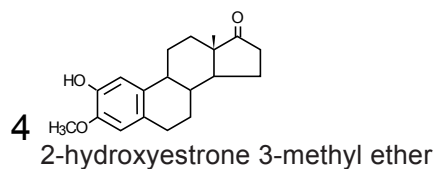
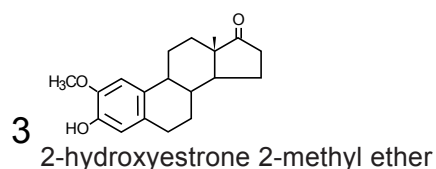
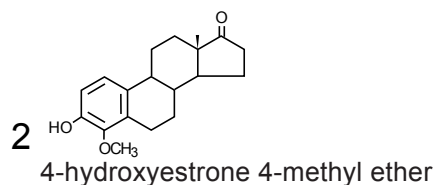
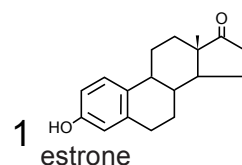
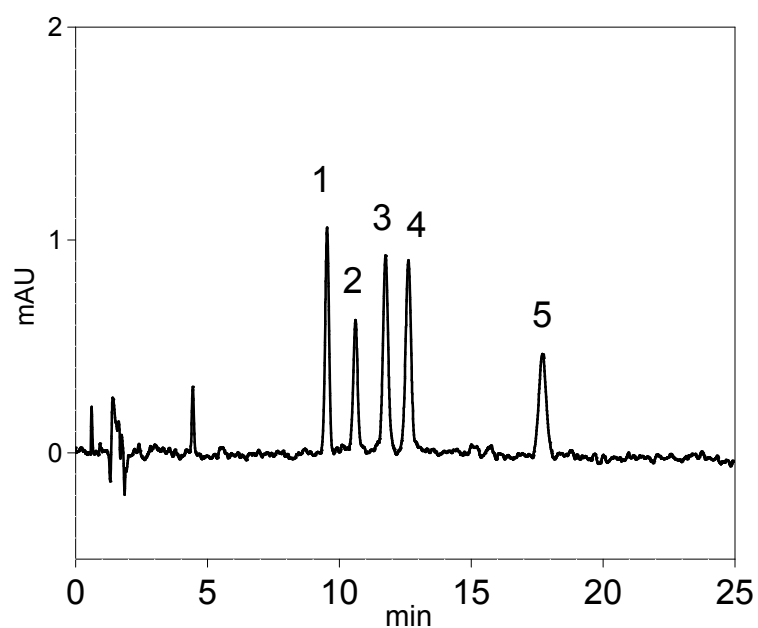


Cadenza CD-C18

150 x 4.6 mm

Application

## Estrogens



Cadenza CD-C18, 150 x 4.6 mm  
ACN / water = 44 / 56  
1.0 mL/min, 9.8 MPa, 37 °C  
UV at 280 nm  
5 uL inj. (50 ng)

Courtesy of Prof. Dr. K. Shimada and Dr. K. Mitamura, Kanazawa Univ.

Cadenza CD-C18

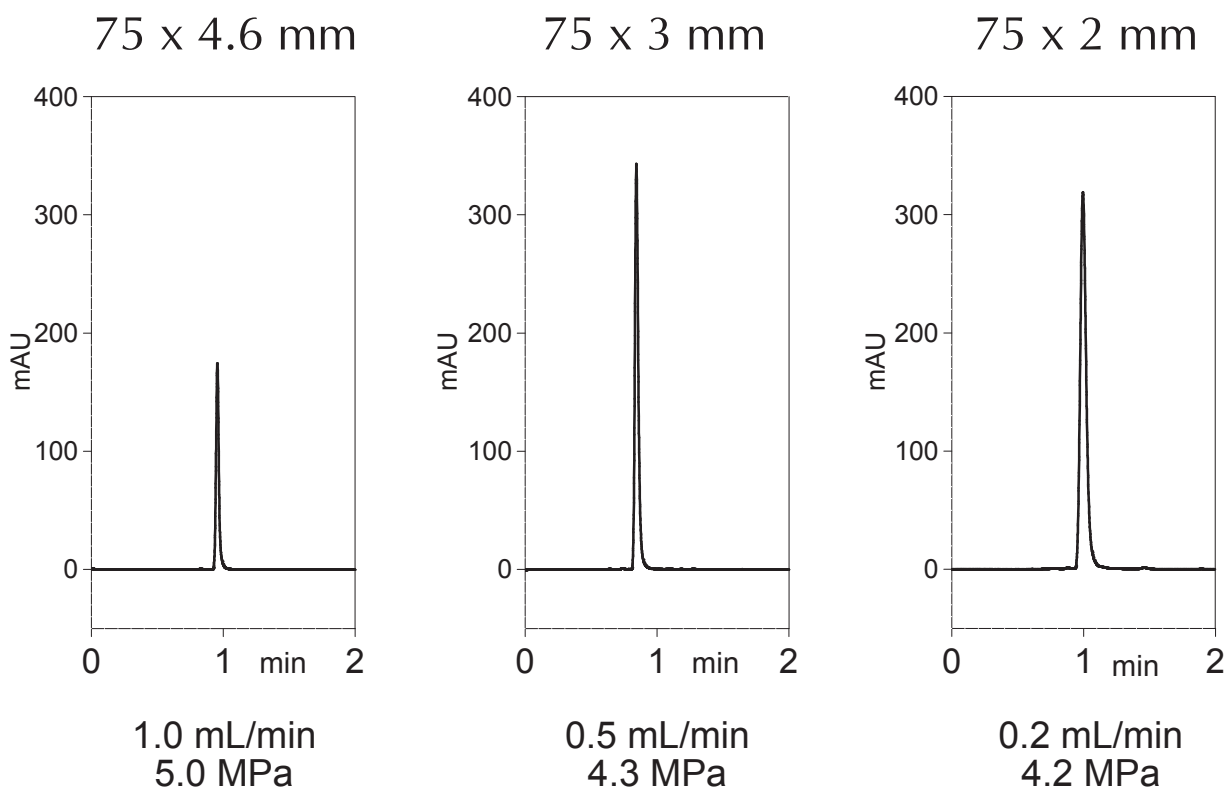
Application

75 x 4.6 mm

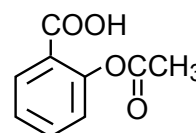
75 x 3 mm

75 x 2 mm

Acetylsalicylic acid from Tablet



Cadenza CD-C18  
 ACN / water / acetic acid = 60 / 40 / 0.1  
 UV at 260 nm, 37 °C  
 acetylsalicylic acid from tablet  
 5 mg/mL, 0.4 uL



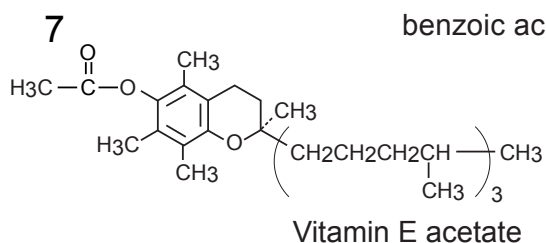
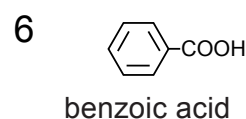
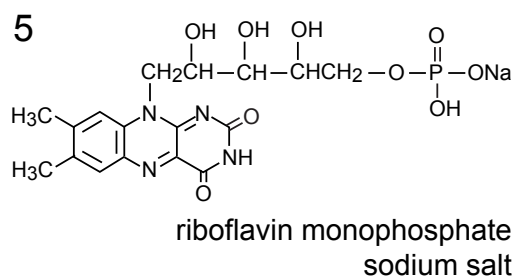
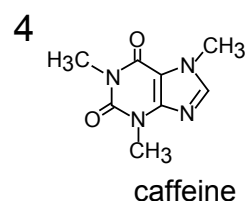
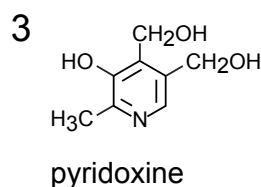
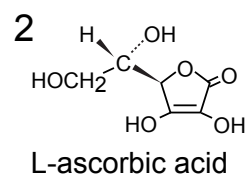
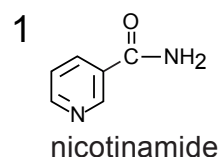
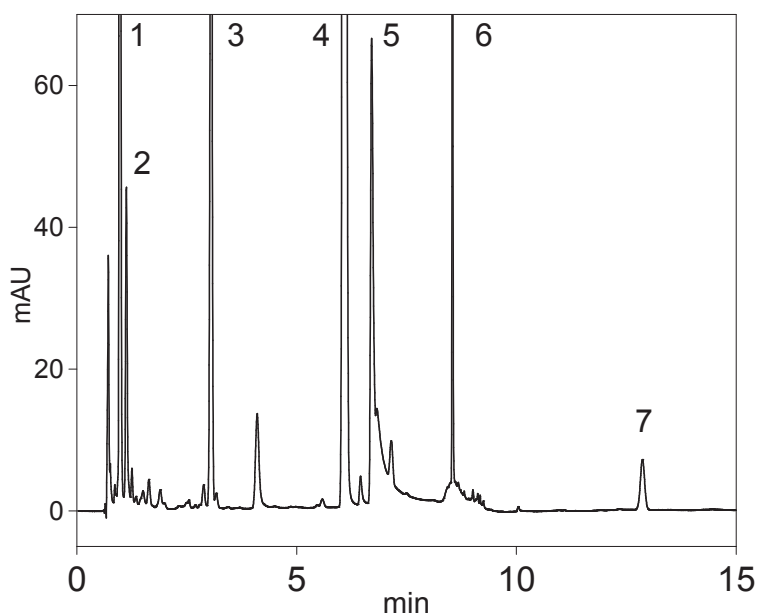
Acetylsalicylic acid

Cadenza CD-C18

50 x 4.6 mm

Application

### Vitamin preparation



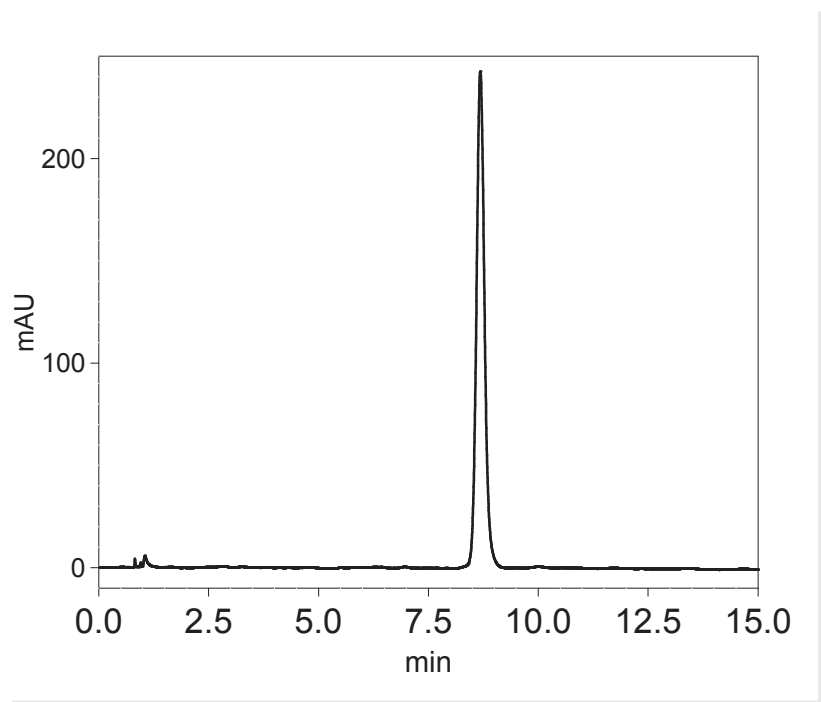
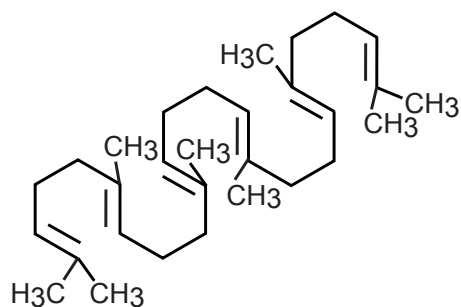
Cadenza CD-C18, 50 x 4.6 mm  
 A: 0.3%TFA B: methanol  
 0-40%B (0-7min)  
 40-100%B (7-7.5min)  
 100%B (7.5-15min)  
 0.8 mL/min, 37 °C  
 UV at 280 nm, 3.4 MPa

Cadenza CD-C18

75 x 4.6 mm

Application

### Squalene



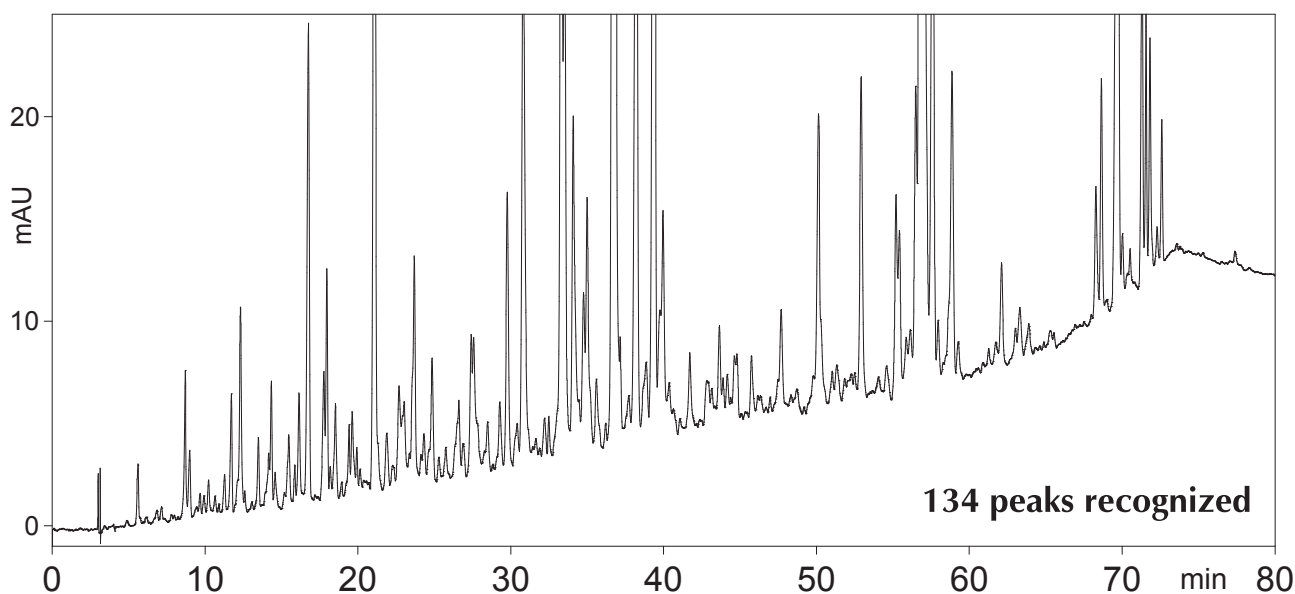
Cadenza CD-C18, 75 x 4.6 mm  
 methanol  
 1.0 mL/min, 37 °C  
 3.2 MPa  
 UV at 210 nm

Cadenza CD-C18

250 x 4.6 mm

Application

## Lavender Oil



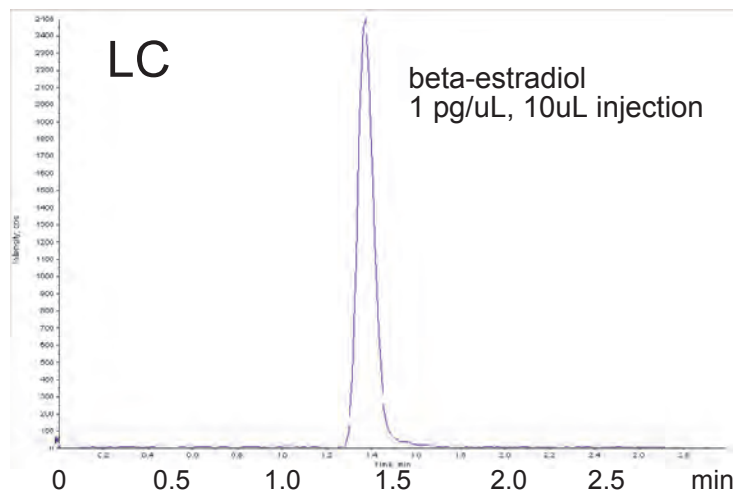
Cadenza CD-C18, 250 x 4.6 mm  
A: 0.1% formic acid in water  
B: 0.1% formic acid in ACN  
10-100%B (0-70min),  
100%B (70-80min)  
1.0 mL/min  
UV at 254 nm

Cadenza CD-C18

50 x 2 mm

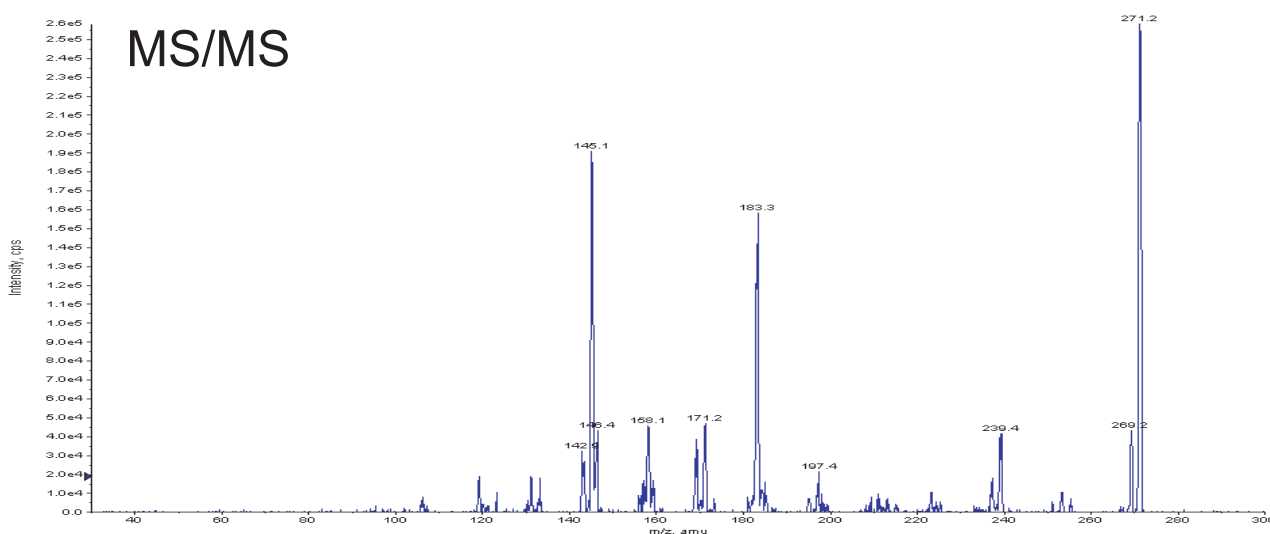
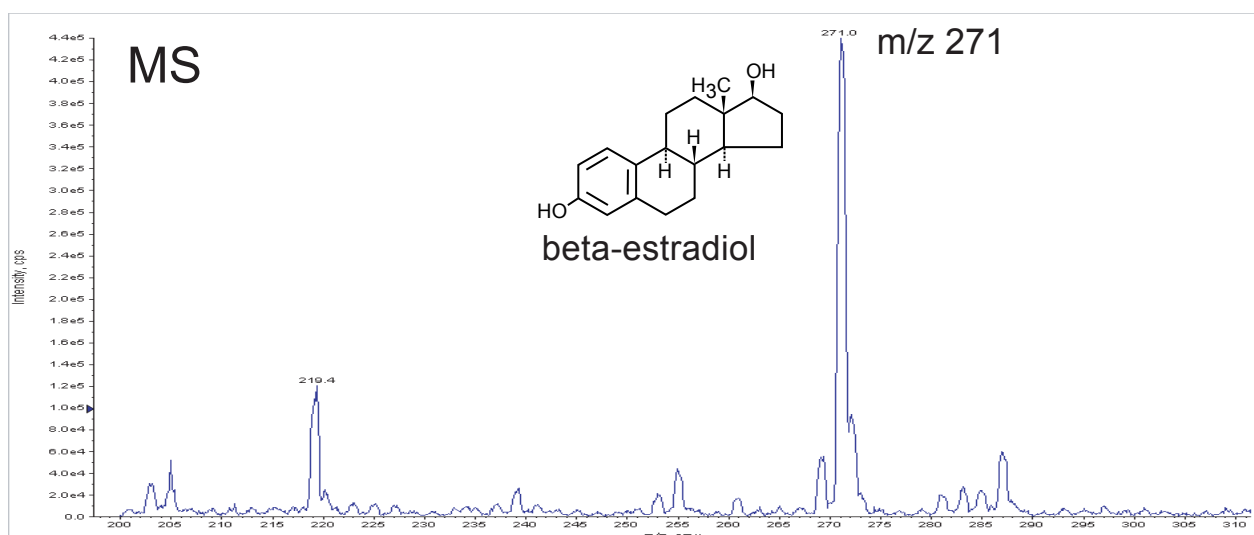
Application

LC-MS/MS High Throughput Analysis



[LC]  
Cadenza CD-C18, 50 x 2 mm  
methanol / water = 75 / 25  
0.2 mL/min, 40 °C

[MS]  
API 4000  
ESI-negative



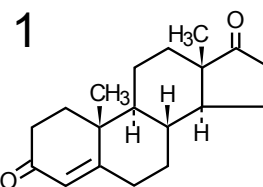
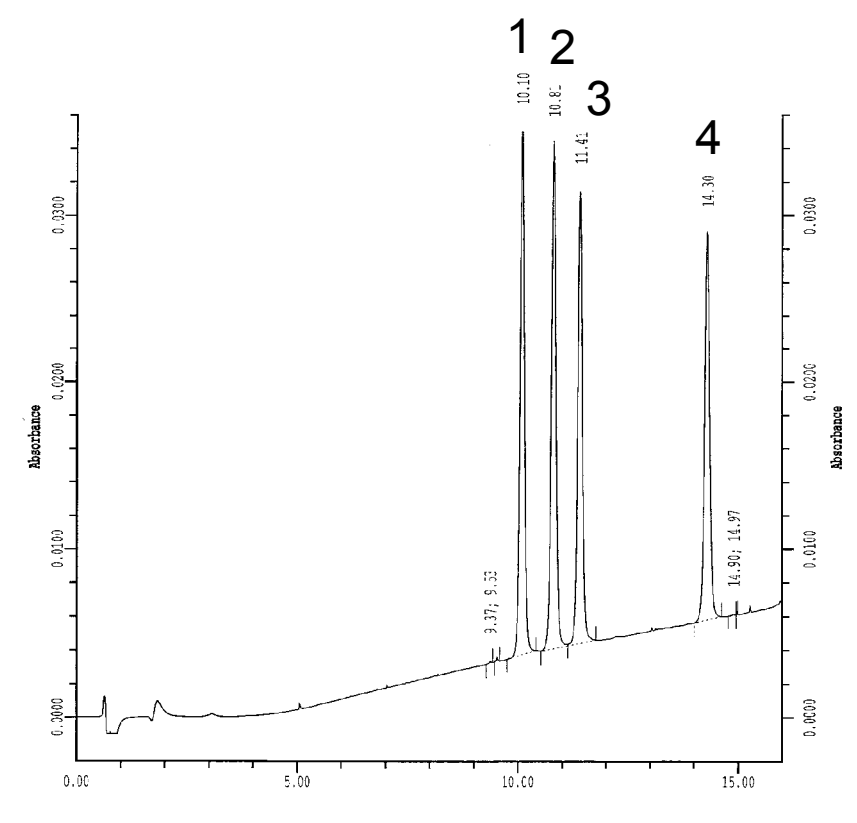
Courtesy of TAKARA SHUZO CO., LTD.

Cadenza CD-C18

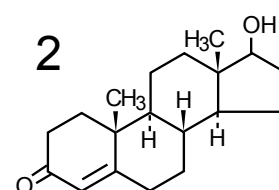
75 x 2 mm

Application

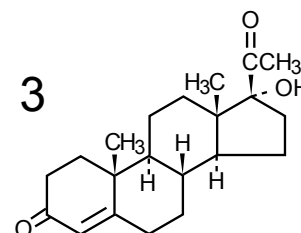
**Steroid Hormones**



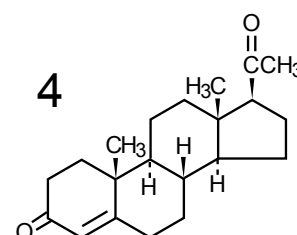
androstene-3,17-dione



testosterone



17 -hydroxyprogesterone



progesterone

Cadenza CD-C18, 75 x 2 mm

A: 10% methanol, B: methanol

30 - 50 %B (0 - 0.5 min), 50 - 80 %B (0.5 - 12.5 min), 100 %B (12.5 min - )

0.3 mL/min

UV at 260 nm

20 µL ( 500 ppb )

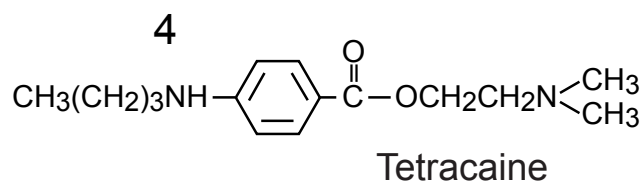
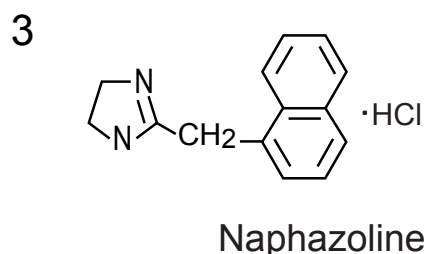
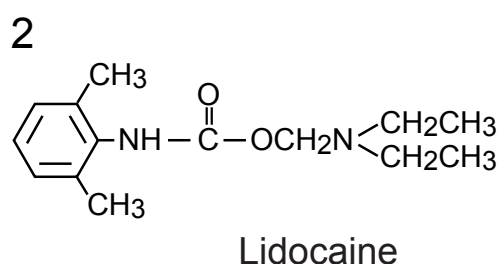
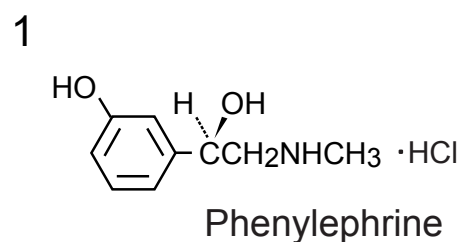
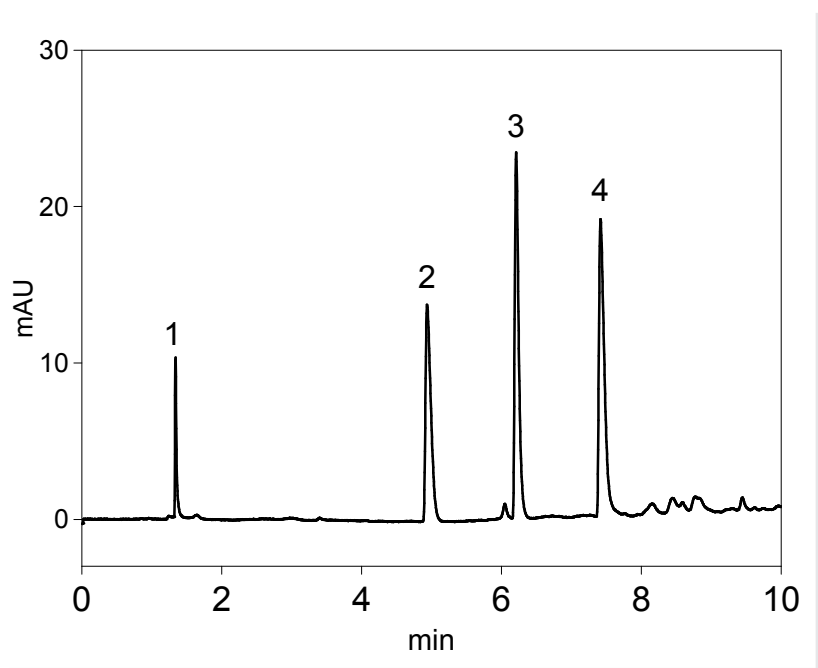
Unison UK-Phenyl

75 x 4.6 mm

Application

Local Anesthetic and Angiotonic

麻醉剤と血管収縮剤



Unison UK-Phenyl, 75 x 4.6mm  
 A:20mM H<sub>3</sub>PO<sub>4</sub>, B:MeOH  
 0-70%B (0-10min)  
 1.0 mL/min, 5.7 MPa,  
 37 °C, 254 nm

Courtesy of Prof. Ph.D. M.Mishima, Daiichi College of Pharmaceutical Sciences.



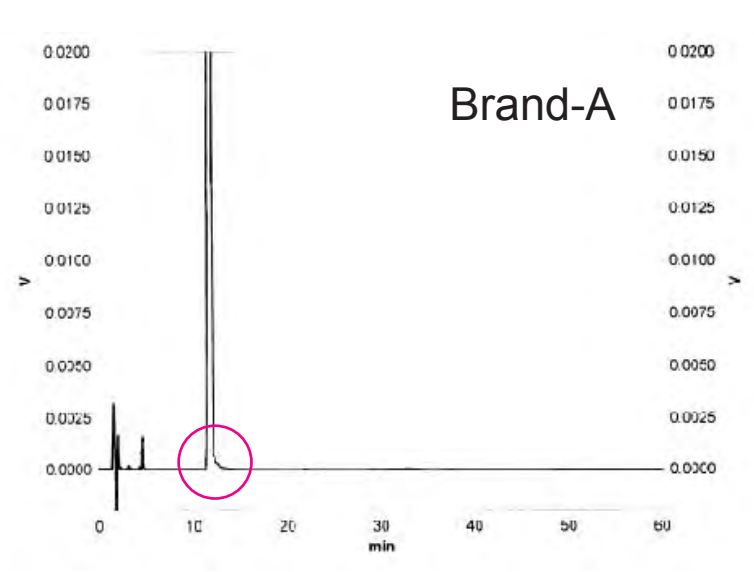
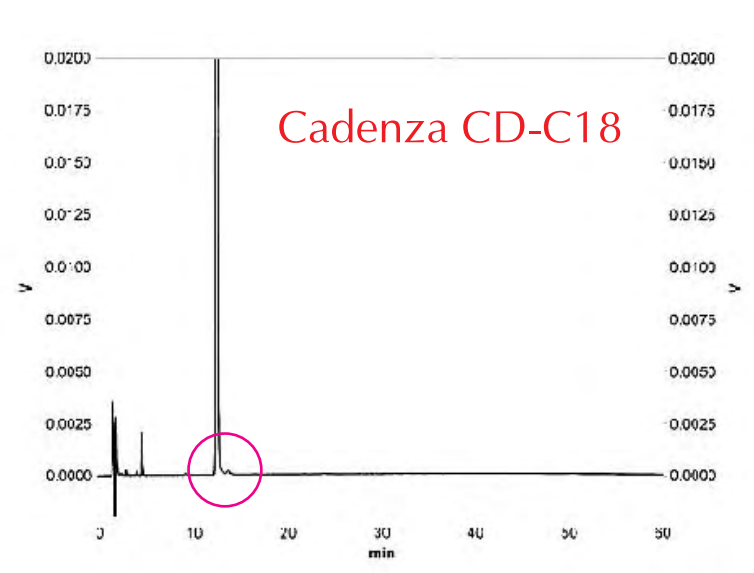
Cadenza CD-C18

150 x 4.6 mm

Application

Impurities separation for pharmaceutical compound

医薬品候補化合物中の不純物



150 x 4.6 mm  
 20 mM Na<sub>2</sub>SO<sub>4</sub> / acetonitrile / acetic acid = 45 / 55 / 1  
 1.0 mL/min, 40 °C, UV at 254 nm

Courtesy of Hiroshi Okumura

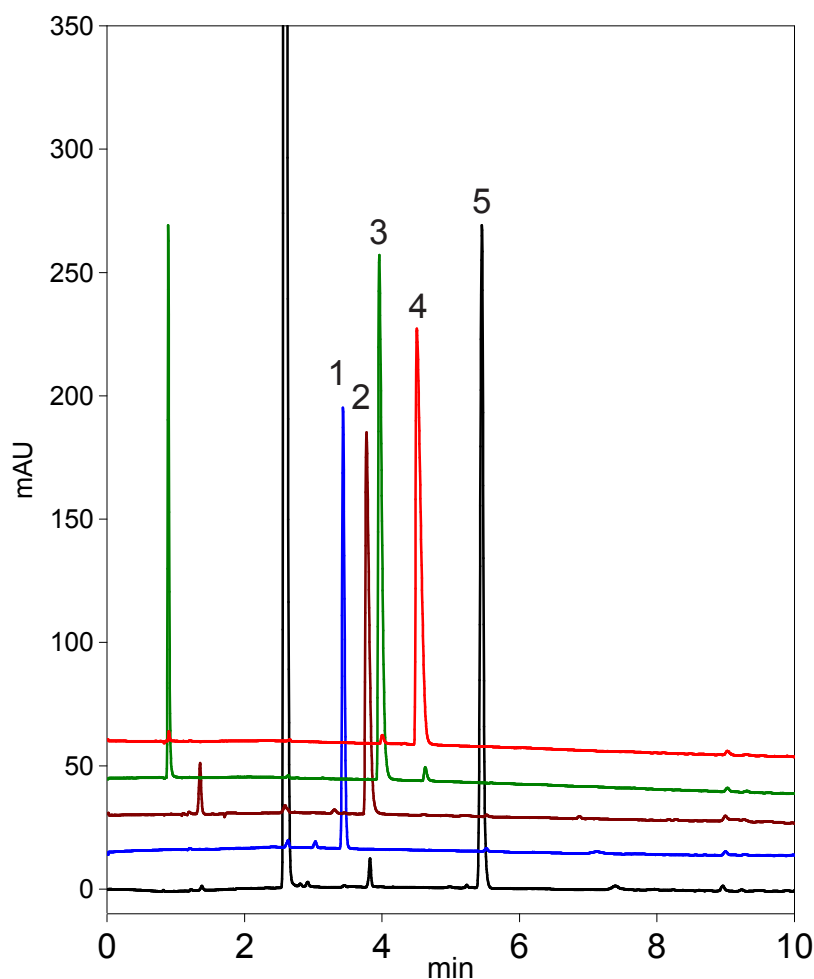
Unison UK-C8

75 x 4.6 mm

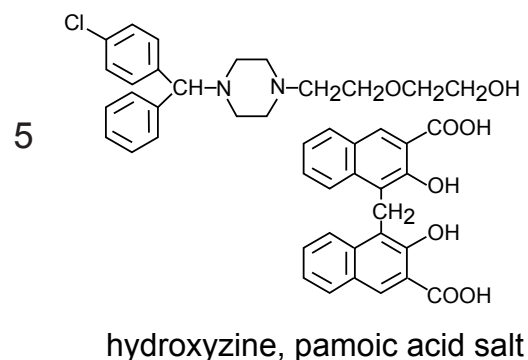
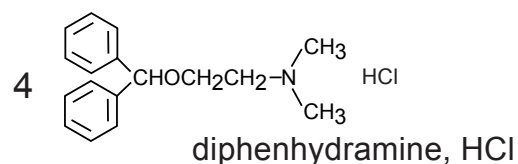
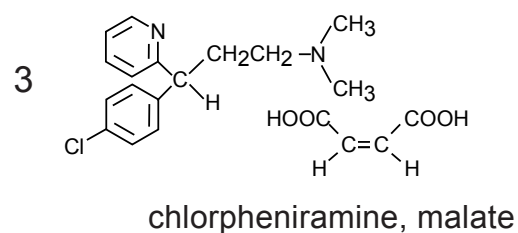
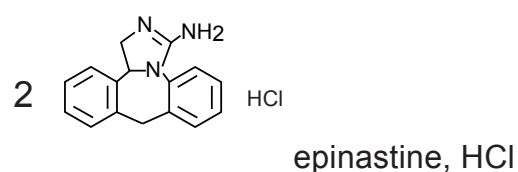
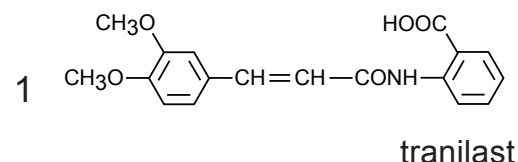
Application

Allergy Medications

抗アレルギー薬



Unison UK-C8, 75 x 4.6 mm  
 A: 20mM HCOONH<sub>4</sub> B: ACN  
 20-80%B ( 0-10 min )  
 1.0 mL/min, 37 °C, 6.2 MPa, 230 nm  
 0.6-2 uL ( 0.3-10 ug )



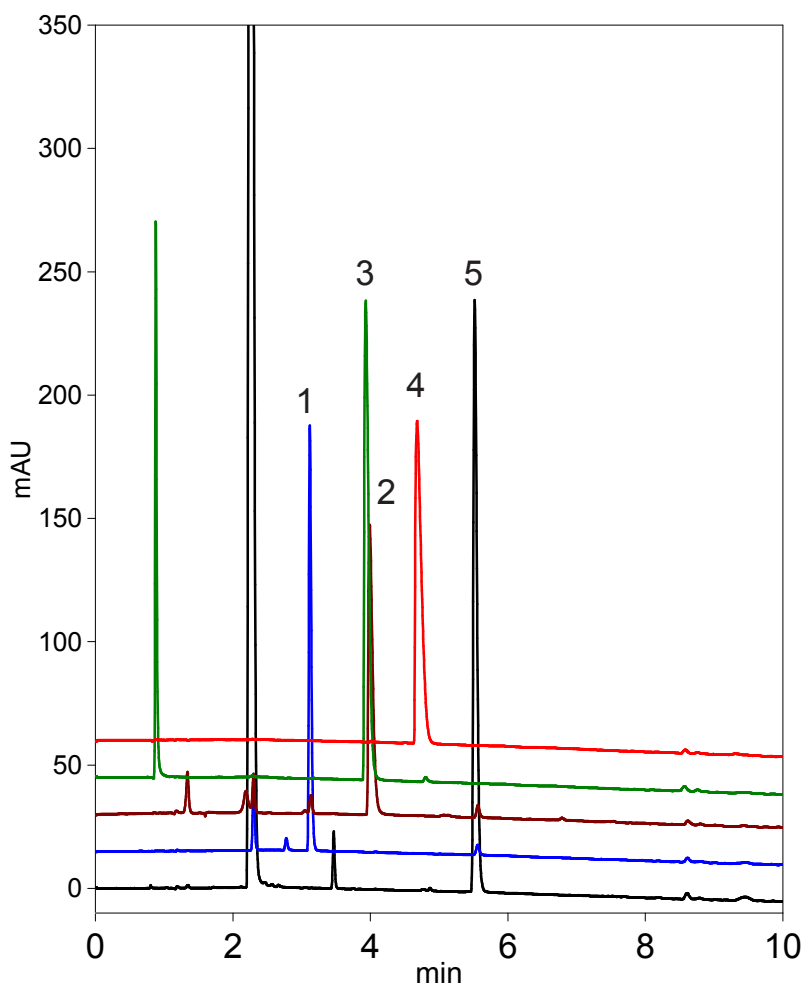
Unison UK-Phenyl

75 x 4.6 mm

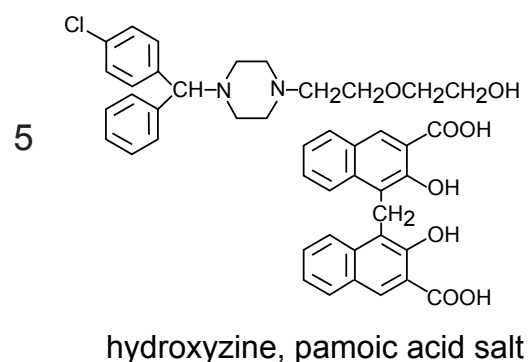
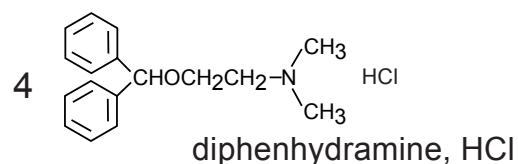
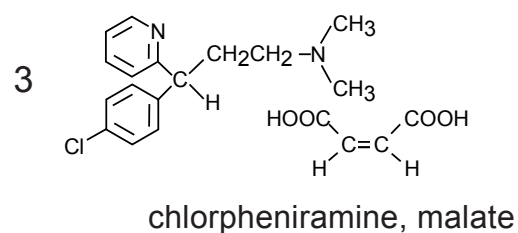
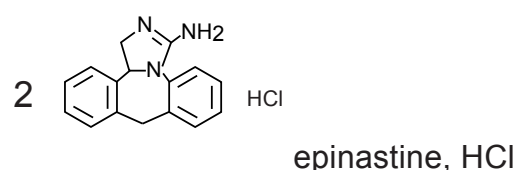
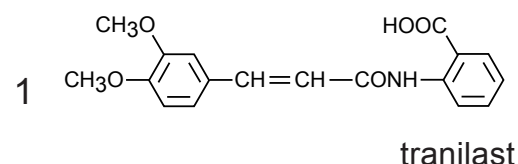
Application

**Allergy Medications**

抗アレルギー薬



Unison UK-Phenyl, 75 x 4.6 mm  
 A: 20mM HCOONH<sub>4</sub> B: ACN  
 20-80%B ( 0-10 min )  
 1.0 mL/min, 37 °C, 5.9 MPa, 230 nm  
 0.6-2 uL ( 0.3-10 ug )



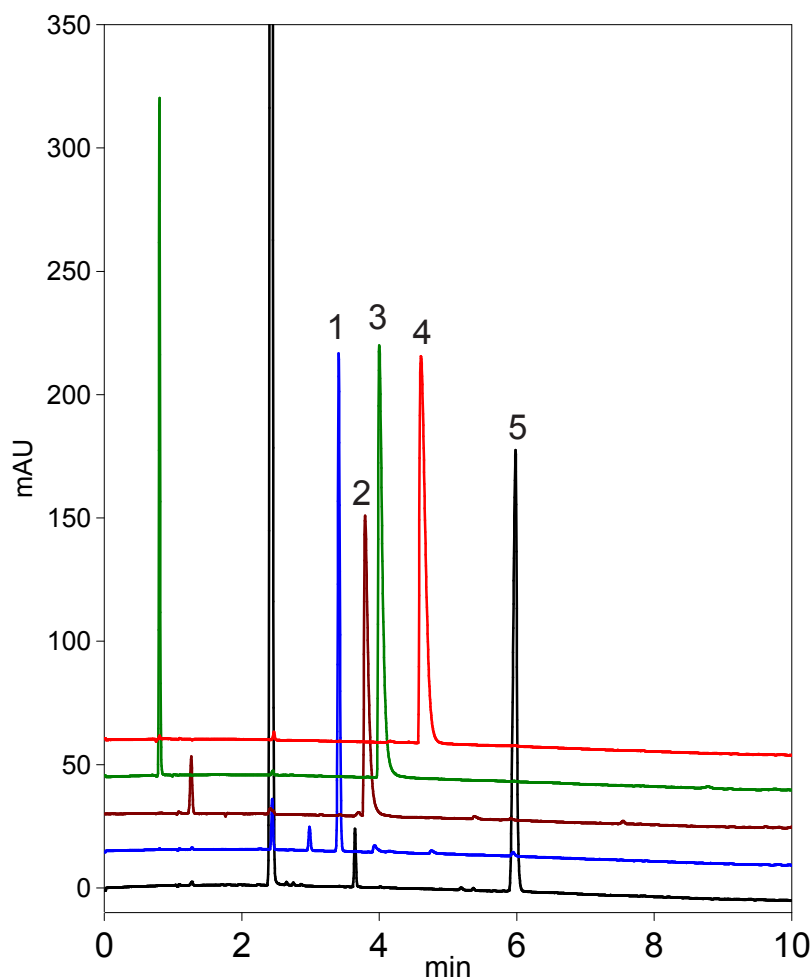
Unison UK-C18

75 x 4.6 mm

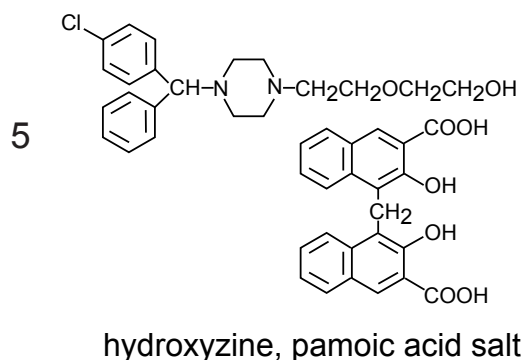
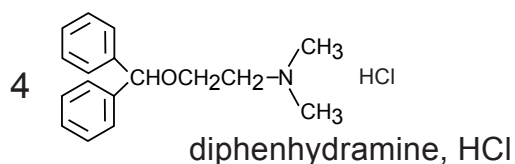
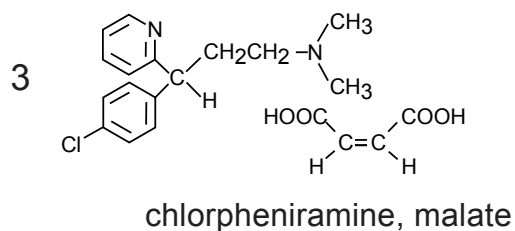
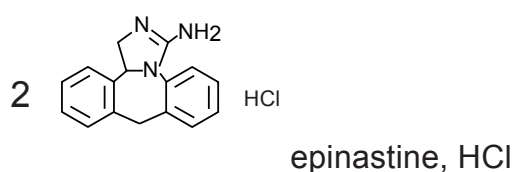
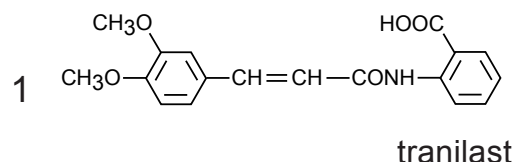
Application

Allergy Medications

抗アレルギー薬



Unison UK-C18, 75 x 4.6 mm  
 A: 20mM HCOONH<sub>4</sub> B: ACN  
 20-80%B ( 0-10 min )  
 1.0 mL/min, 37 °C, 6.5 MPa, 230 nm  
 0.6-2 uL ( 0.3-10 ug )



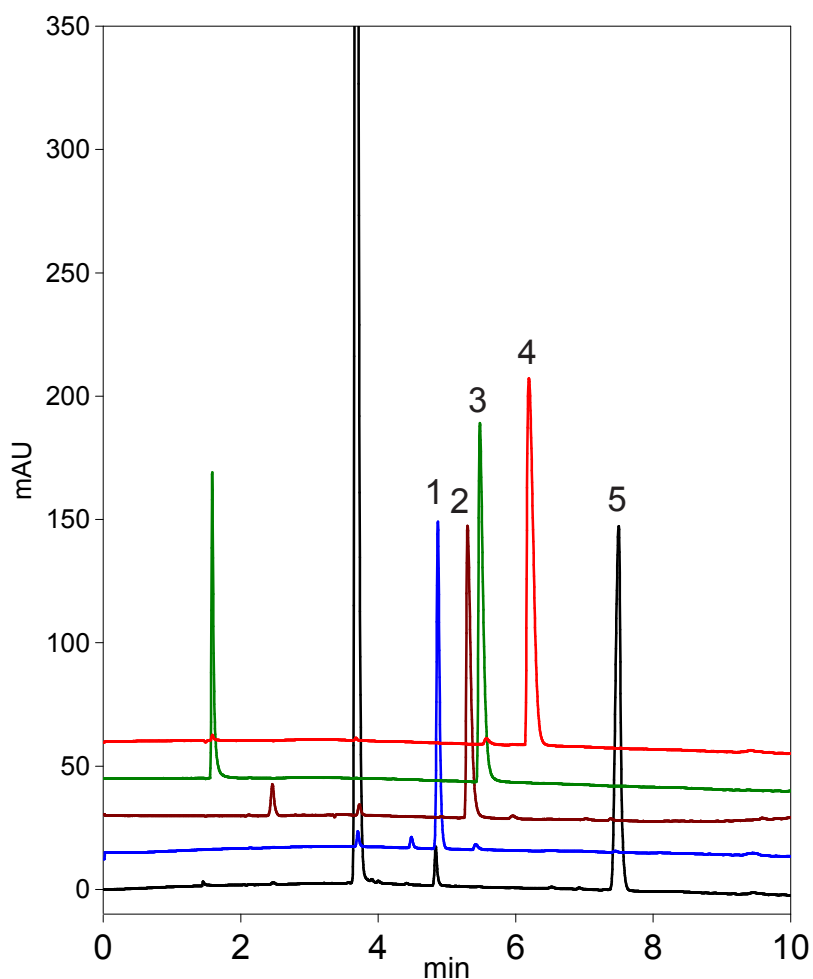
Unison US-C18

150 x 4.6 mm

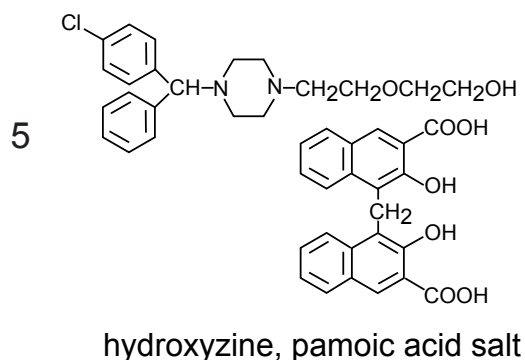
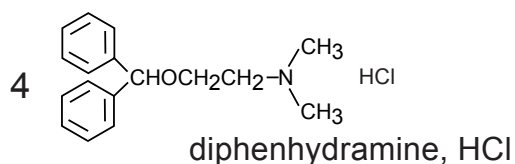
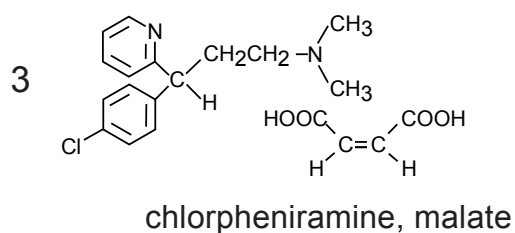
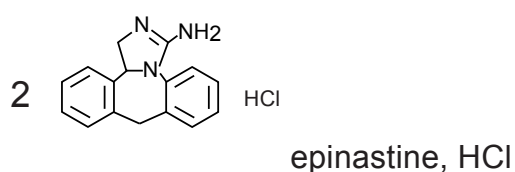
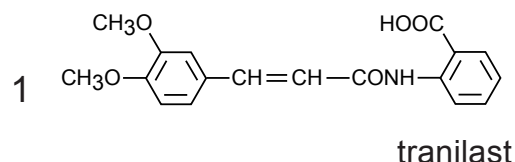
Application

Allergy Medications

抗アレルギー薬



Unison US-C18, 150 x 4.6 mm  
 A: 20mM HCOONH<sub>4</sub> B: ACN  
 20-80%B ( 0-10 min )  
 1.0 mL/min, 37 °C, 5.8 MPa, 230 nm  
 0.6-2 uL ( 0.3-10 ug )



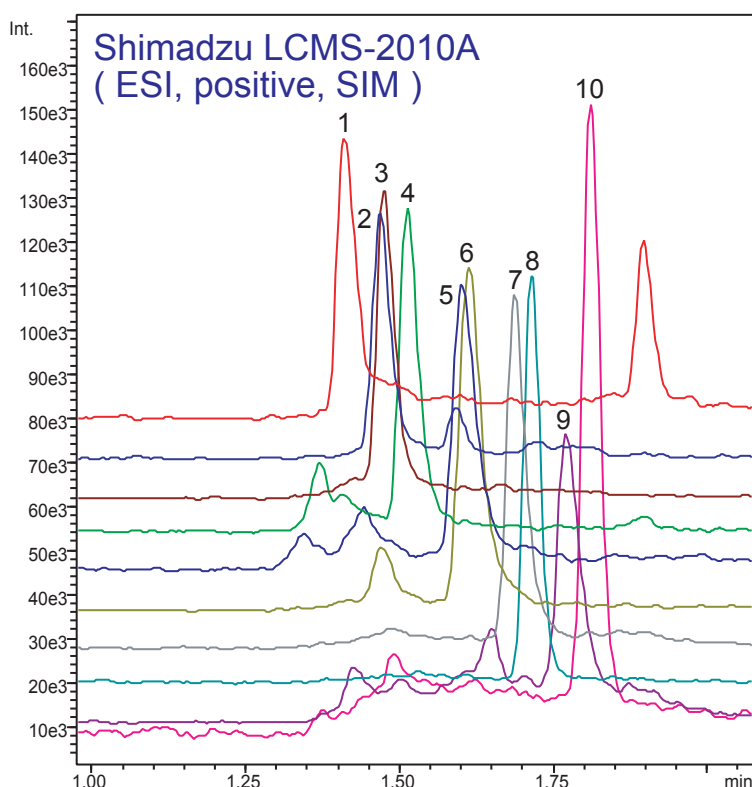
Cadenza CD-C18

30 x 2 mm

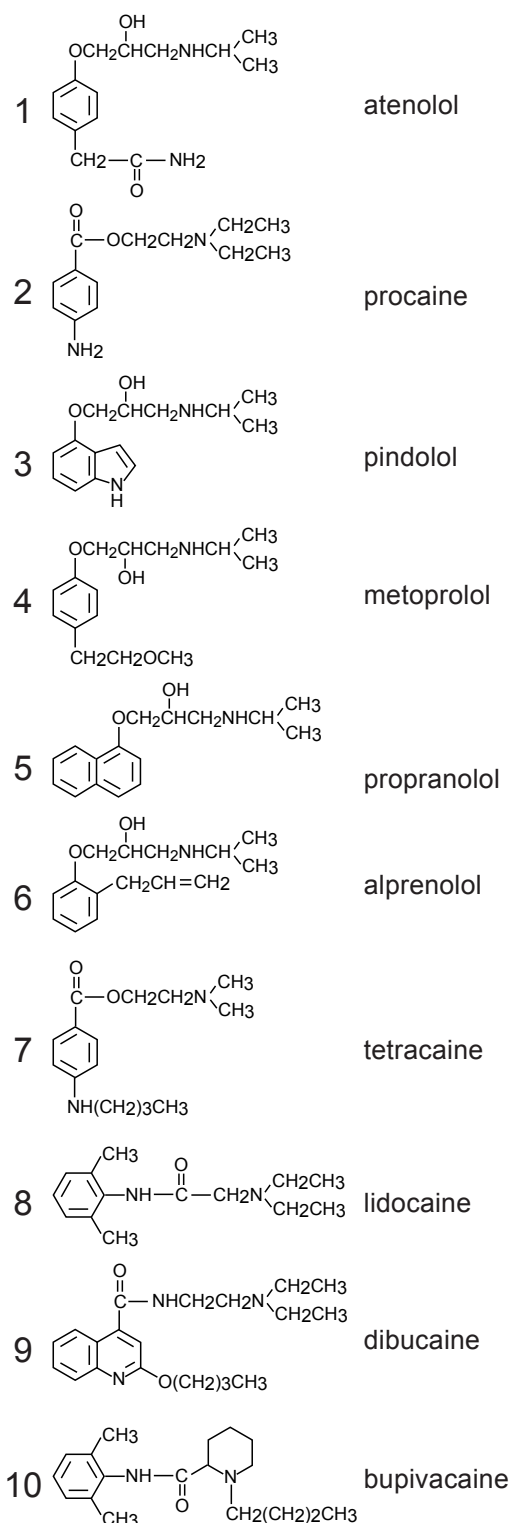
Application

## High Throughput LC-MS Application for Local Anesthetic and Antiarrhythmic Drugs

局所麻酔薬と抗不整脈薬の高速LC-MS



Cadenza CD-C18, 30 x 2 mm  
 A: 10mM ammonium acetate  
 B: acetonitrile  
 0 - 90 %B (0 - 1 min), 90 %B (1 - 2 min)  
 0.5 mL/min, 40 °C  
 10 pg/uL, 5uL



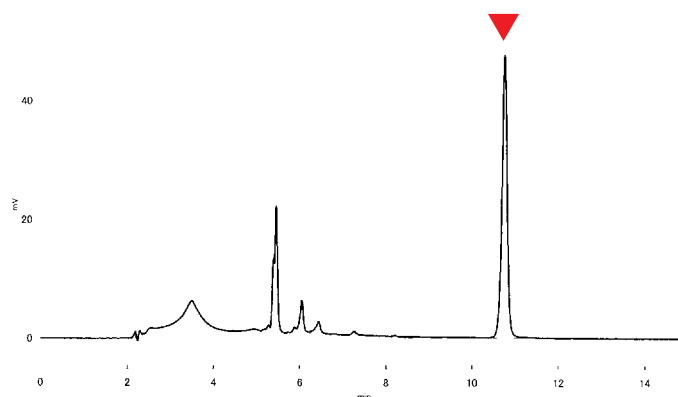
Cadenza CD-C18

250 x 2 mm  
250 x 3 mm

Application

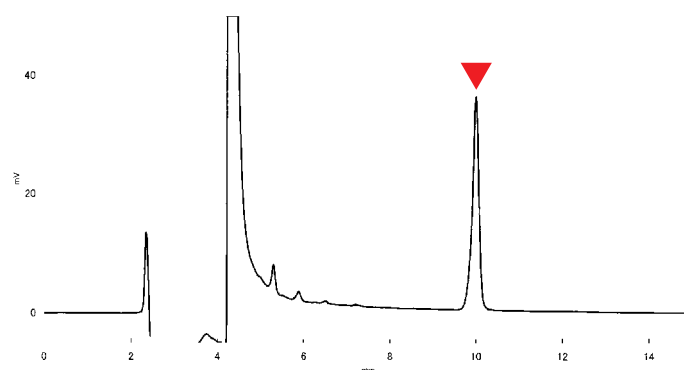
Column size comparison  
for elution of investigational medication

医薬品候補化合物の溶出に関するカラムサイズ比較



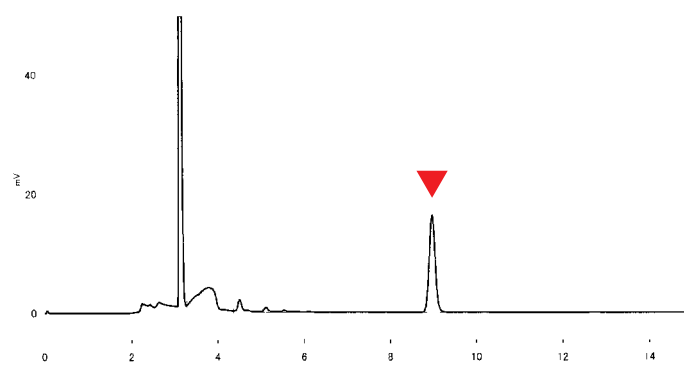
Cadenza CD-C18  
250 x 2 mm

0.2 mL/min  
500 µL inj.



Cadenza CD-C18  
250 x 3 mm

0.4 mL/min  
500 µL inj.



Brand-A  
150 x 6 mm

1 mL/min  
500 µL inj.

acetonitrile / water / phosphoric acid = 600 / 400 / 1, 40 °C, 280 nm

Courtesy of Hiroshi Okumura

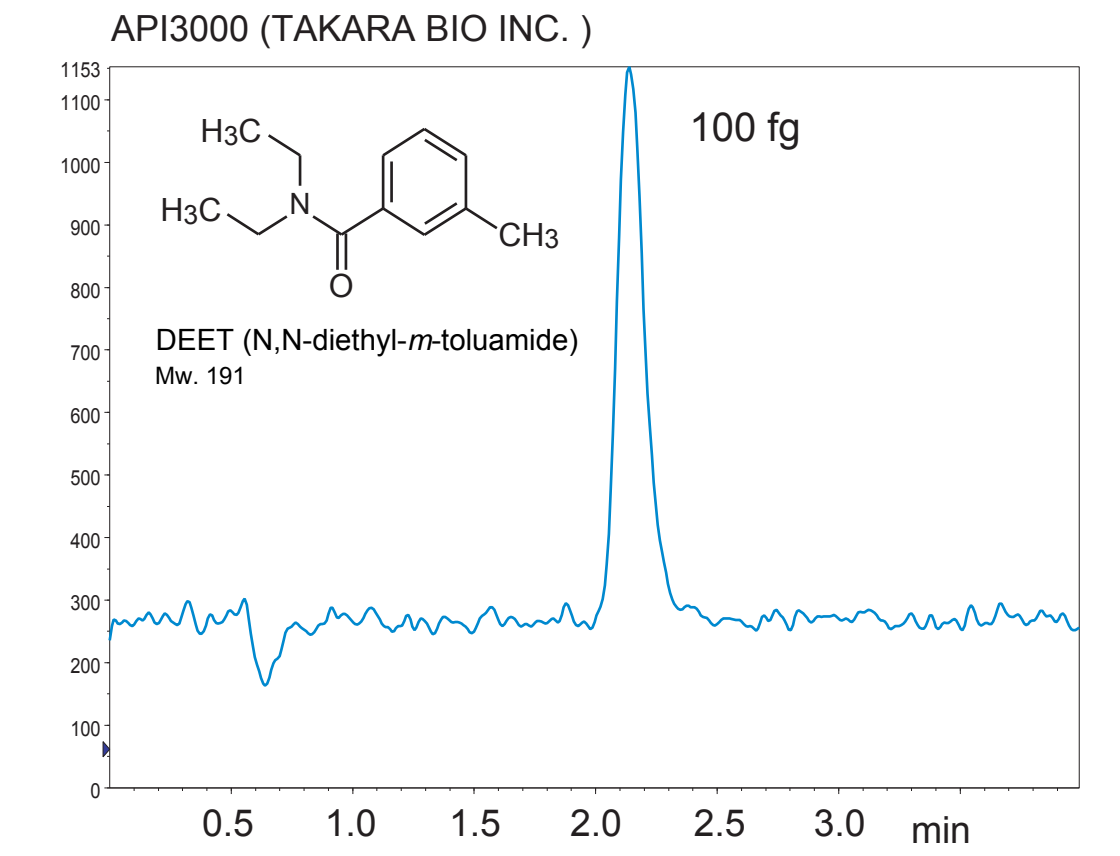
Cadenza CD-C18

50 x 2 mm

Application

LC-MS Application for Bug Repellent Active Ingredient

LC-MSアプリケーション（虫除けスプレーの有効成分）



Cadenza CD-C18, 50 x 2 mm  
0.1% formic acid / 60% methanol, 0.2 mL/min, 40 °C, 5µL (20fg/µL)  
API3000: ESI, MRM Positive  
Q1/Q3: 192/119

Courtesy of J.Watanabe, TAKARA BIO INC.



Unison UK-C18

Unison UK-C8

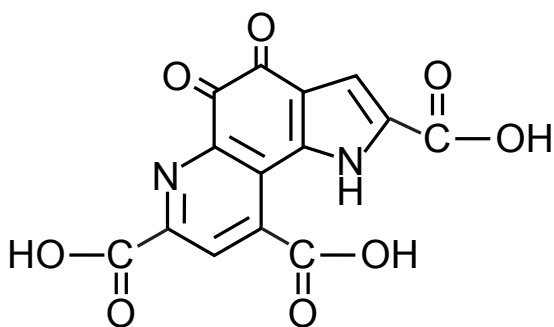
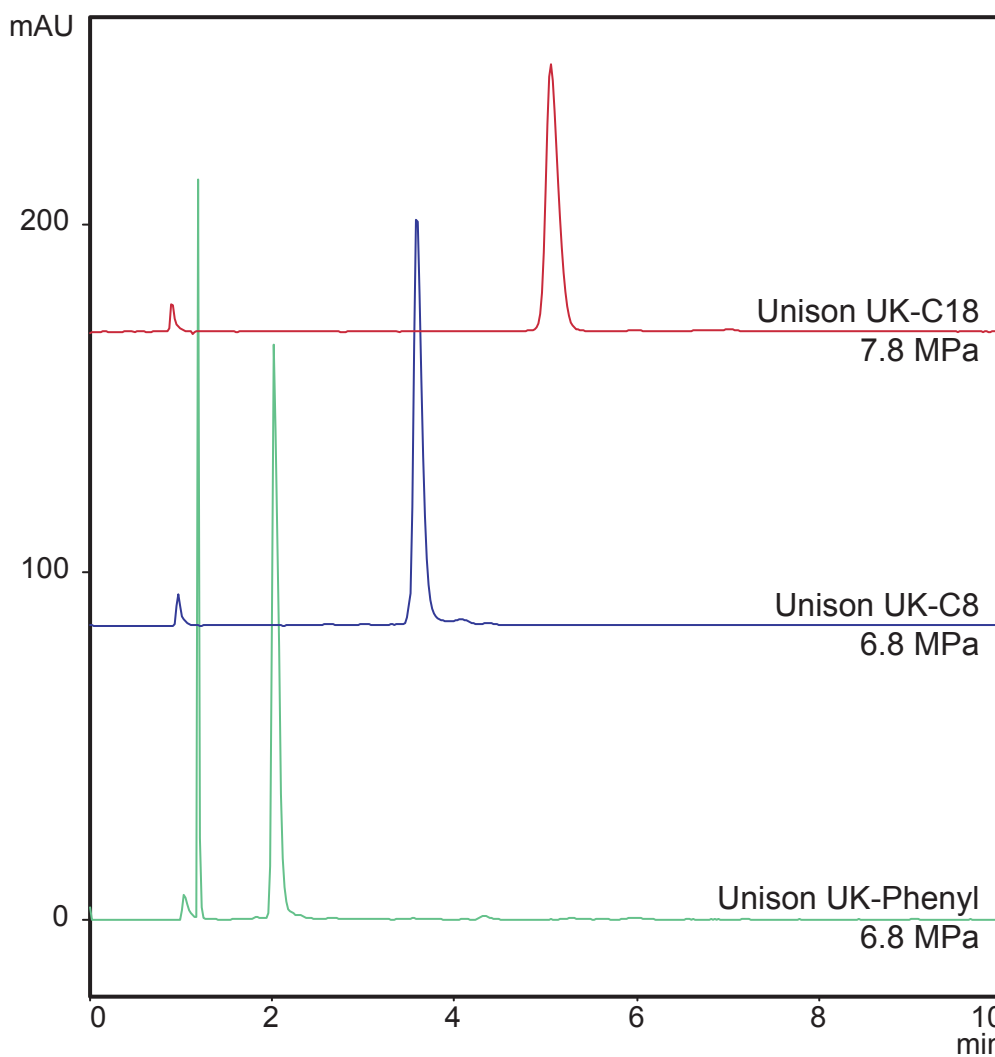
Unison UK-Phenyl

75 x 4.6 mm

Application

PQQ ( pyrroloquinoline quinone )

新ビタミン PQQ の分析



Unison, 75 x 4.6 mm  
 10mM DBA-Acetate / ACN = 85 / 15  
 1.0 mL/min, 37 °C, UV at 260 nm  
 PQQ 1 µg ( 2µL )

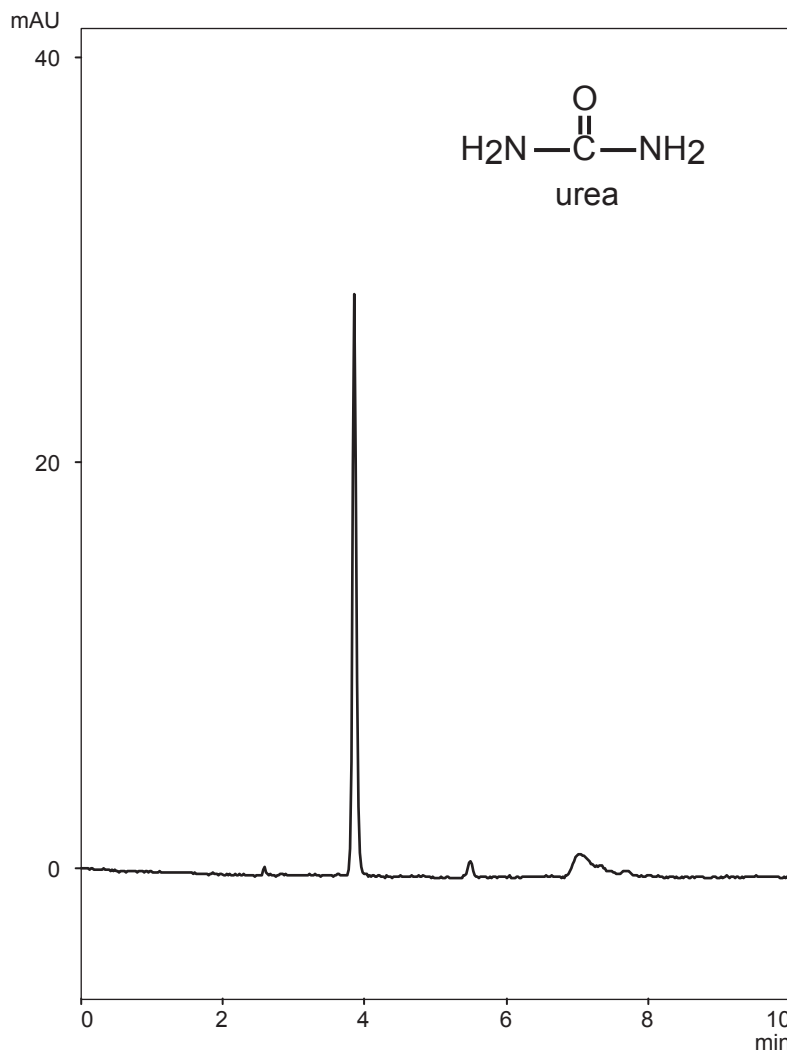
Unison UK-C18

250 x 4.6 mm

Application

Urea

尿素



Unison UK-C18, 250 x 4.6 mm  
 water / HFBA = 100 / 0.1  
 0.8 mL/min, ambient  
 UV at 210 nm, 13 MPa  
 100 µg ( 20 µL )

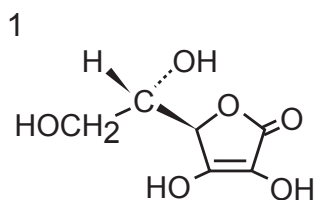
Unison UK-C18  
Unison US-C18

75 x 3 mm  
75 x 4.6 mm  
150 x 4.6 mm

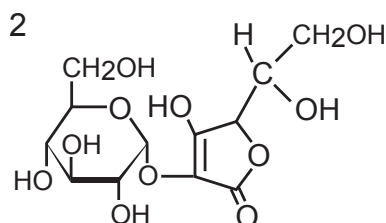
Application

### Ascorbic Acid Derivative

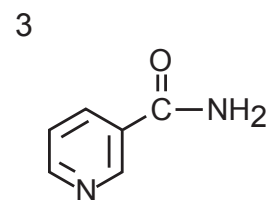
アスコルビン酸誘導体



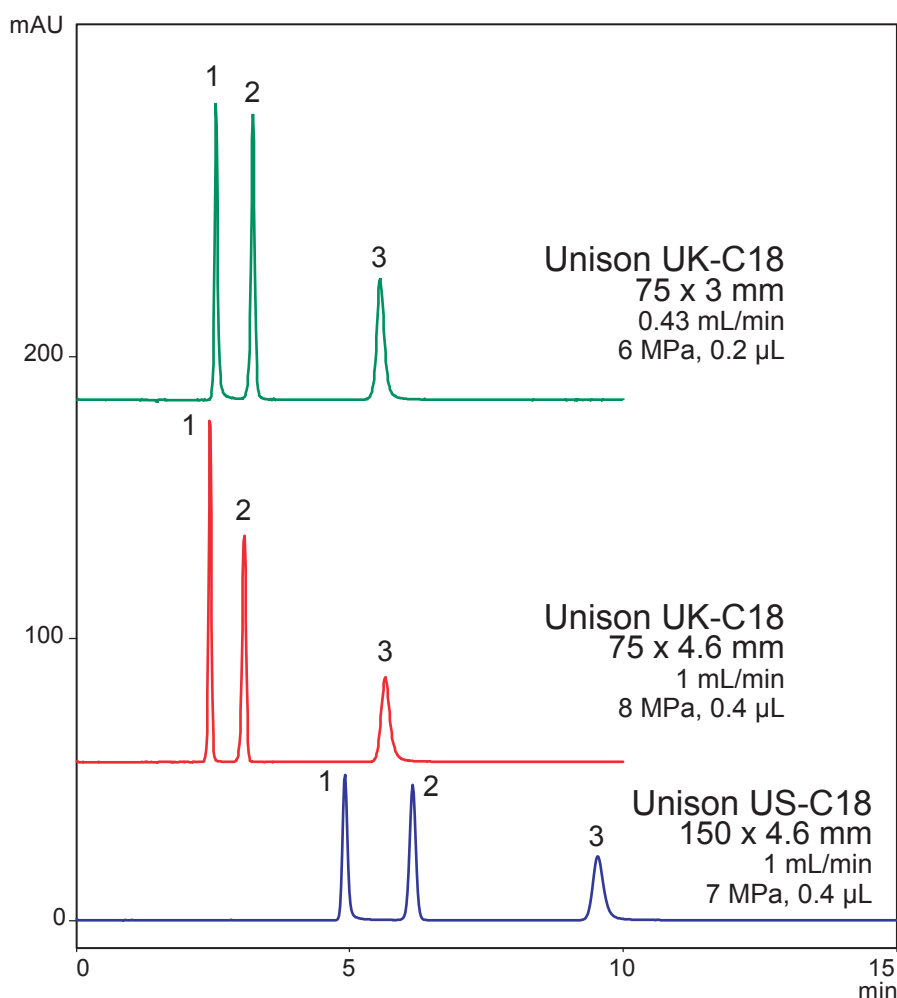
L-ascorbic acid



L-ascorbic acid 2-glucoside



nicotinamide



20mM ammonium acetate +  
10mM dibutylammonium acetate  
37 °C, 260 nm, 0.5 - 1.5 μg/μL

Unison UK-Silica

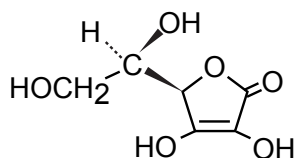
150 x 4.6 mm

Application

## Ascorbic Acid Related Compounds

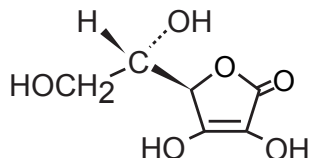
アスコルビン酸関連化合物

1



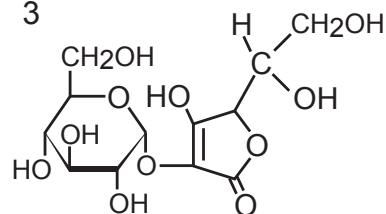
isoascorbic acid

2

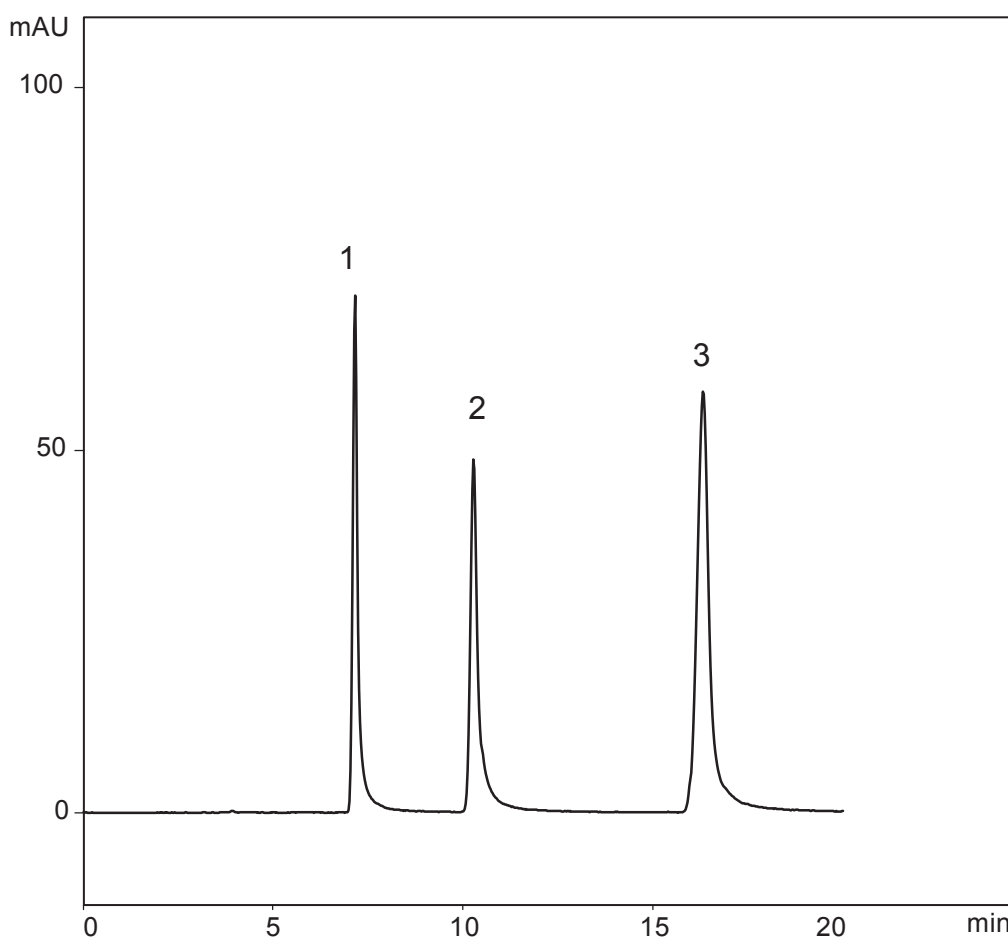


L-ascorbic acid

3



L-ascorbic acid 2-glucoside



Unison UK-Silica, 150 x 4.6mm  
 50mM ammonium acetate / acetonitrile = 10 / 90  
 0.8mL/min, 30 °C, 260 nm, 2 µg

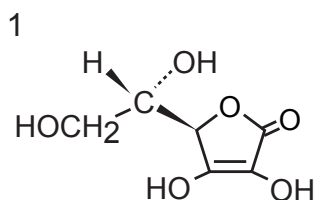
Unison UK-C18  
Unison US-C18

75 x 4.6 mm  
150 x 4.6 mm

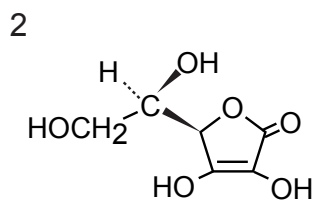
Application

### Ascorbic Acid Related Compounds

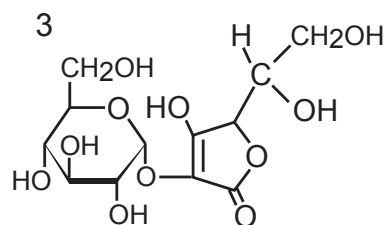
アスコルビン酸関連化合物



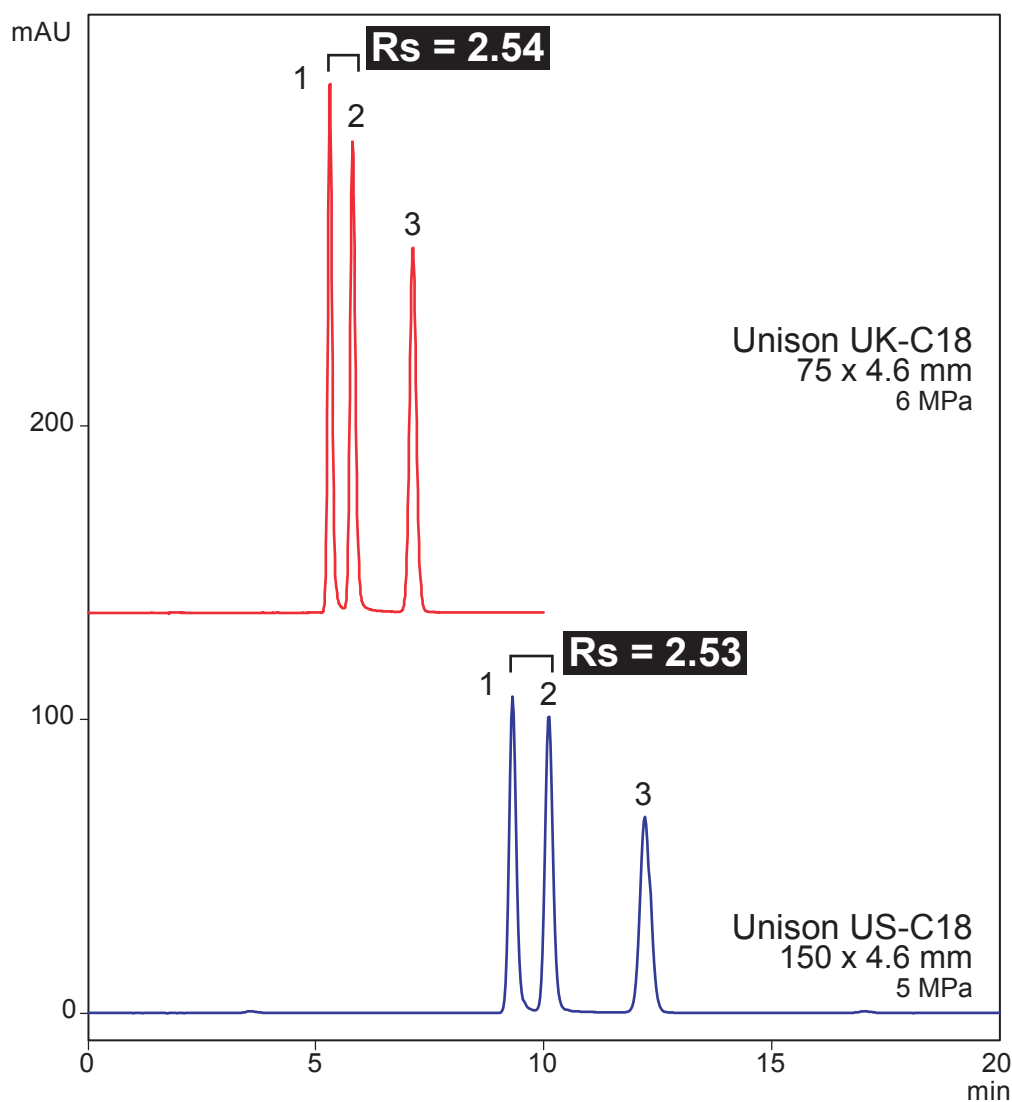
L-ascorbic acid



isoascorbic acid



L-ascorbic acid 2-glucoside



10mM dibutylammonium acetate  
0.8mL/min, 30 °C, 260 nm, 2  $\mu$ g

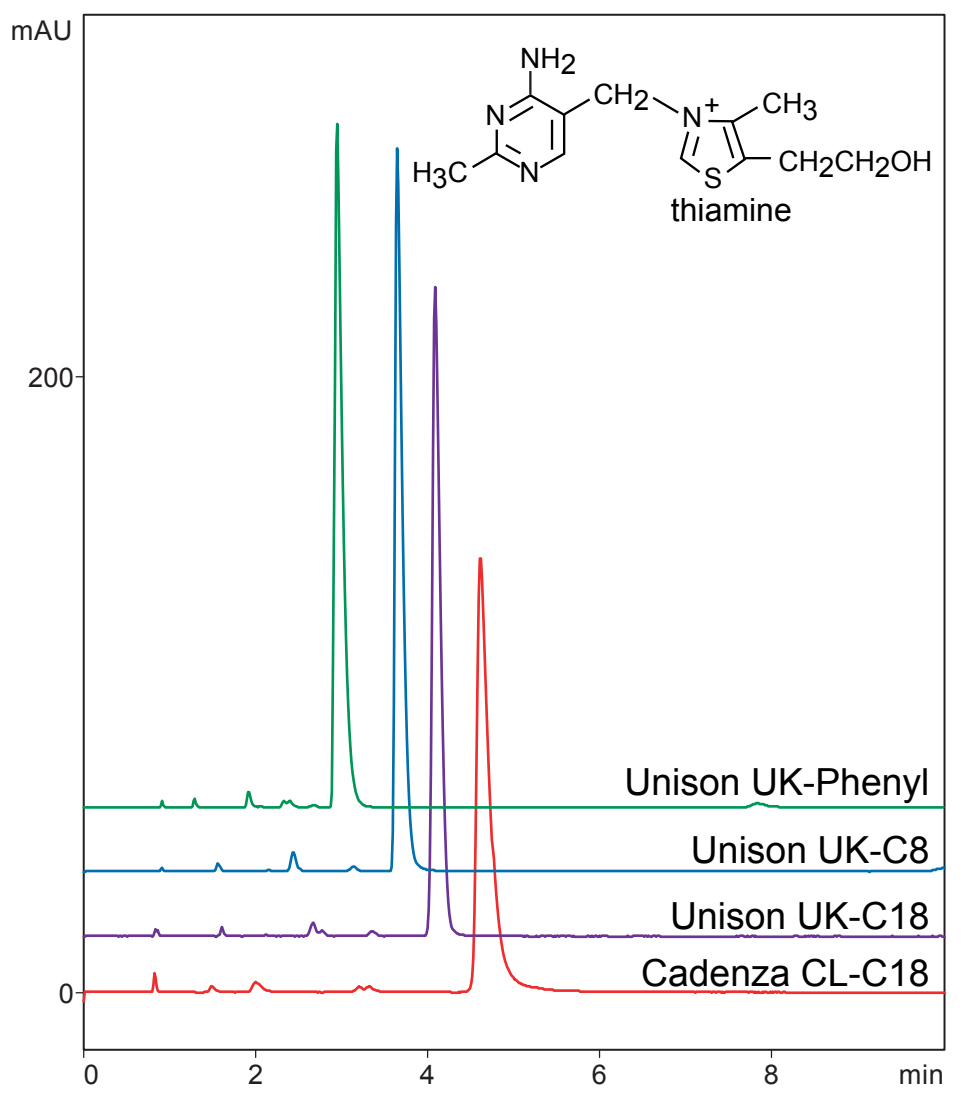
Unison UK-Phenyl  
 Unison UK-C8  
 Unison UK-C18  
 Cadenza CL-C18

75 x 4.6 mm

Application

## Thiamine HCl (Vitamin B1) Injection Solution

塩酸チアミン(ビタミンB1)注射液



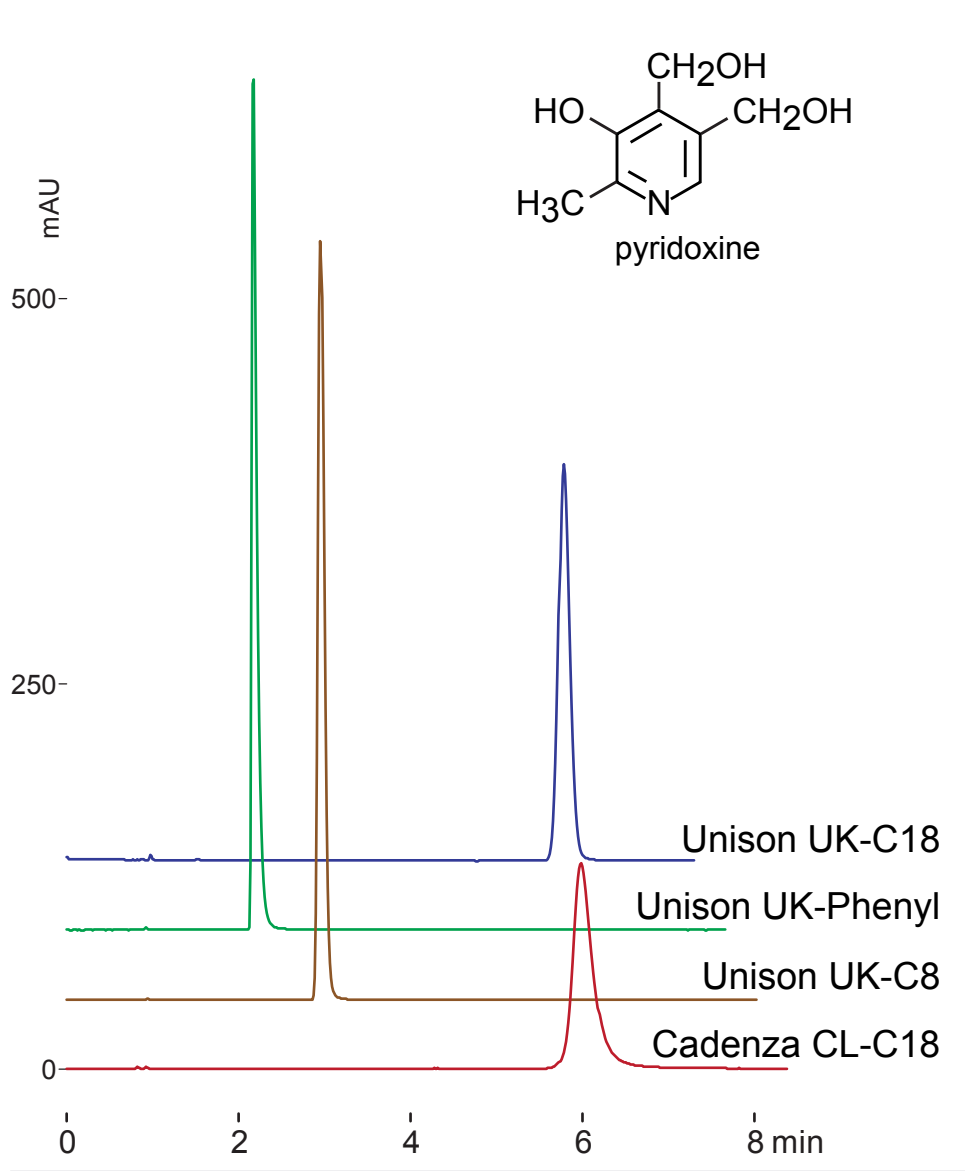
75 x 4.6 mm  
 50 mM HCOONH<sub>4</sub> / acetonitrile= 98 / 2  
 1 mL/min, 37 °C, 260 nm, 0.2μL

Unison UK-C18  
 Unison UK-C8  
 Unison UK-Phenyl  
 Cadenza CL-C18

75 x 4.6 mm

Application

**Pyridoxine HCl (Vitamin B6) Injection Solution**  
 塩酸ピリドキシン(ビタミンB6)注射液



75 x 4.6 mm  
 50 mM HCOONH<sub>4</sub>  
 1 mL/min, 37 °C  
 260 nm, 0.5µL

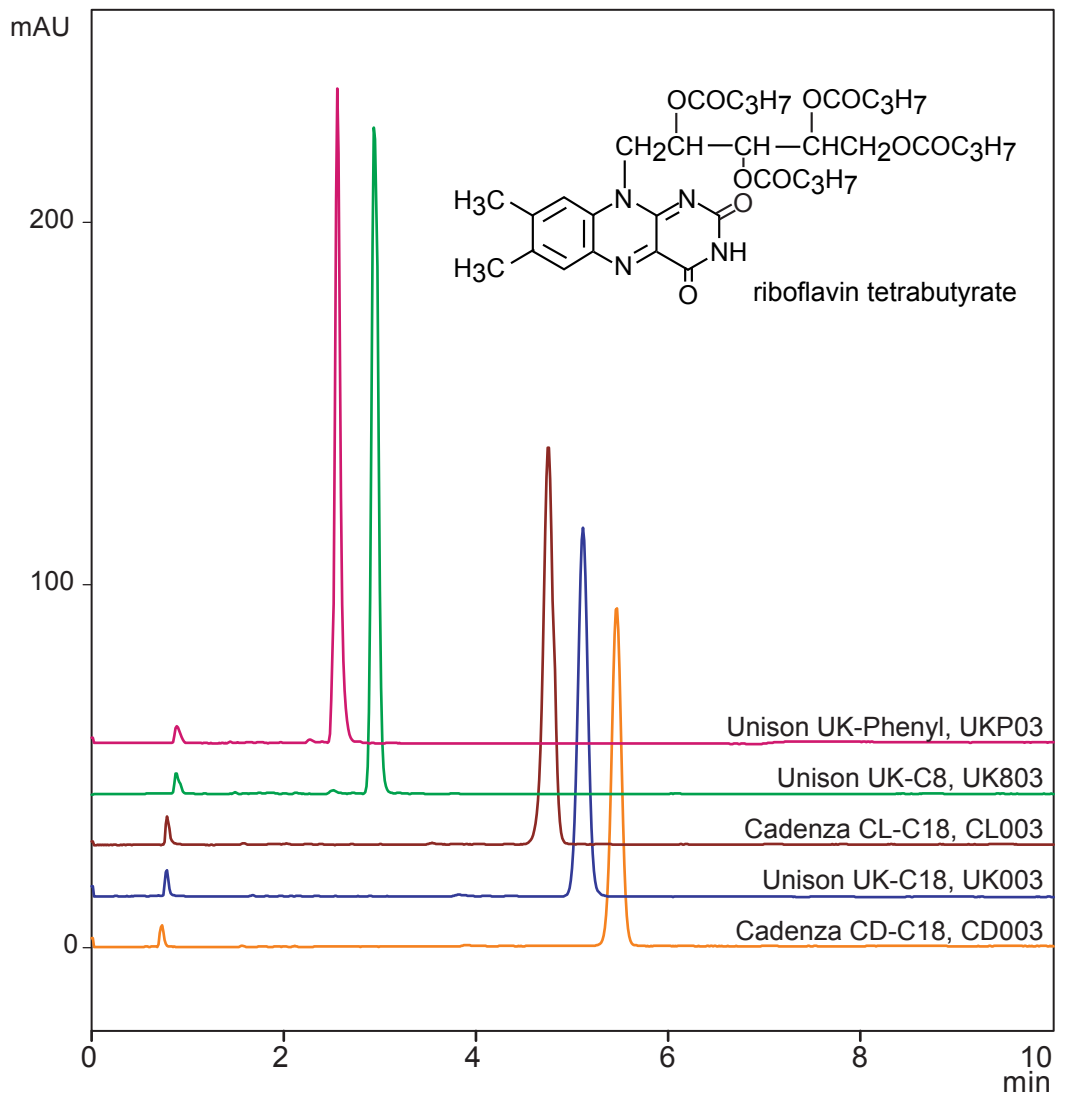
Unison UK-Phenyl  
 Unison UK-C8  
 Unison UK-C18  
 Cadenza CL-C18  
 Cadenza CD-C18

75 x 4.6 mm

Application

### Riboflavin Tetrabutyrate Tablet

酪酸リボフラビン錠



75 x 4.6 mm  
 1% acetic acid / acetonitrile = 40 / 60  
 1 mL/min, 37 °C, 260 nm, 1 µg



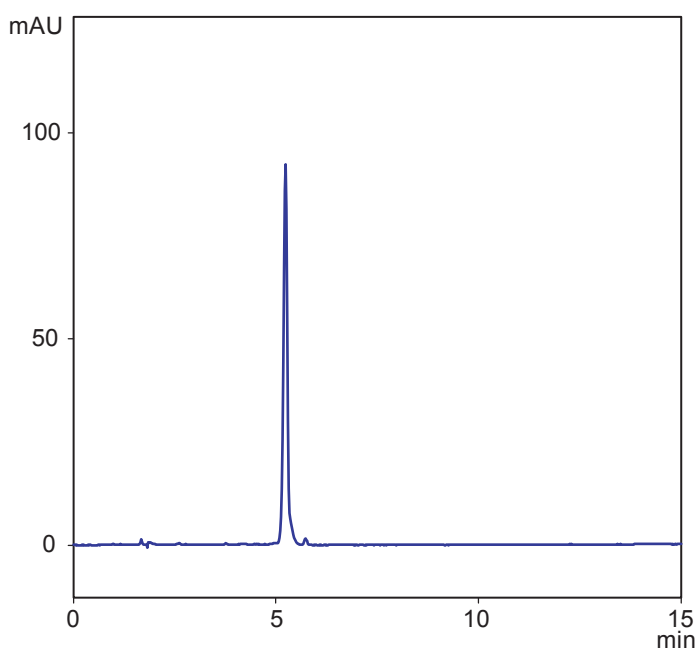
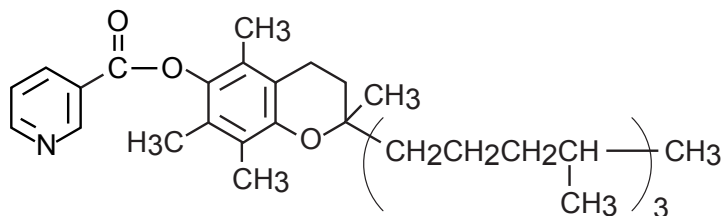
Unison UK-Silica  
Cadenza CD-C18

150 x 3 mm

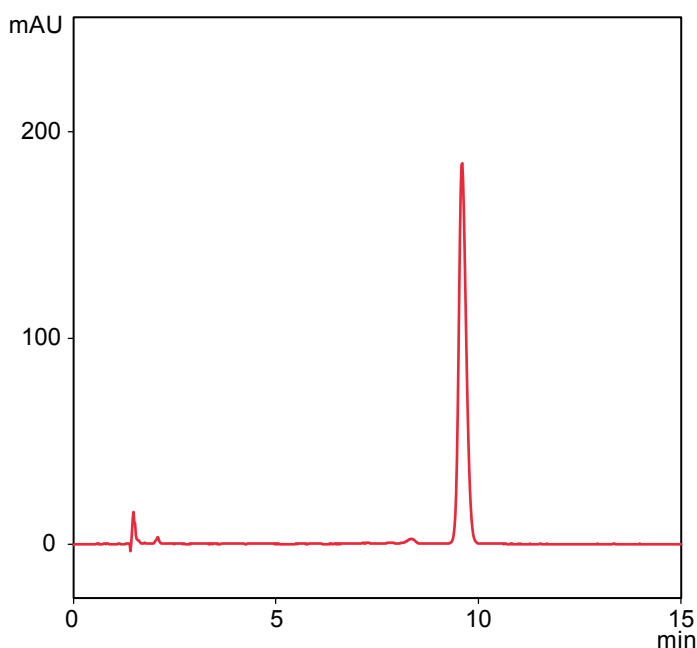
Application

### Tocopherol Nicotinate Capsule

ニコチン酸トコフェロールカプセル



Unison UK-Silica, 150 x 3 mm  
hexane / THF = 95 / 5  
0.5 mL/min (4MPa), 37 °C, 295 nm  
tocopherol nicotinate 5 $\mu$ g



Cadenza CD-C18, 150 x 3 mm  
methanol, 0.5 mL/min (6MPa)  
37 °C, 295 nm  
tocopherol nicotinate 5 $\mu$ g

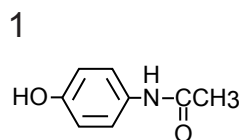
Unison UK-C18

75 x 3 mm

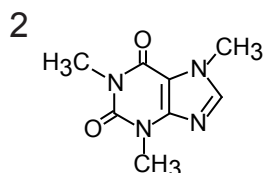
Application

### Antipyretic Analgesics

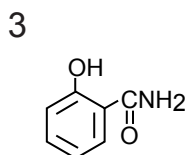
解熱鎮痛薬



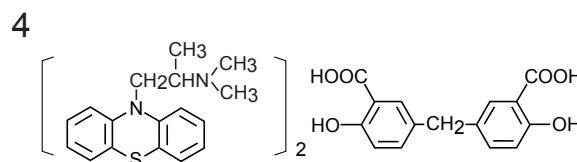
acetaminophen



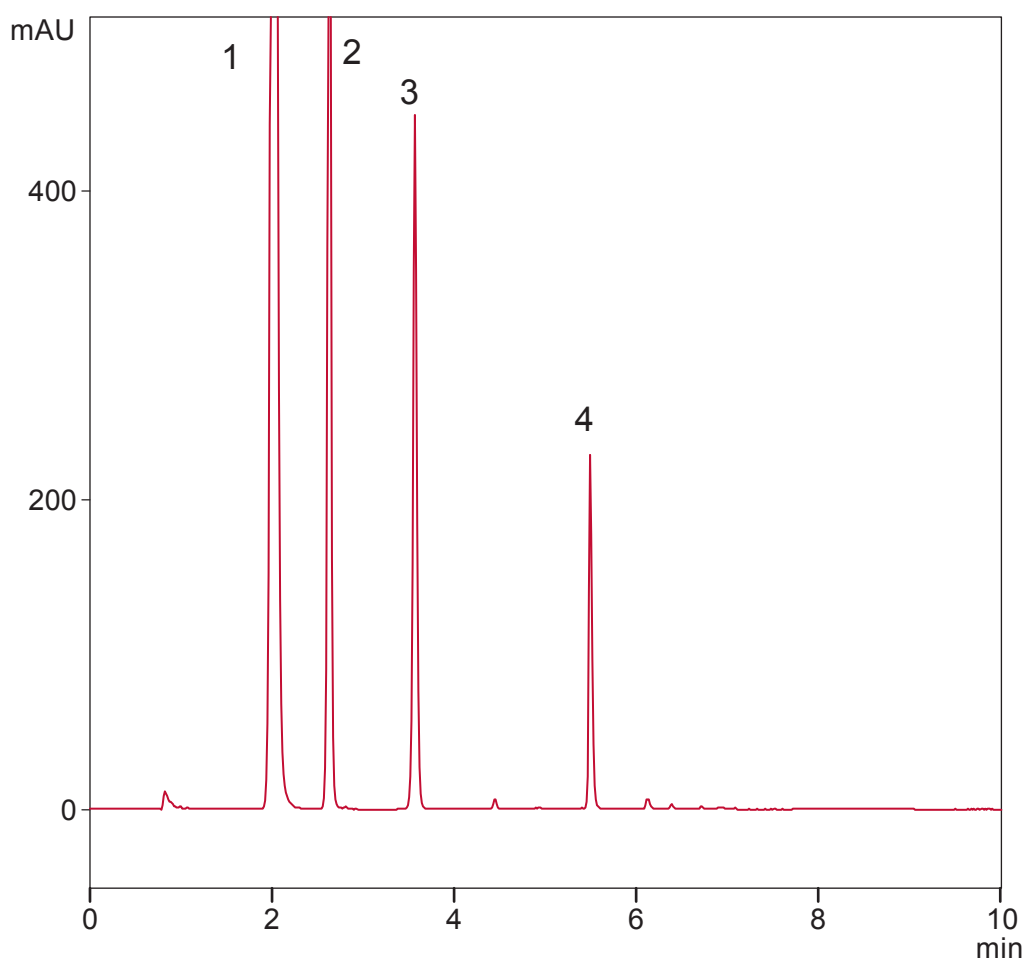
caffeine



salicylamide



promethazine methylenedisalicylate



Unison UK-C18, 75 x 3 mm  
 A: water / trifluoroacetic acid = 100/0.1  
 B: acetonitrile  
 10-60%B ( 0-6min ), 0.5 mL/min  
 37 °C, 260 nm, 0.6uL ( 6.5-0.3µg )

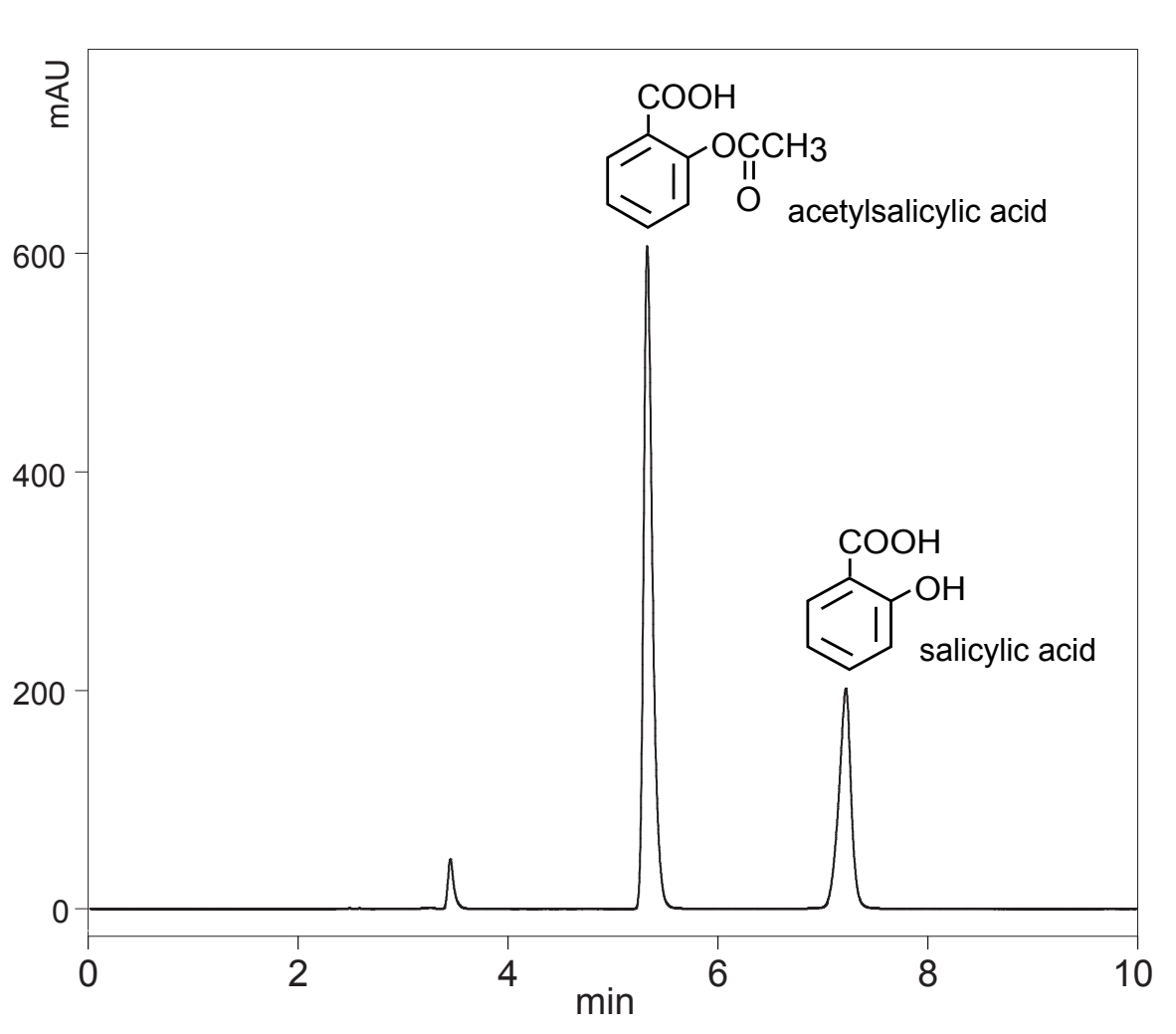
Cadenza CD-C18

150 x 4.6 mm

Application

## Acetylsalicylic Acid, Salicylic Acid

アセチルサリチル酸, サリチル酸



Cadenza CD-C18, 150 x 4.6 mm  
 water / acetonitrile / formic acid = 60 / 40 / 0.1  
 0.6 mL/min (7MPa), room temp.  
 260 nm, 0.4 $\mu$ L (20 $\mu$ g)

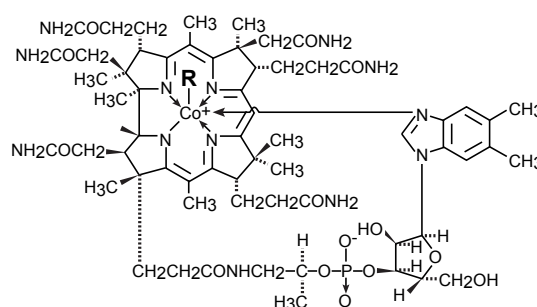
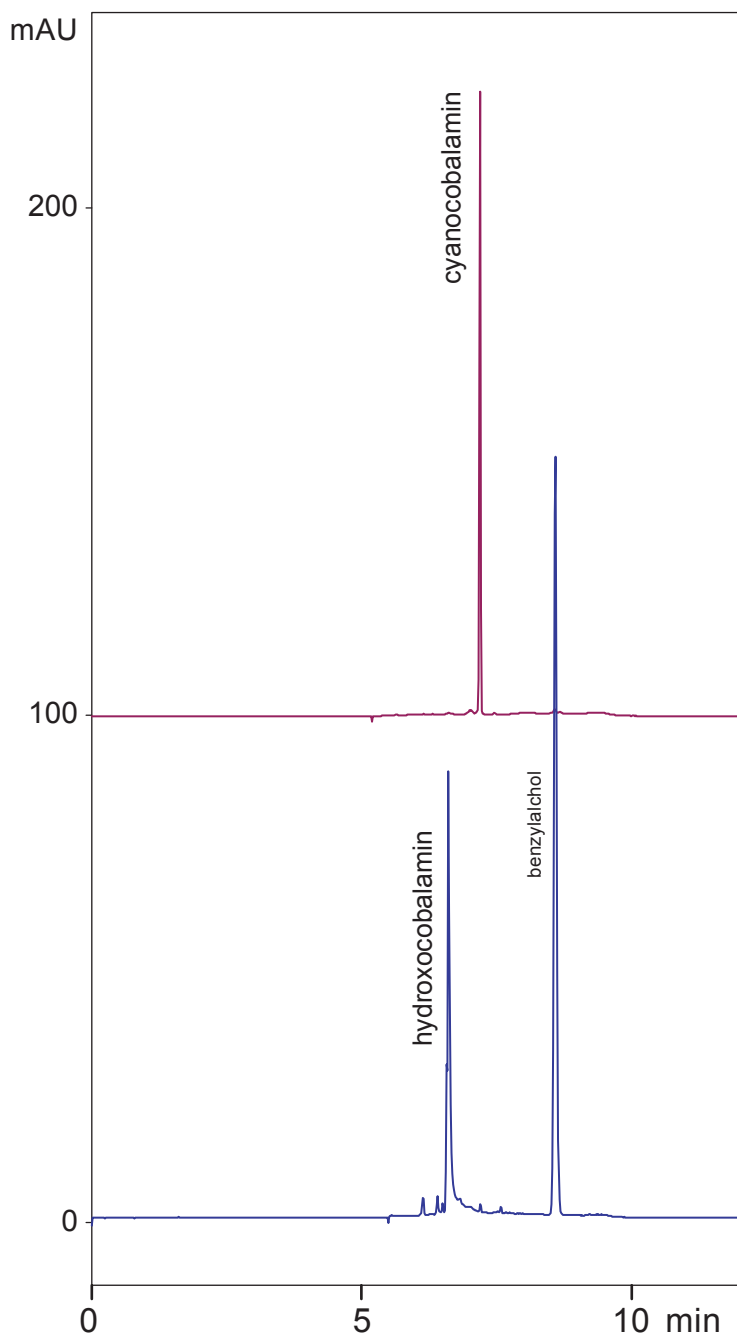
Unison UK-C18

75 x 4.6 mm

Application

Vitamin B12 Related Compounds

ビタミンB12関連化合物



R = -CN cyanocobalamin  
 = -OH hydroxocobalamin

Unison UK-C18, 75 x 4.6 mm  
 A: water / formic acid = 100 / 0.1  
 B: acetonitrile / formic acid = 100 / 0.1  
 0%B(0-3min), 0-30%B(3-8min)  
 1 mL/min (6MPa), 37 °C, 260 nm

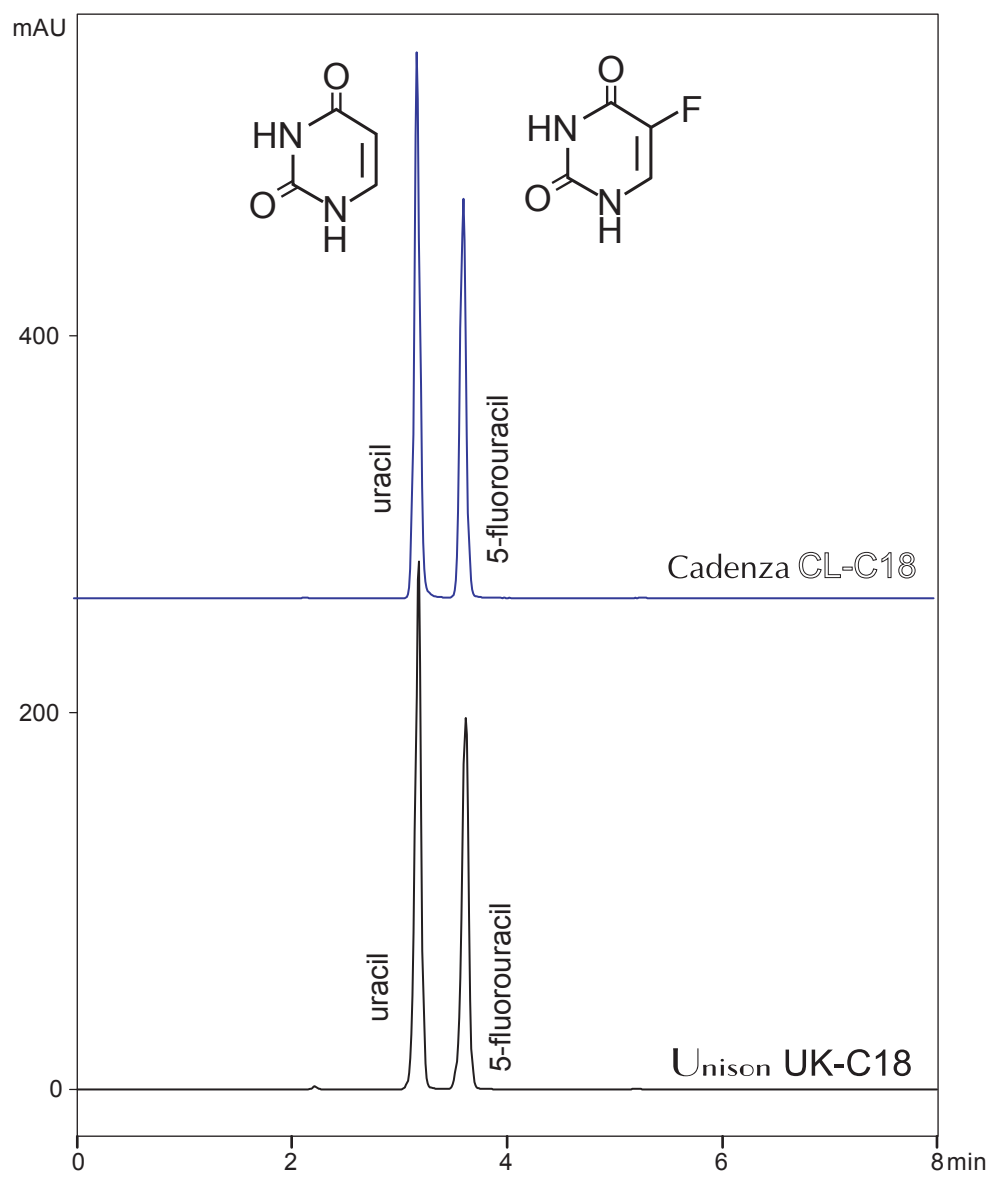
Cadenza CL-C18  
Unison UK-C18

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)

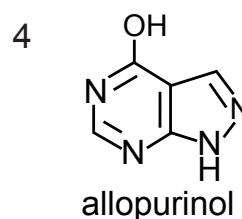
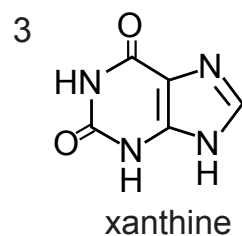
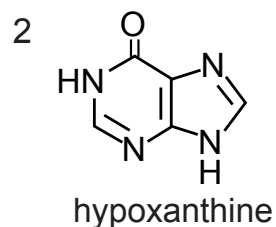
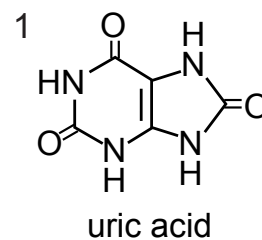
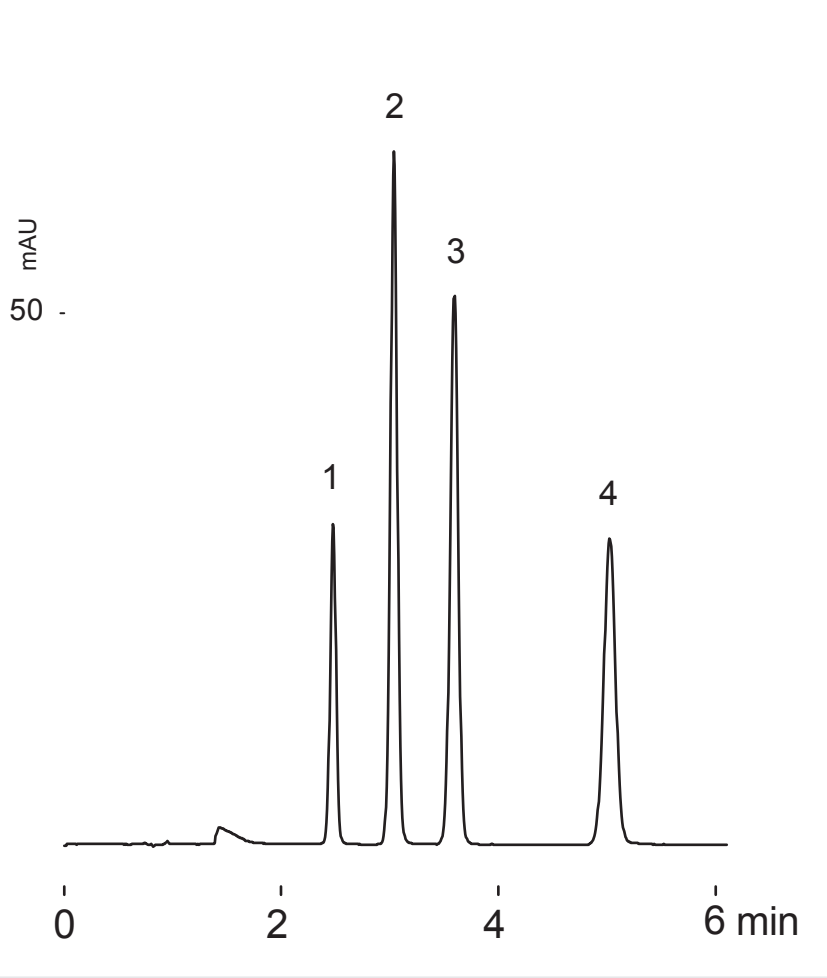
Unison UK-C18

75 x 4.6 mm

Application

Xanthine Oxidase Related Compounds

キサンチンオキシダーゼ関連化合物



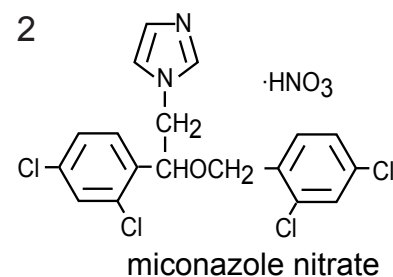
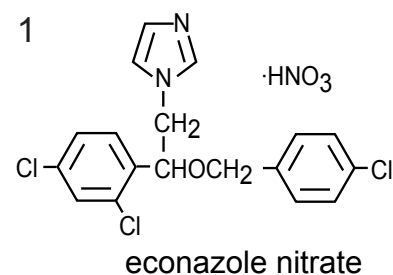
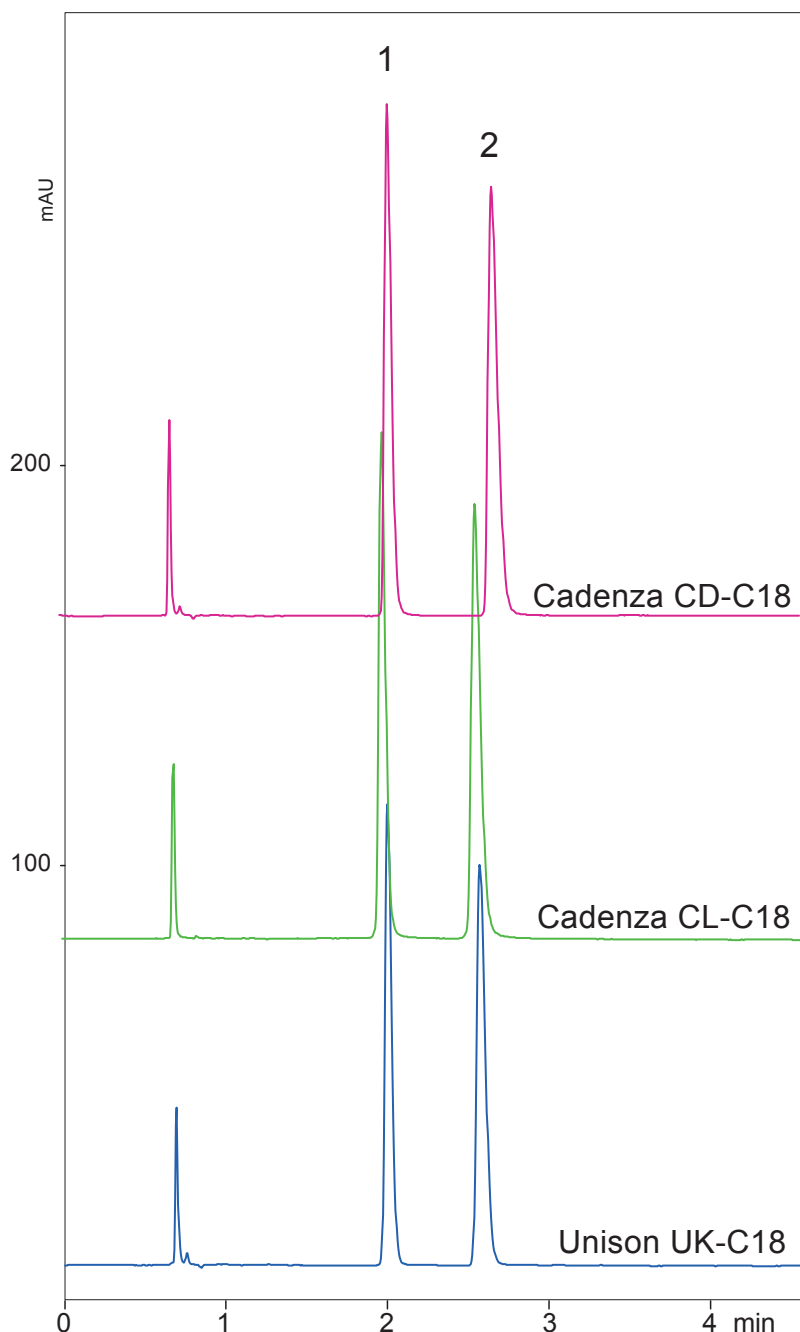
Unison UK-C18, 75 x 4.6 mm  
 50 mM NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub>, 1 mL/min (10MPa)  
 37 °C, 260 nm, 2 μL (0.2 μg)

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

75 x 4.6 mm

Application

**Antifungal Drugs**  
 抗真菌藥



75 x 4.6 mm, water / acetonitrile / TFA =40 / 60 / 0.1  
 1 mL/min (7MPa), 37 °C, 230 nm, 0.4 μL (0.4 μg)

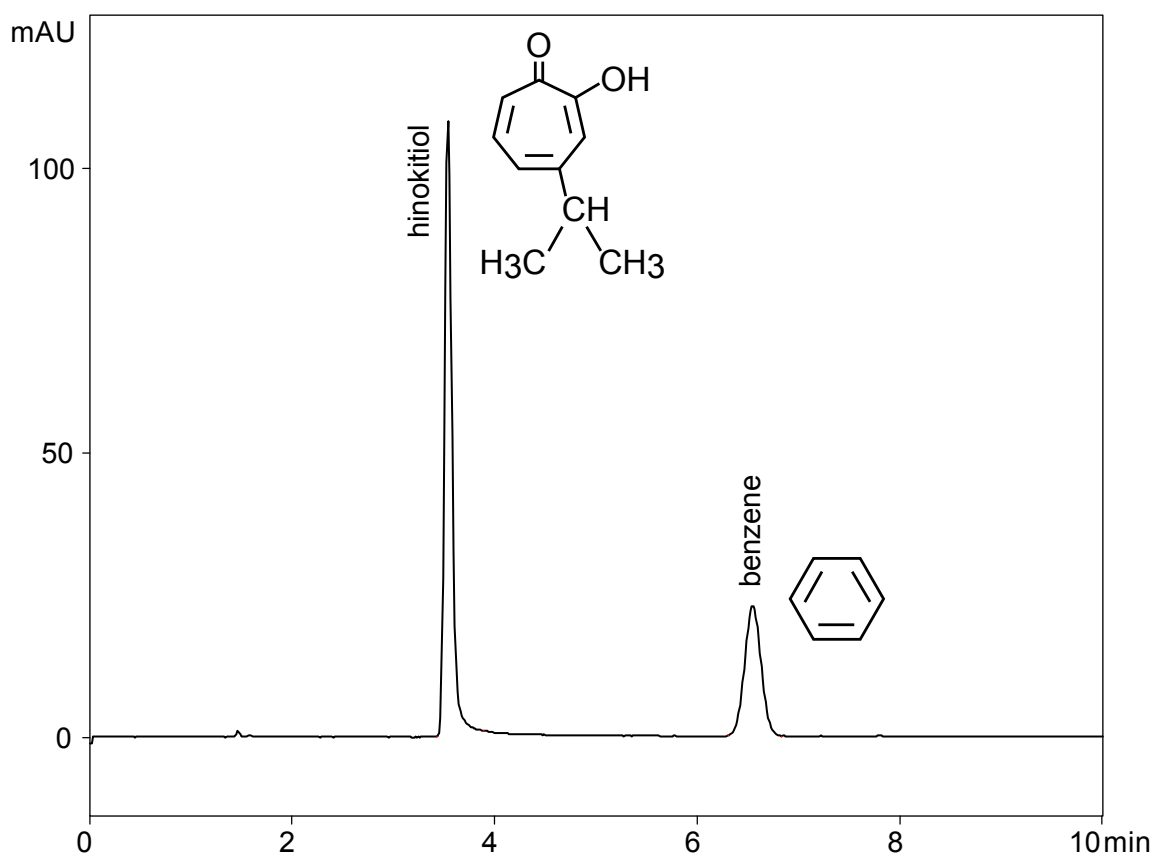
Cadenza CD-C18

75 x 4.6 mm

Application

**Hinokitiol**

ヒノキチオール



Cadenza CD-C18, 75 x 4.6 mm  
 50mM ammonium acetate / acetonitrile = 60 / 40  
 1 mL/min (6MPa), 37 deg.C, 260 nm

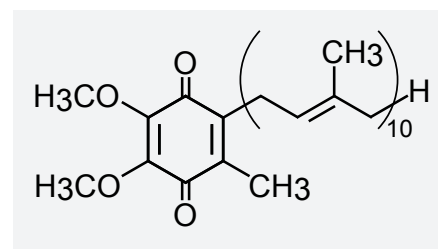
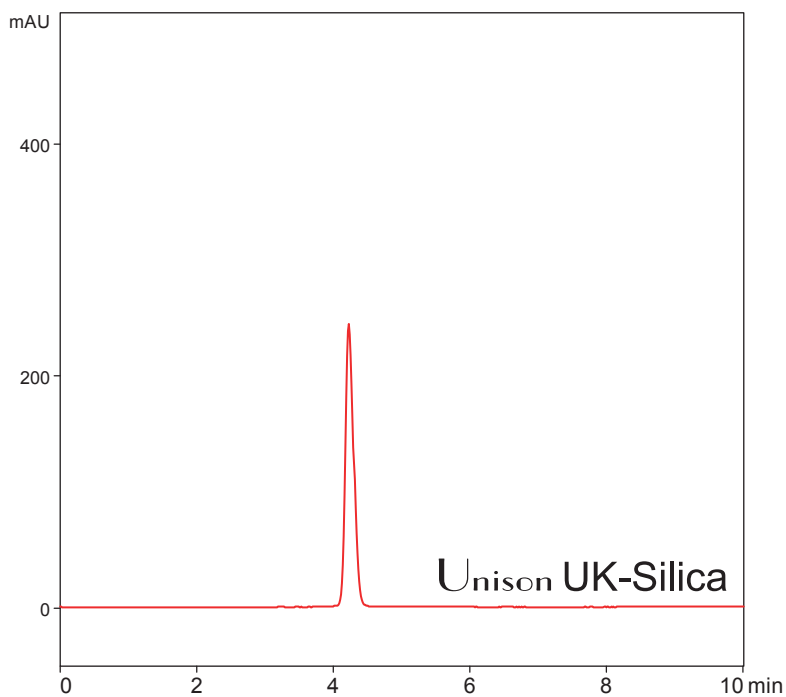


Unison UK-Silica  
 Unison UK-C8  
 Unison UK-C18  
 Cadenza CL-C18  
 Cadenza CD-C18

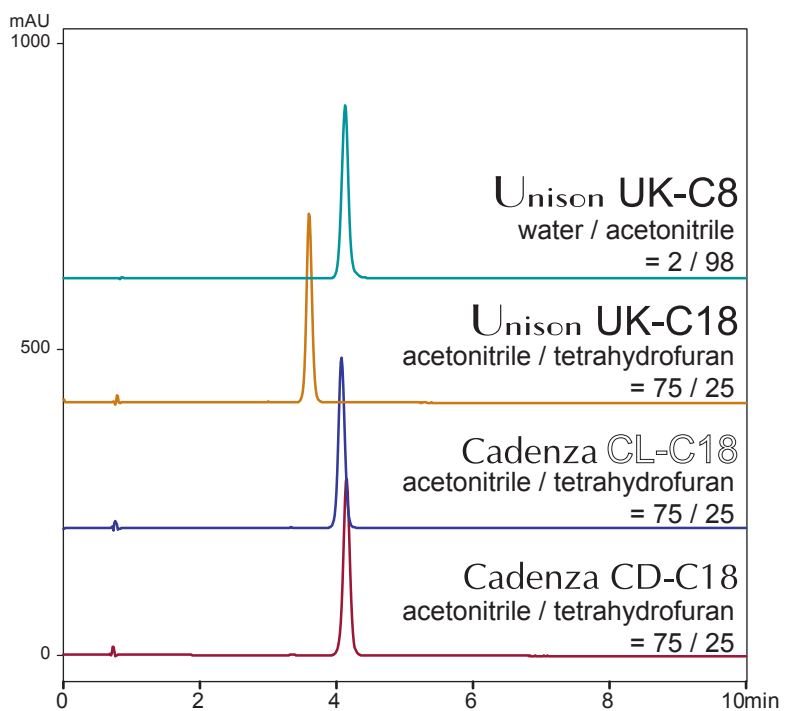
150 x 3 mm  
 75 x 3 mm

Application

**Coenzyme Q10**  
 コエンザイムQ10



Unison UK-Silica  
 150 x 3 mm  
 hexane / IPA = 998 / 2  
 0.5 mL/min, 37 deg.C  
 270 nm, 2ug (2uL)



75 x 3 mm  
 0.5 mL/min, 37 deg.C  
 270 nm, 2ug (2uL)

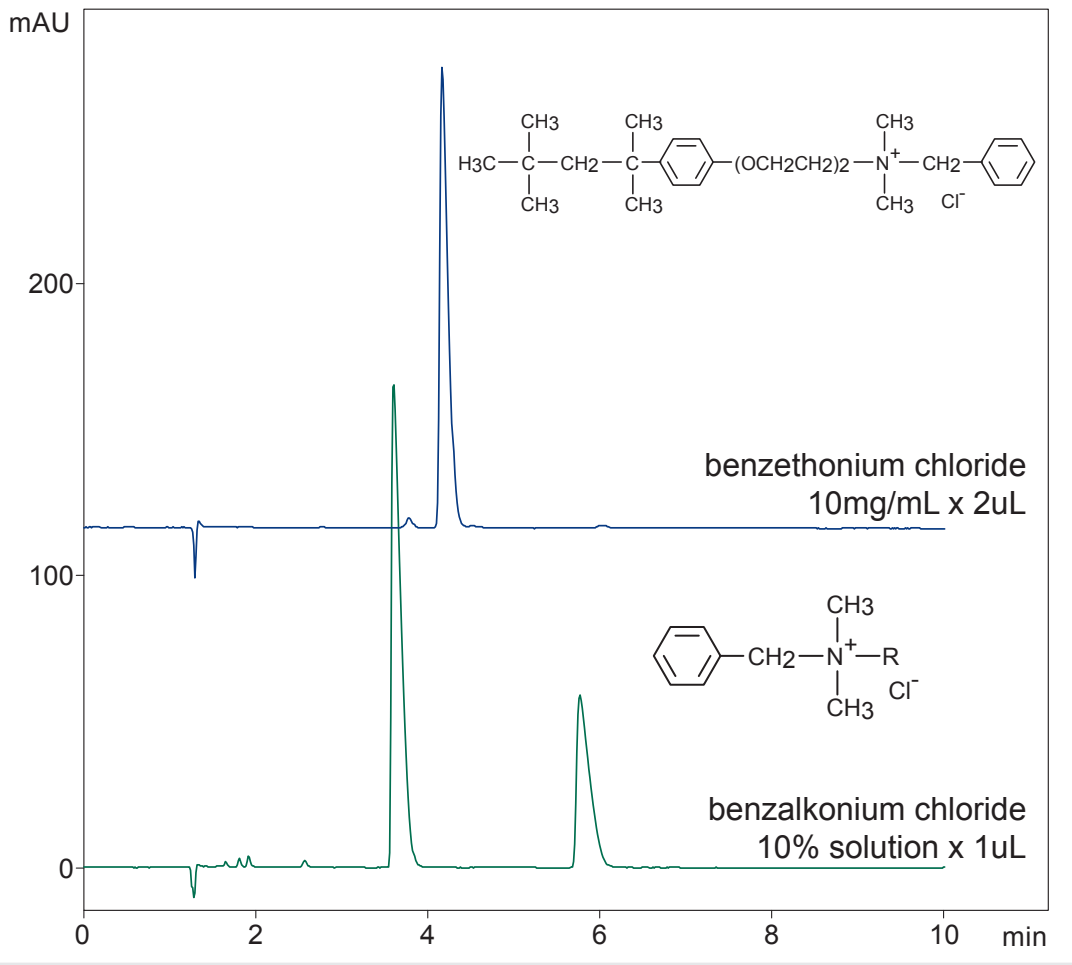
Unison UK-C8

100 x 4.6 mm

Application

**Antiseptics**

消毒剤



Unison UK-C8, 100 x 4.6 mm  
water / methanol / ammonium thiocyanate = 25 / 75 / 0.5  
1.0 mL/min (9MPa), 37 deg.C, 260 nm

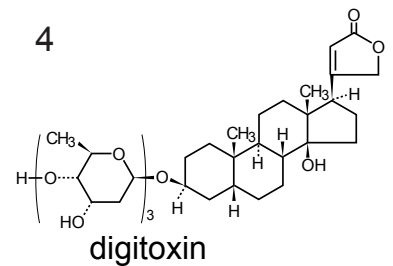
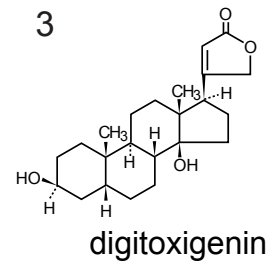
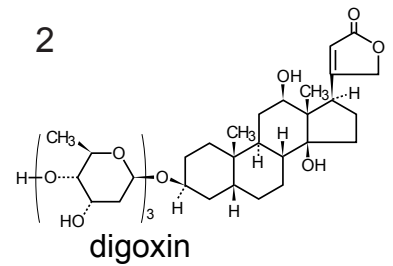
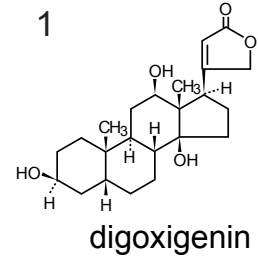
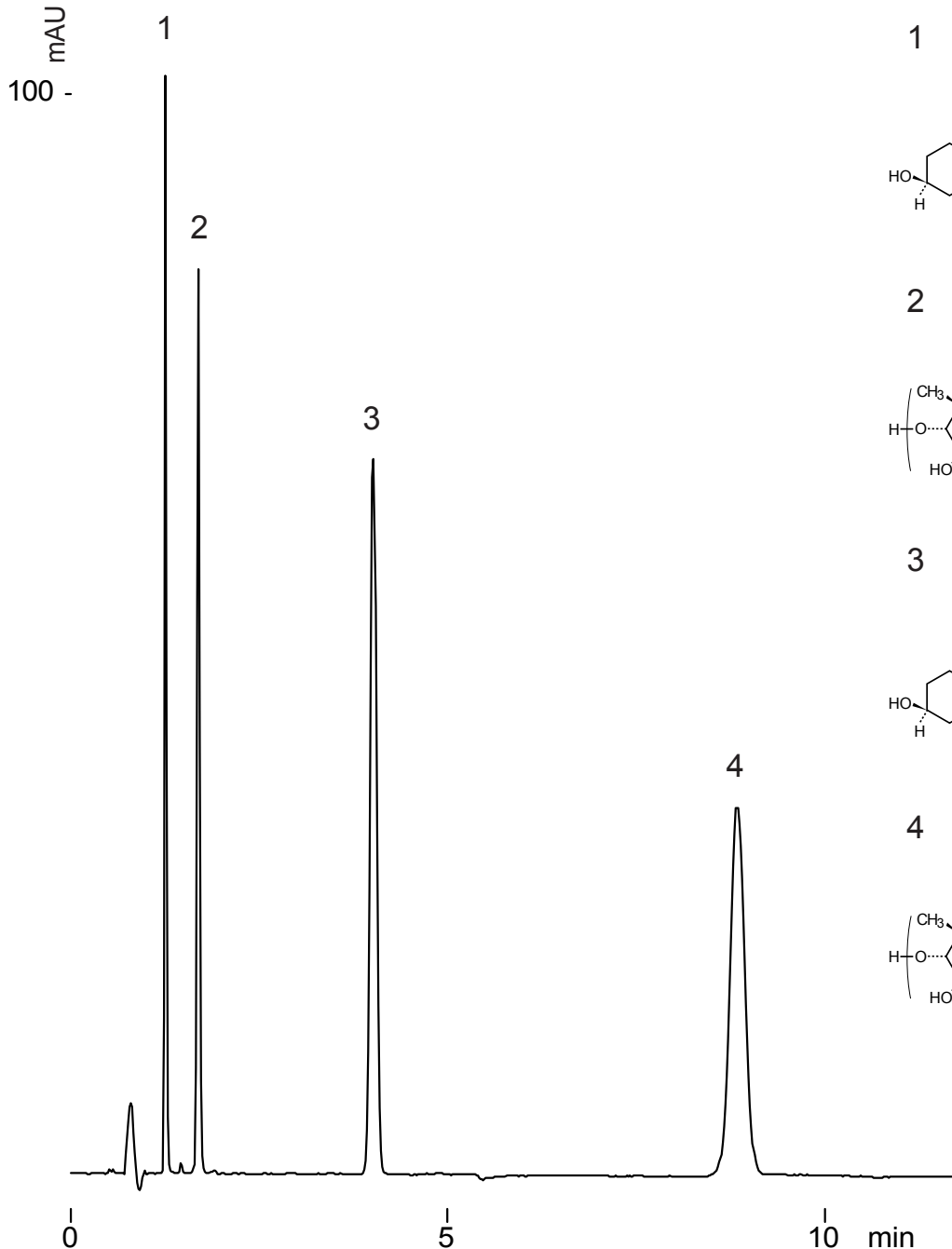
Unison UK-C18

75 x 4.6 mm

Application

**Digitalis Glycosides**

ジギタリス配糖体



Unison UK-C18, 75 x 4.6 mm  
 water / acetonitrile = 60 / 40  
 1.0 mL/min (7MPa), 37 deg.C, 220 nm, 2 uL (0.2-0.8 ug)

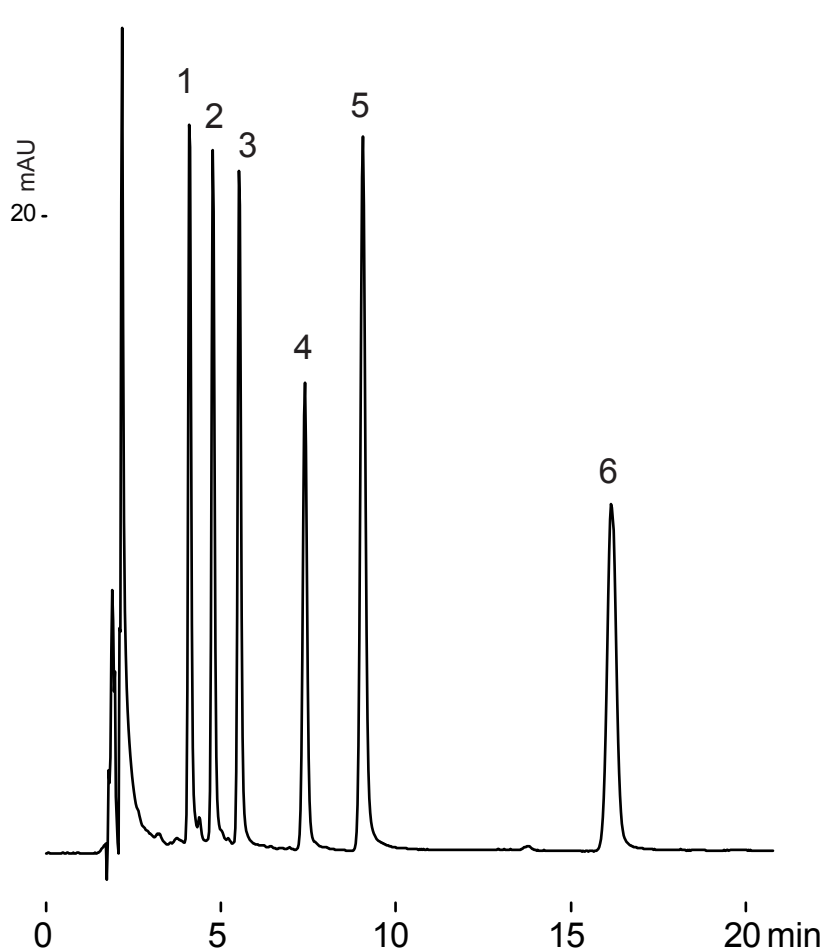
Cadenza CD-C18

150 x 2 mm

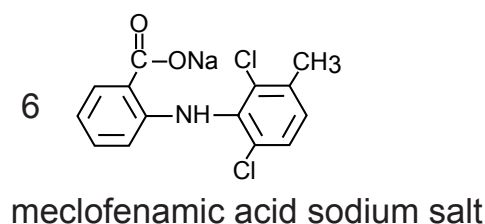
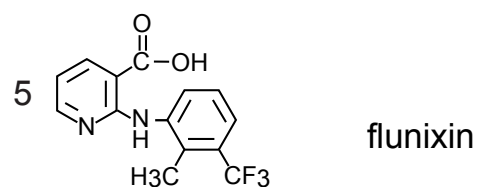
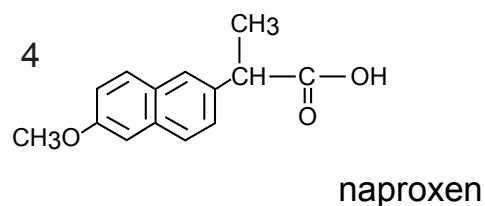
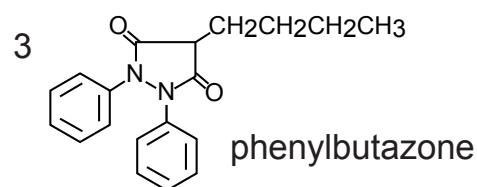
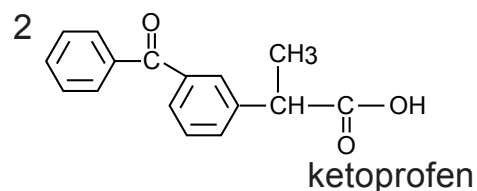
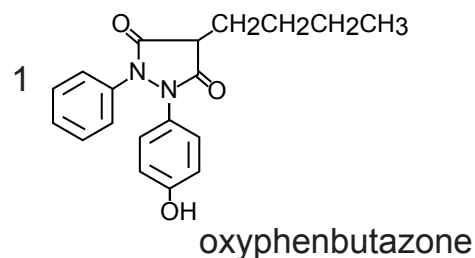
Application

## Non-Steroidal Anti-Inflammatory Drugs

非ステロイド性抗炎症薬



Cadenza CD-C18, 150 x 2 mm  
 water / methanol / formic acid (30 / 70 / 0.1)  
 0.2 mL/min (10MPa), 37 deg.C  
 260 nm, 50 uL (12.5-100 ng)



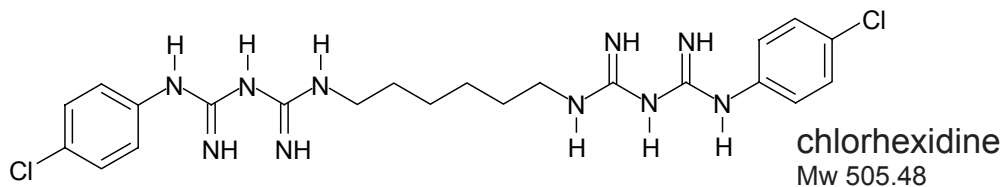
Unison UK-C8

50 x 2 mm

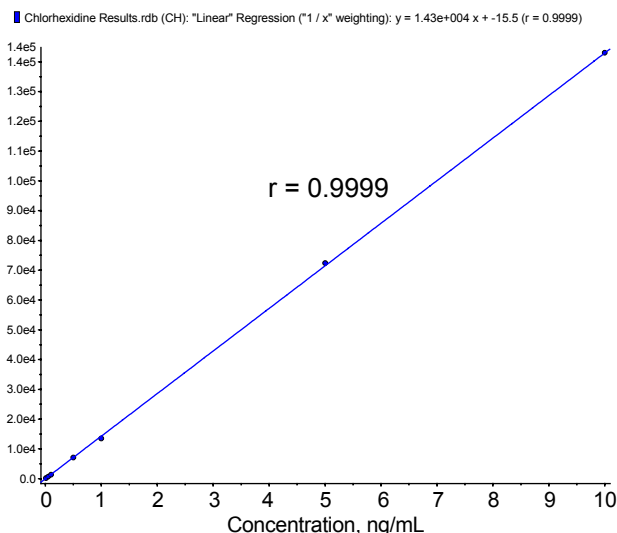
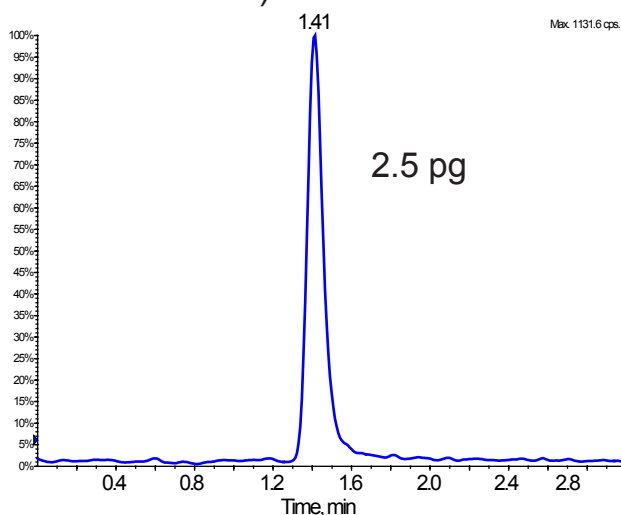
Application

## LC-MS Application for Antiseptic Substance

LC-MSアプリケーション (消毒薬, クロルヘキシジン)



API4000 (TAKARA BIO INC. )



Unison UK-C8, 50 x 2 mm

0.1% formic acid / acetonitrile = 2 / 1, 0.2 mL/min, 5uL(500 fg/uL)

API4000: ESI, MRM Positive, Q1/Q3 : 505 / 336

Courtesy of J.Watanabe, TAKARA BIO INC.

Unison UK-C8

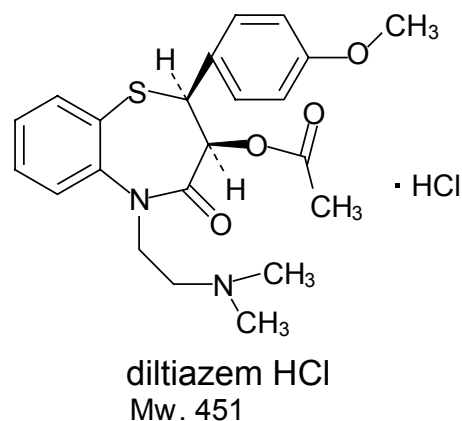
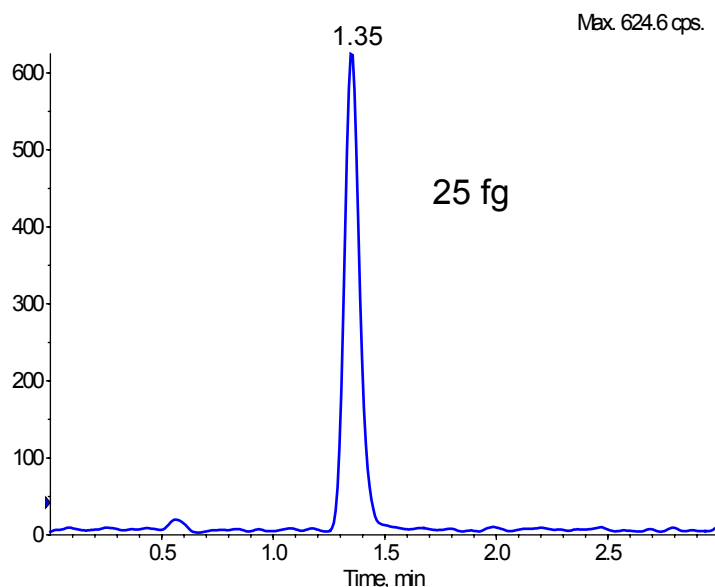
50 x 2 mm

Application

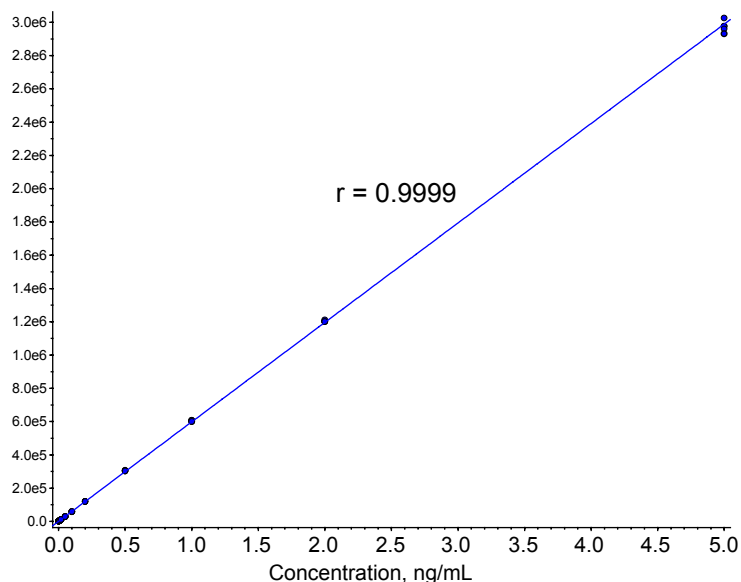
## LC-MS Application for Calcium Antagonist

LC-MSアプリケーション (カルシウム拮抗薬, 塩酸ジルチアゼム)

API4000 (TAKARA BIO INC.)



Results.rdb (Diltiazem): "Linear" Regression ("1 / x" weighting):  $y = 5.98e+005 x + -22.1$  ( $r = 0.9999$ )



Unison UK-C8, 50 x 2 mm

0.1% formic acid / acetonitrile = 2 / 1, 0.25 mL/min, 5 uL(5 fg/uL)

API4000: ESI, MRM Positive, Q1/Q3 : 415 / 178

Courtesy of J.Watanabe, TAKARA BIO INC.

Unison UK-C8

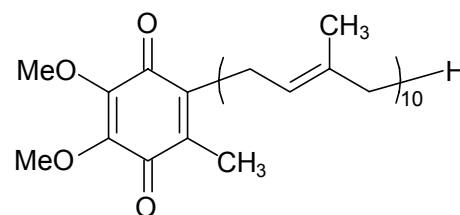
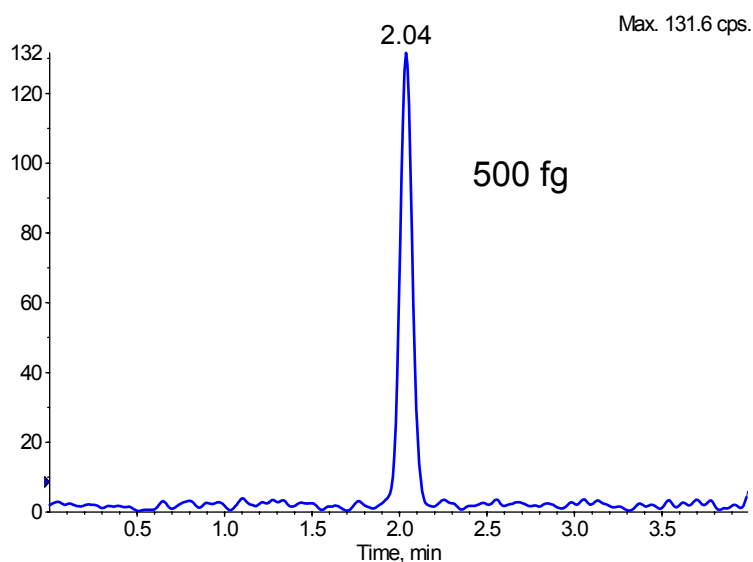
75 x 3 mm

Application

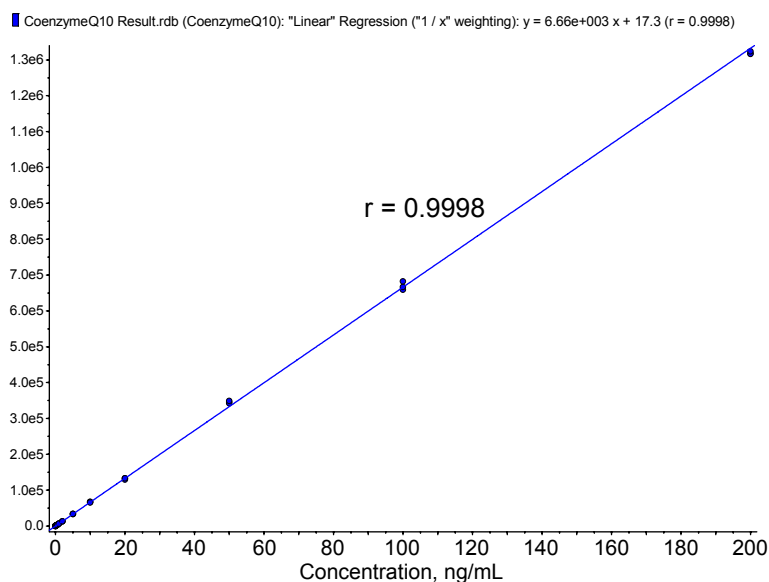
## LC-MS Application for Coenzyme Q10

LC-MSアプリケーション (コエンザイム Q10)

API4000 (TAKARA BIO INC. )



Coenzyme Q10  
Mw. 863.36



Unison UK-C8, 75 x 3 mm

0.1% formic acid / acetonitrile / isopropanol = 1 / 5 / 5

0.8 mL/min, 10 uL(50 fg/uL)

API4000: APCI, MRM Positive, Q1/Q3 : 863.5 / 197

Courtesy of J.Watanabe, TAKARA BIO INC.

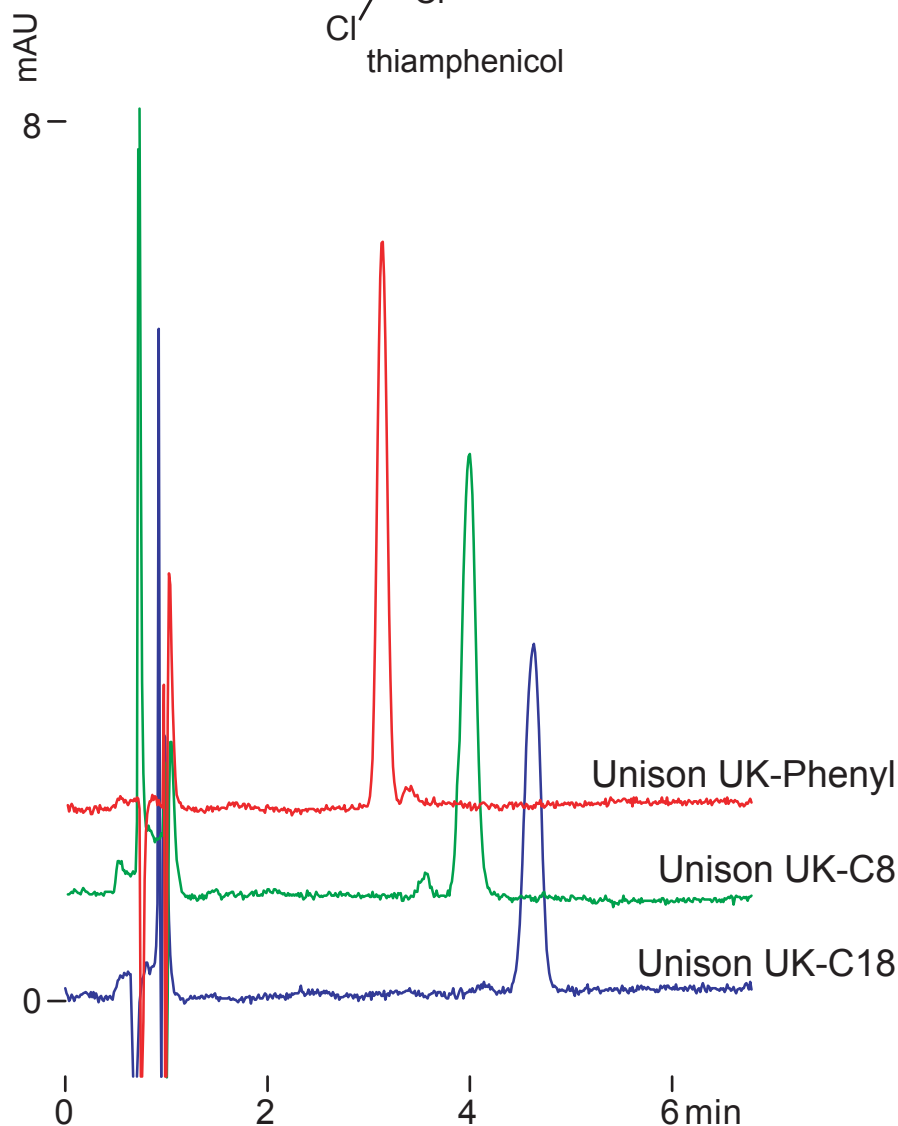
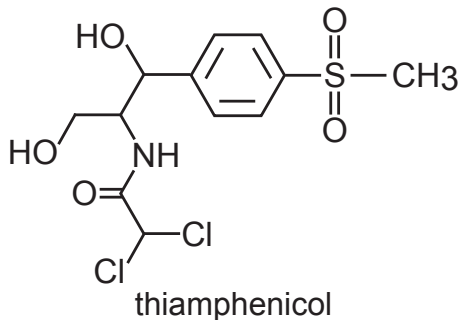
Unison UK-Phenyl  
 Unison UK-C8  
 Unison UK-C18

75 x 3 mm

Application

Veterinary Medicine (Synthetic Antimicrobial)

動物用医薬品(合成抗菌剤)



75 x 3 mm, 20mM HCOONH4 / acetonitrile = 88 / 12  
 0.5 mL/min (7MPa), 37 deg.C, 224 nm, 1ppm (5uL)



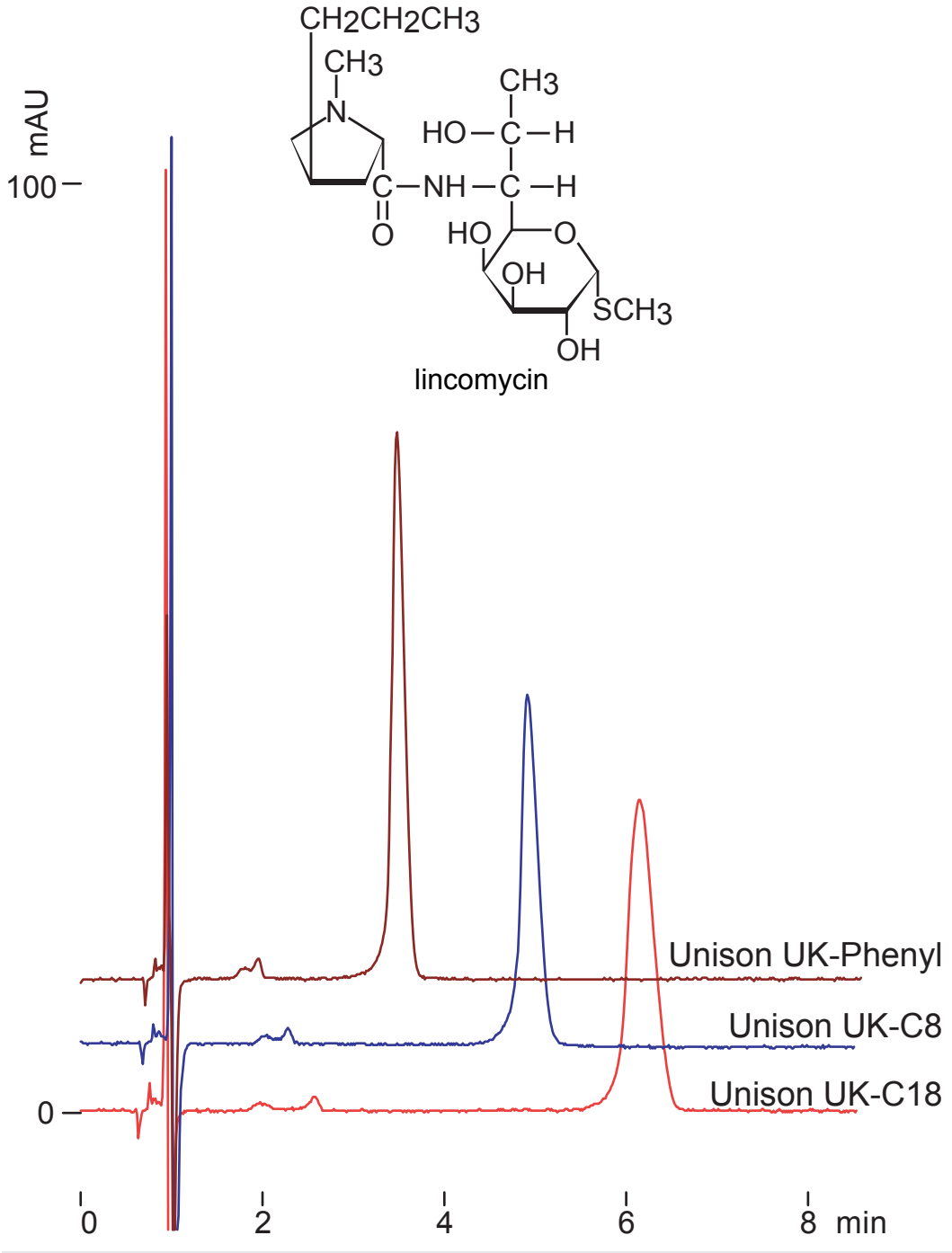
Unison UK-Phenyl  
 Unison UK-C8  
 Unison UK-C18

75 x 3 mm

Application

**Veterinary Medicine (Antibiotic)**

動物用医薬品(抗生物質)



75 x 3 mm, water / acetonitrile / trifluoroacetic acid = 90 / 10 / 0.1  
 0.5 mL/min (7MPa), 37 deg.C, 210 nm, 500ng / uL (5uL)

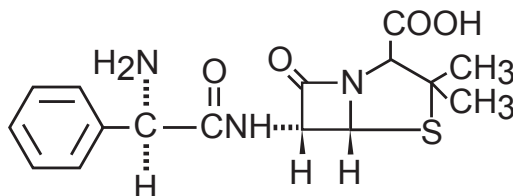
Unison UK-Phenyl  
 Unison UK-C8  
 Cadenza CD-C18  
 Unison UK-C18  
 Cadenza CL-C18

75 x 3 mm

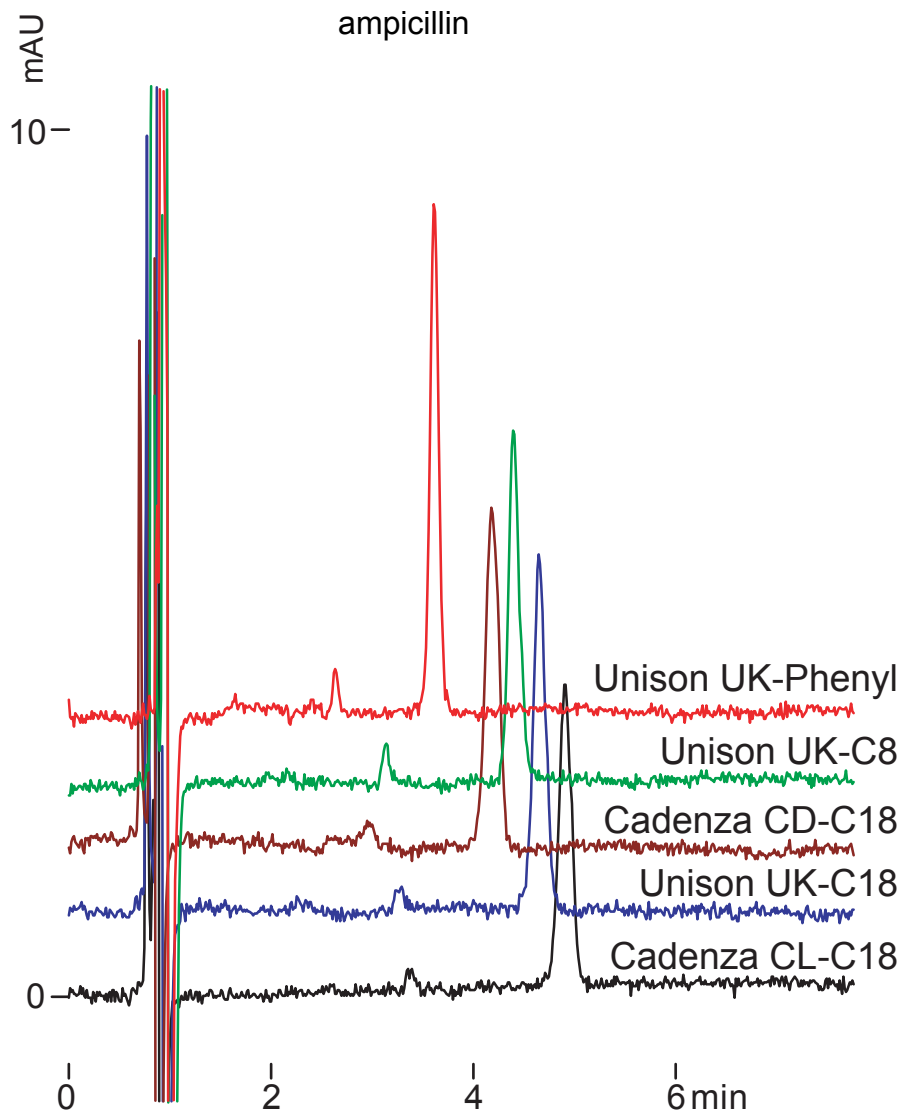
Application

### Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



ampicillin



75 x 3 mm,  
 water / acetonitrile / trifluoroacetic acid = 85 / 15 / 0.1  
 0.5 mL/min (7MPa), 37 deg.C, 210 nm, 10 ppm (2uL)

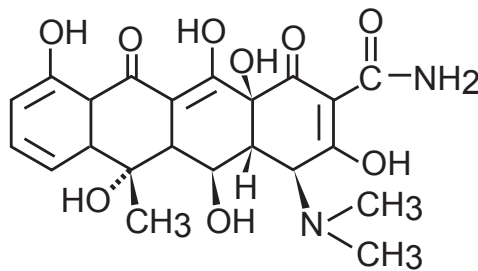
Unison UK-Phenyl  
 Unison UK-C8  
 Cadenza CD-C18  
 Cadenza CL-C18  
 Unison UK-C18

75 x 3 mm

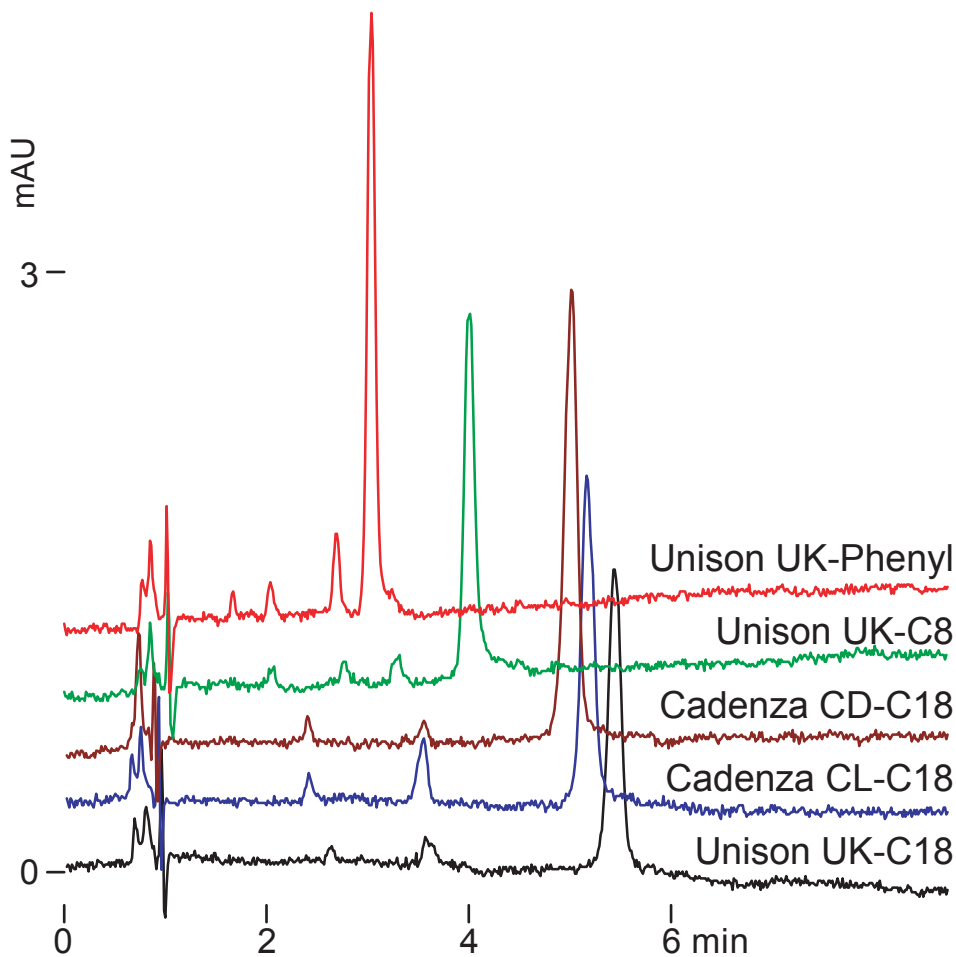
Application

**Veterinary Medicine (Antibiotic)**

動物用医薬品(抗生物質)



oxytetracycline



75 x 3 mm,  
 water / acetonitrile / trifluoroacetic acid = 85 / 15 / 0.1  
 0.5 mL/min (7MPa), 37 deg.C, 270 nm, 1 ppm (10uL)

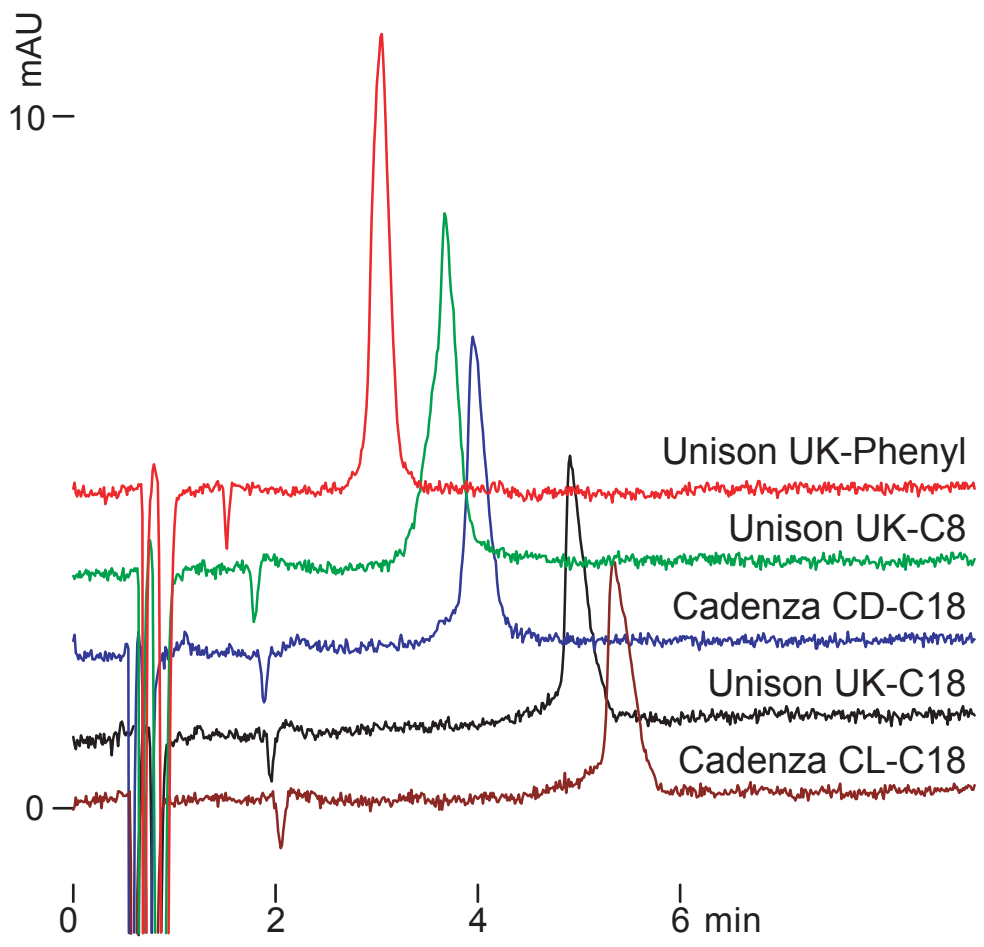
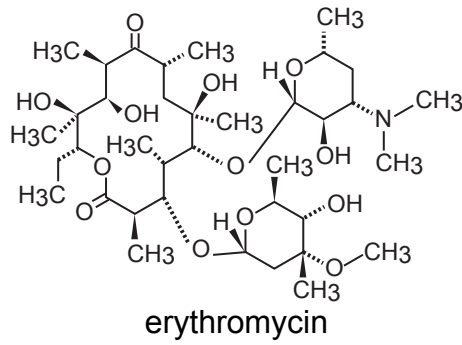
Unison UK-Phenyl  
 Unison UK-C8  
 Cadenza CD-C18  
 Unison UK-C18  
 Cadenza CL-C18

75 x 3 mm

Application

### Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm, 20mM HCOONH<sub>4</sub> / acetonitrile = 70 / 30  
 0.5 mL/min (7-8MPa), 37 deg.C, 210 nm, 1 ug/uL (5uL)

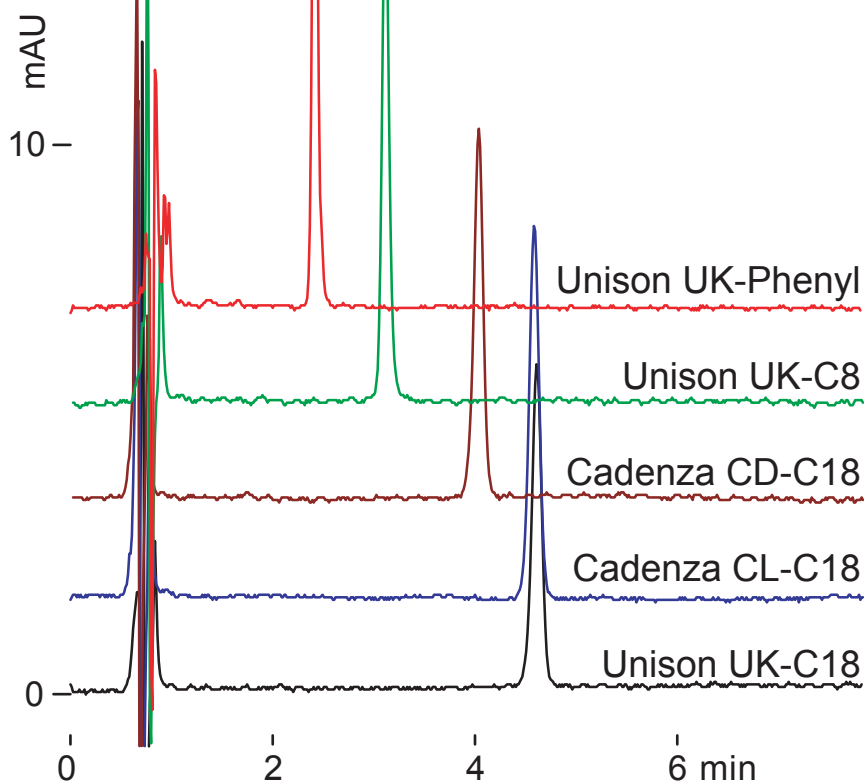
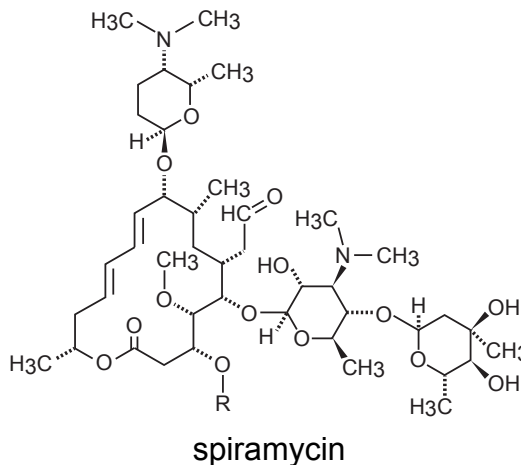
Unison UK-Phenyl  
 Unison UK-C8  
 Cadenza CD-C18  
 Cadenza CL-C18  
 Unison UK-C18

75 x 3 mm

Application

**Veterinary Medicine (Antibiotic)**

動物用医薬品(抗生物質)



75 x 3 mm,  
 water / acetonitrile / trifluoroacetic acid = 50 / 50 / 0.1  
 0.5 mL/min (6MPa), 37 deg.C, 230 nm, 1 ppm (5uL)

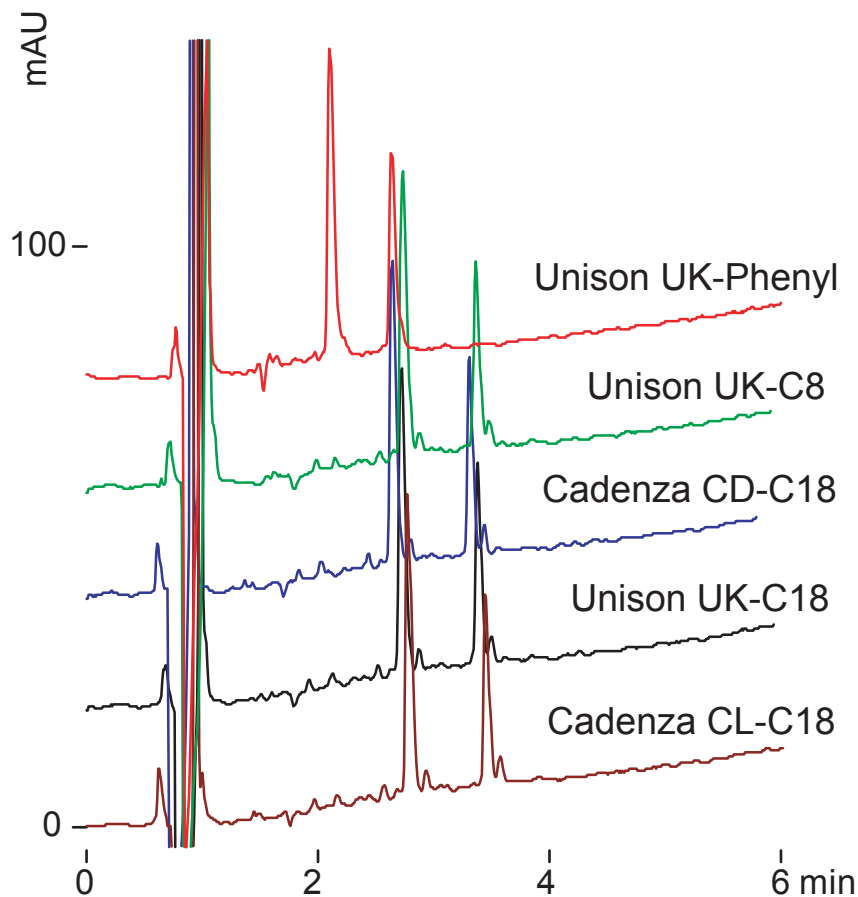
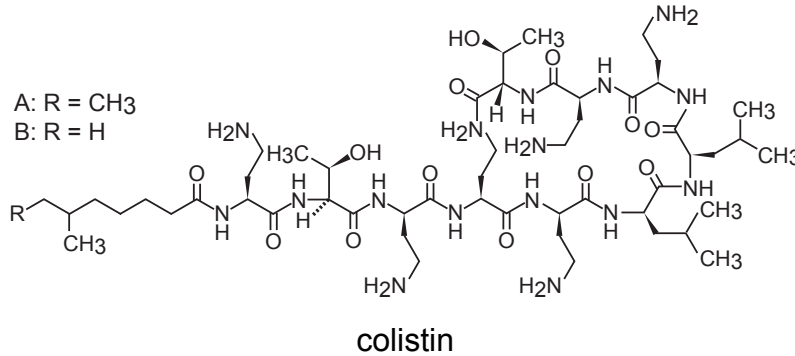
Unison UK-Phenyl  
 Unison UK-C8  
 Cadenza CD-C18  
 Unison UK-C18  
 Cadenza CL-C18

75 x 3 mm

Application

### Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm,

A: water / trifluoroacetic acid = 100 / 0.1

B: acetonitrile / trifluoroacetic acid = 100 / 0.1

25-40 %B (0-5 min), 0.5 mL/min,

37 deg.C, 220 nm, 1 ug/uL (20uL)

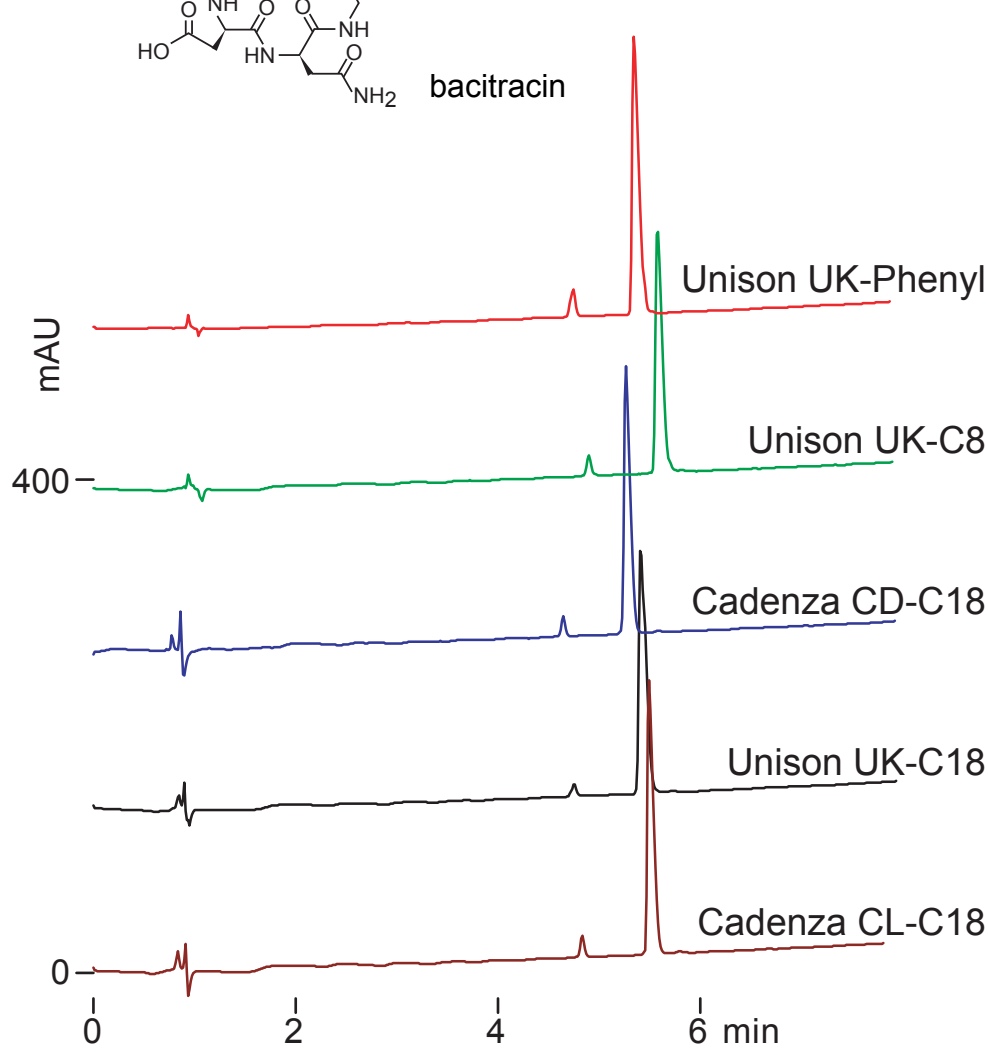
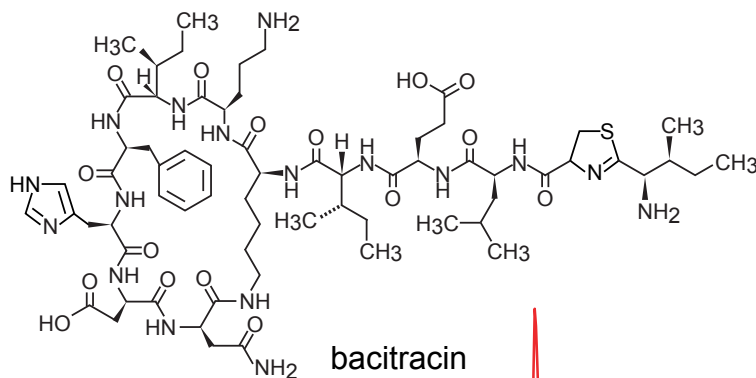
Unison UK-Phenyl  
 Unison UK-C8  
 Cadenza CD-C18  
 Unison UK-C18  
 Cadenza CL-C18

75 x 3 mm

Application

### Veterinary Medicine (Antibiotic)

動物用医薬品(抗生物質)



75 x 3 mm,  
 A: water / trifluoroacetic acid = 100 / 0.1  
 B: acetonitrile / trifluoroacetic acid = 100 / 0.1  
 10-40 %B (0-7 min), 0.5 mL/min,  
 37 deg.C, 220 nm, 1 ug/uL (2uL)

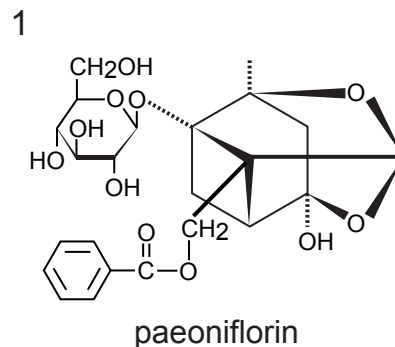
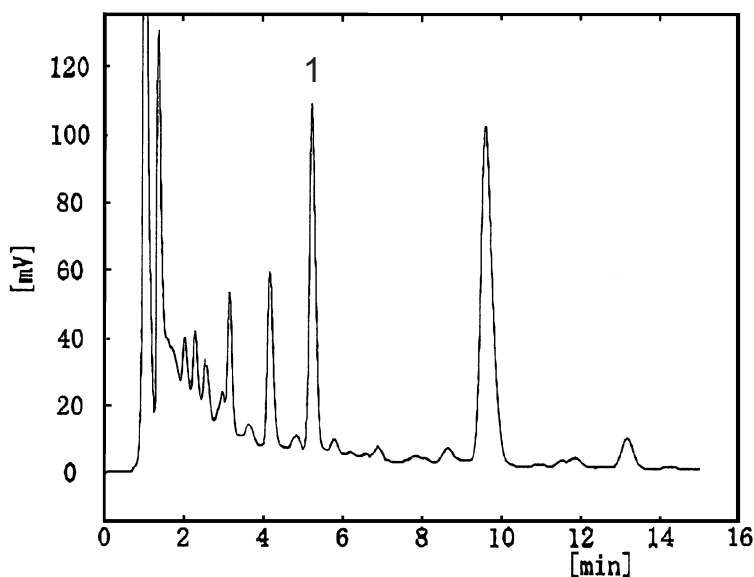
Cadenza CD-C18

75 x 4.6 mm

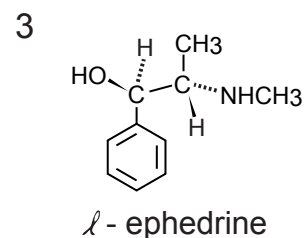
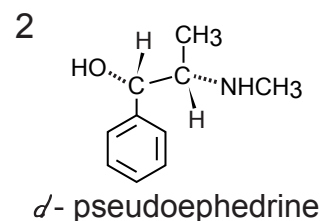
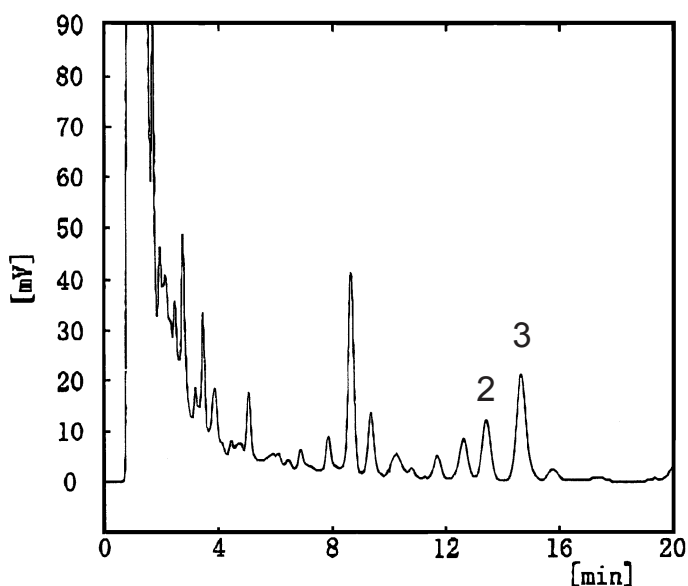
Application

Natural Medicine Properties (Shoseiryuto)

生薬成分 (小青竜湯)



Cadenza CD-C18,  
75 x 4.6 mm  
water / acetonitrile / H<sub>3</sub>PO<sub>4</sub>  
= 700 / 100 / 1  
1 mL/min, 25 deg.C, 230 nm



Cadenza CD-C18, 75 x 4.6 mm  
water / acetonitrile / H<sub>3</sub>PO<sub>4</sub> / SDS  
= 650 / 350 / 2 / 5  
1 mL/min, 40 deg.C, 210 nm



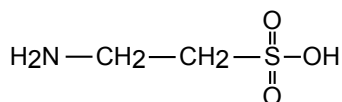
Unison UK-C18

75 x 4.6 mm

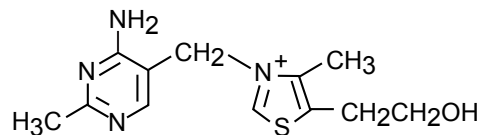
Application

**ELSD application - taurine and water-soluble vitamins**

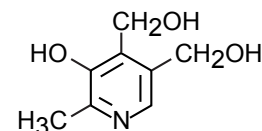
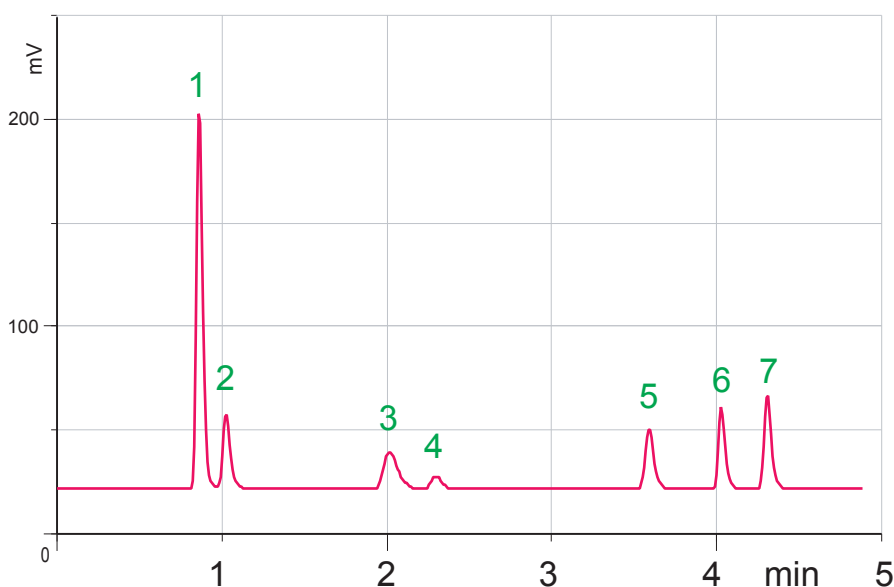
ELSD検出器によるタウリンと水溶性ビタミンの同時分析



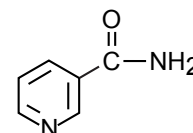
1 taurine



2 thiamine (B1)



3 pyridoxine (B6)



4 nicotinamide (B3)

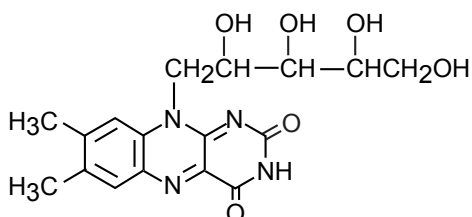
Unison UK-C18, 75 x 4.6 mm

A: 5mM HCOONH4

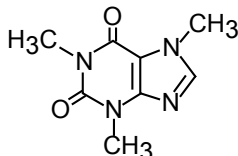
B: methanol

10-50%B (0-2min), 50%B (2-5min)

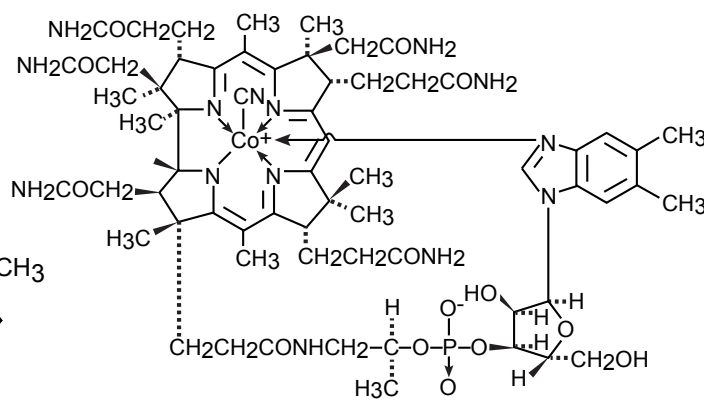
1 mL/min, 10uL(500ng), ELSD(SofTA)



7 riboflavin (B2)



6 caffeine



5 cyanocobalamin (B12)

Courtesy of Mr. Y.Sakai, M&S Instruments Trading Inc., Japan

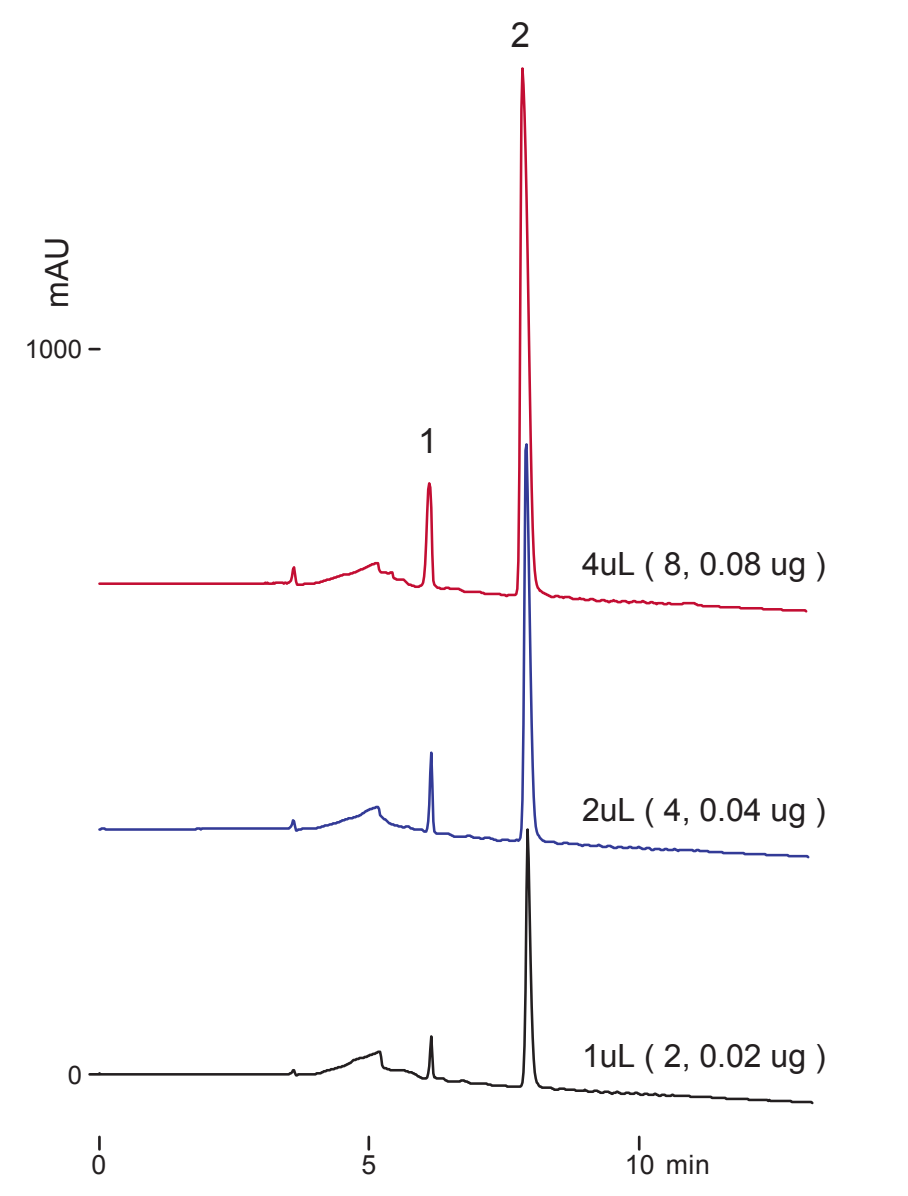
Unison UK-Silica

250 x 4.6 mm

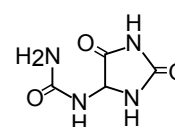
Application

## Ingredients of Eydrops (allantoin and chlorpheniramine maleate)

点眼液成分 (アラントイン, マレイン酸クロルフェニラミン)

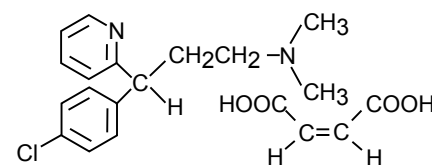


1



allantoin

2



chlorpheniramine, maleate

Unison UK-Silica, 250 x 4.6 mm  
 A: acetonitrile / acetic acid = 100 / 0.1  
 B: water / acetic acid = 100 / 0.1  
 0 - 40%B (0-10min)  
 1 mL/min , 37 deg.C, 220 nm

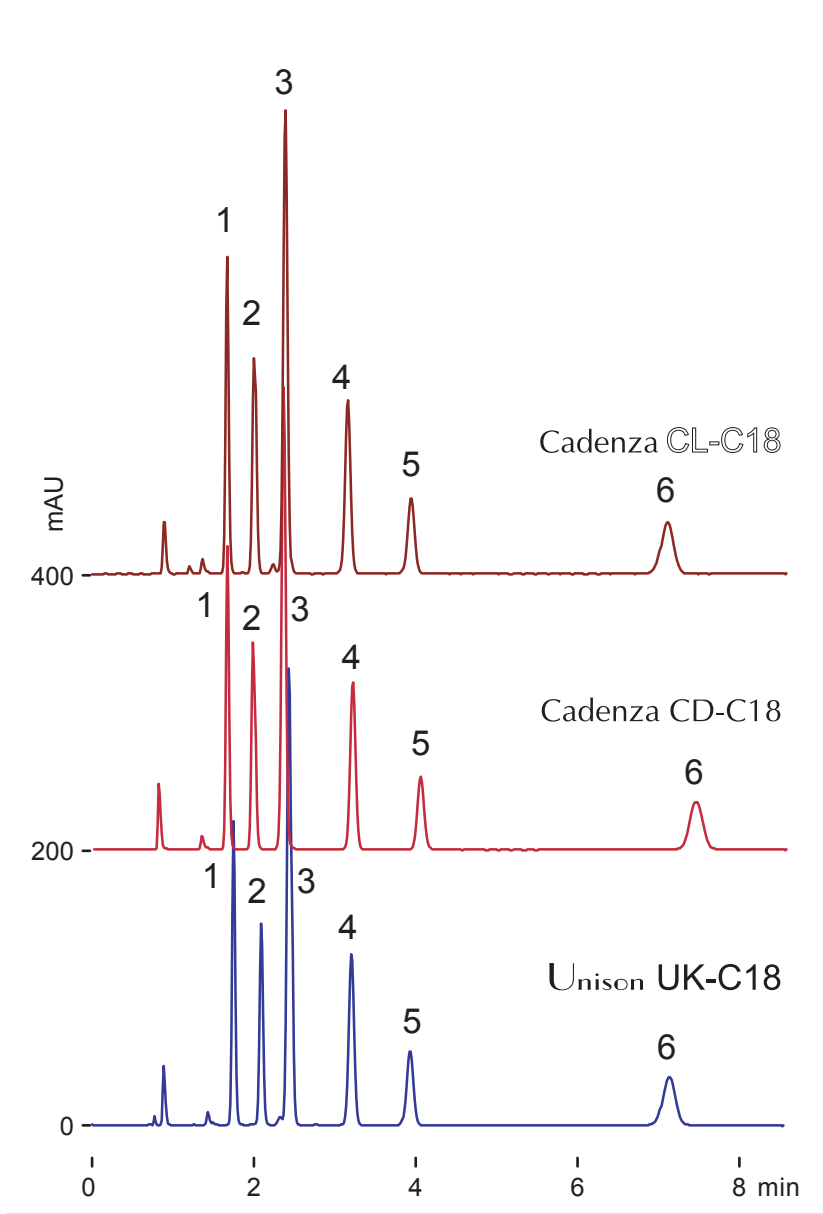
Cadenza CL-C18  
Cadenza CD-C18  
Unison UK-C18

75 x 4.6 mm

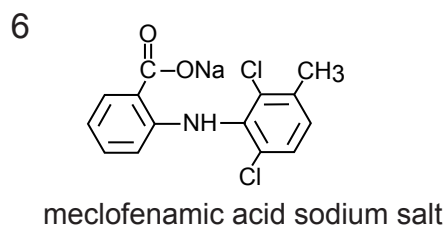
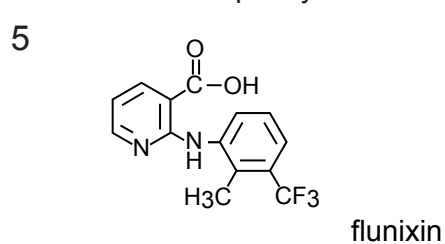
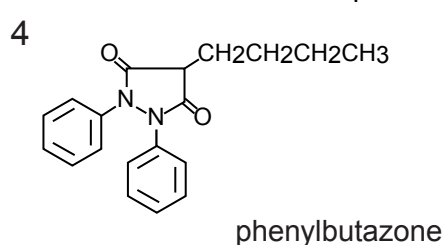
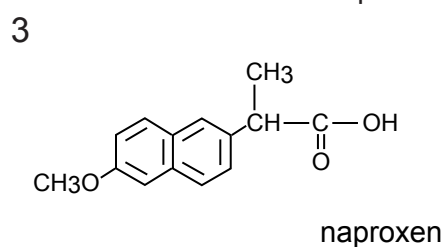
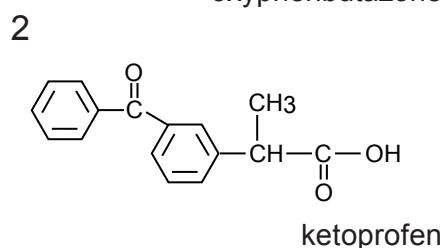
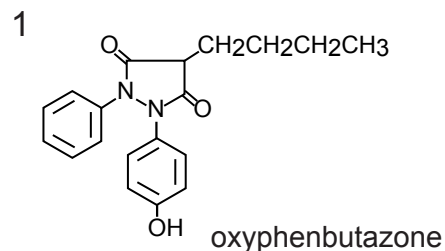
Application

## Nonsteroidal Antiinflammatory Drugs (NSAIDs)

非ステロイド性抗炎症薬



75 x 4.6 mm  
water / MeOH / HCOOH = 30 / 70 / 0.1  
1 mL/min, 37 deg.C, 240 nm, 2 uL(0.5ug)



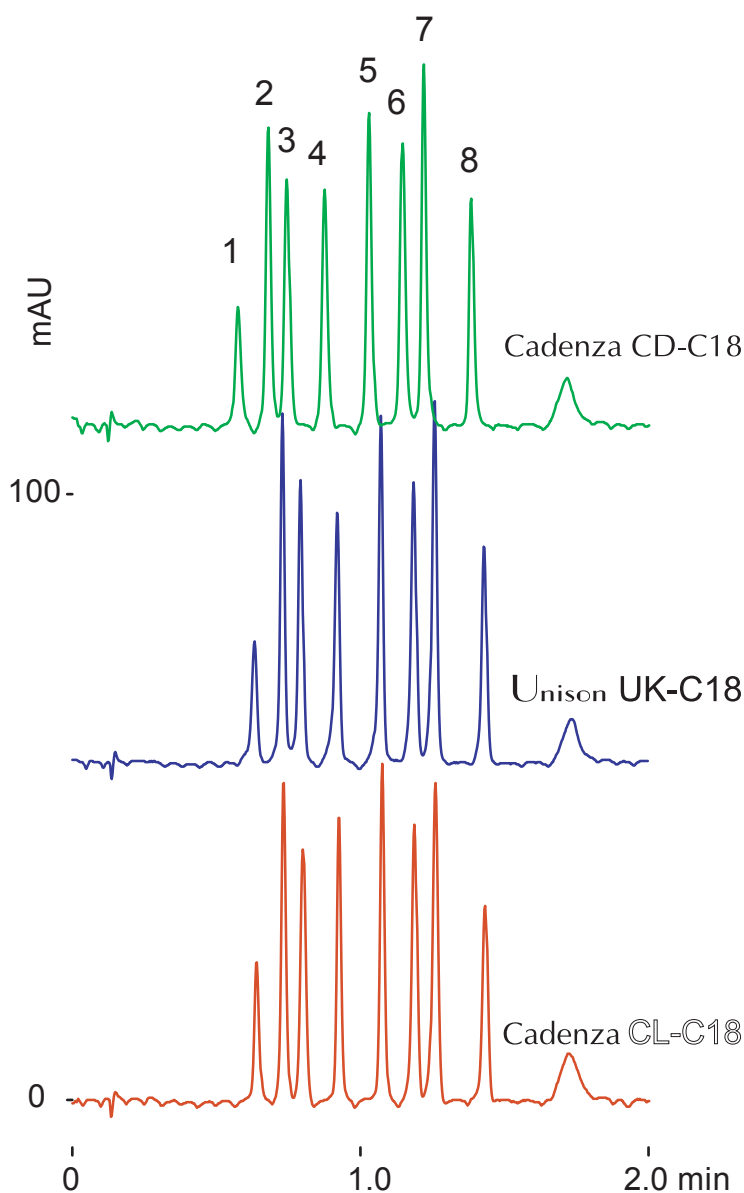
Cadenza CD-C18  
Unison UK-C18  
Cadenza CL-C18

30 x 2 mm

Application

## Sulfonamides

サルファ剤



- 1 NC1=CC=C(S(=O)(=O)NC2=CN=CN=C2)C=C1  
sulfadiazine
- 2 NC1=CC=C(S(=O)(=O)NC2=CN=CSC2)C=C1  
sulfathiazole
- 3 CC1=CN=C(S(=O)(=O)NC2=CC=C(N)C=C2)N=C1  
sulfamerazine
- 4 CC1=C(C)N=C(S(=O)(=O)NC2=CC=C(N)C=C2)N=C1  
sulfamethazine (sulfadimidin)
- 5 COC1=CC=C(S(=O)(=O)NC2=CN=CN=C2)N=C1  
sulfamonomethoxine
- 6 CC1=C(C)O=C(S(=O)(=O)NC2=CC=C(N)C=C2)N1  
sulfamethoxazole
- 7 CC1=C(C)N=C(S(=O)(=O)NC2=CC=C(N)C=C2)O1  
sulfisoxazole
- 8 NC1=CC=C(S(=O)(=O)NC2=CN3C=CC=CC=C3N2)C=C1  
sulfaminoxaline

30 x 2 mm

A: water / acetic acid = 100 / 0.1

B: acetonitrile / acetic acid = 100 / 0.1

8%B (0-0.05min), 8-40%B (0.05-1.5min)

0.8 mL/min, 37 deg.C, 280 nm, 1uL (20-50ng)

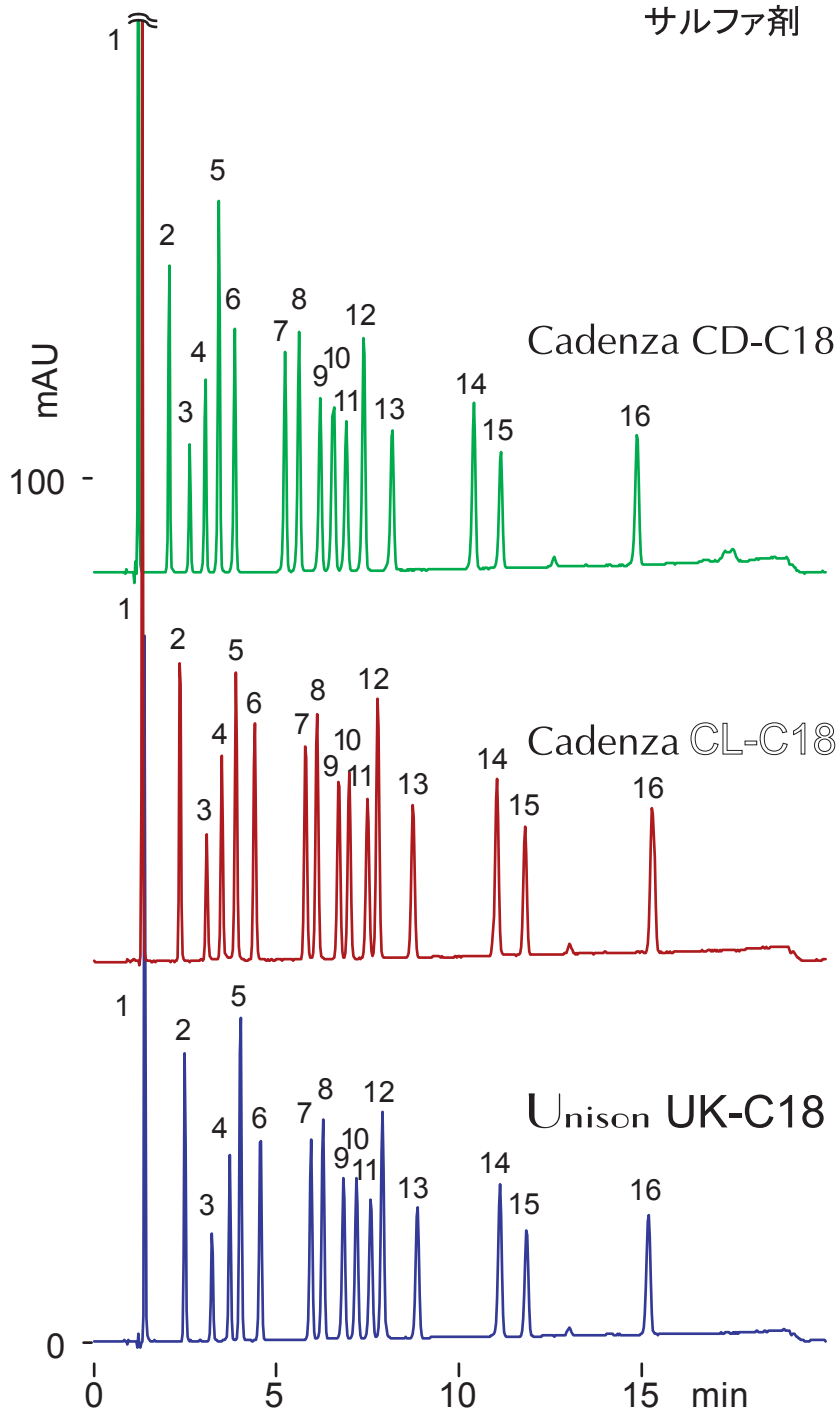
Cadenza CD-C18  
Cadenza CL-C18  
Unison UK-C18

75 x 4.6 mm

Application

**Sulfonamides**

サルファ剤



75 x 4.6 mm

A: water / acetic acid = 100 / 0.1

B: methanol / acetic acid = 100 / 0.1

15-60 %B (0-18min), 1 mL/min (9MPa)

37 deg.C, 260 nm, 2uL (40-120ng)

- 1 NC(=O)Nc1ccc(N)cc1 sulfanilamide
- 2 CC(=O)Nc1ccc(N)cc1 sulfacetamide
- 3 C1=NC=NC=C1NC(=O)Nc2ccc(N)cc2 sulfadiazine
- 4 C1=NC=NC=C1NC(=O)Nc2ccc(N)cc2 sulfathiazole
- 5 C1=CC=NC=C1NC(=O)Nc2ccc(N)cc2 sulfapyridine
- 6 C1=CC=NC=C1NC(=O)Nc2ccc(N)cc2 sulfamerazine
- 7 Cc1c(C)c(C)nc1NC(=O)Nc2ccc(N)cc2 sulfamethazine (sulfadimidin)
- 8 COC1=CC=NC=C1NC(=O)Nc2ccc(N)cc2 sulfamethoxypyridazine
- 9 Clc1ccnnc1NC(=O)Nc2ccc(N)cc2 sulfachloropyridazine
- 10 Cc1ccoc1NC(=O)Nc2ccc(N)cc2 sulfamethoxazole
- 11 COC1=CC=NC=C1NC(=O)Nc2ccc(N)cc2 sulfamonomethoxine
- 12 Cc1c(C)nc1NC(=O)Nc2ccc(N)cc2 sulfisoxazole
- 13 O=C(Nc1ccc(N)cc1)C(=O)Nc2ccc(N)cc2 sulfabenzamide
- 14 COC1=CC=NC=C1NC(=O)Nc2ccc(N)cc2 sulfadimethoxine
- 15 C1=CC=C2C=NC=CC2=C1NC(=O)Nc3ccc(N)cc3 sulfaquinolaxine
- 16 CC(=O)Nc1ccc(S(=O)(=O)Nc2ccc([N+](=O)[O-])cc2)cc1 sulfanitran

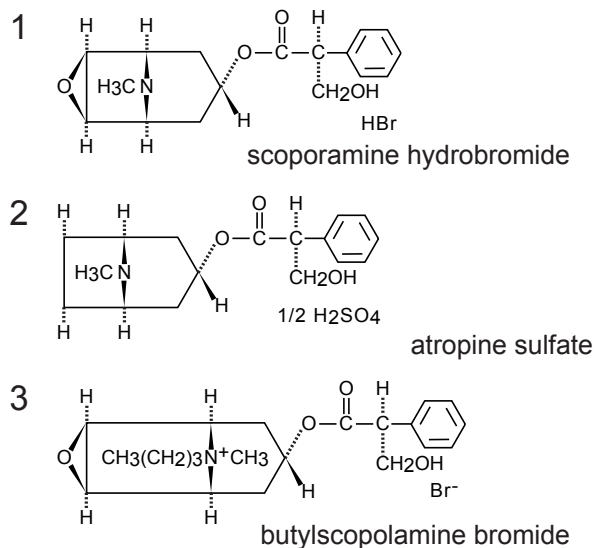
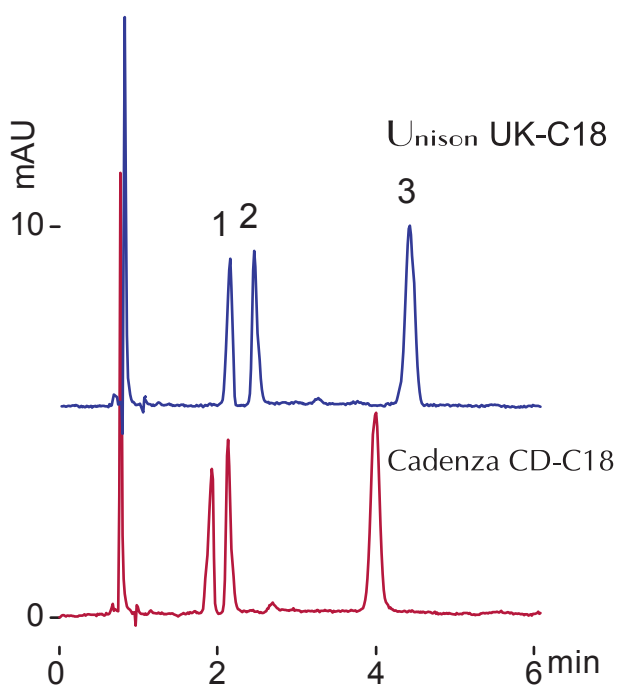
Unison UK-C18  
Cadenza CD-C18

75 x 4.6 mm

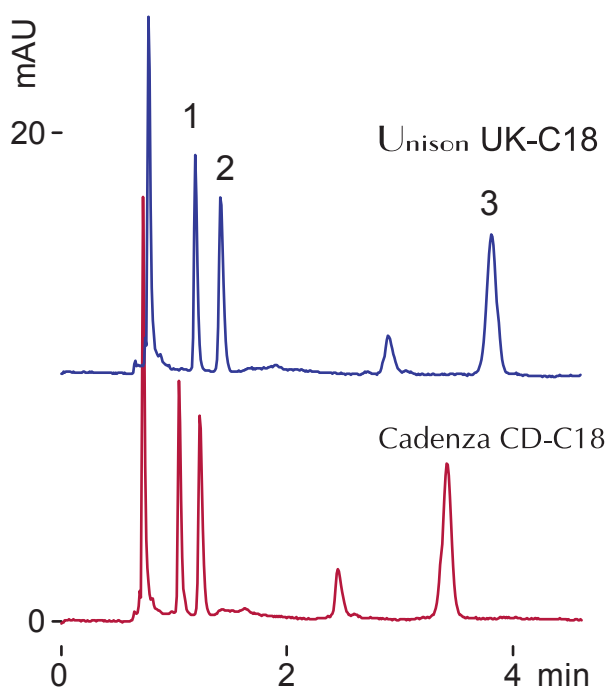
Application

**Parasympatholytics**

副交感神経遮断薬



75 x 4.6 mm  
100mM ammonium formate / acetonitrile  
= 80 / 20  
1 mL/min (6MPa), 37 deg.C, 260 nm  
4uL (1-2ug)



75 x 4.6 mm  
water / acetonitrile / trifluoroacetic acid  
= 70 / 30 / 0.1  
1 mL/min (5MPa), 37 deg.C, 260 nm  
4uL (1-2ug)

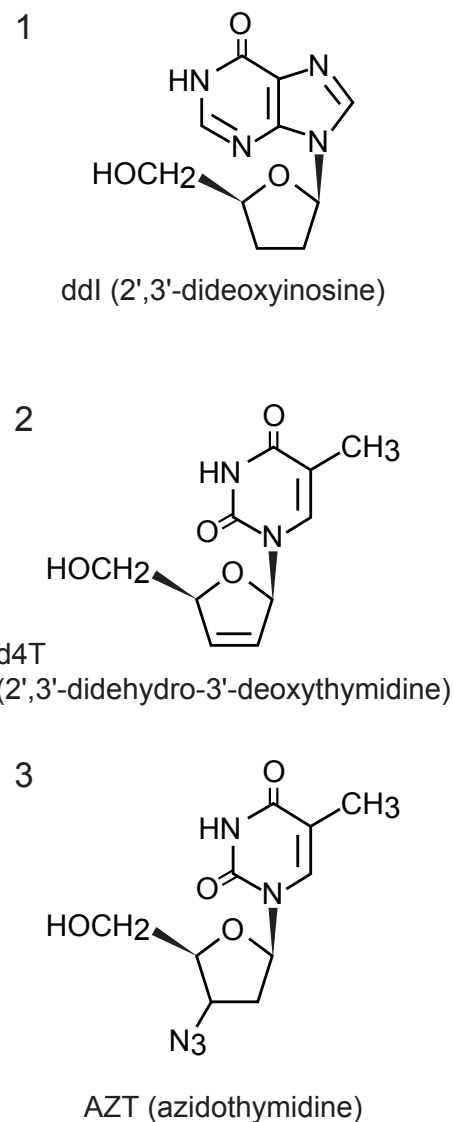
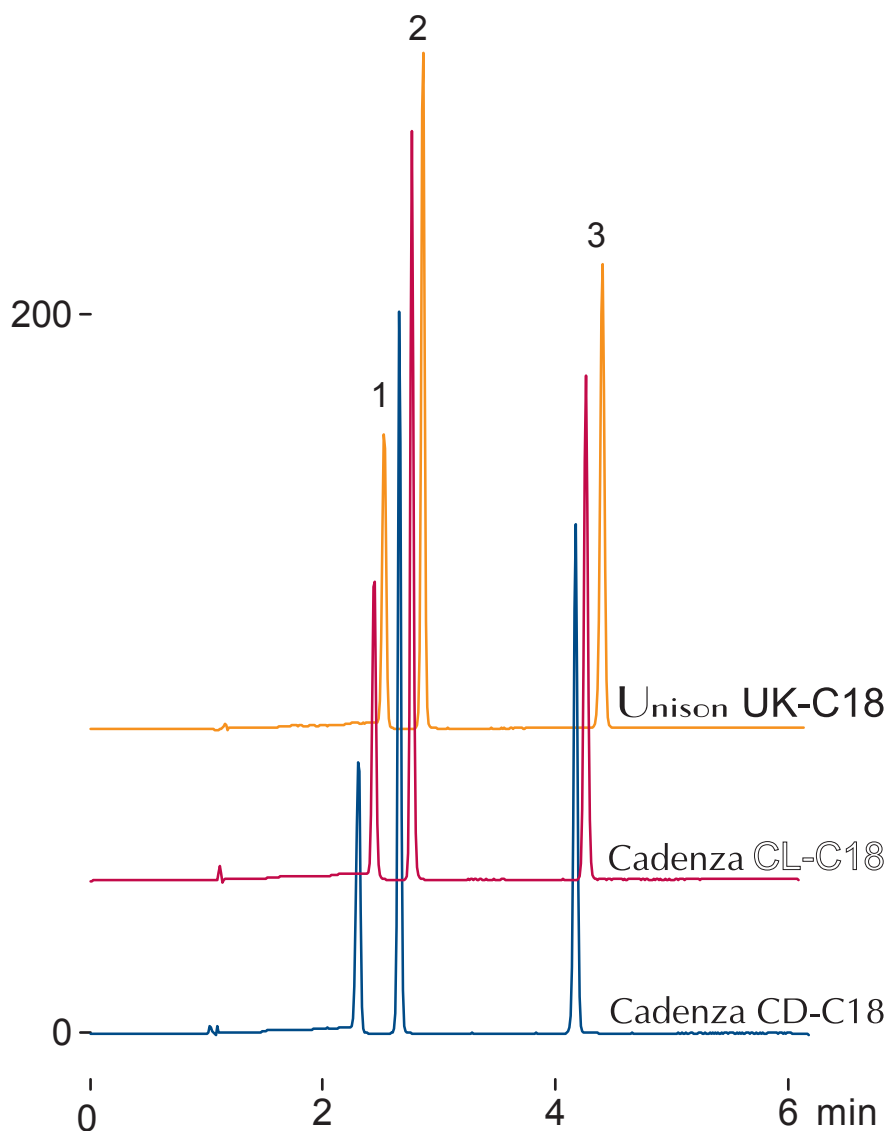
Unison UK-C18  
Cadenza CL-C18  
Cadenza CD-C18

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)

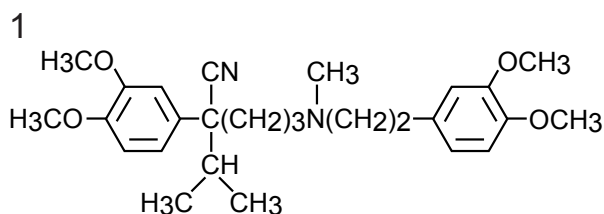
Cadenza **HS-C18**  
 Unison **UK-C18**  
 Cadenza **CD-C18**  
 Cadenza **CL-C18**

150 x 4.6 mm

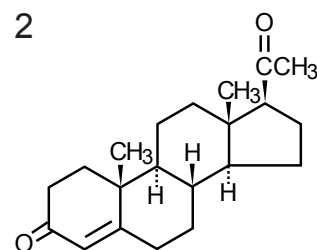
Application

## Verapamil

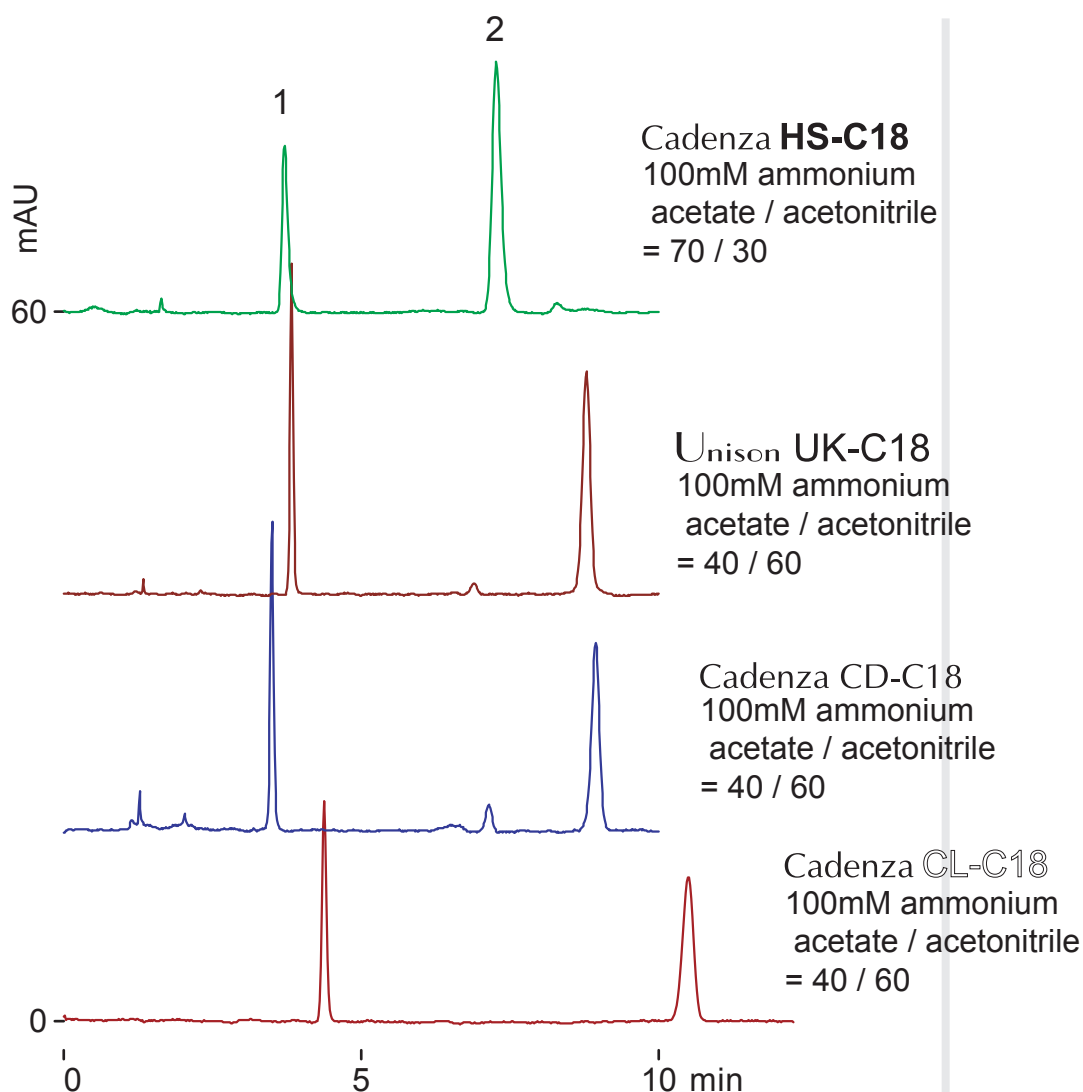
ベラパミル



verapamil



progesterone



150 x 4.6 mm, 1 mL/min, 37 deg.C, 260 nm, 2 uL ( 0.3-1ug )



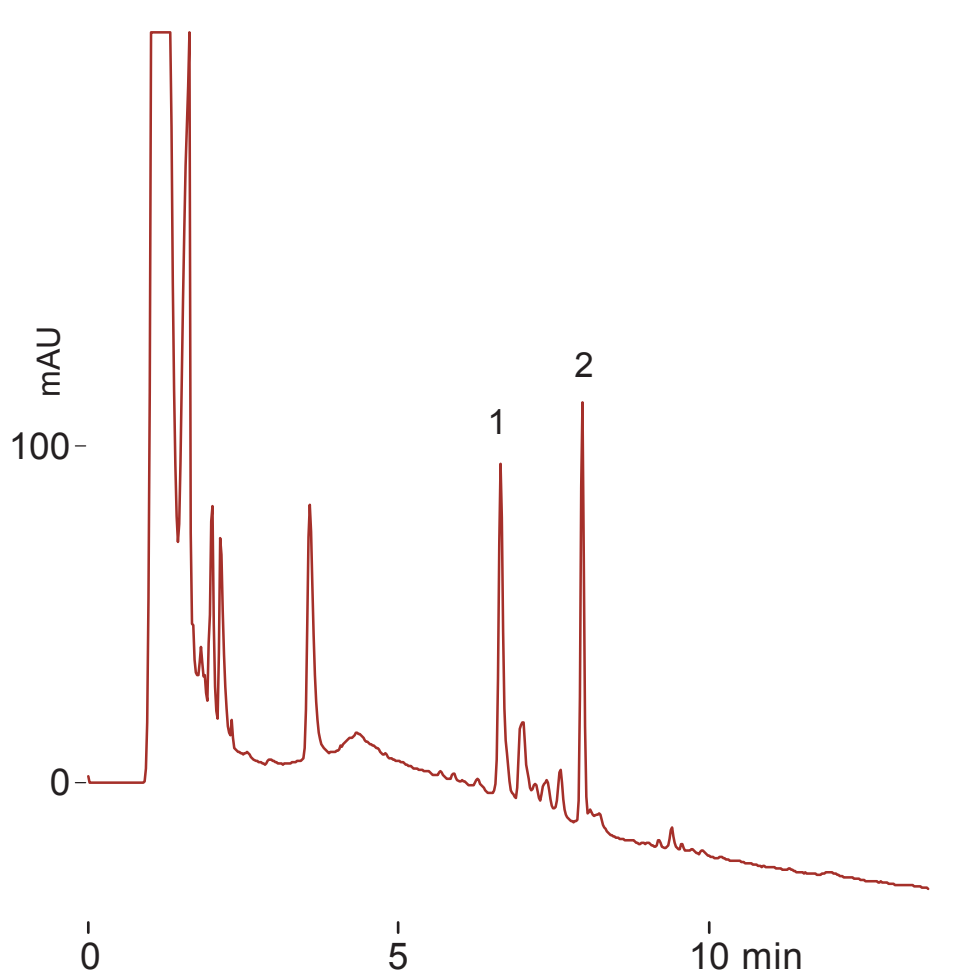
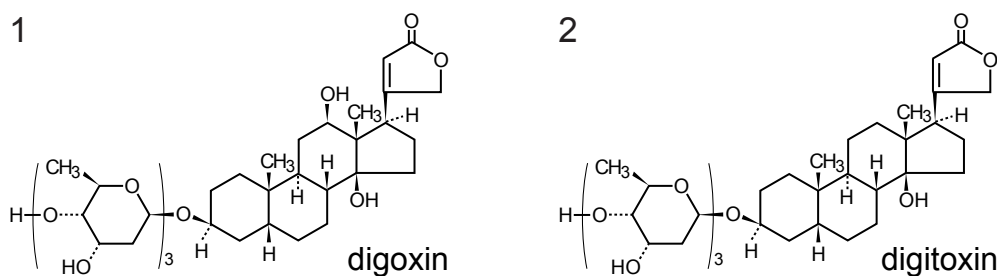
Cadenza **HS-C18**

150 x 3 mm

Application

## Digitalis Glycosides in Bovine Serum

血清中のジギタリス配糖体



Cadenza HS-C18, 150 x 3 mm

A: 10mM ammonium acetate, B: acetonitrile, 0-80%B (0-12min)

0.4 mL/min (10MPa), 37 deg.C, 220 nm, 5uL (0.5ug)

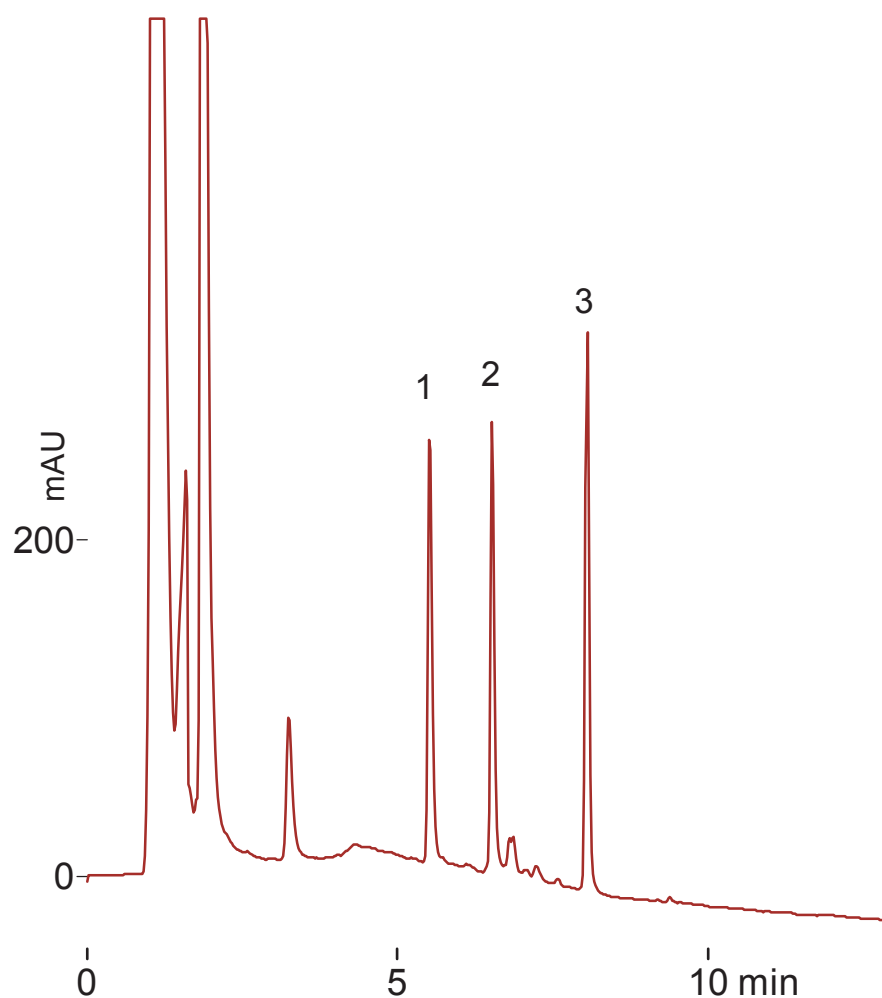
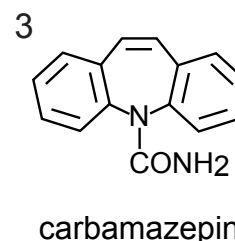
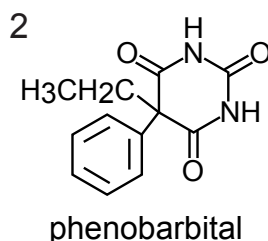
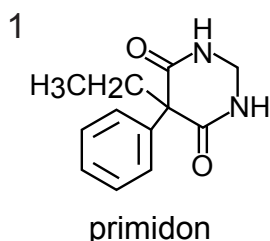
Cadenza **HS-C18**

150 x 3 mm

Application

**Antiepileptics in Bovine Serum**

血清中の抗てんかん薬



Cadenza HS-C18, 150 x 3 mm

A: 10mM ammonium acetate, B: acetonitrile, 0-80%B (0-12min)

0.4 mL/min (10MPa), 37 deg.C, 220 nm, 5 uL (50-150ng)

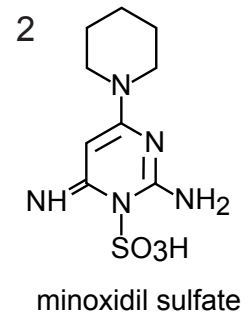
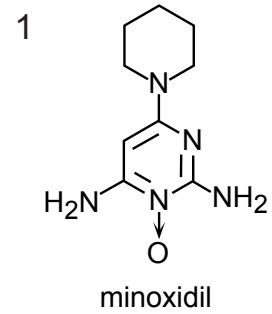
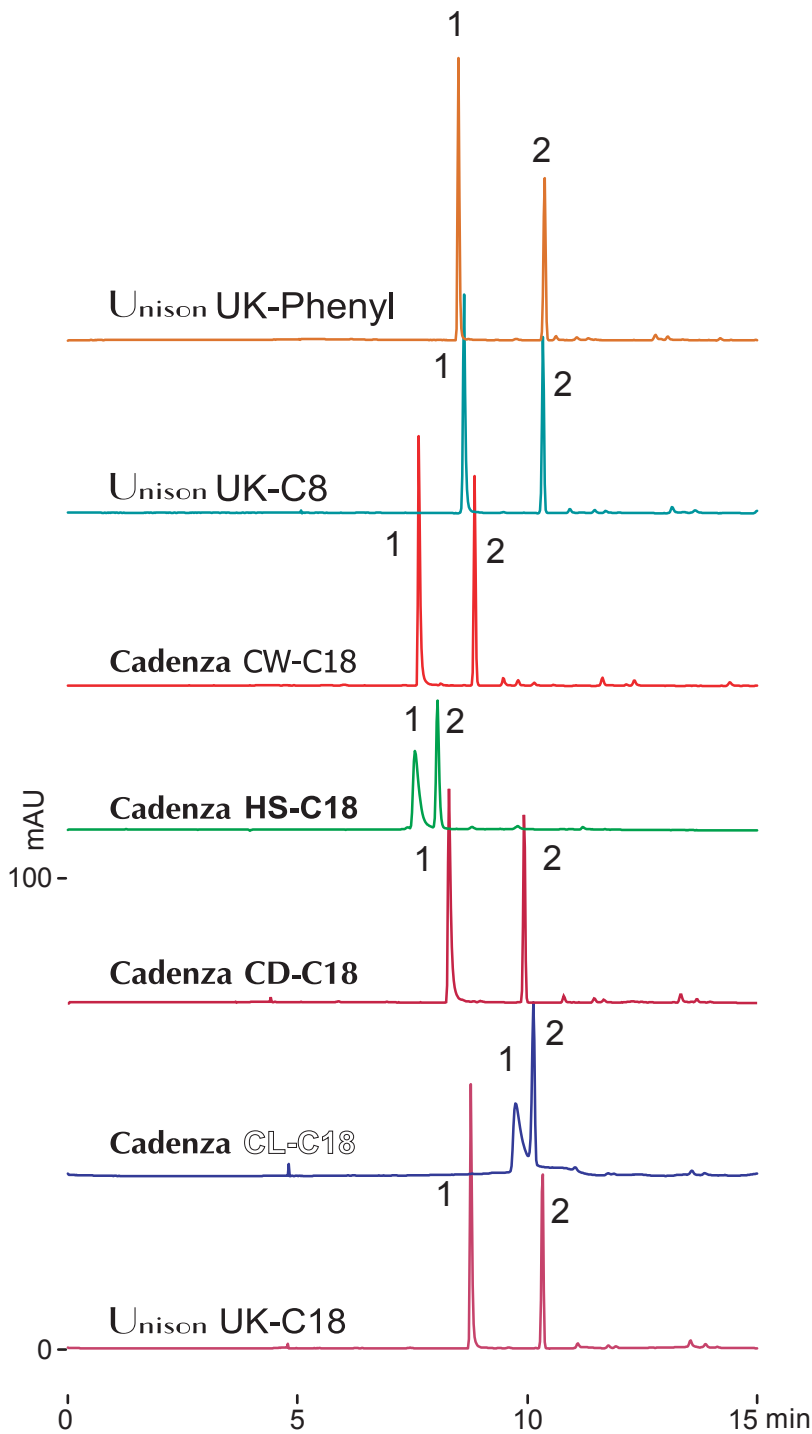
Unison UK-Phenyl  
 Unison UK-C8  
 Cadenza CW-C18  
 Cadenza HS-C18  
 Cadenza CD-C18  
 Cadenza CL-C18  
 Unison UK-C18

150 x 4.6 mm

Application

### Minoxidil and Metabolite

ミノキシジルと代謝物



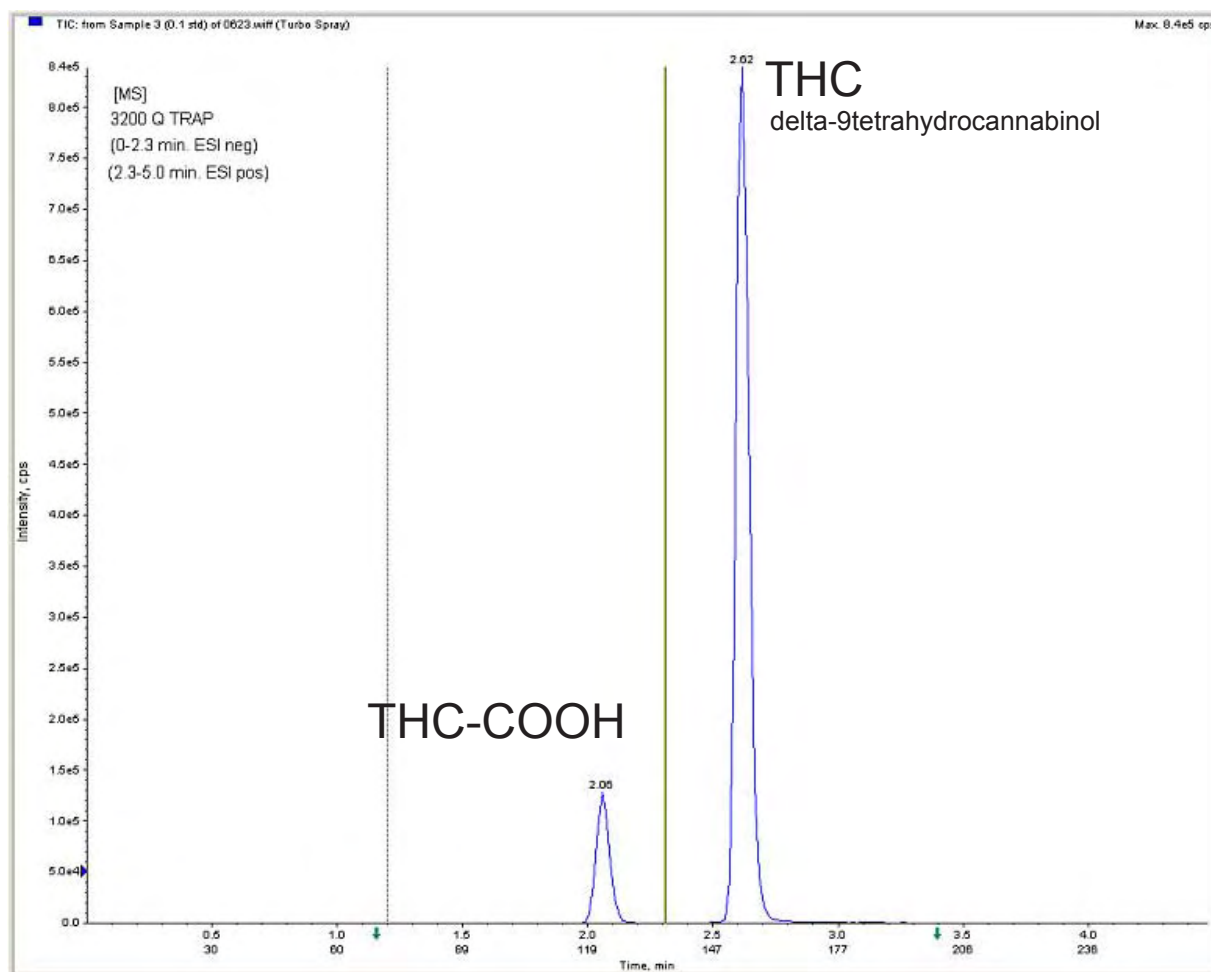
150 x 4.6 mm  
 A: 50mM ammonium acetate  
 B: acetonitrile  
 0-70%B (0-14min)  
 0.8 mL/min, 37 deg.C  
 260 nm, 2uL (0.2-0.6ug)

Unison US-C18

50 x 2 mm

Application

LC-MS/MS Application of Marijuana and its Metabolite in Blood  
 血液中のマリファナ成分と代謝物 (LC-MS/MS)



Unison US-C18, 50 x 2 mm

A: 0.1% HCOOH in water, B: 0.1% HCOOH in acetonitrile  
 50-90%B in 5 min, 0.5 mL/min, 28 deg. C

3200 Q Trap  
 0-2.3 min, ESI Negative, 2.3-5 min, ESI Positive

Whole blood, SPE extraction  
 LOD THC = 0.1ng/mL  
 LOD THC-COOH = 0.5ng/mL

Courtesy of Massachusetts State Crime Lab., USA

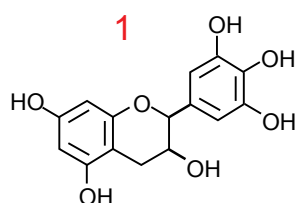
Unison UK-C18

250 x 4.6 mm

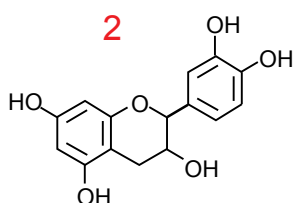
Application

## Catechins and Flavonoids in Black Catechu and Chinese Scullcap

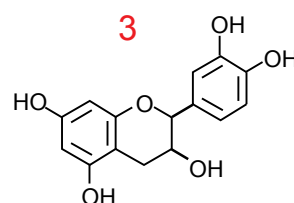
アセンヤクおよびコガネバナ中のカテキンとフラボノイド



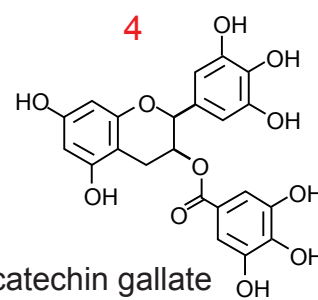
epigallocatechin  
EGC



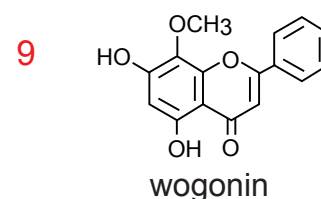
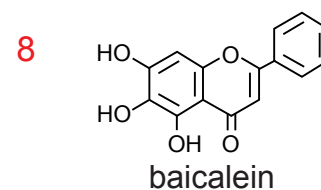
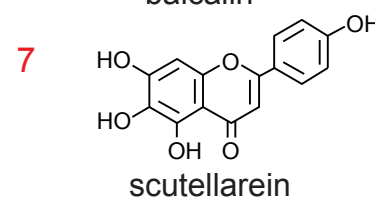
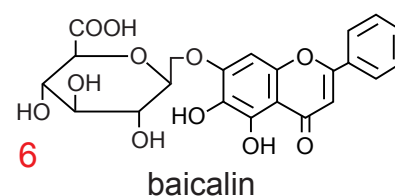
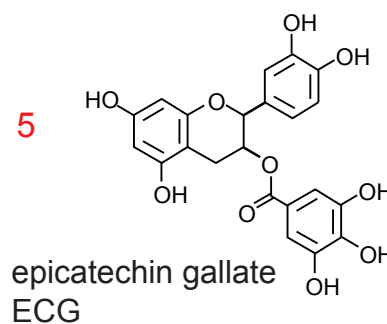
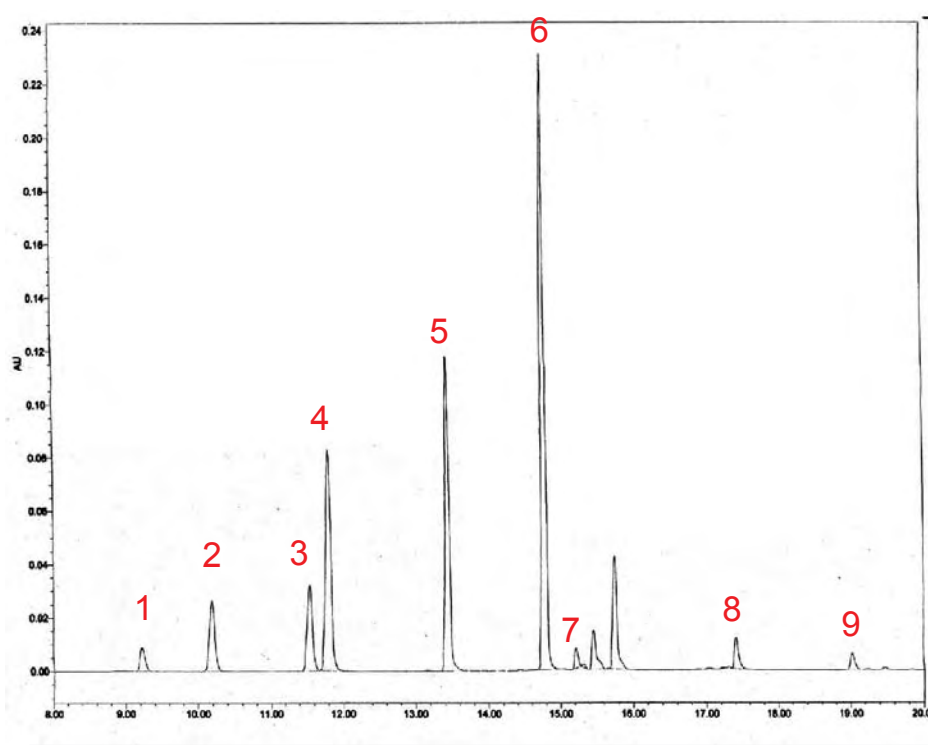
catechin  
C



epicatechin  
EC



epigallocatechin gallate  
EGCG



Unison UK-C18, 250 x 4.6mm

A: 0.125% TFA in water

B: acetonitrile

5-20%B (0-8min), 20-95%B (8-20min)

1.0 mL/min, 45 deg.C

5 uL inj., 2mg/40mL, UV at 280 nm

Courtesy of Perrigo Co., USA

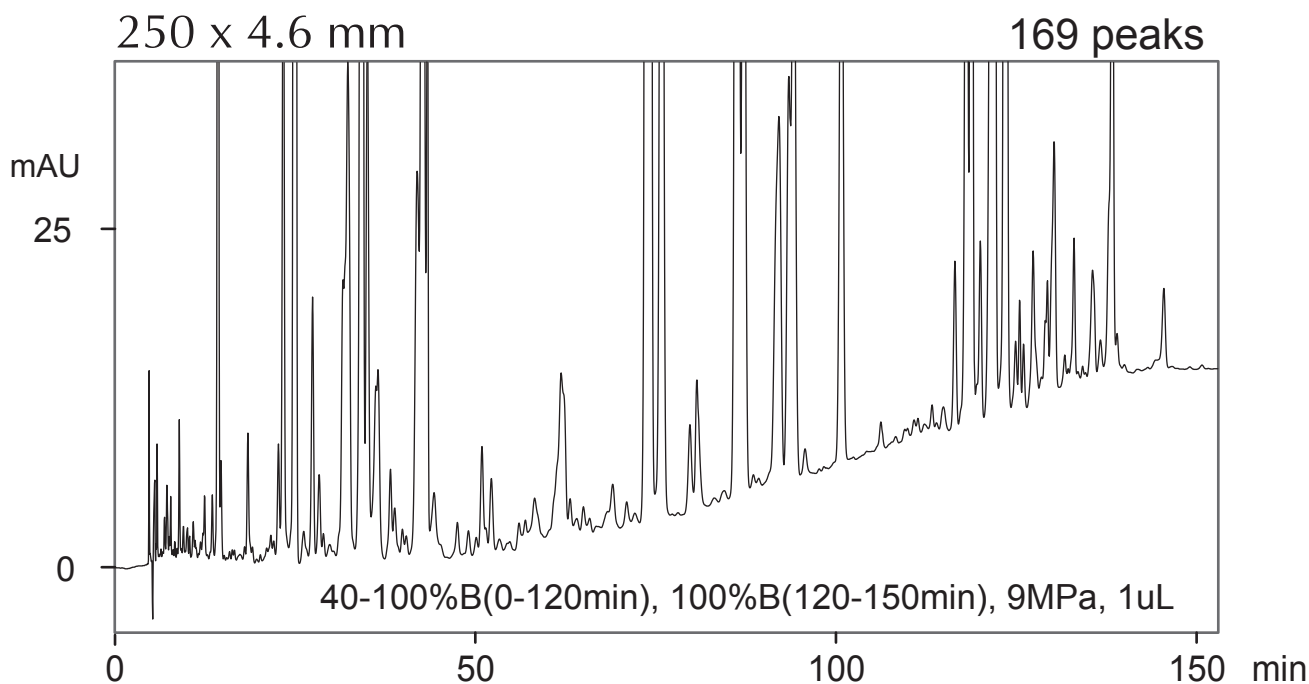
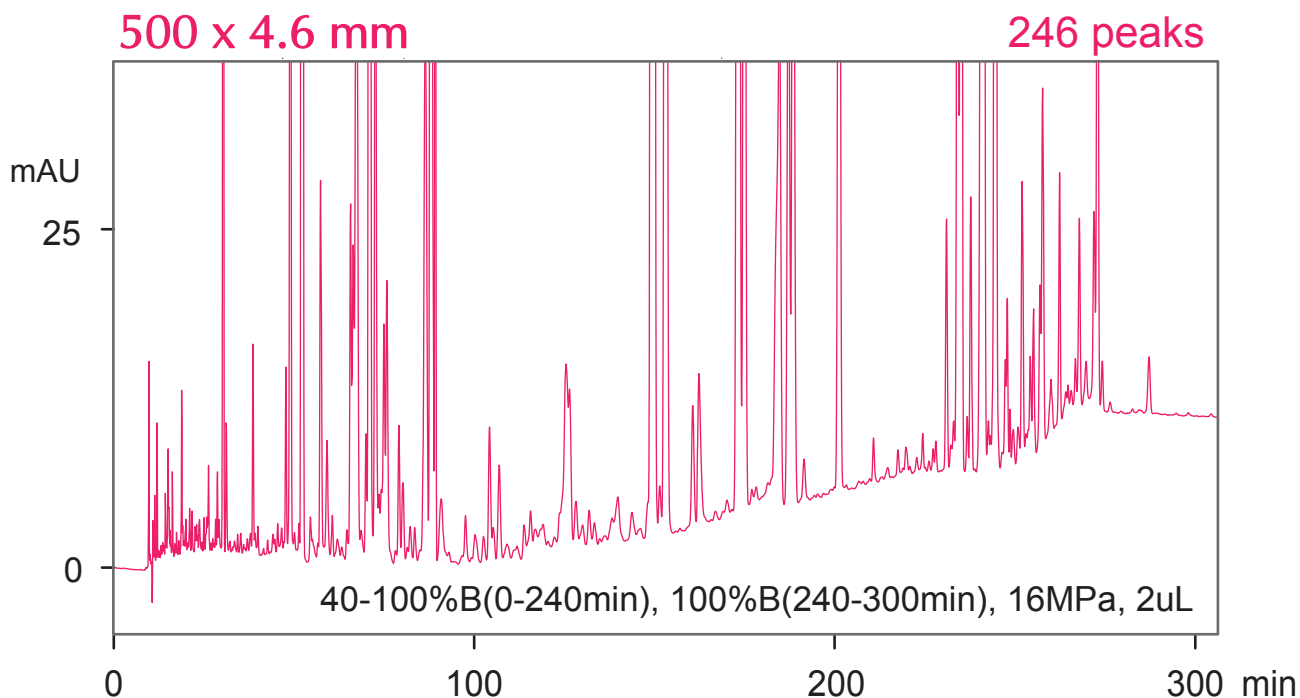
Cadenza CD-C18

500 x 4.6 mm  
250 x 4.6 mm

Application

**Essential Oil (Peppermint)**

エッセンシャルオイル(ペパーミント)



Cadenza CD-C18

A: water / trifluoroacetic acid = 100 / 0.1

B: acetonitrile / trifluoroacetic acid = 100 / 0.1

0.5mL/min, room temp., 220 nm

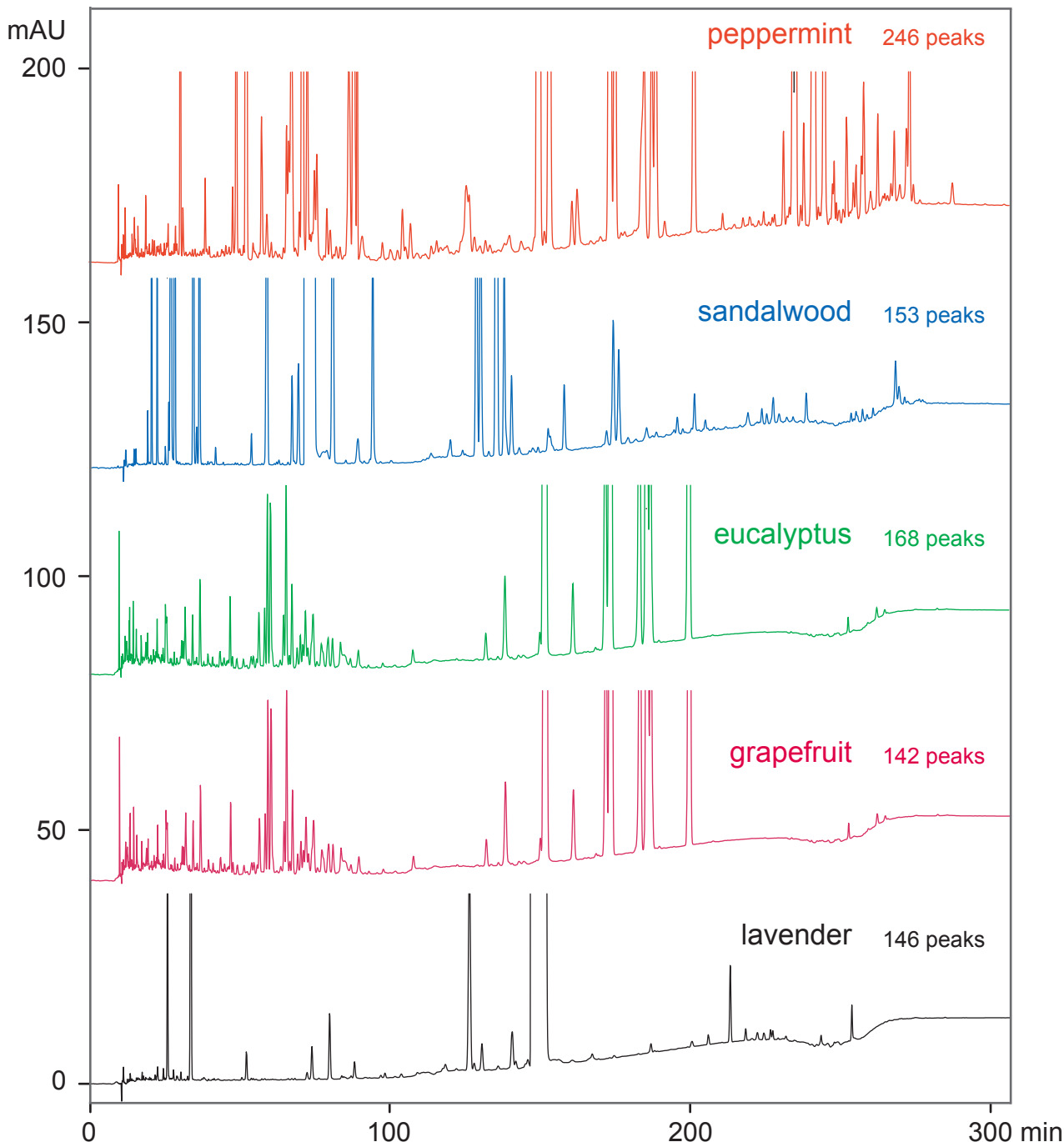
Cadenza CD-C18

500 x 4.6 mm

Application

**Essential Oils**

エッセンシャルオイル



Cadenza CD-C18, 500 x 4.6 mm  
 A: water / trifluoroacetic acid = 100 / 0.1  
 B: acetonitrile / trifluoroacetic acid = 100 / 0.1  
 40-100%B(0-240min), 100%B(240-300min)  
 0.5mL/min (16MPa), room temp., 220 nm, 2uL

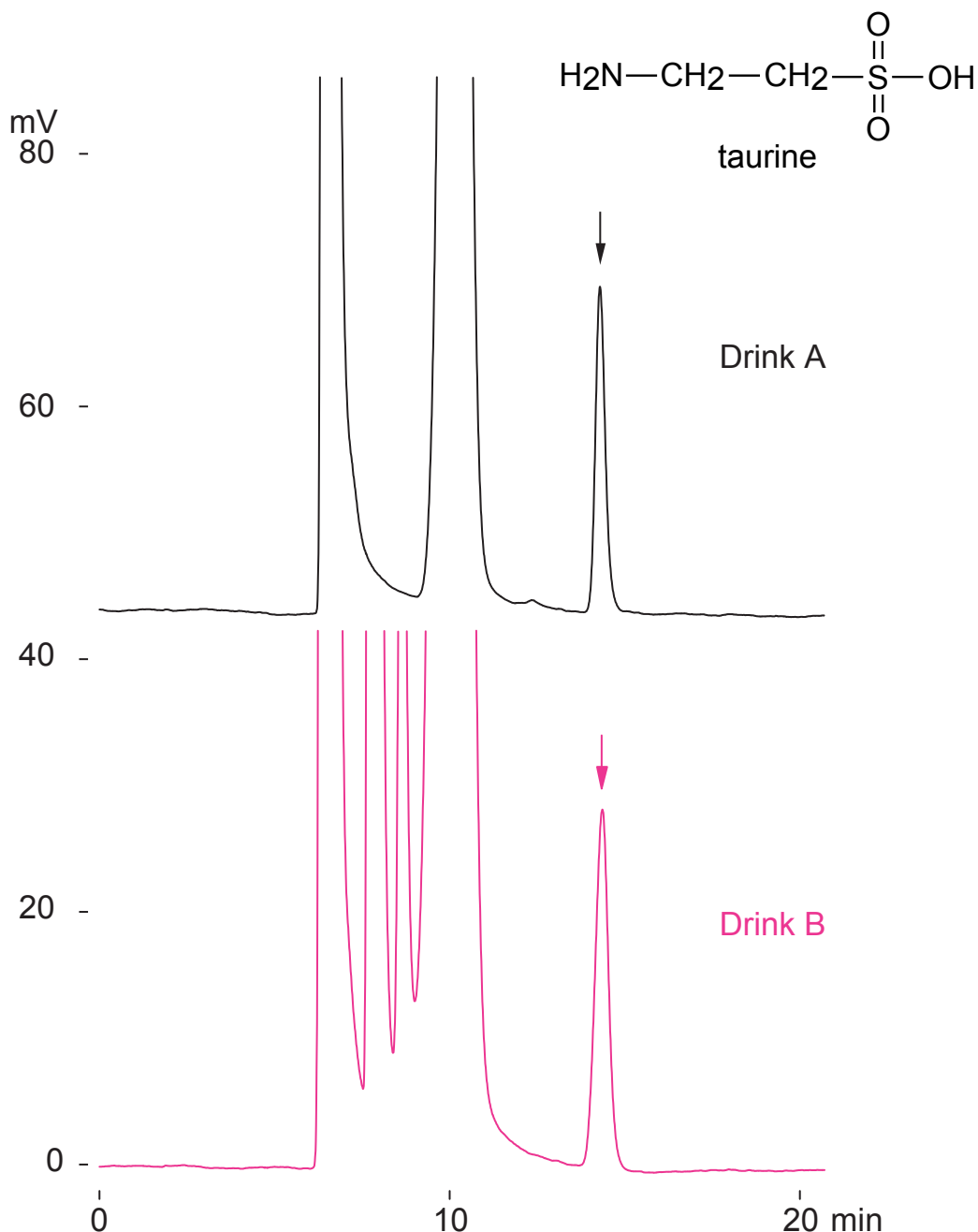
Unison UK-Amino

100 x 3 mm

Application

## Taurine in Nutritious Supplement Drink

栄養ドリンク剤中のタウリン



Unison UK-Amino, 100 x 3 mm

A: acetonitrile, B: 100mM ammonium acetate

11%B(0-20min), 100%B(20-25min)

0.4 mL/min (3MPa), 37 deg.C, ELSD

1uL(diluted by adding 100mM ammonium acetate)



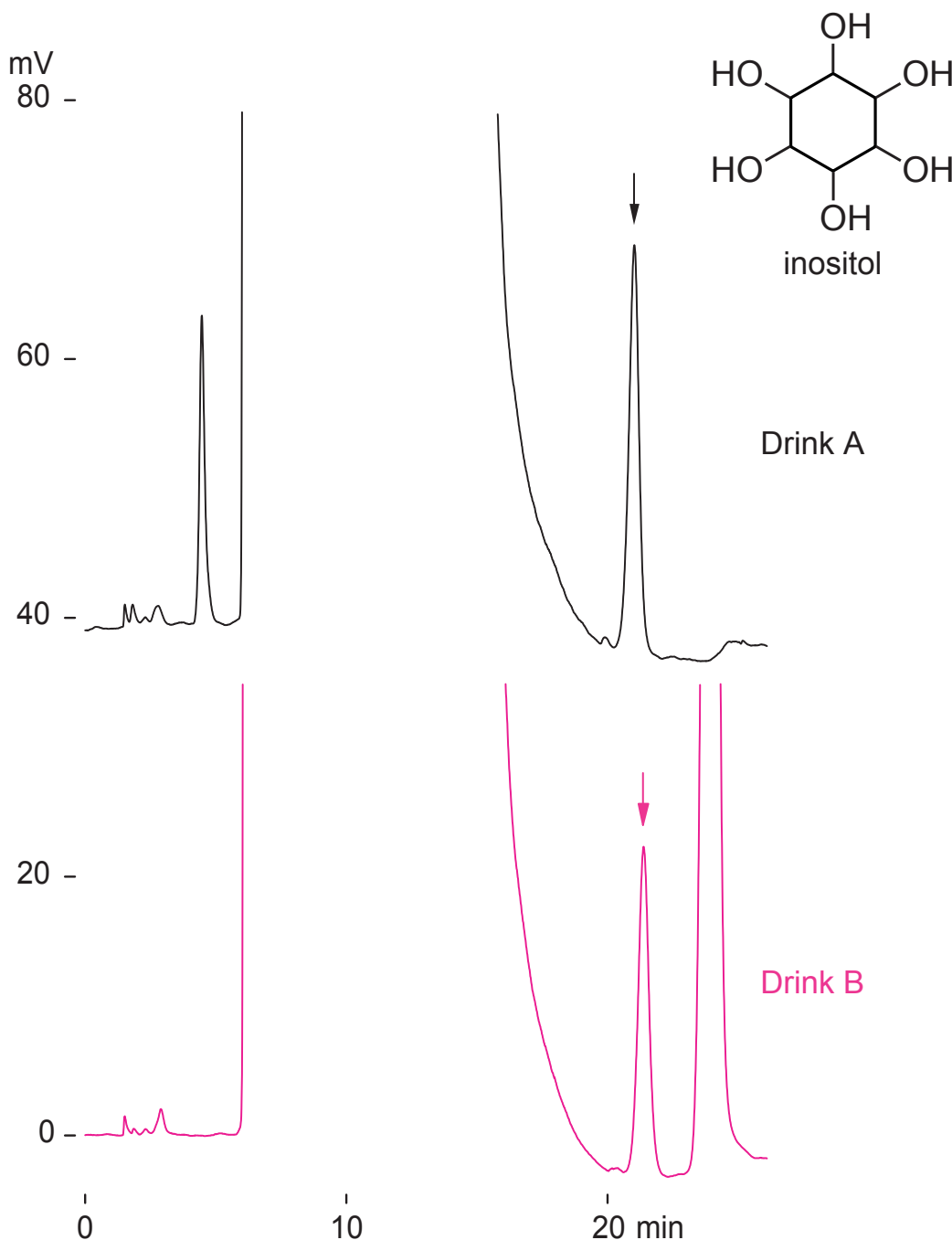
Unison UK-Amino

100 x 3 mm

Application

## Inositol in Nutritious Supplement Drink

栄養ドリンク剤中のイノシトール



Unison UK-Amino, 100 x 3 mm

A: acetonitrile, B: 100mM ammonium acetate

11%B(0-20min), 100%B(20-25min)

0.4 mL/min (3MPa), 37 deg.C, ELSD, 3uL

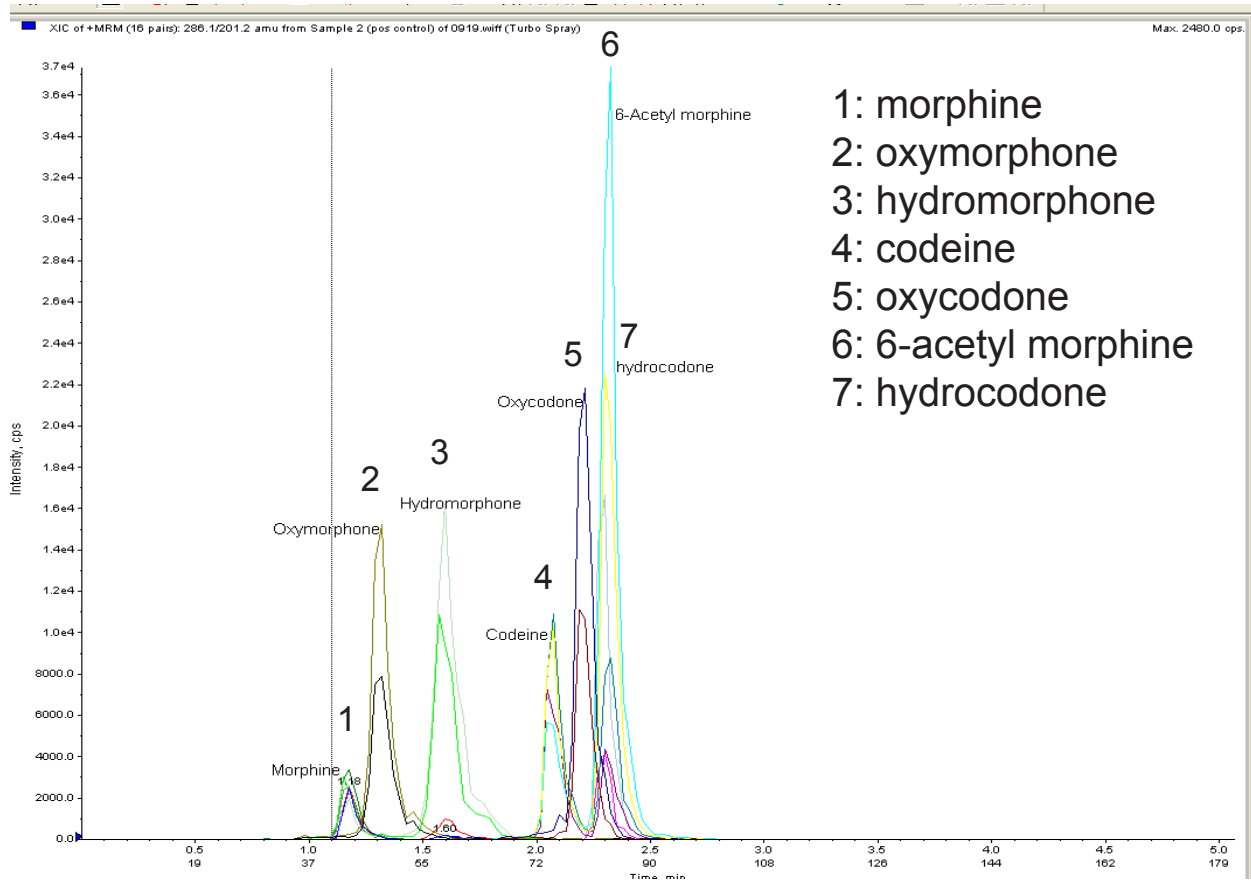
Unison US-C18

50 x 2 mm

Application

## LC-MS/MS Application of Opiates in Whole Blood

血液中の麻薬性鎮痛剤 (LC-MS/MS)



Unison US-C18, 50 x 2 mm

A: 0.1% HCOOH in Water  
 B: 0.1% HCOOH in Acetonitrile  
 5%B (0-0.5min)  
 5-25%B (0.5-2.0min)  
 25-90%B (2.0-3.5 min)  
 90%B (3.5-3.6 min)  
 0.6 mL/min, 28 deg. C

3200 Q-Trap, ESI Positive  
 Whole blood, SPE Extraction  
 LOD = 0.5ng/mL; LOQ = 1.0ng/mL

Courtesy of Massachusetts State Crime Lab., USA

Unison UK-Amino

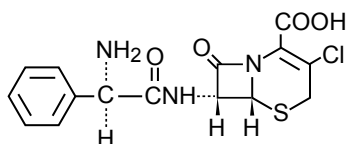
Unison UK-C18

50 x 3 mm

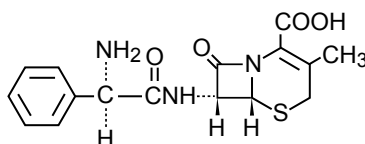
Application

### Cephem Antibiotics

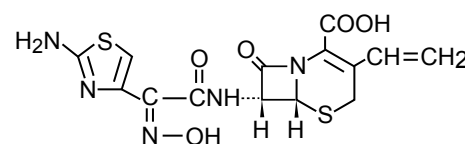
セフェム系抗生物質



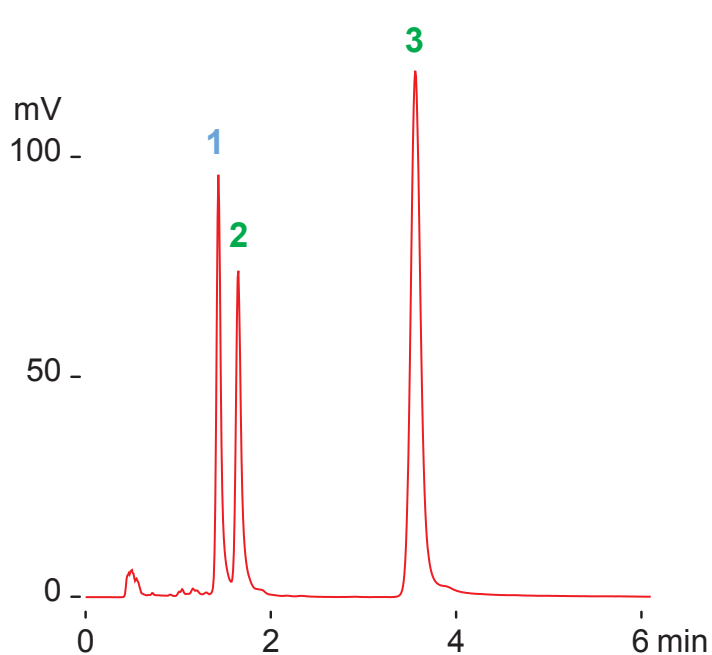
1 cefaclor



2 cefalexin

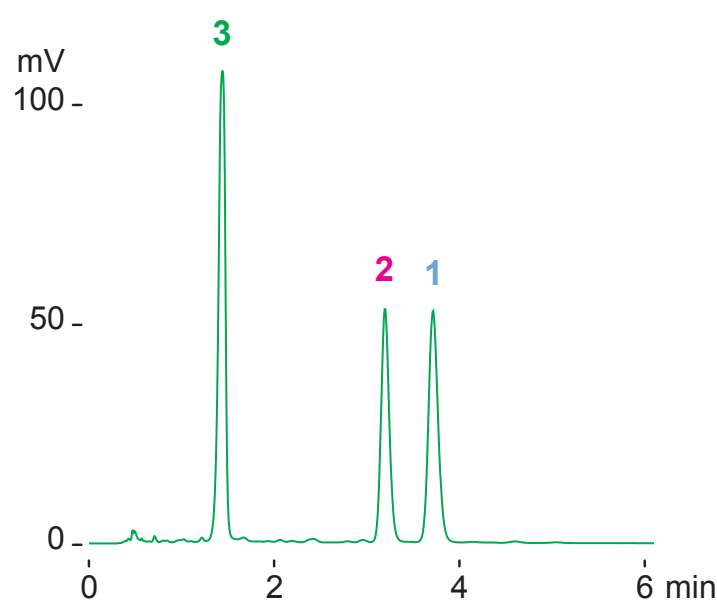


3 cefdinir



**normal phase**

Unison UK-Amino, 50 x 3 mm  
acetonitrile / 50mM CH<sub>3</sub>COONH<sub>4</sub>  
= 80 / 20  
0.6mL/min (3MPa), 37deg.C  
260nm, 0.4uL (0.05-0.3ug)



**reversed phase**

Unison UK-C18, 50 x 3 mm  
50mM CH<sub>3</sub>COONH<sub>4</sub> / acetonitrile  
= 92 / 8  
0.6mL/min (6MPa), 37deg.C  
260nm, 0.4uL (0.03-0.3ug)

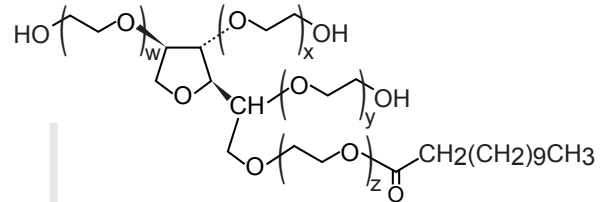
Cadenza HS-C18

50 x 3 mm

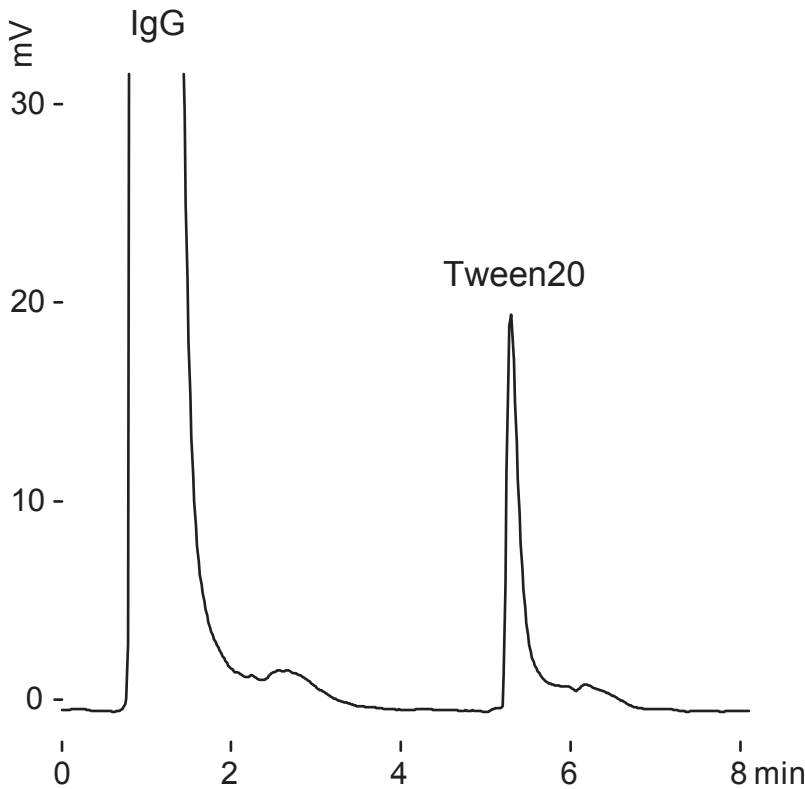
Application

## Tween 20 in IgG Aqueous Solution

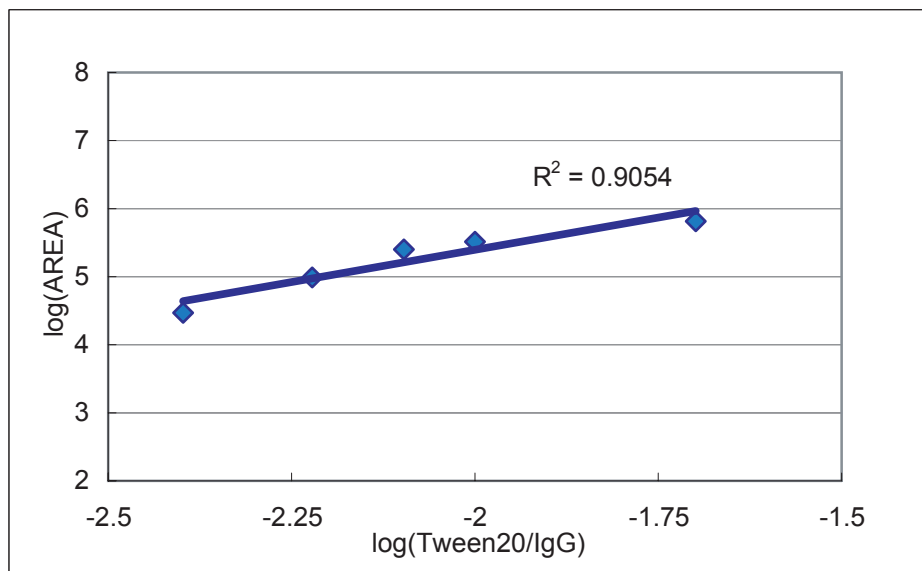
IgG 水溶液中のTween20



Tween20



Cadenza HS-C18, 50 x 3 mm  
 A: water, B: tetrahydrofuran  
 0%B(0-3min), 0-80%B(3-5min)  
 0.3 mL/min, 37 deg.C, ELSD  
 5 uL  
 (IgG: 25ug, Tween20: 0.25ug)



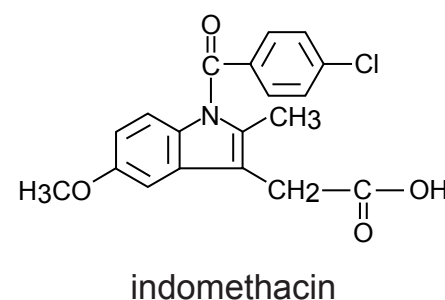
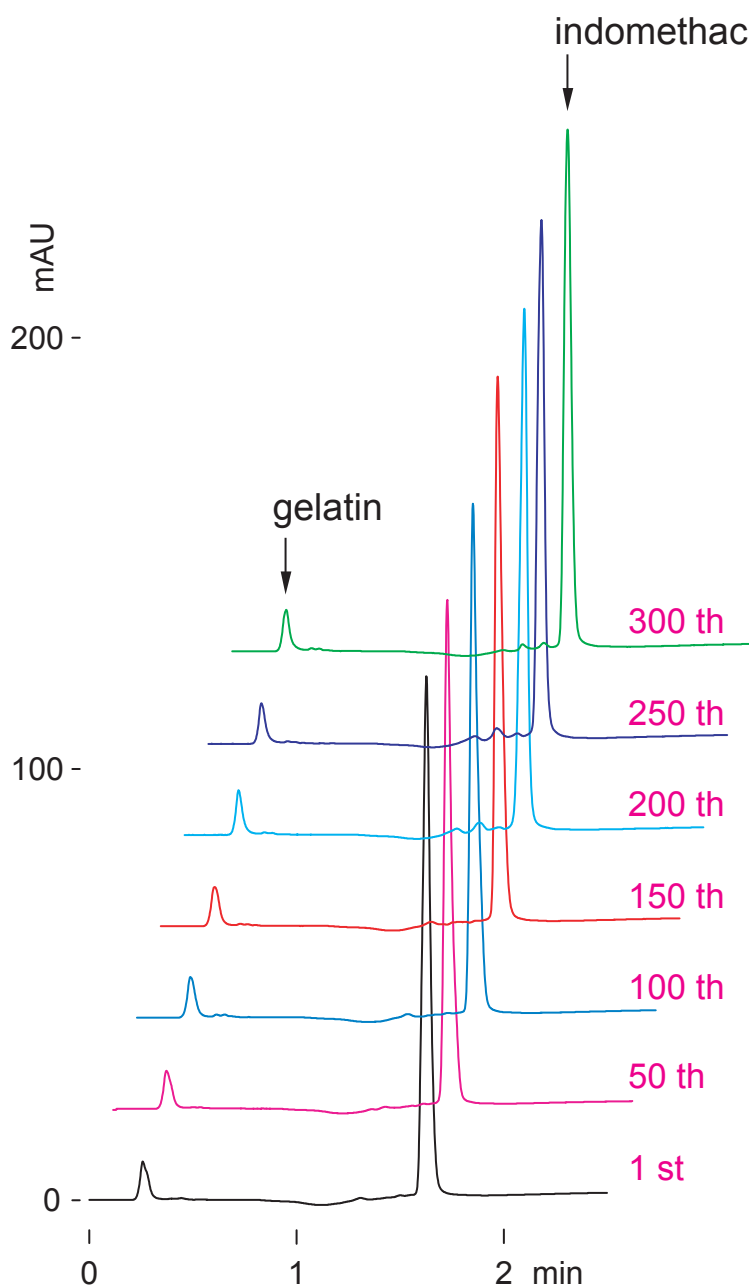
Cadenza HS-C18

30 x 3 mm

Application

## Indomethacin in Gelatin Aqueous Solution

ゼラチン水溶液中のインドメタシン



Run No.	N(indo)	Pressure MPa
1	9300	2.6
50	10500	2.6
100	9700	2.6
150	10400	2.6
200	9900	2.6
250	9600	2.6
300	9700	2.7

Cadenza HS-C18, 30 x 3mm

A: water /formic acid = 100 /0.1, B: acetonitrile /formic acid = 100 /0.1

0-90%B (0-2min), 0.4mL/min (3MPa), 37deg.C, 260nm

1uL (indomethacin: 0.1ug, gelatin: 5ug)

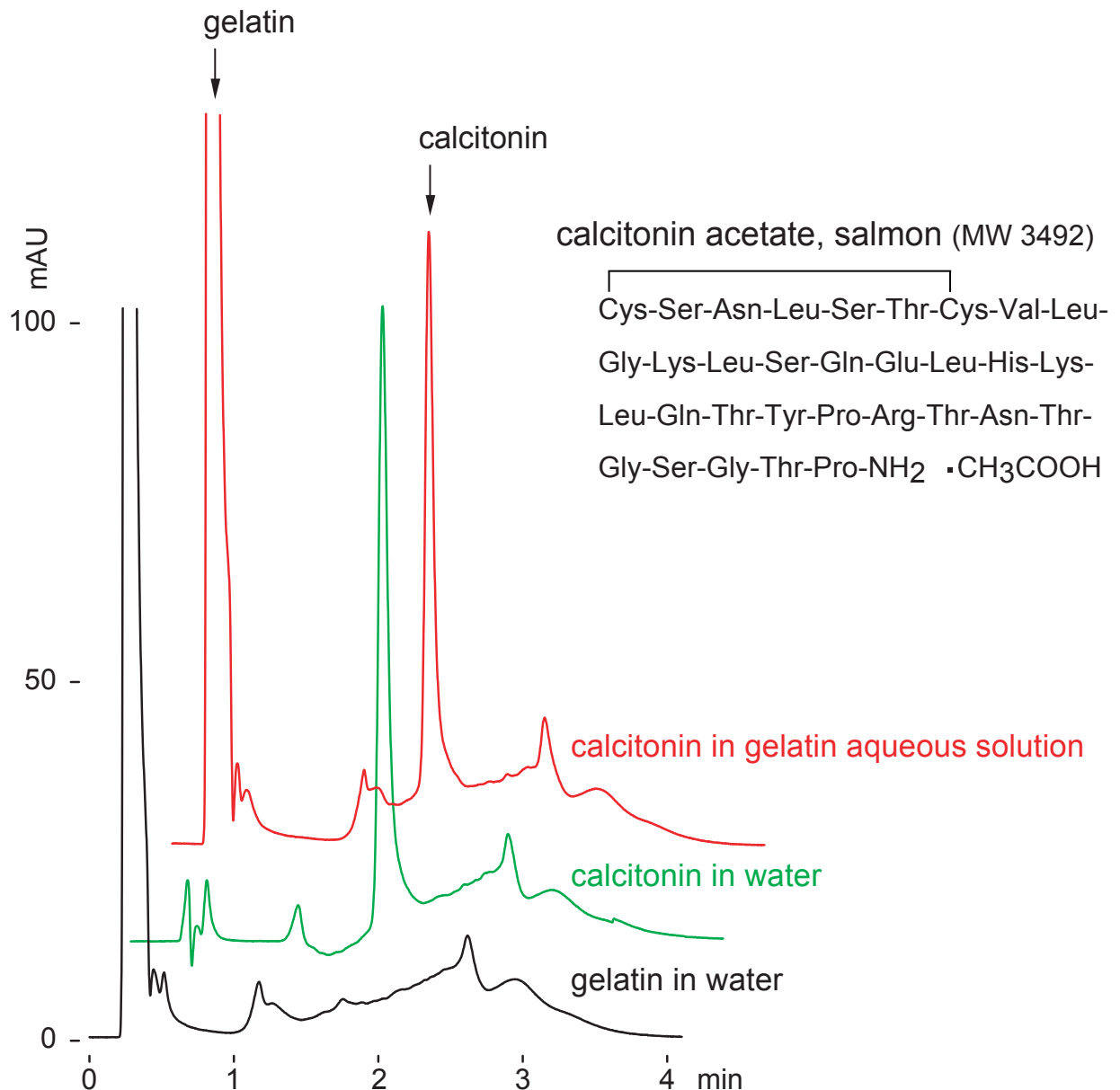
Cadenza HS-C18

30 x 3 mm

Application

## Calcitonin in Gelatin Aqueous Solution

ゼラチン水溶液中のカルシトニン



Cadenza HS-C18, 30 x 3mm

A: water /trifluoroacetic acid = 100 /0.1

B: acetonitrile /trifluoroacetic acid = 100 /0.07

0-45%B (0-2min), 0.4mL/min (3MPa), 37deg.C, 220nm  
2uL (calcitonin: 1ug, gelatin: 10ug)

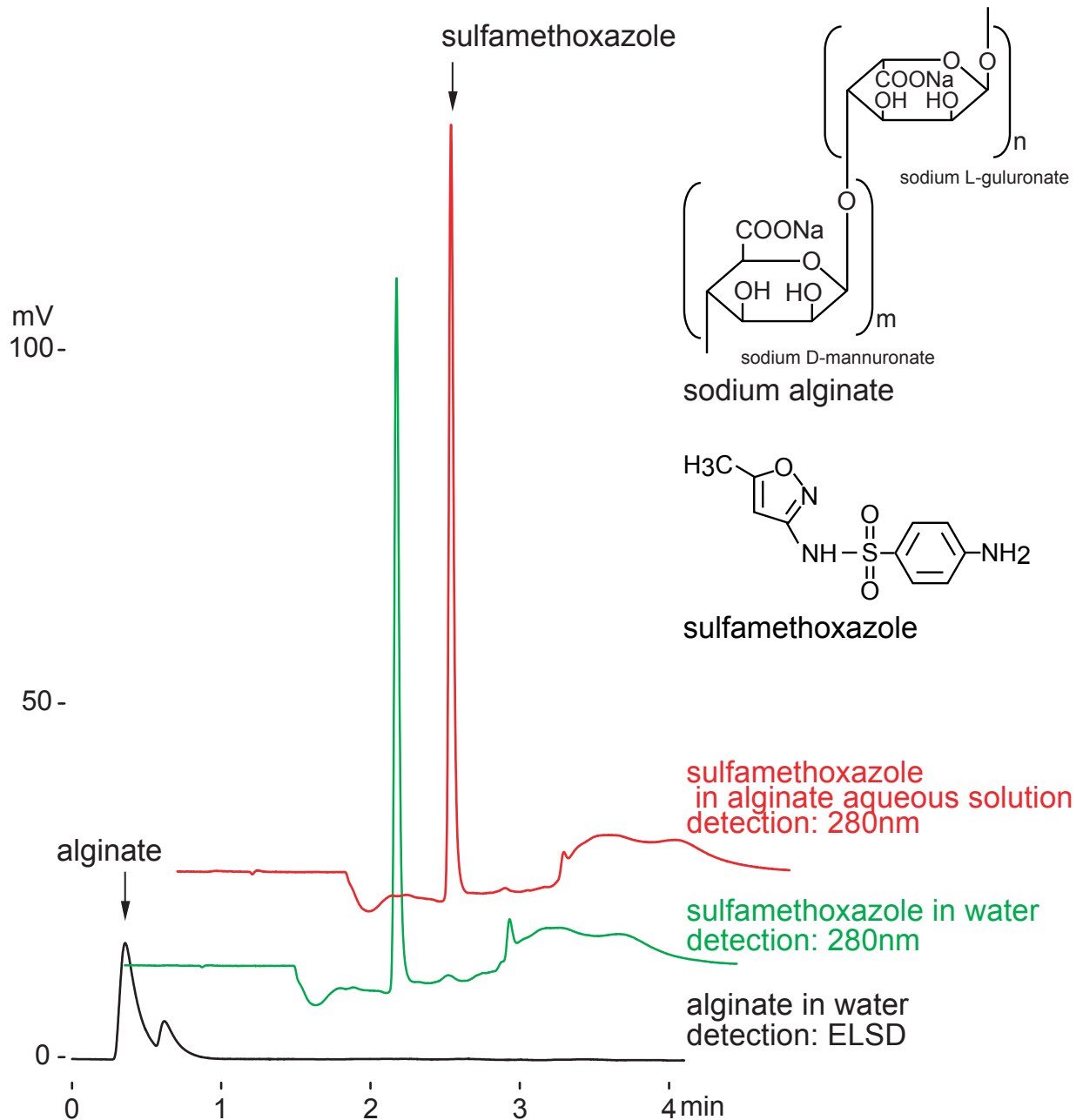
Cadenza HS-C18

30 x 3 mm

Application

## Sulfamethoxazole in Alginate Aqueous Solution

アルギン酸ナトリウム水溶液中のスルファメトキサゾール



Cadenza HS-C18, 30 x 3mm

A: 10mM TFA-ammonium

B: acetonitrile

0-50%B (0-2min), 0.4mL/min (3MPa), 37deg.C

0.8uL (sulfamethoxazole: 0.08ug, alginate: 0.8ug)

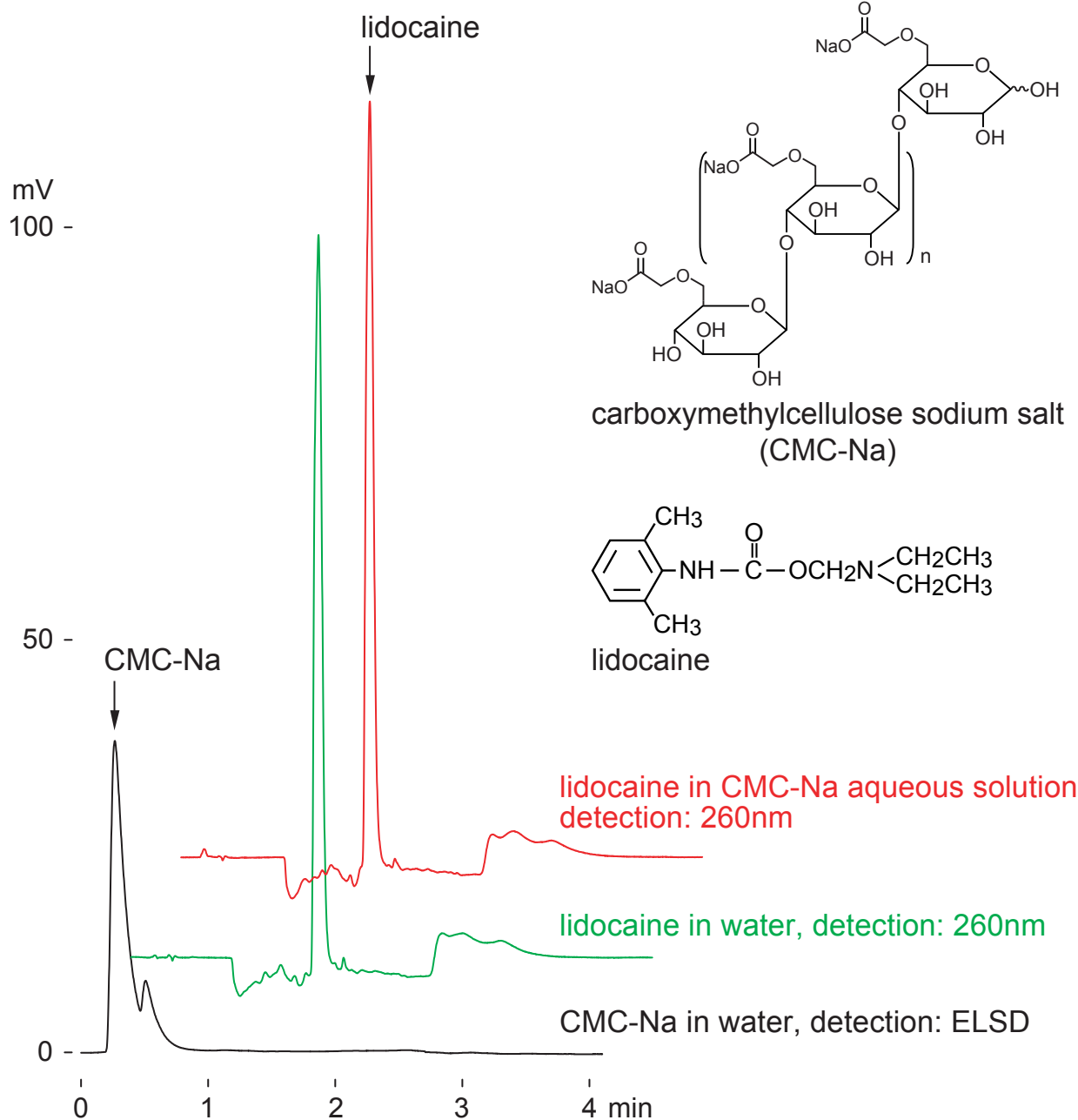
Cadenza HS-C18

30 x 3 mm

Application

### Lidocaine in CMC-Na Aqueous Solution

カルボキシメチルセルロース水溶液中のリドカイン



Cadenza HS-C18, 30 x 3mm

A: 10mM ammonium acetate

B: acetonitrile

0-70 %B (0-2min), 0.6 mL/min (5MPa), 37 deg.C

1.5 uL (lidocaine: 5ug, CMC-Na: 2ug)



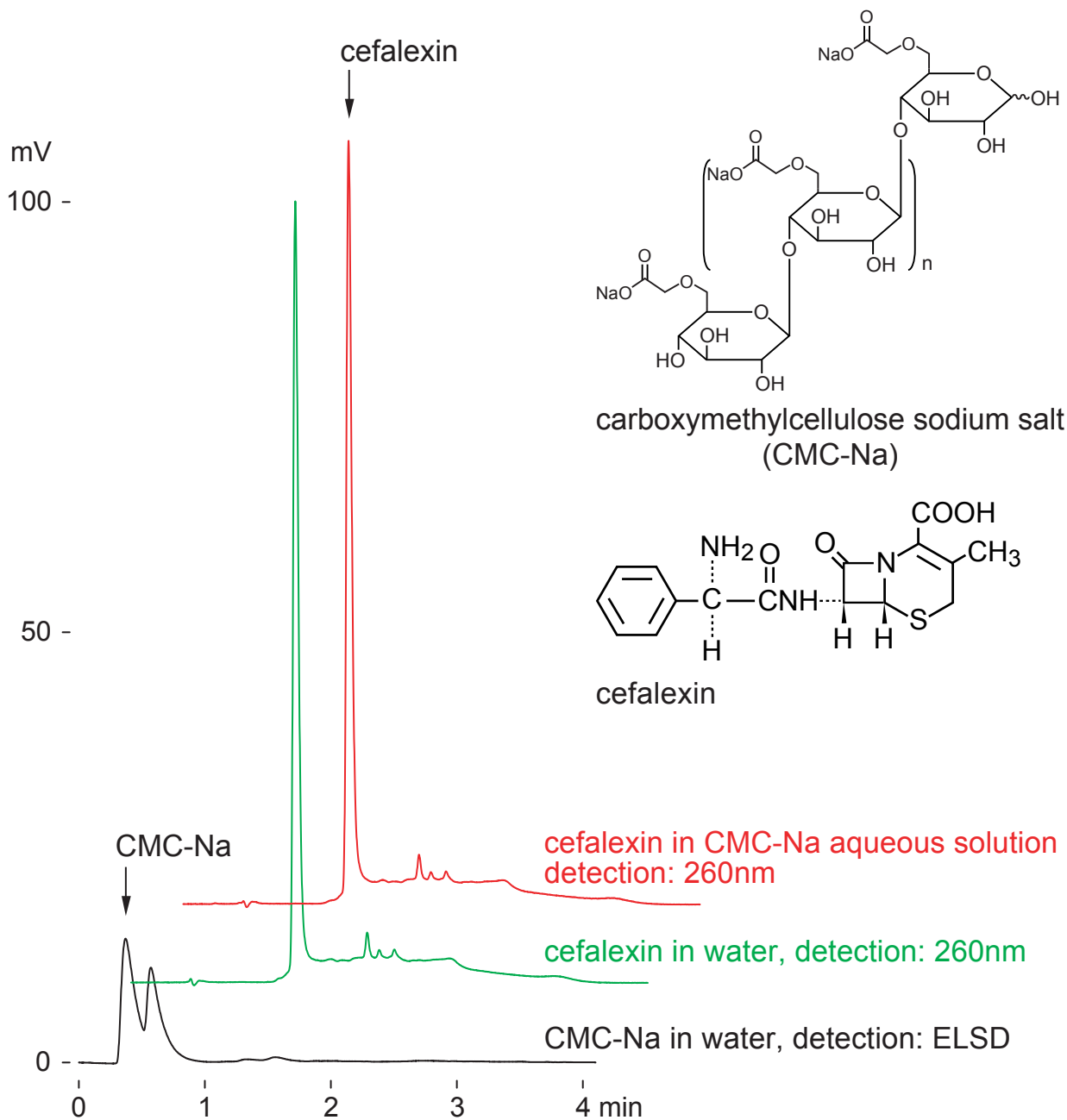
Cadenza HS-C18

30 x 3 mm

Application

### Cefalexin in CMC-Na Aqueous Solution

カルボキシメチルセルロース水溶液中のセファレキシ



Cadenza HS-C18, 30 x 3mm

A: water /heptafluorobutyric acid = 100 /0.1

B: acetonitrile /heptafluorobutyric acid = 100 /0.1

0-70 %B (0-2min), 0.4 mL/min (3MPa), 37 deg.C

1 uL (lidocaine: 0.2ug, CMC-Na: 1ug)

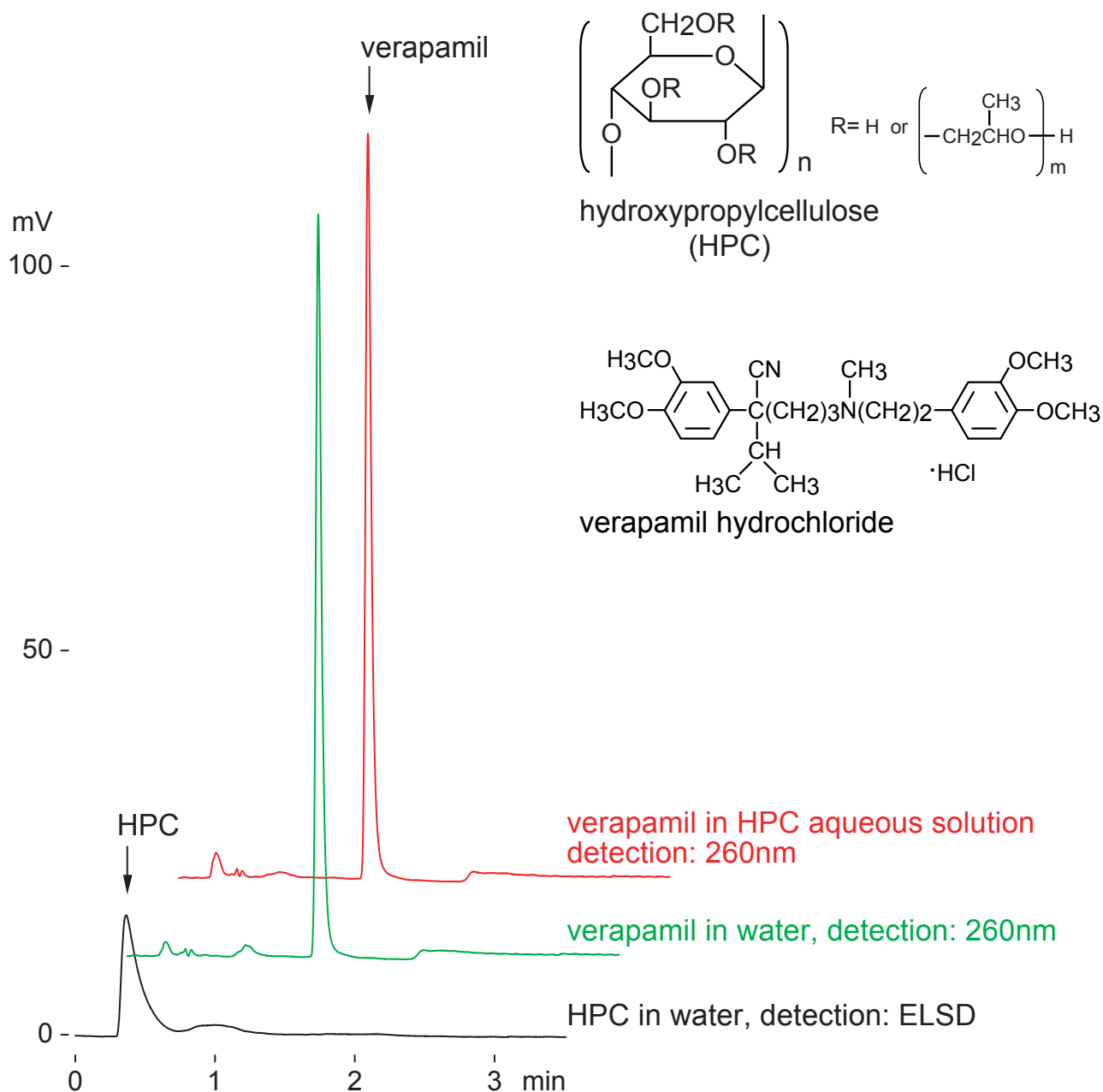
Cadenza HS-C18

30 x 3 mm

Application

## Verapamil in HPC Aqueous Solution

ヒドロキシプロピルセルロース水溶液中のベラパミル



Cadenza HS-C18, 30 x 3mm  
 A: 10mM ammonium acetate  
 B: acetonitrile  
 30-90%B (0-1.5min), 0.4mL/min (3MPa), 37deg.C  
 1uL (verapamil: 1ug, HPC: 1ug)

Unison UK-Amino

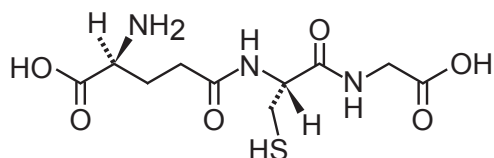
100 x 4.6 mm

Application

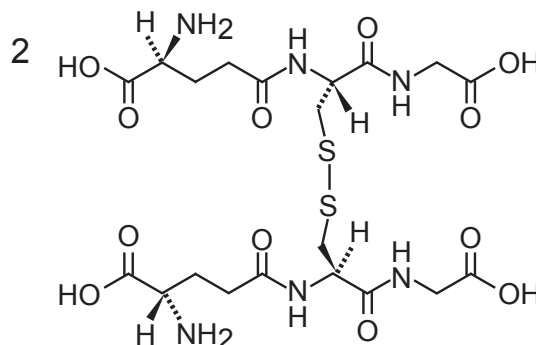
## Glutathiones

グルタチオン

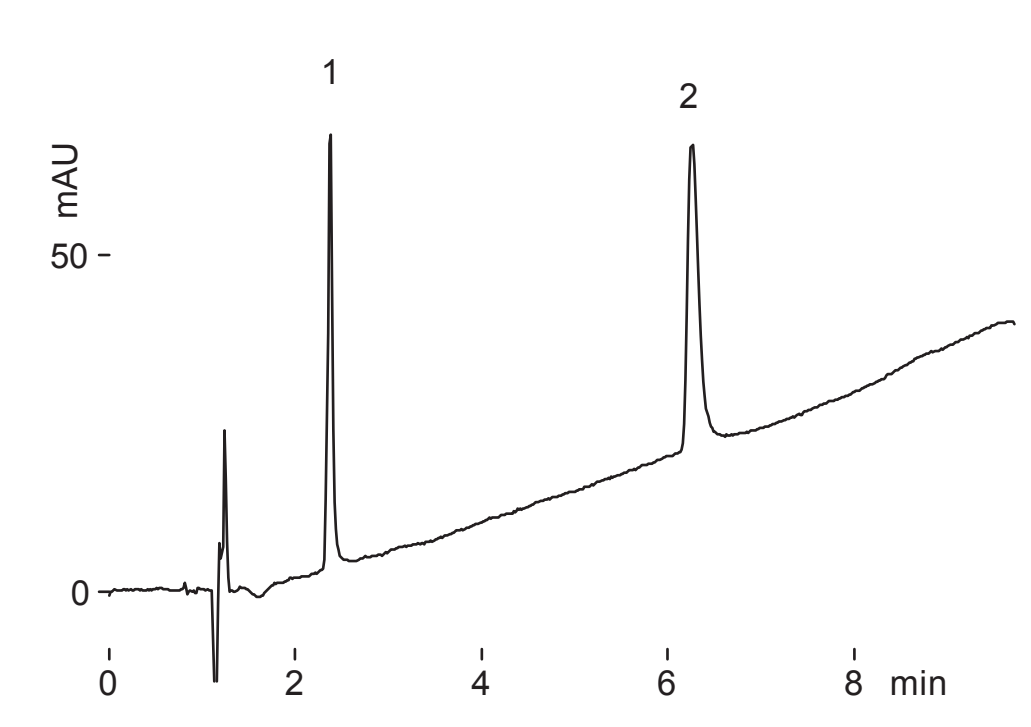
1



glutathione reduced (GSH)



glutathione oxidized (GSSG)



UK-Amino, 100 x 4.6 mm

A: acetonitrile, B: 50mM ammonium acetate

80-100 %B (0-8min), 1 mL/min

37 deg.C, 220 nm, 5 uL(5ug)

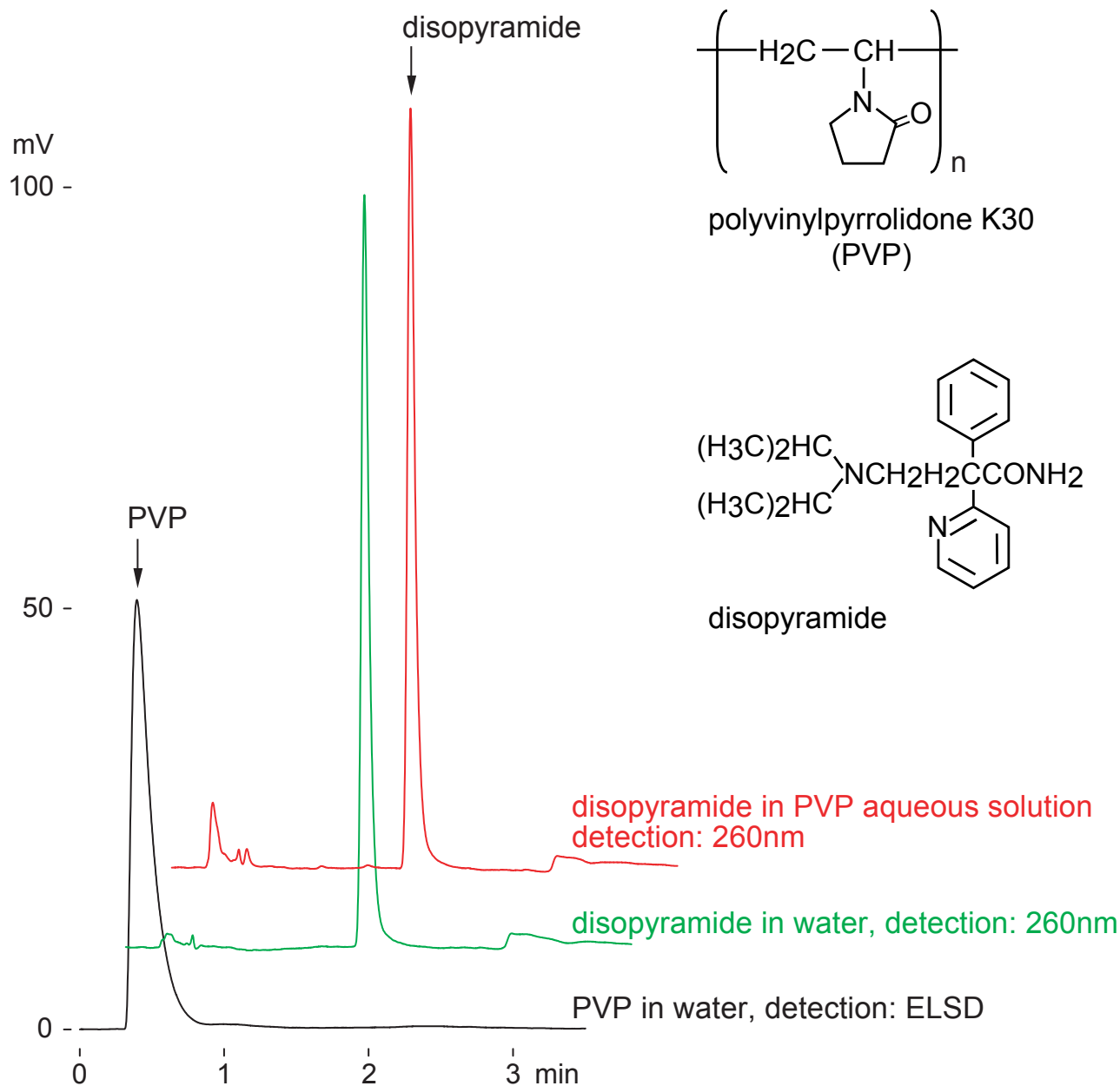
Cadenza HS-C18

30 x 3 mm

Application

## Disopyramide in PVP Aqueous Solution

ポリビニルピロリドン水溶液中のジソピラミド



Cadenza HS-C18, 30 x 3mm  
 A: 10mM ammonium acetate  
 B: acetonitrile  
 20-90%B (0-2min), 0.4mL/min (4MPa), 37deg.C  
 1.5 uL (disopyramide: 0.4 ug, PVP: 1.5 ug)

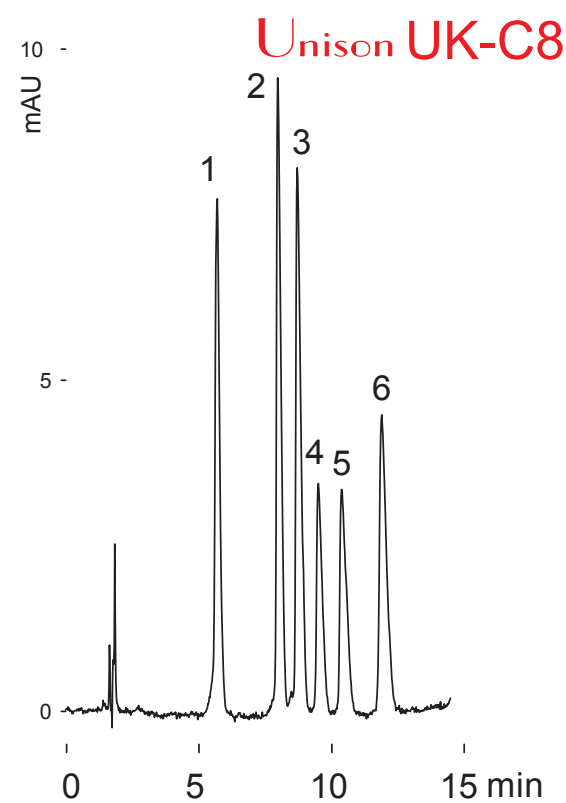
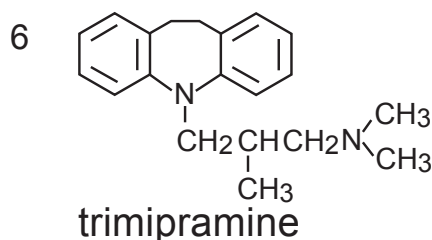
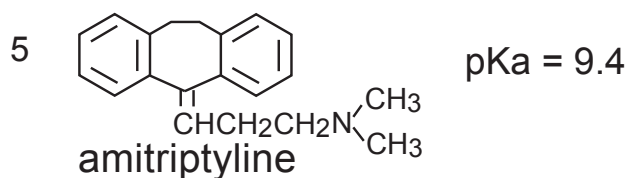
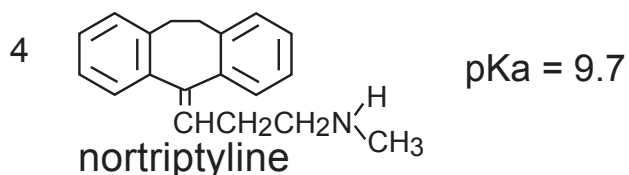
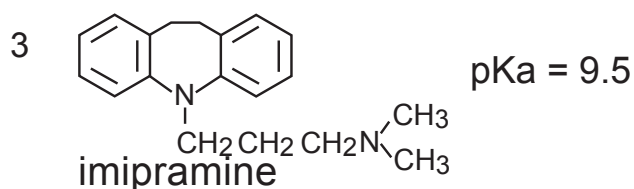
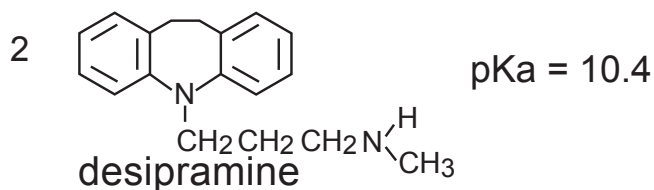
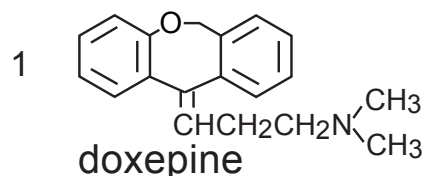
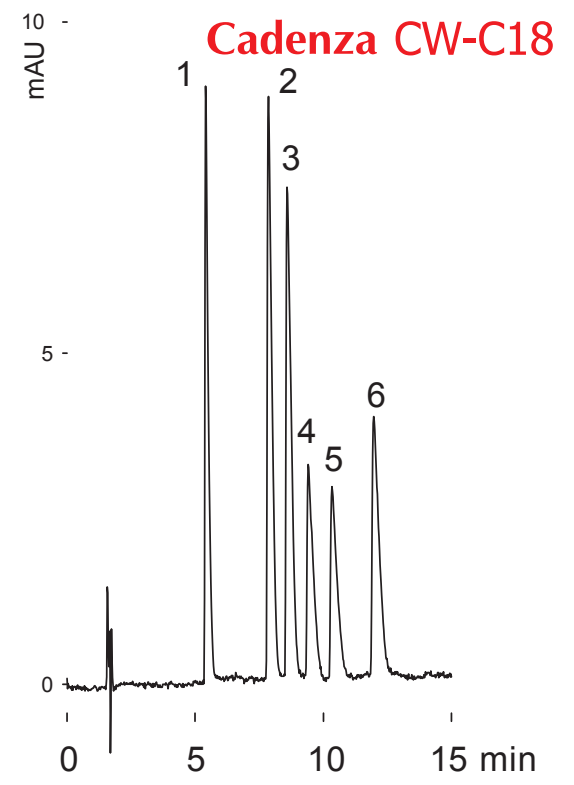
**Cadenza CW-C18**  
Unison UK-C8

150 x 3 mm

Application

**Basic Compounds: Antidepressant drug**

塩基性化合物: 抗うつ薬



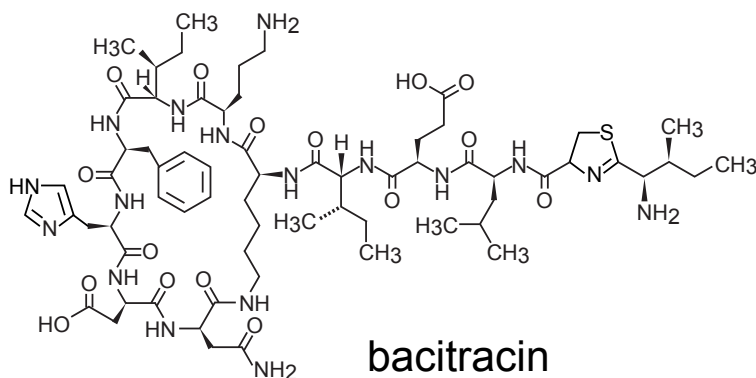
150 x 3mm  
water /acetonitrile /formic acid = 70 /30 /0.1  
0.5 mL/min, 37 degC, 10-12 MPa  
260 nm, 1 uL (0.1 mg/mL)

Cadenza CW-C18  
Cadenza CD-C18

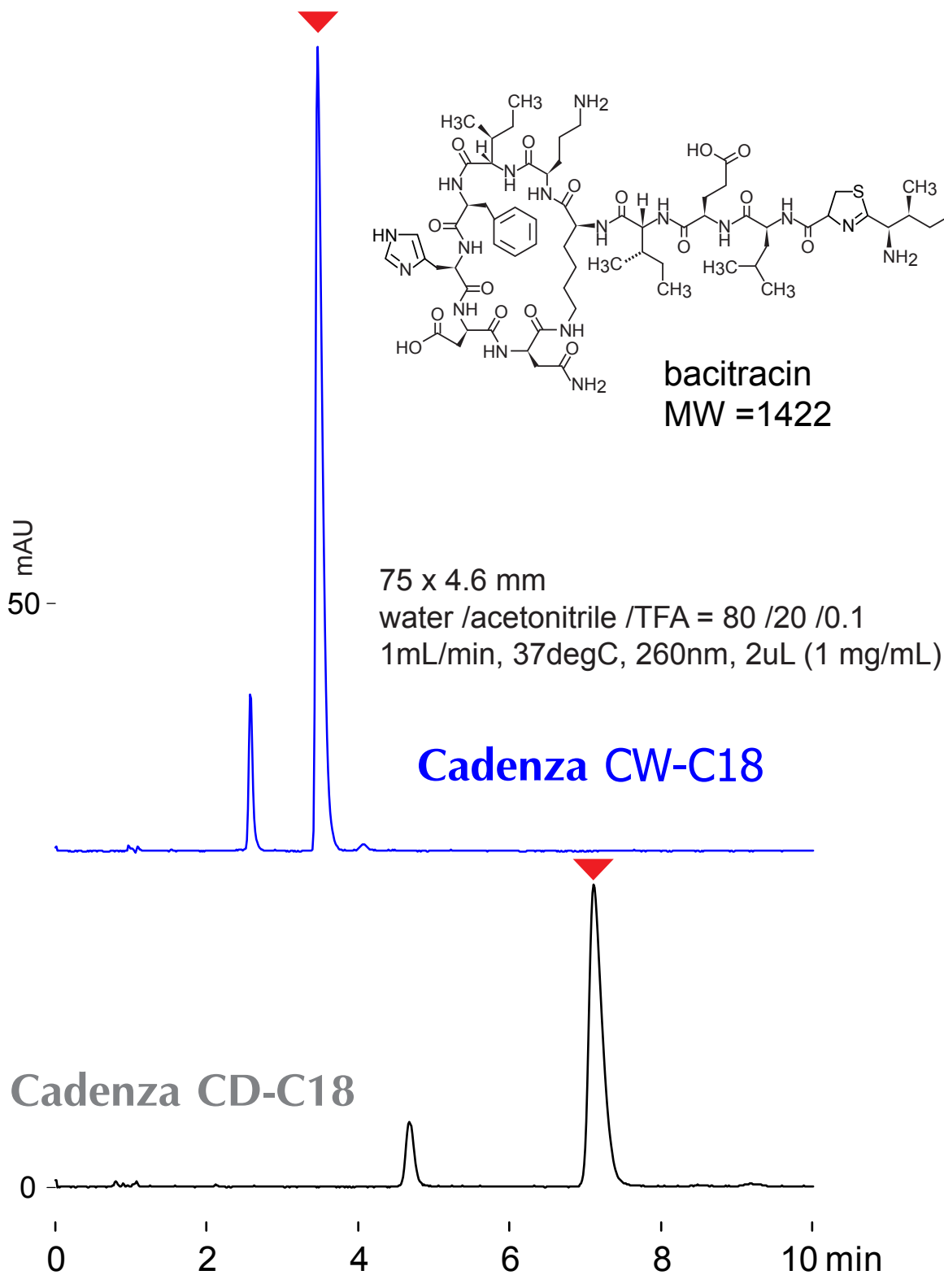
75 x 4.6 mm

Application

**Polypeptide Antibiotic**  
ポリペプチド系抗生物質



**bacitracin**  
MW = 1422



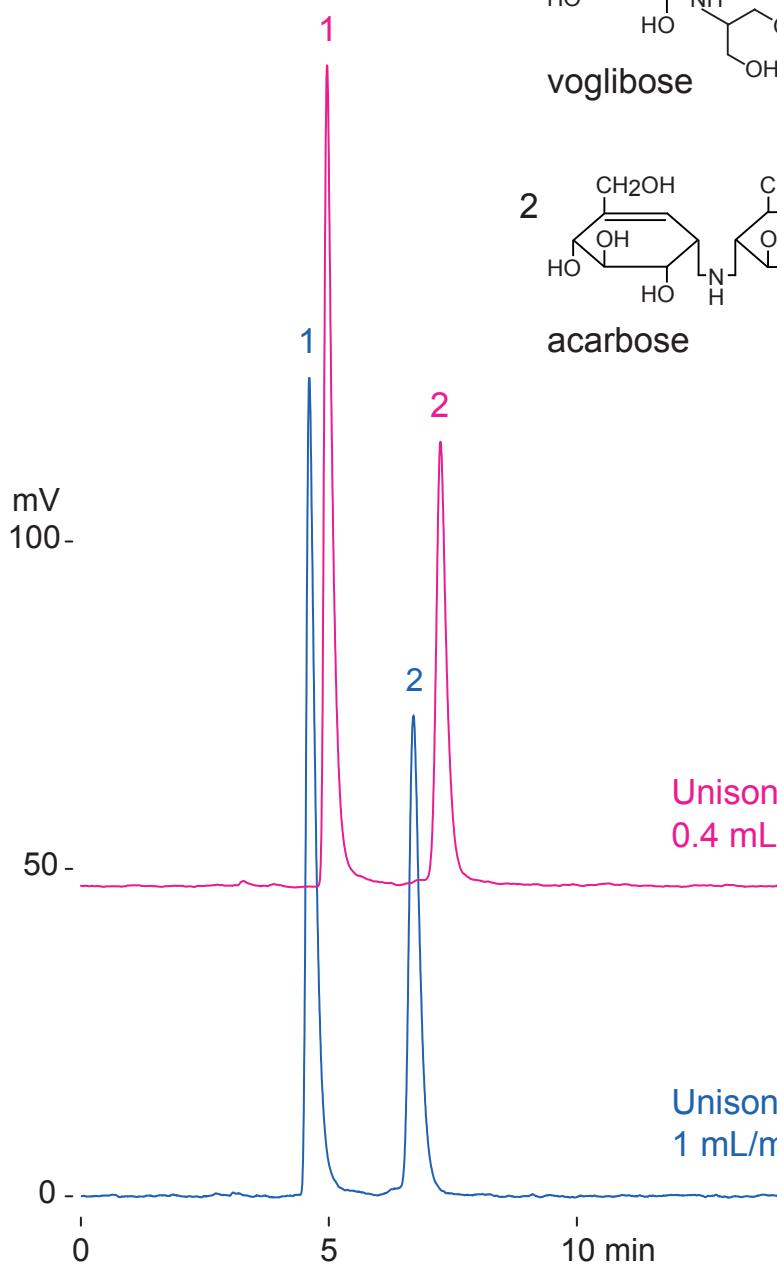
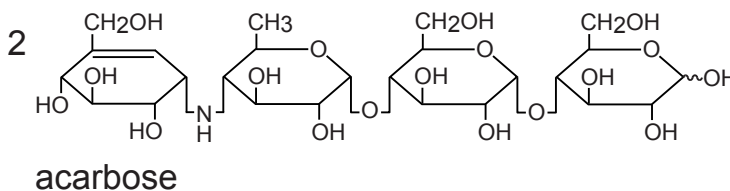
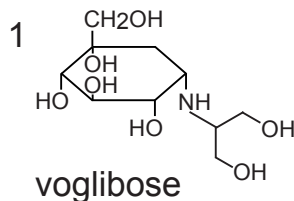
Unison UK-Amino

250 x 3 mm  
250 x 4.6 mm

Application

**Voglibose, Acarbose**

ボグリボース, アカルボース



Unison UK-Amino, 250 x 3 mm  
0.4 mL/min (7 MPa), 1 uL (2 ug)

Unison UK-Amino, 250 x 4.6 mm  
1 mL/min (9 MPa), 2 uL (4 ug)

acetonitrile /50mM ammonium acetate = 70 /30  
60 deg.C, ELSD

Unison UK-Amino

250 x 3 mm

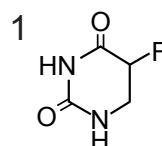
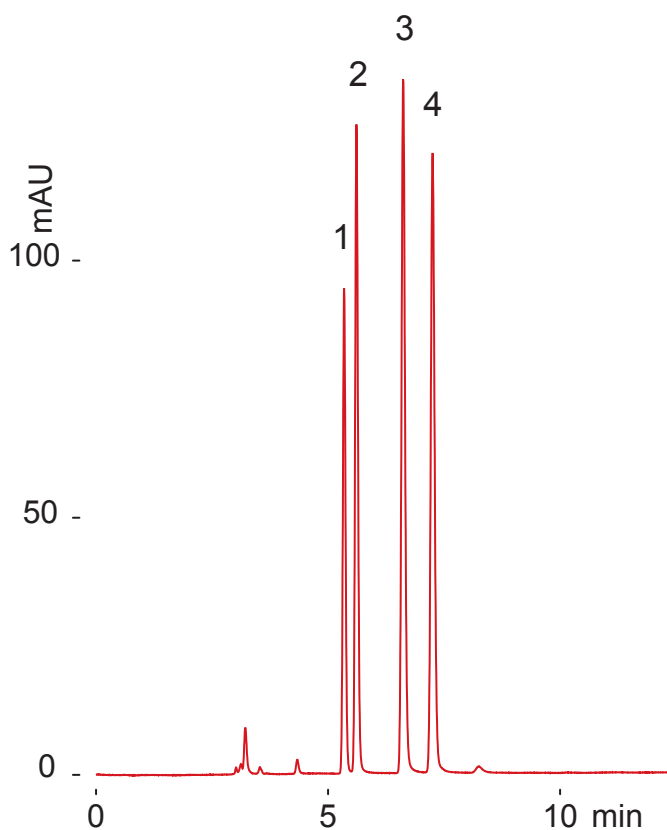
Unison UK-Phenyl

250 x 4.6 mm

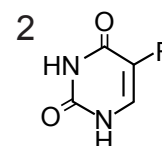
Application

## 5-Fluorouracil and Related Compounds

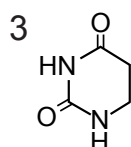
5-フルオロウラシルと関連化合物



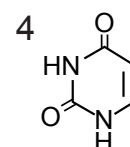
dihydrofluorouracil



5-fluorouracil



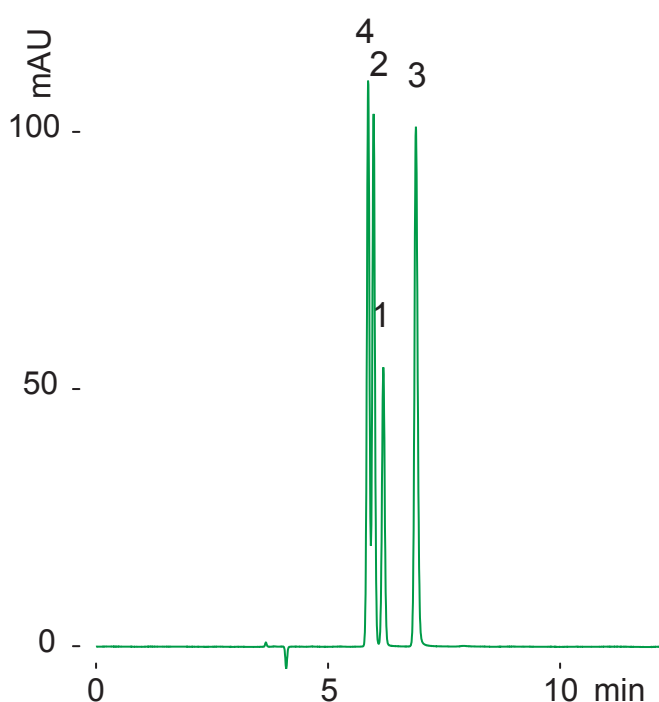
dihydrouracil



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)



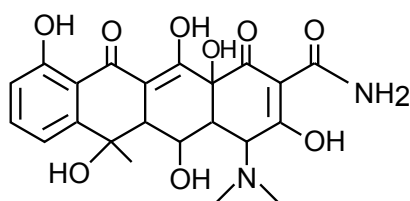
Cadenza CW-C18

150 x 4.6 mm

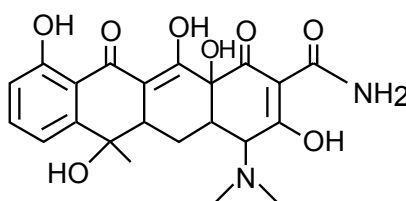
Application

### Tetracycline antibiotics

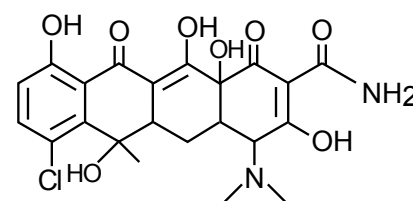
テトラサイクリン系抗生物質



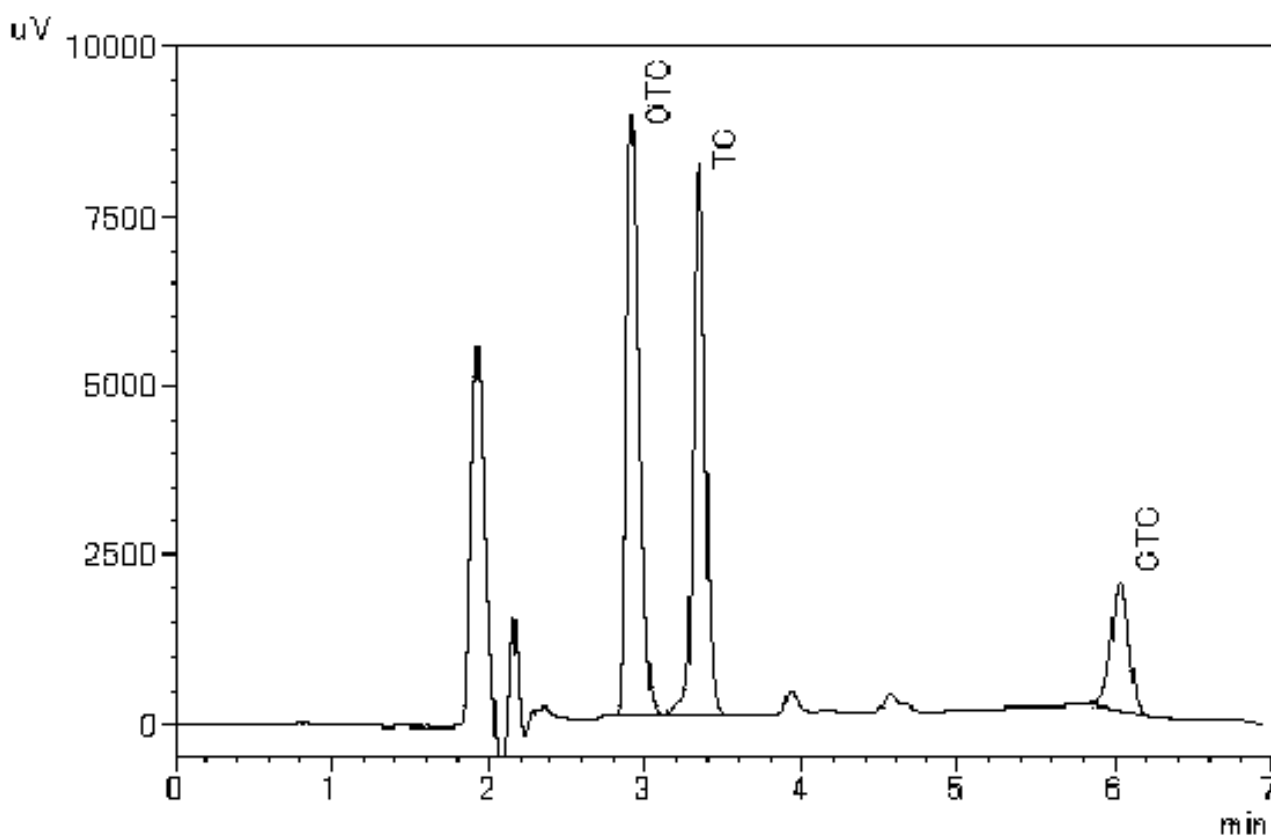
oxytetracycline (OTC)



tetracycline (TC)



chlortetracycline (CTC)



Cadenza CW-C18, 150 x 4.6 mm  
 water /acetonitrile /HCOOH = 80 /20 /0.1  
 1 mL/min, 40 deg.C, 260 nm, 20 uL (1ppm)

Courtesy of Mr. N. MAEDA, ASSOCIATION OF MEAT SCIENCE & TECHNOLOGY INSTITUTE

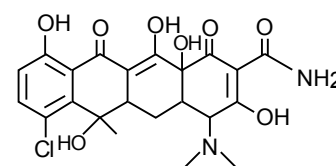
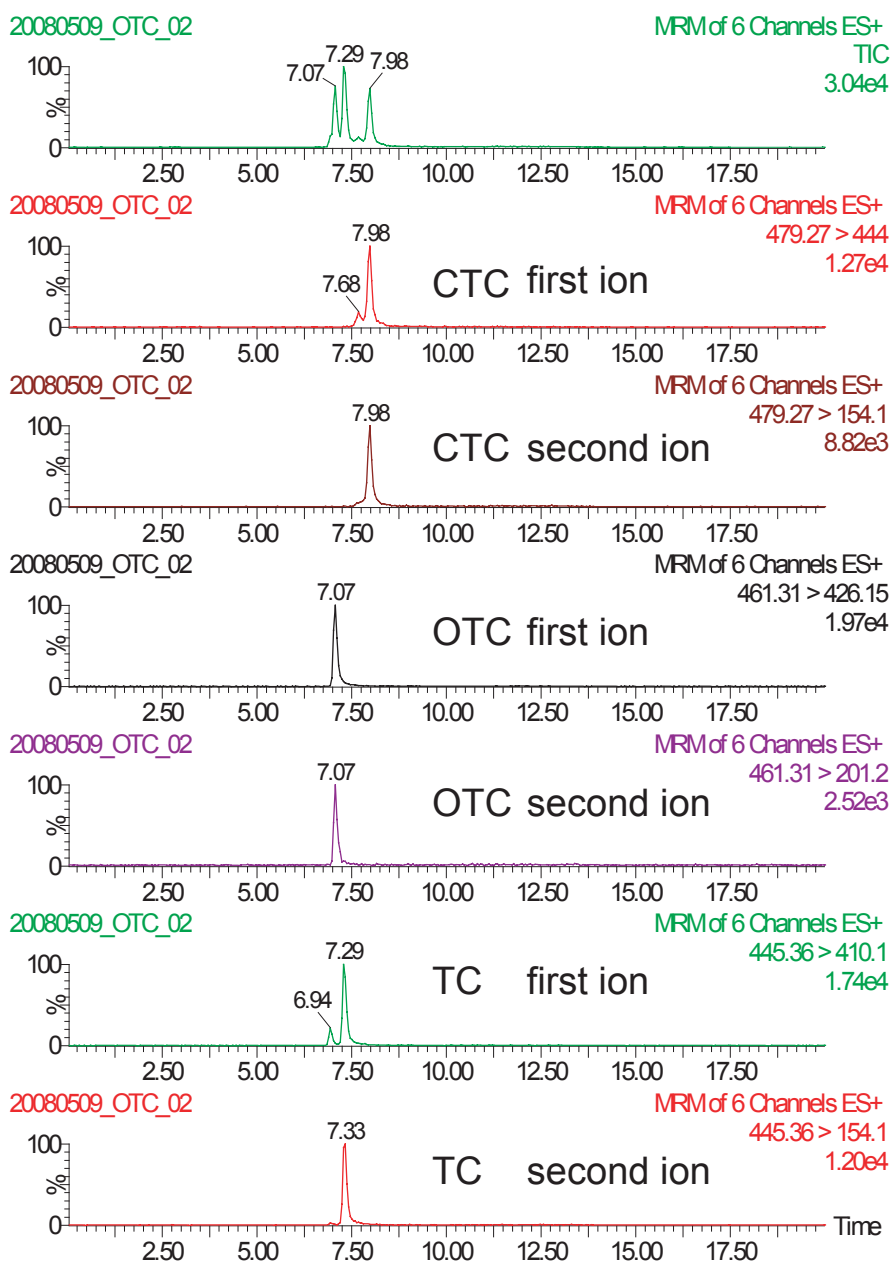
Cadenza CW-C18

100 x 2 mm

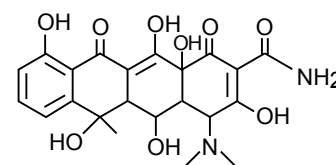
Application

## LC-MS/MS Application -Tetracycline Antibiotics

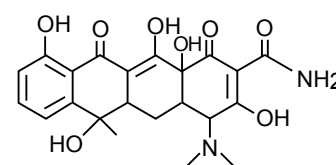
テトラサイクリン系抗生物質のLC-MS/MS分析



chlortetracycline (CTC)



oxytetracycline (OTC)



tetracycline (TC)

Cadenza CW-C18, 100 x 2 mm + Guard column  
 A: 0.1% HCOOH aq., B: 0.1% HCOOH in ACN  
 5 - 95%B ( 0 - 7 min ), 95 - 5%B ( 7 - 8 min ), 5%B ( 8 - 17 min )  
 0.2 mL/min, 40 deg.C, 10 uL ( 20 ppb ), ESI, positive

Courtesy of Mr. N. MAEDA, ASSOCIATION OF MEAT SCIENCE & TECHNOLOGY INSTITUTE, JAPAN

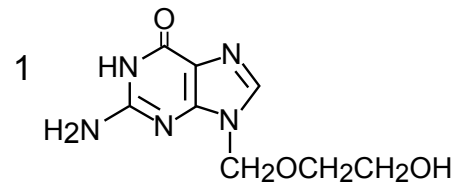
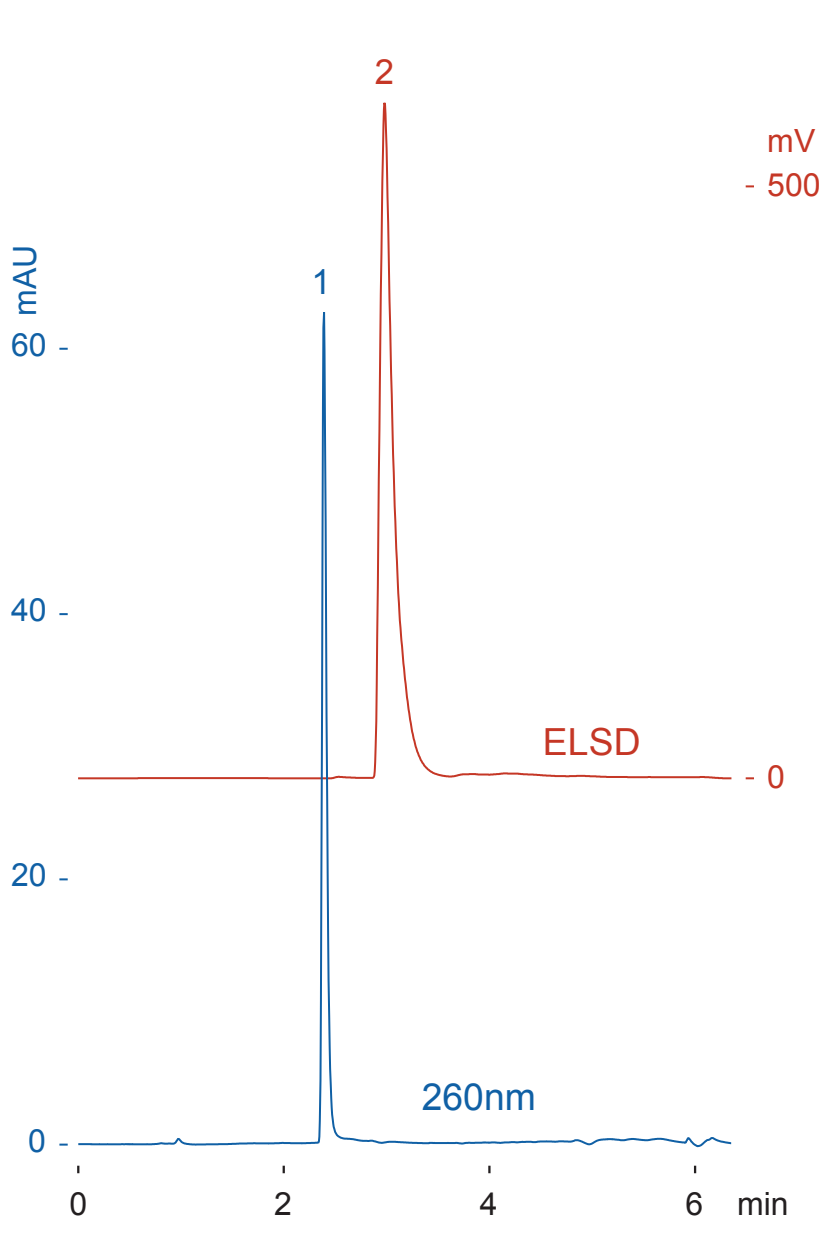
Unison UK-Amino

50 x 3 mm

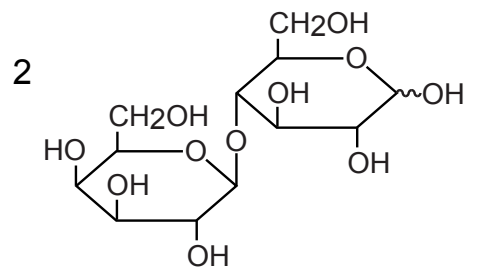
Application

## Simultaneous analysis of drug substance and lactose

医薬品成分と乳糖の同時分析



acyclovir (0.1ug)



lactose (10ug)

Unison UK-Amino, 50 x 3 mm  
 A: acetonitrile, B: water  
 1-100%B(0-5min)  
 0.4 mL/min (2MPa), 37 deg.C  
 1.6 uL (0.1, 10ug)

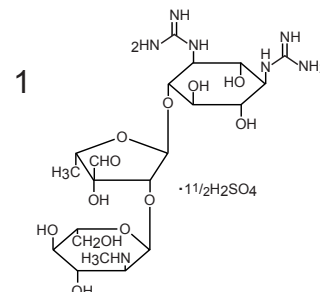
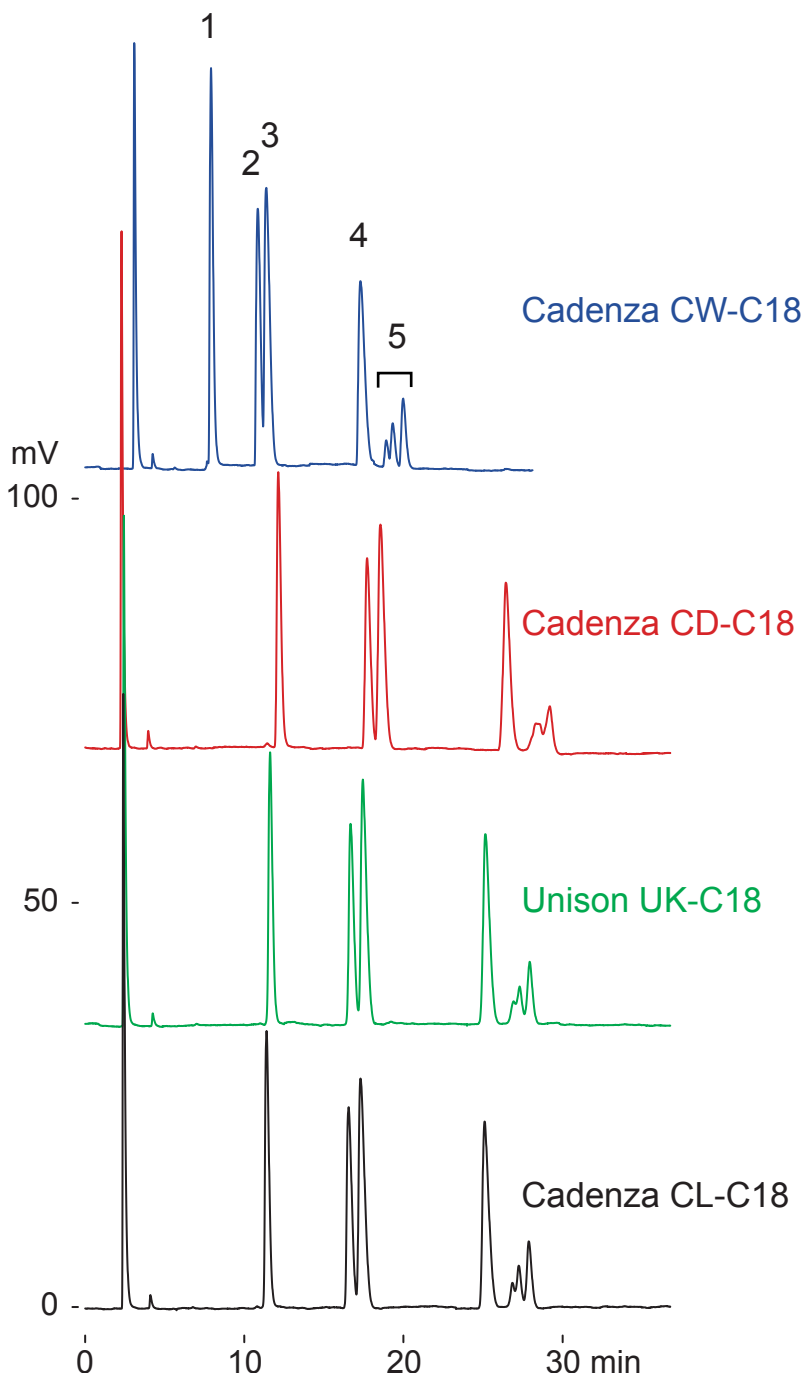
Cadenza CW-C18  
 Cadenza CD-C18  
 Unison UK-C18  
 Cadenza CL-C18

250 x 3 mm

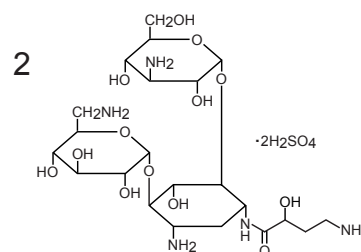
Application

### Aminoglycoside Antibiotics

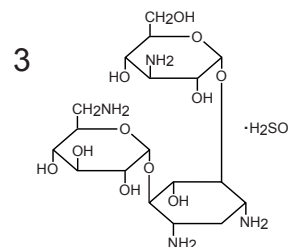
アミノグリコシド系抗生物質



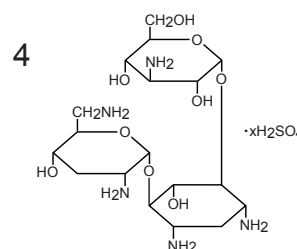
streptomycin sulfate



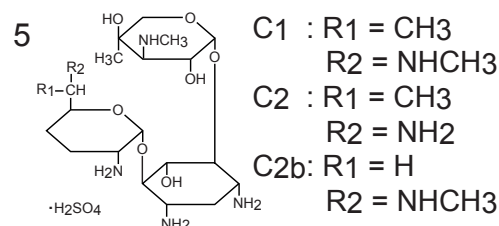
amikacin disulfate



kanamycin sulfate



tobramycin sulfate



gentamicin sulfate

250 x 3 mm

A: water /heptafluorobutyric acid = 100 /0.1

B: acetonitrile /heptafluorobutyric acid = 100 /0.1

20-34%B(0-35min)

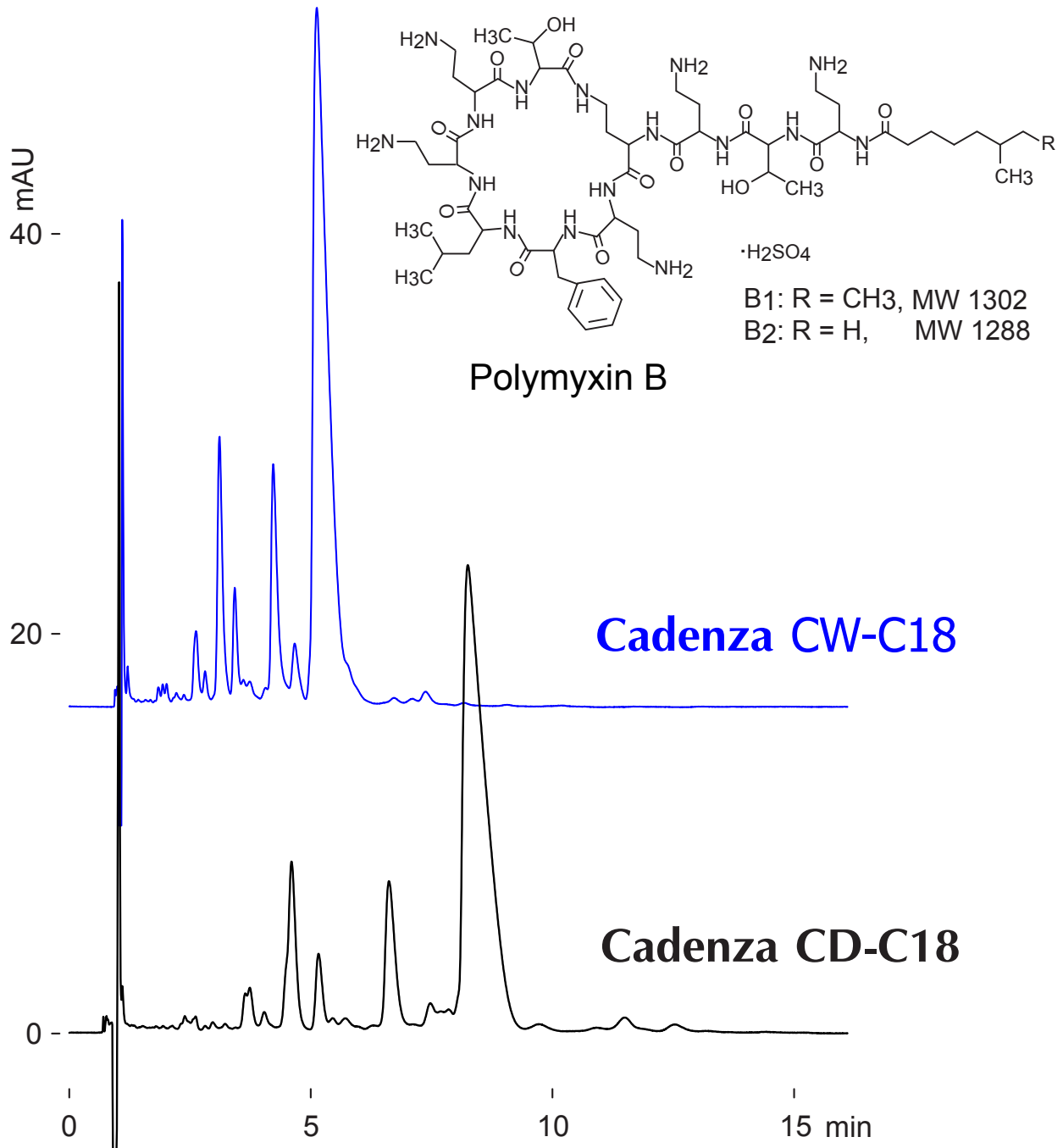
0.4 mL/min(13-16MPa) , 37 deg.C, ELSD, 2 uL(4ug)

Cadenza CW-C18  
Cadenza CD-C18

75 x 3 mm

Application

**Polypeptide Antibiotic (2)**  
ポリペプチド系抗生物質 (2)



75 x 3 mm

water /acetonitrile /trifluoroacetic acid = 75 /25 /0.1  
0.4 mL/min(6-8MPa), 37degC, 220nm, 1.6 uL (3ug)

**Cadenza CW-C18**

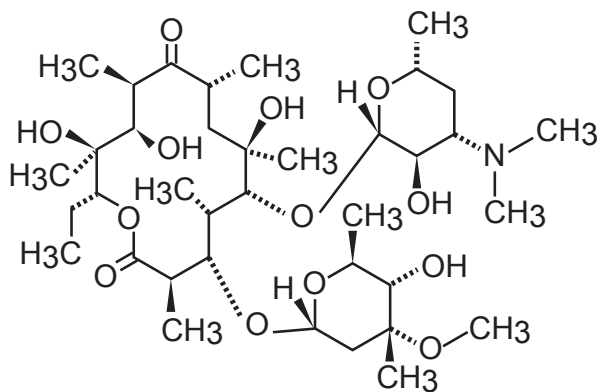
Cadenza CD-C18

150 x 4.6 mm

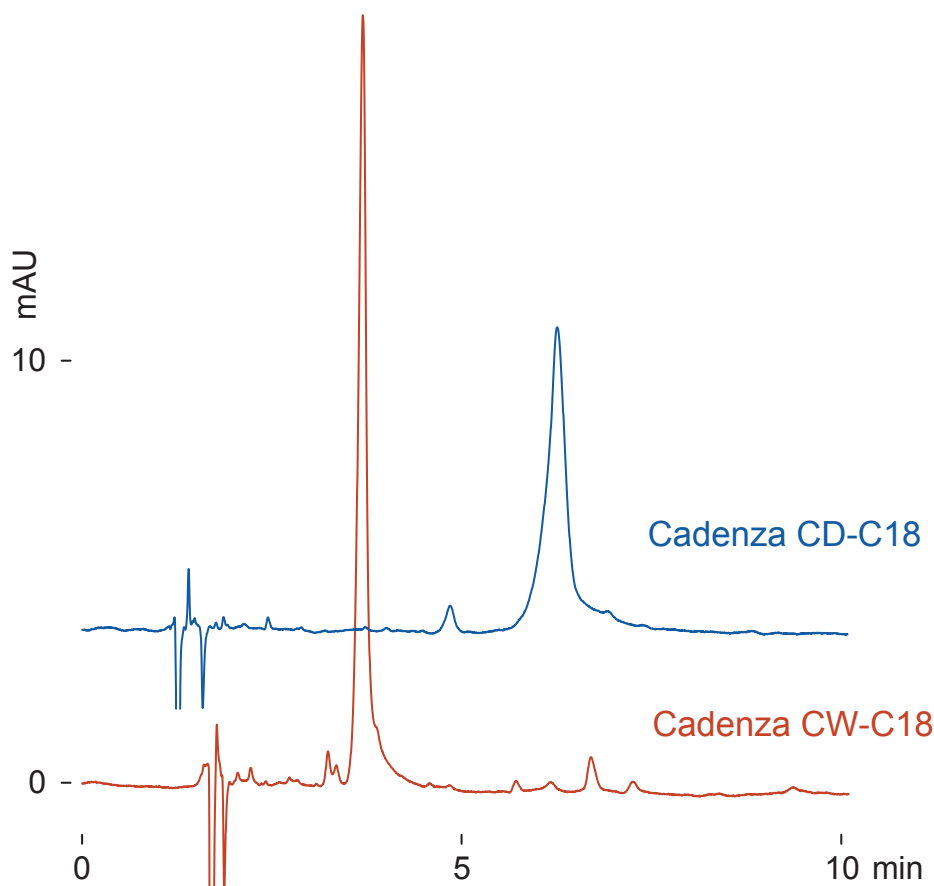
Application

**Antibiotic (Erythromycin)**

抗生物質 (エリスロマイシン)



erythromycin



150 x 4.6 mm, 20mM HCOONH<sub>4</sub> /acetonitrile = 65 / 35  
 1 mL/min (11-13MPa), 37 deg.C, 210 nm, 5 uL(10ug)

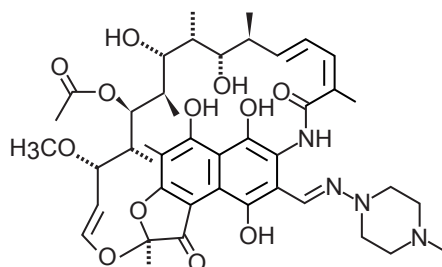
Unison UK-C18  
 Cadenza CW-C18  
 Cadenza CD-C18  
 Cadenza CL-C18

75 x 3 mm

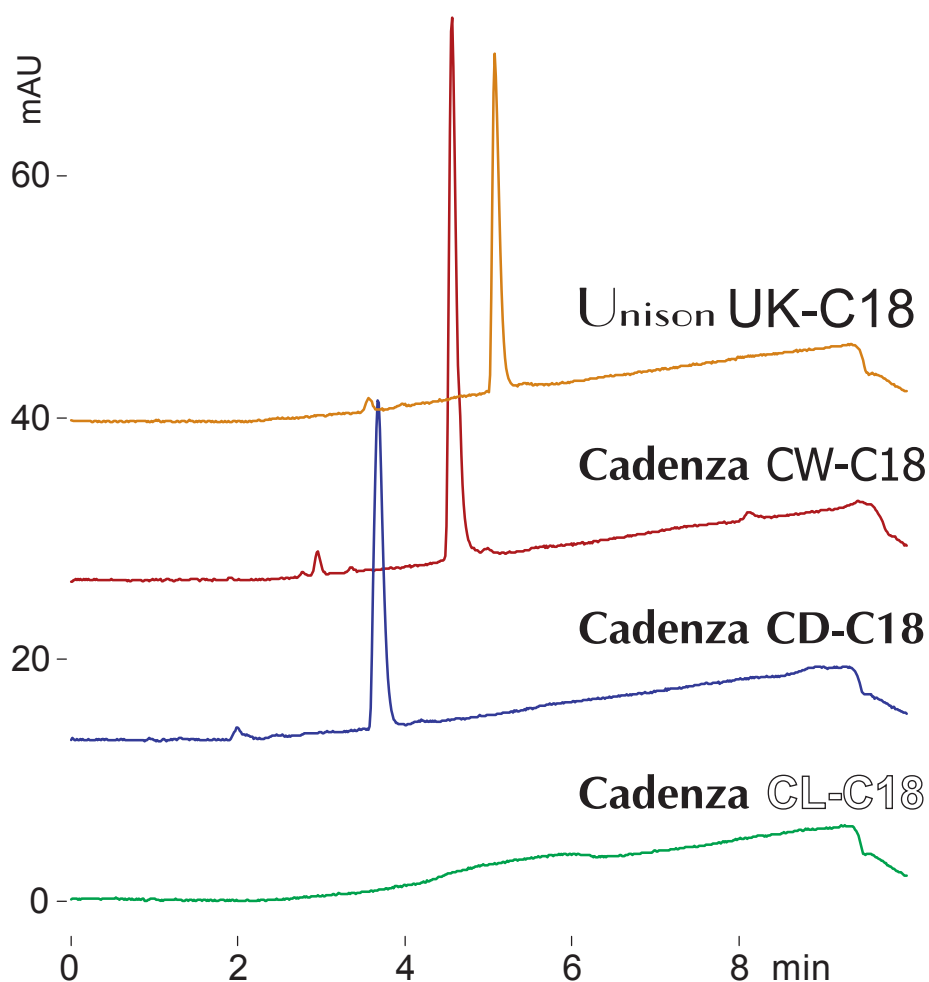
Application

### Antibiotic (Rifampicin)

抗生物質(リファンピシン)



rifampicin



75 x 3 mm

A: water / formic acid = 100 / 0.1

B: acetonitrile / formic acid = 100 / 0.1

40-90 %B (0-8min), 0.4 mL/min

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

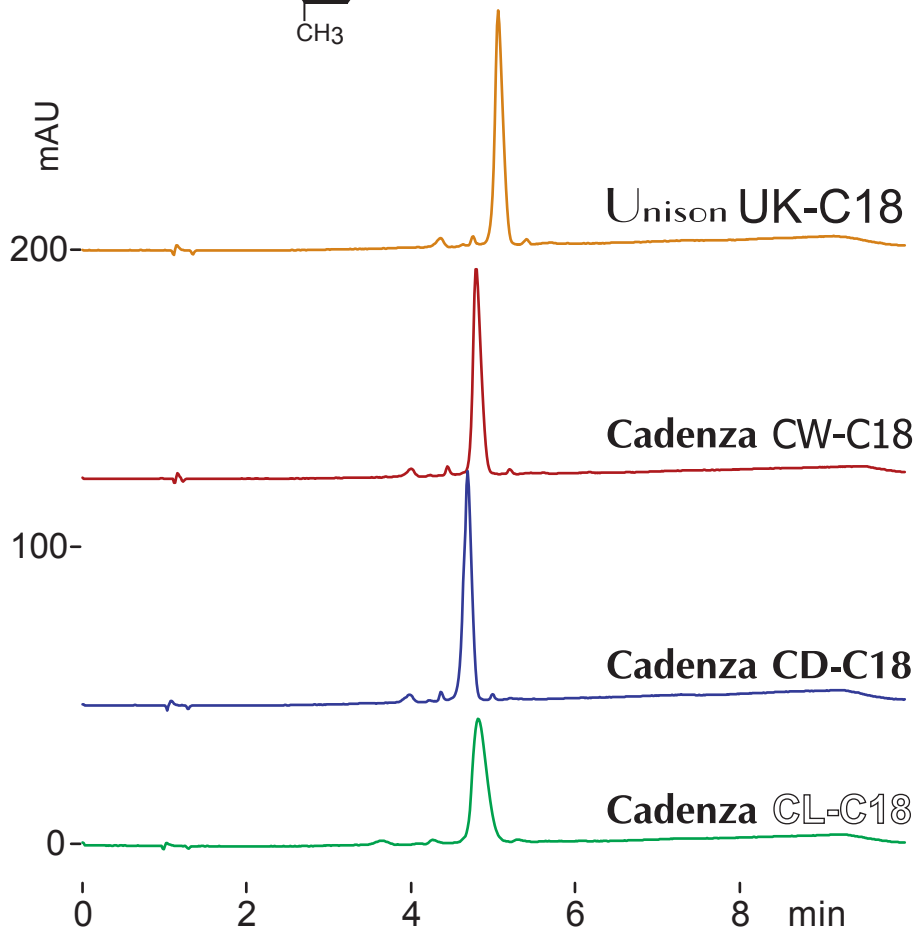
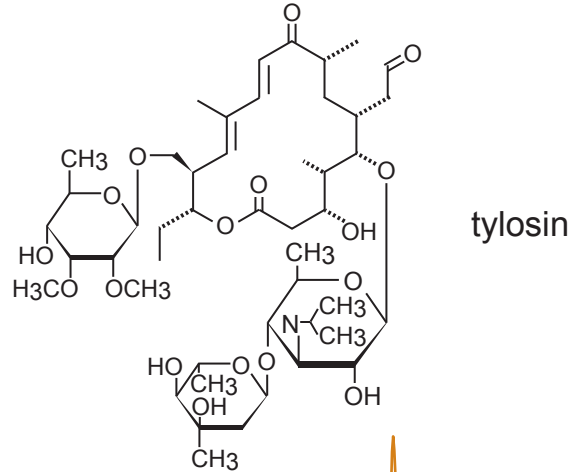
Unison UK-C18  
 Cadenza CW-C18  
 Cadenza CD-C18  
 Cadenza CL-C18

75 x 3 mm

Application

**Antibiotic (Tylosin)**

抗生物質(タイロシン)



75 x 3 mm

A: water / formic acid = 100 / 0.1

B: acetonitrile / formic acid = 100 / 0.1

25-70 %B (0-8min), 0.4 mL/min

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



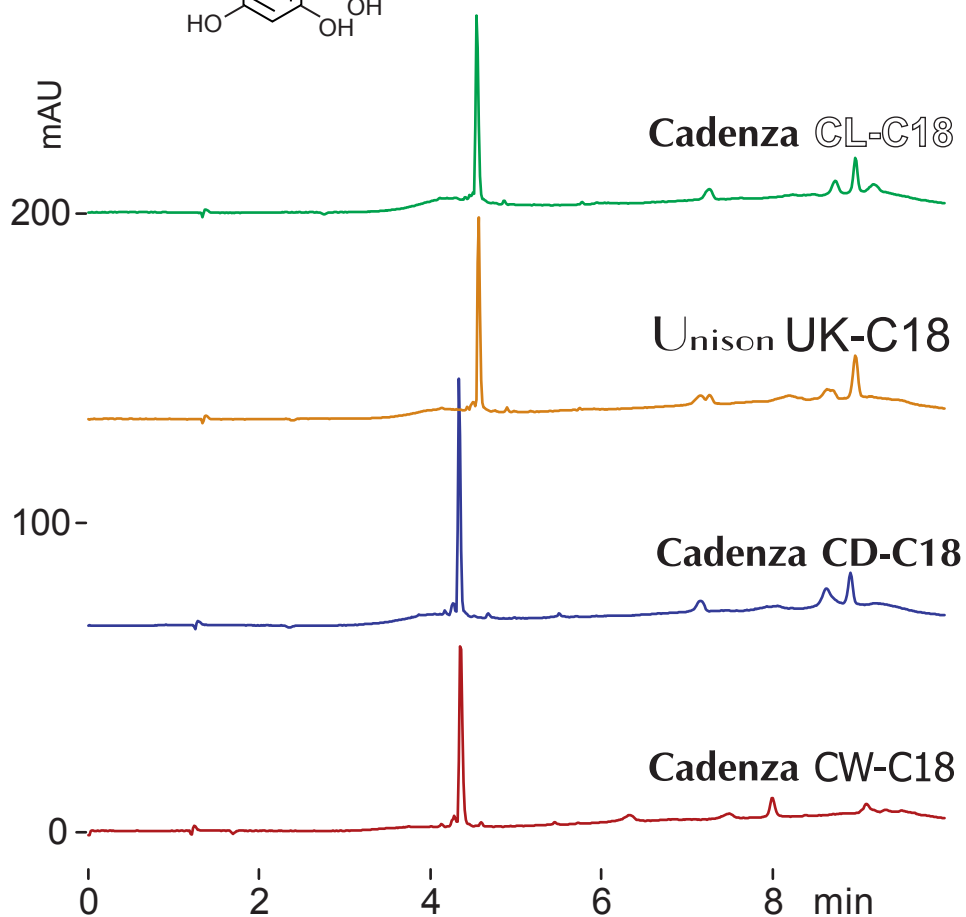
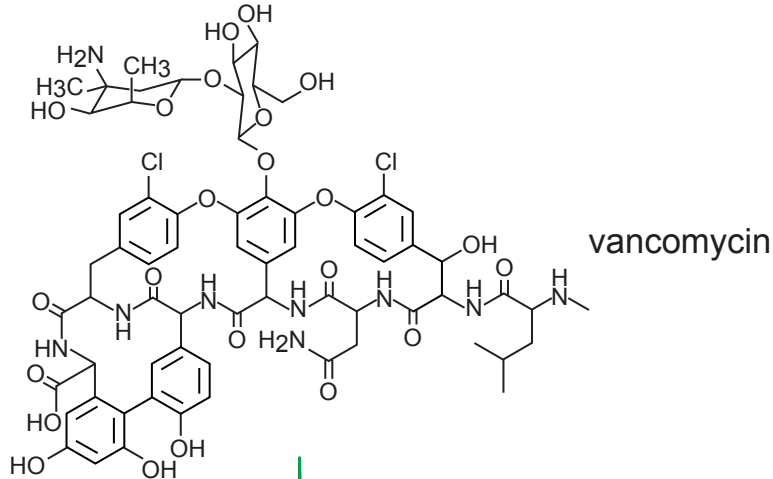
Cadenza CL-C18  
 Unison UK-C18  
 Cadenza CD-C18  
 Cadenza CW-C18

75 x 3 mm

Application

**Antibiotic (Vancomycin)**

抗生物質(バンコマイシン)



75 x 3 mm

A: water / formic acid = 100 / 0.1

B: acetonitrile / formic acid = 100 / 0.1

5-70 %B (0-8min), 0.4 mL/min

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

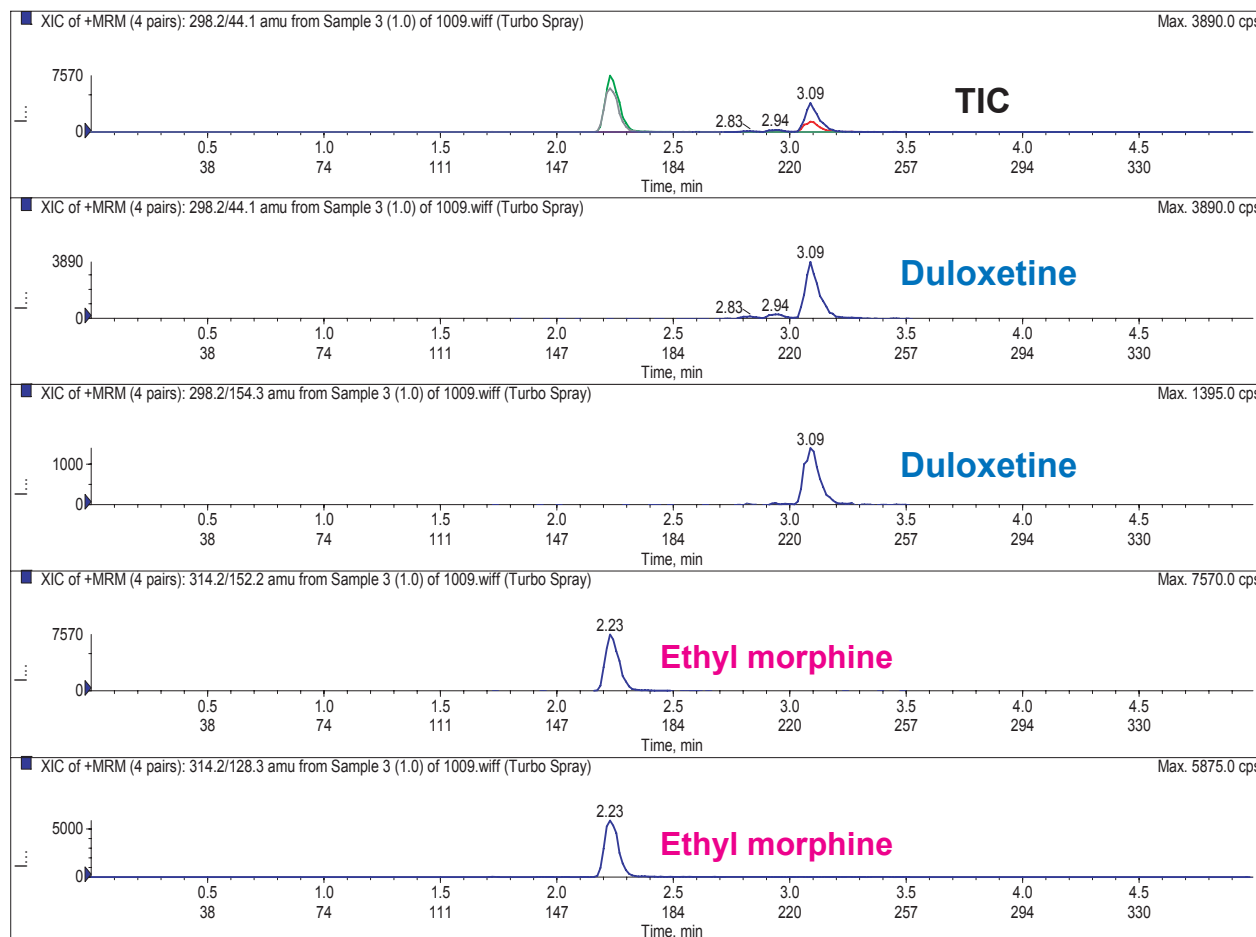
Unison US-C18

50 x 2 mm

Application

LC-MS/MS Application for Duloxetine and Ethyl Morphine in Whole Blood

血液中の麻薬性鎮痛薬と抗うつ剤のLC-MS/MS高速分析



Unison US-C18, 50 x 2 mm

A: 0.1% HCOOH in water, B: 0.1% HCOOH in acetonitrile  
 5%B (0-0.5min), 5-90%B (0.5-4.5min), 5%B (4.5-6min)  
 0.5mL/min (LOD 0.05 ng/mL, LOQ 0.1 ng/mL)

Whole Blood, SPE Extraction

3200 Q-Trap: ESI, MRM Positive

Duloxetine: m/z 298.1 -> 44.1 and 154.3

Ethyl Morphine (I.S.): m/z 314.2 -> 152.2 and 128.3

Ref) *Rapid Quantification of Duloxetine in Blood and Urine by LC-ESI-MS/MS*  
 Albert Elian, Massachusetts State Police Crime Lab, USA  
 Society of Forensic Toxicologists (SOFT), 2008, USA

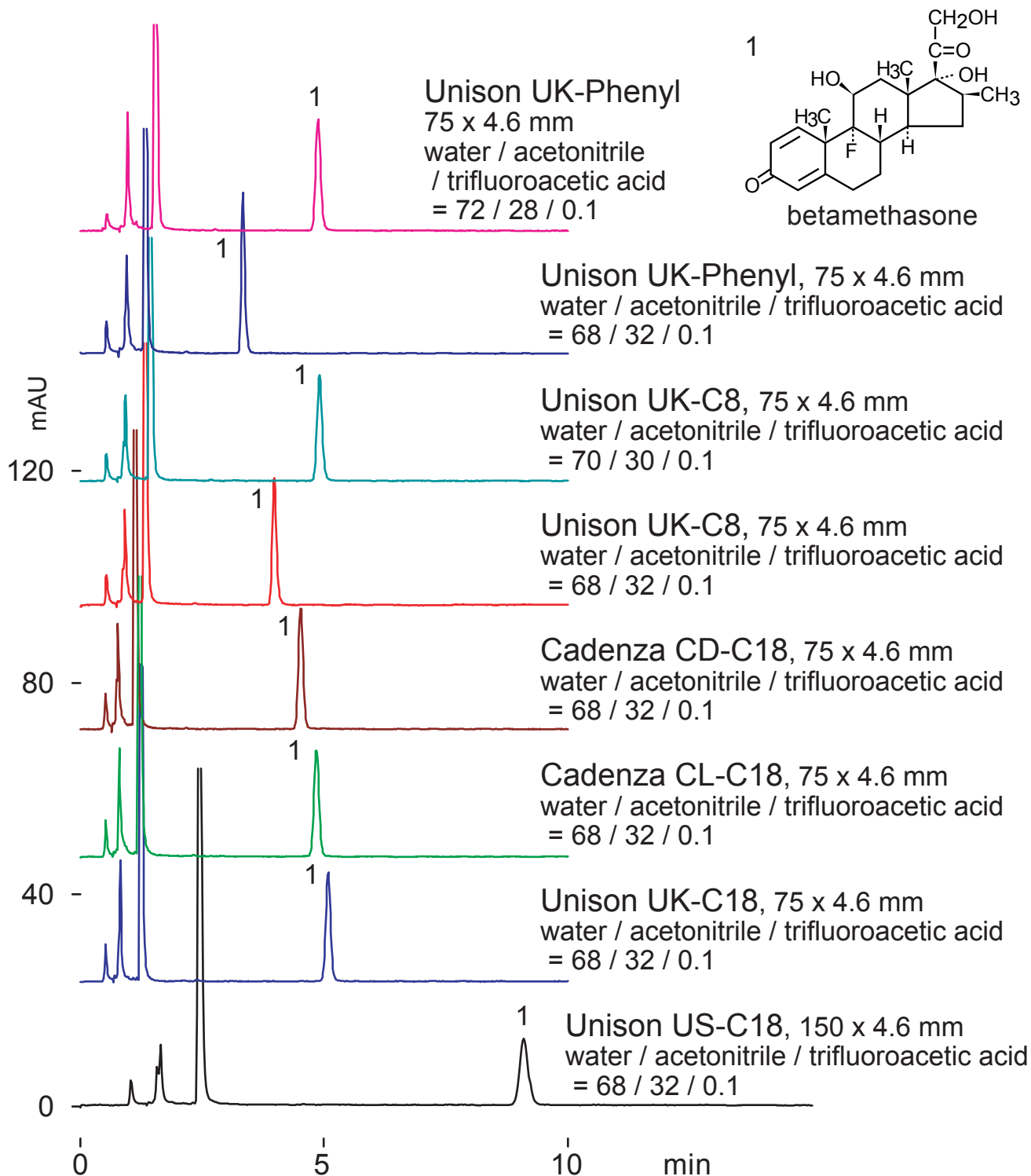
Courtesy of Massachusetts State Police Crime Lab., USA

Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18  
 Cadenza CL-C18 Unison US-C18 150 x 4.6 mm

Application

## Betamethasone (Antihistamine:Adrenal corticosteroid)

ベタメタゾン(抗ヒスタミン薬:副腎皮質ホルモン薬)



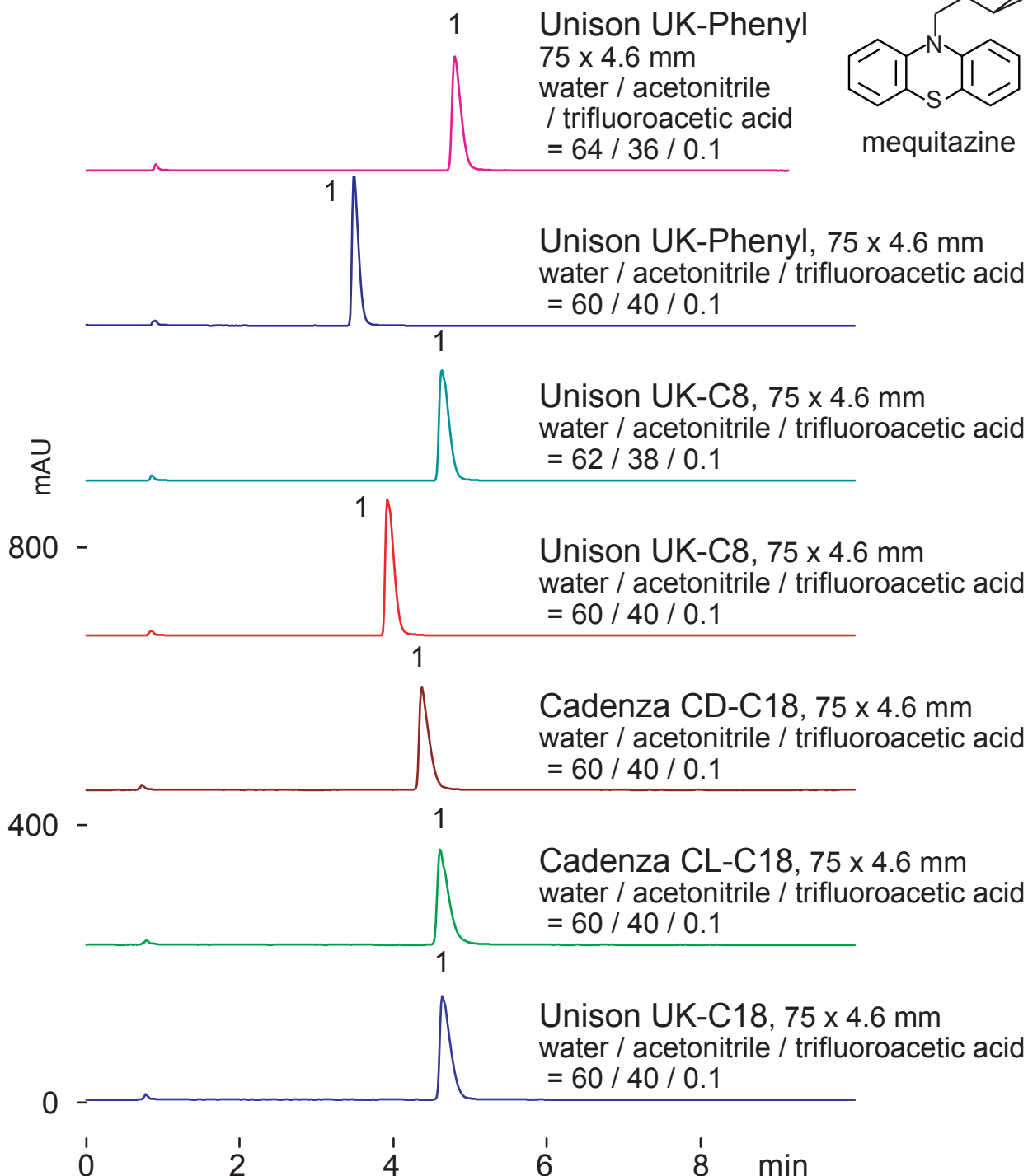
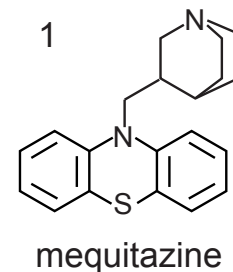
1 mL/min (4-5MPa), 37 deg.C, 260 nm, 1 uL (0.25ug, DMSO)

Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18 150 x 4.6 mm  
 Cadenza CL-C18 Unison US-C18

Application

### Mequitazine (Antihistamine)

メキタジン (抗ヒスタミン薬)



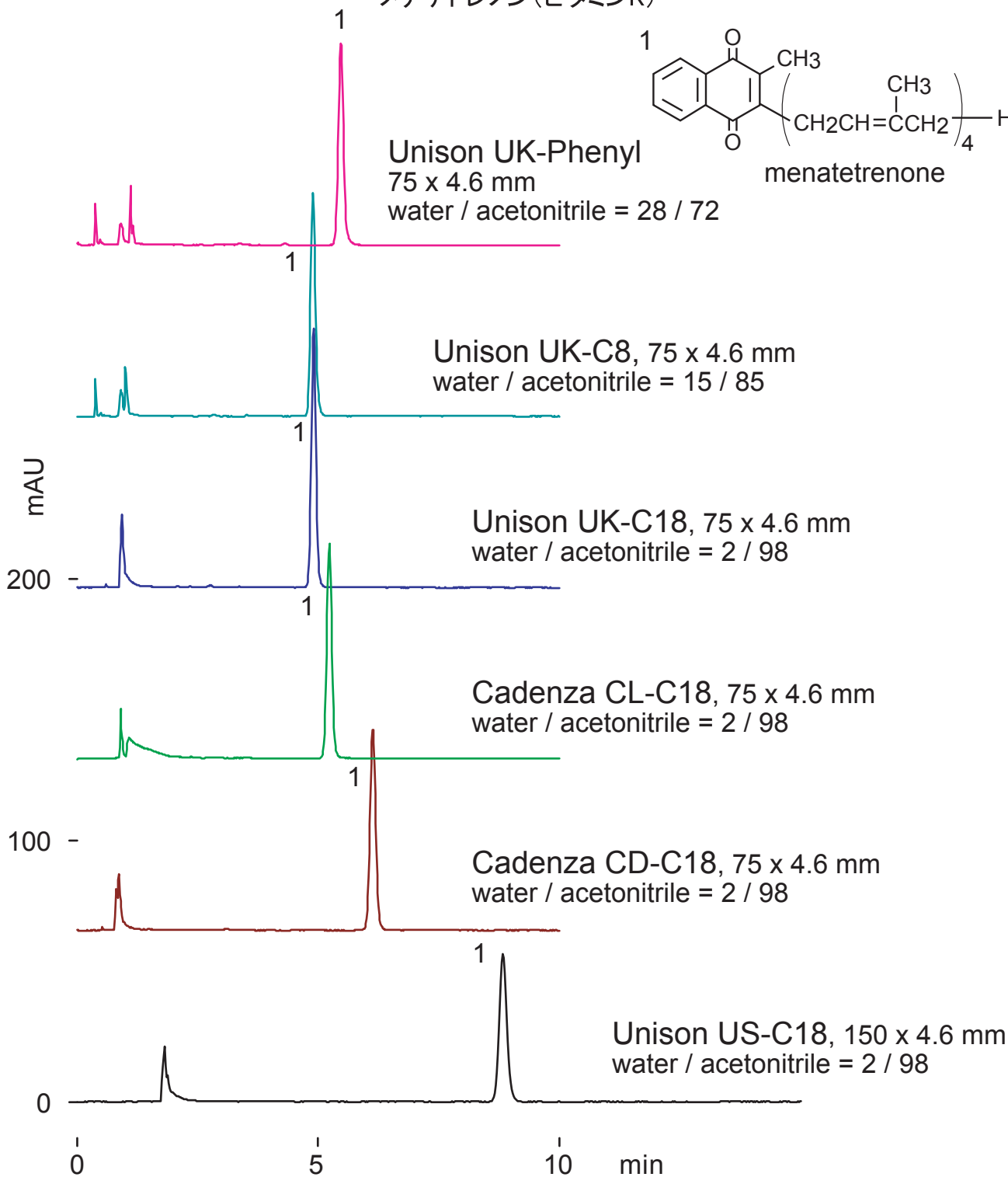
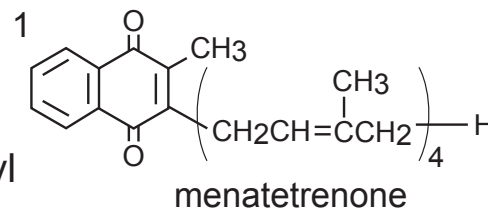
1 mL/min (5-6MPa), 37 deg.C, 260 nm, 1 uL (1ug, DMSO)

Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18 150 x 4.6 mm  
 Cadenza CL-C18 Unison US-C18

Application

### Menatetrenone (Vitamin K)

メナテトレノン(ビタミンK)



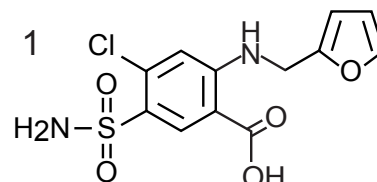
1 mL/min (3-6MPa), 37 deg.C, 260 nm, 1 uL (3ug, DMSO)

Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18 150 x 4.6 mm  
 Cadenza CL-C18 Unison US-C18

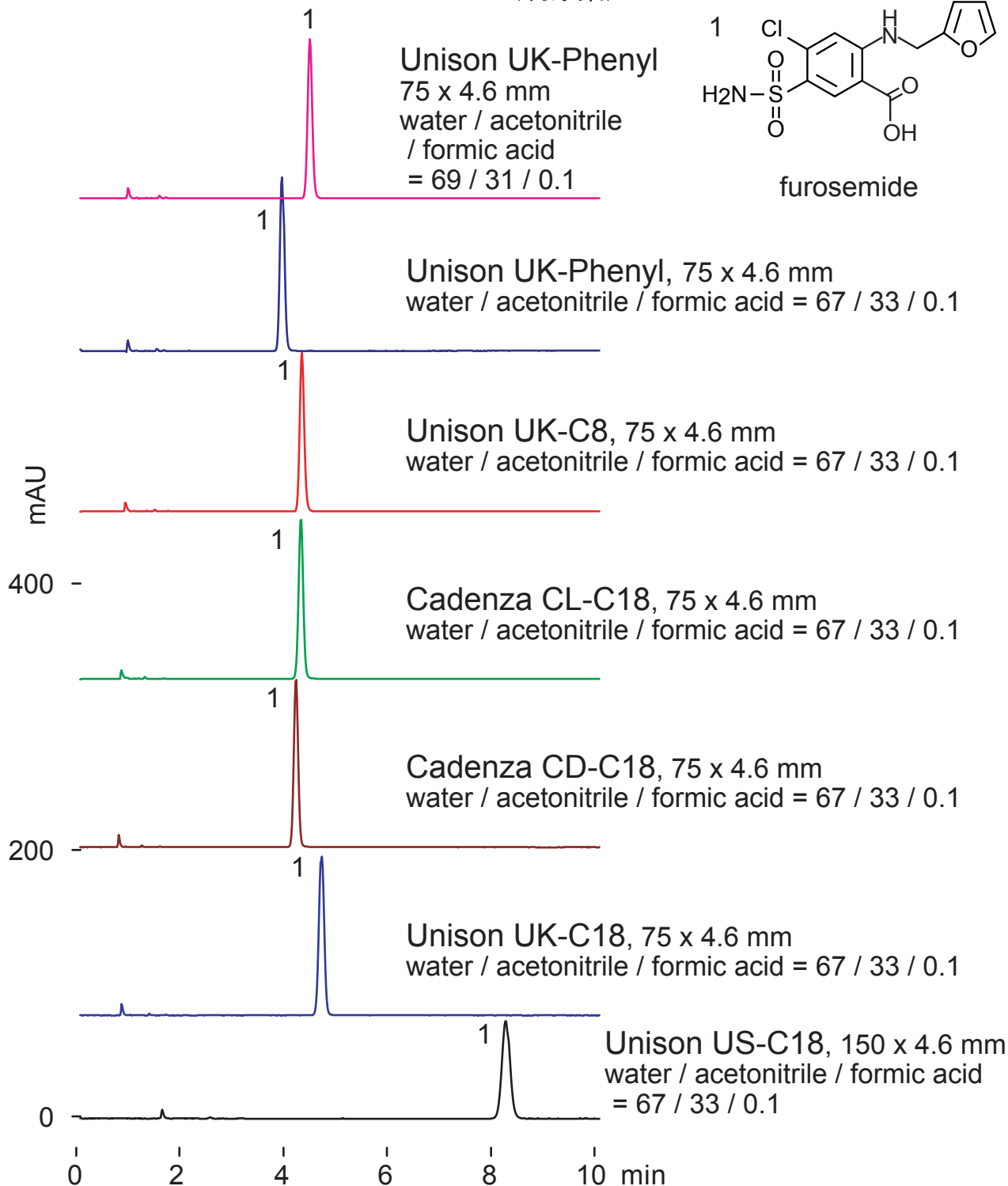
Application

### Furosemide (Diuretic)

フロセミド(利尿薬)



furosemide



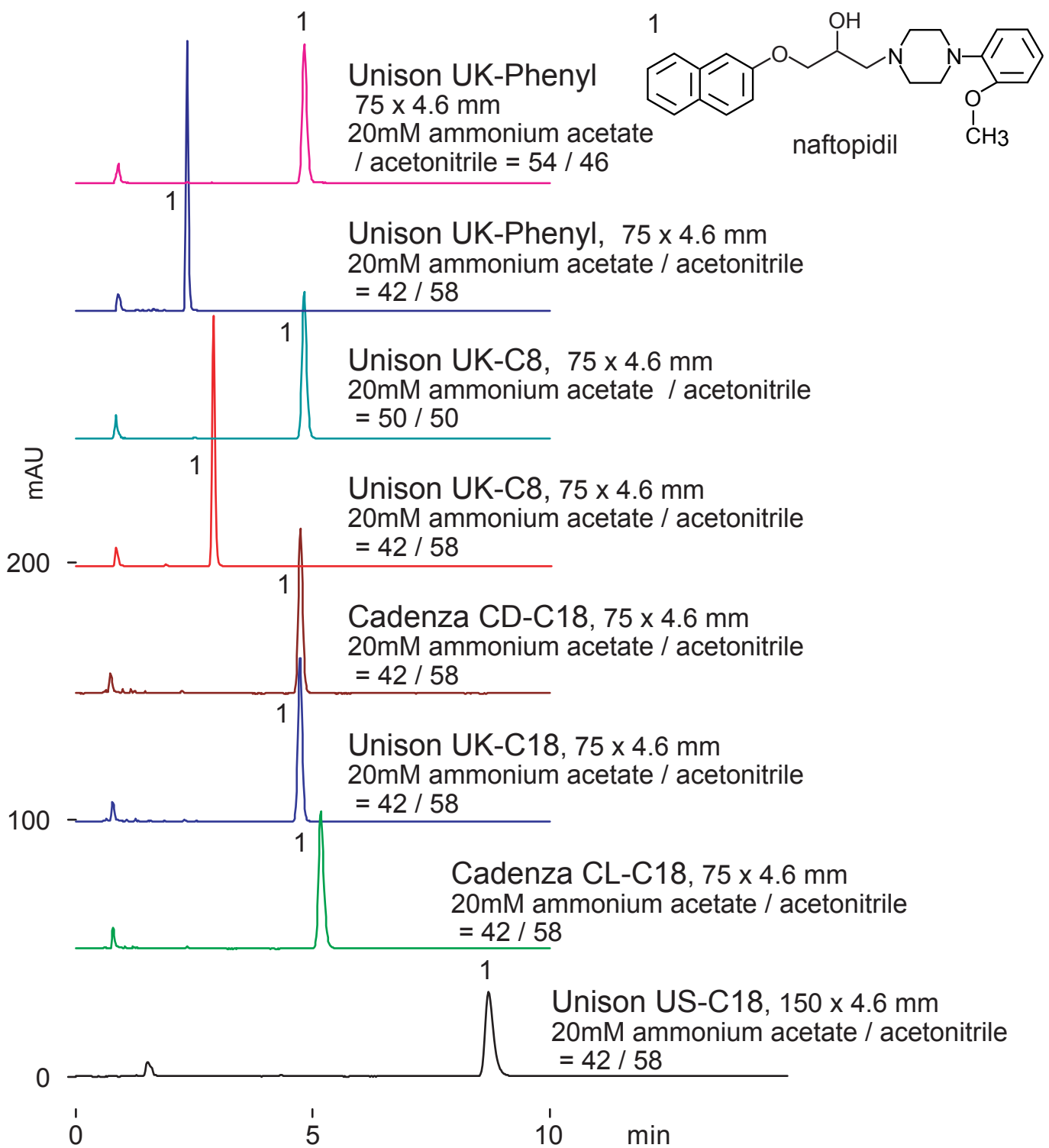
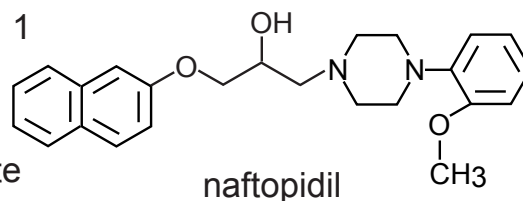
1 mL/min (4-6MPa), 37 deg.C, 260 nm, 1 uL (1ug, DMSO)

Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18 150 x 4.6 mm  
 Cadenza CL-C18 Unison US-C18

Application

### Naftopidil (alpha1-receptor blocker)

ナフトピジル (α1受容体選択的遮断薬)



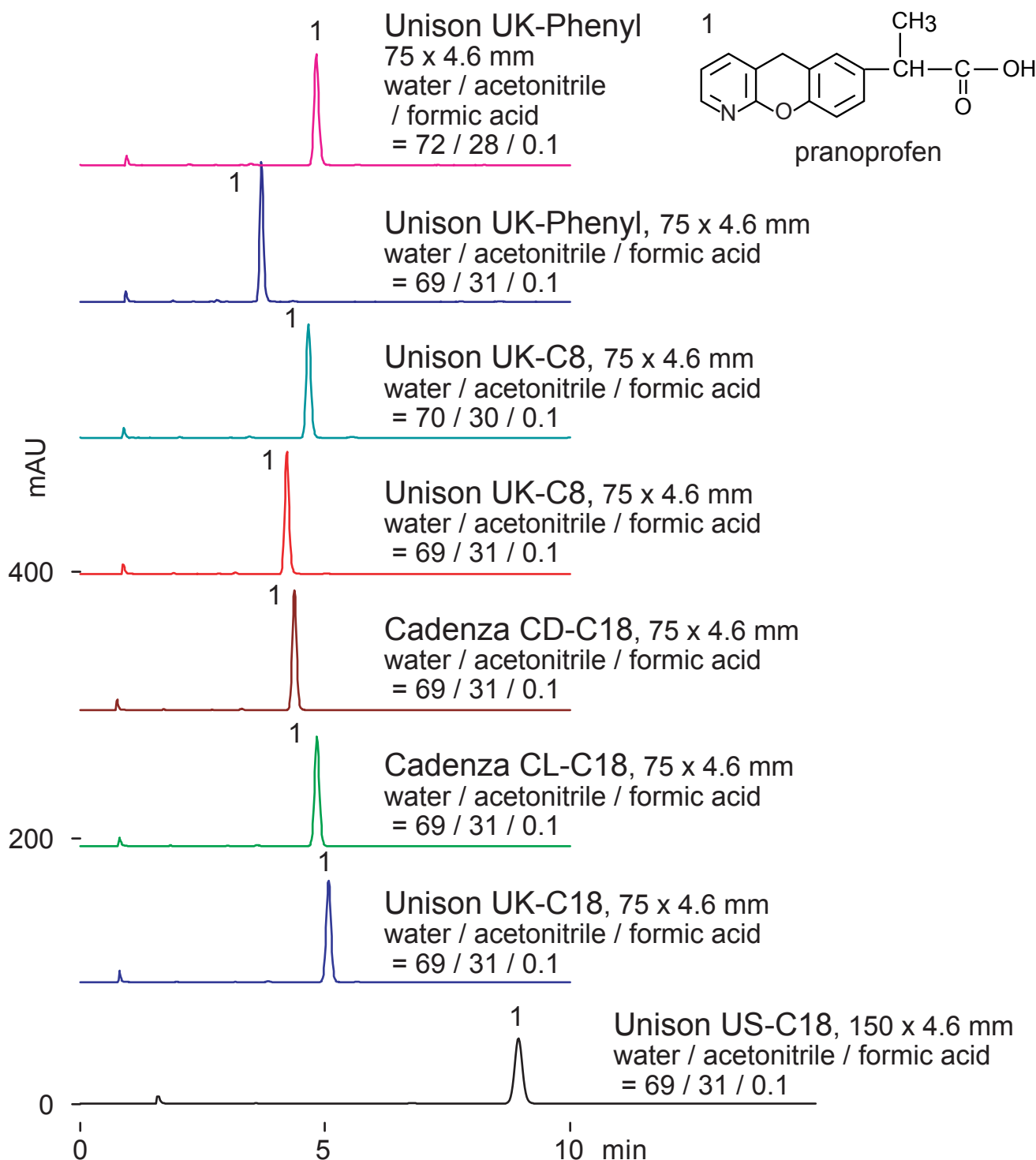
1 mL/min (6-8MPa), 37 deg.C, 260 nm, 1 uL (1ug, DMSO)

Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18 150 x 4.6 mm  
 Cadenza CL-C18 Unison US-C18

Application

## Pranoprofen (Nonsteroid anti-inflammatory drug:NSAID)

プラノプロフェン(非ステロイド性抗炎症薬:NSAID)



1 mL/min (4-6MPa), 37 deg.C, 260 nm, 1 uL (1ug, DMSO)

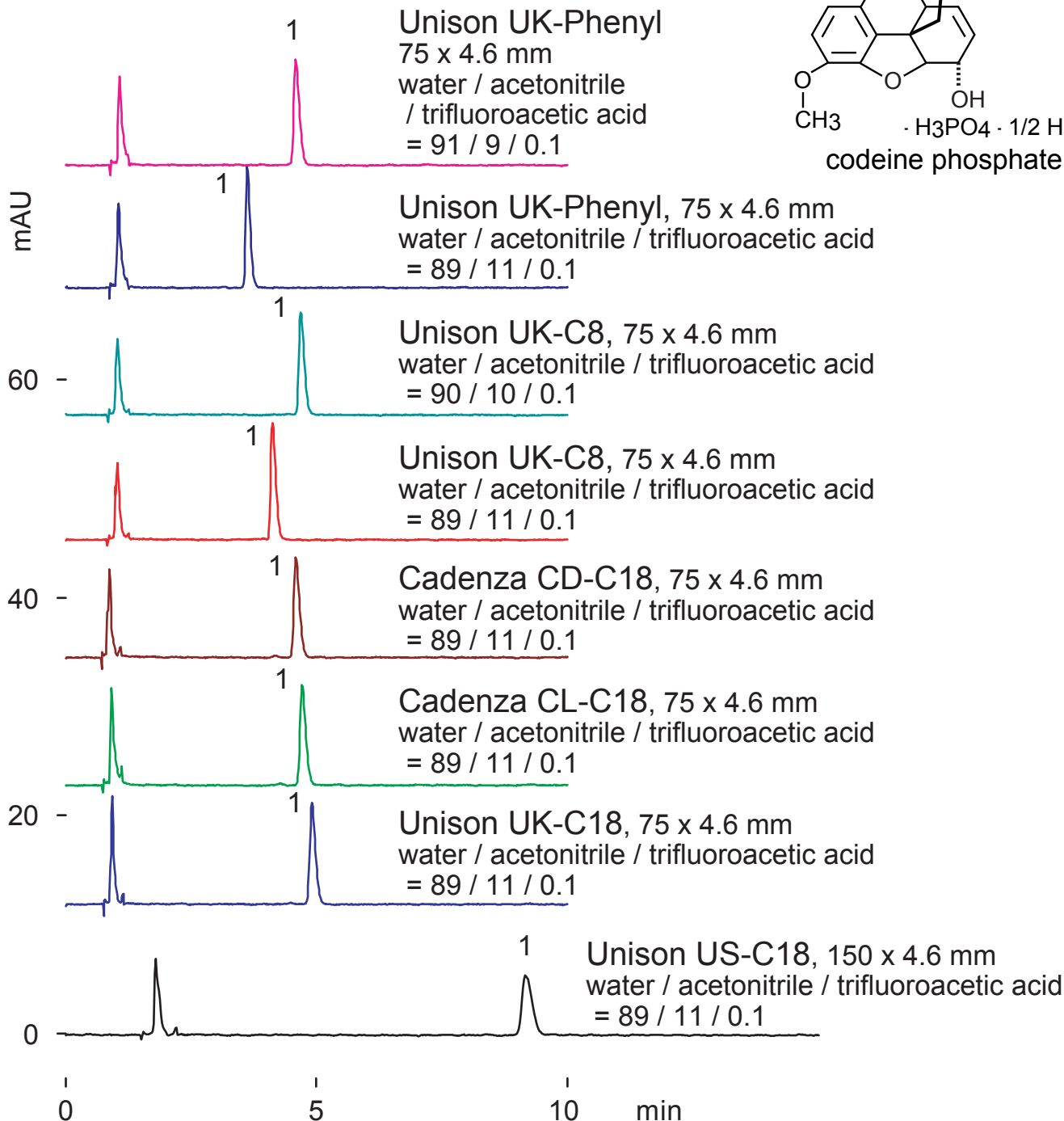
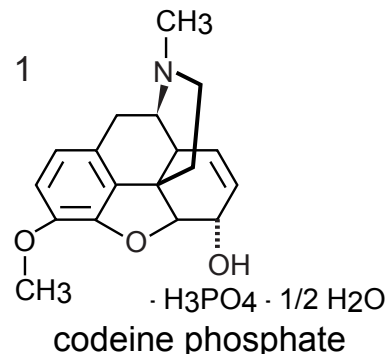


Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18  
 Cadenza CL-C18 Unison US-C18 150 x 4.6 mm

Application

### Codeine phosphate (Narcotic antitussive)

コデイン リン酸塩 (麻薬性鎮咳薬)



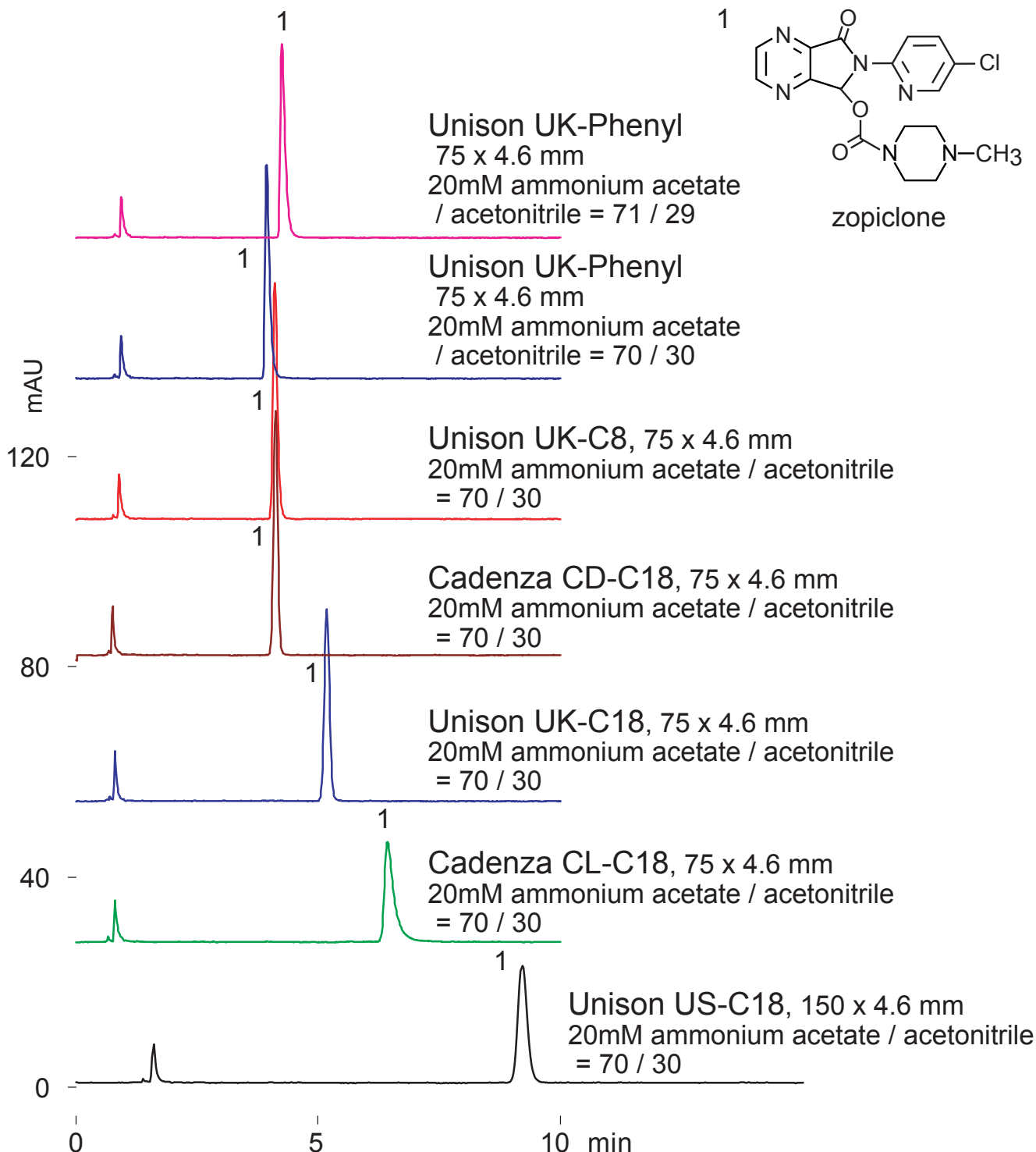
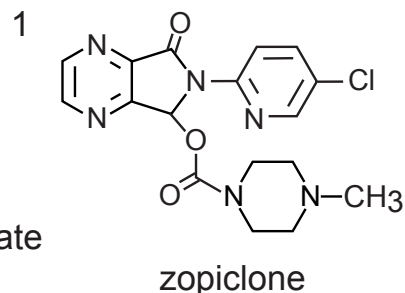
1 mL/min (4-6MPa), 37 deg.C, 260 nm, 2 uL (2ug, DMSO)

Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18 150 x 4.6 mm  
 Cadenza CL-C18 Unison US-C18

Application

## Zopiclone (Nonbenzodiazepine hypnotic)

ゾピクロン (非ベンゾジアゼピン系睡眠薬)



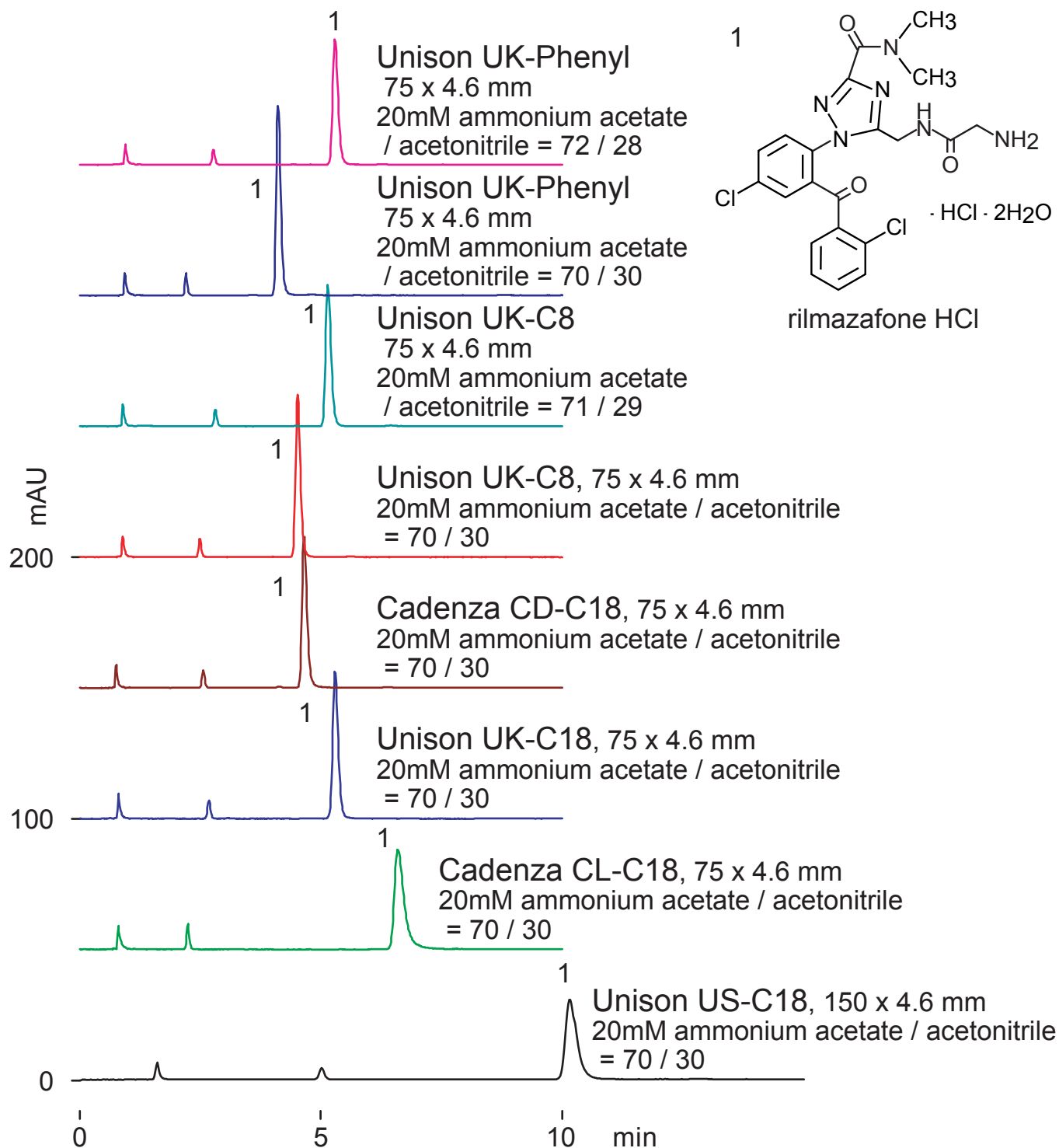
1 mL/min (5-6MPa), 37 deg.C, 260 nm, 1 uL (1ug, DMSO)

Unison UK-Phenyl Cadenza CD-C18  
 Unison UK-C8 Unison UK-C18 75 x 4.6 mm  
 Cadenza CL-C18 Unison US-C18 150 x 4.6 mm

Application

## Rilmazafone HCl (Benzodiazepine hypnotic)

リルマザホン 塩酸塩(ベンゾジアゼピン系睡眠誘導剤)



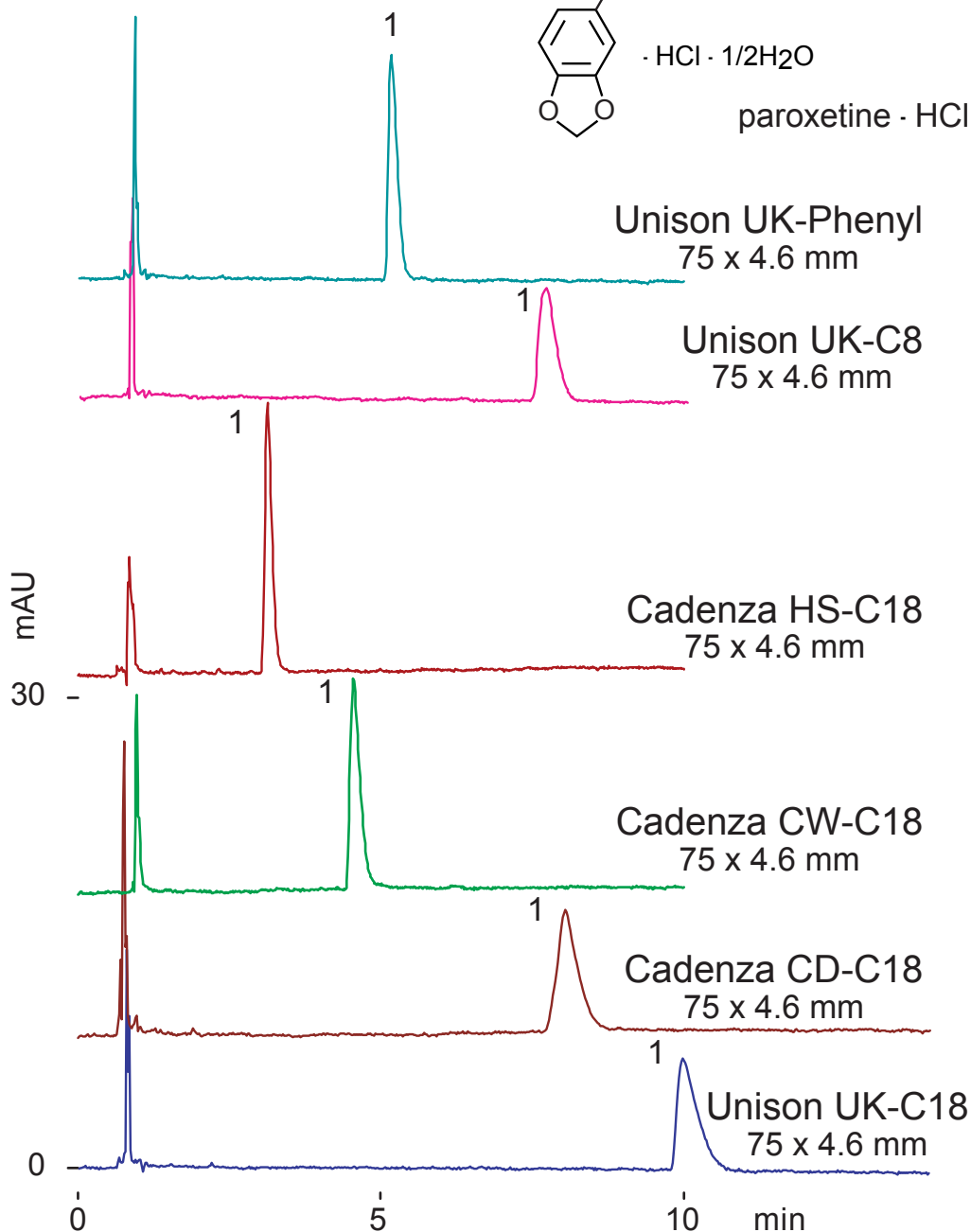
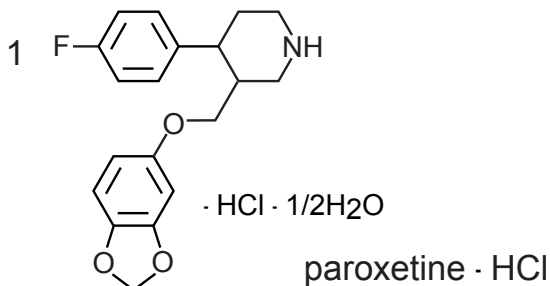
1 mL/min (5-6MPa), 37 deg.C, 260 nm, 1 uL (1ug, DMSO)

Unison UK-Phenyl Cadenza CW-C18  
 Unison UK-C8 Cadenza CD-C18  
 Cadenza HS-C18 Unison UK-C18 75 x 4.6 mm

Application

### Paroxetine HCl (Antidepressant)

パロキセチン 塩酸塩(うつ病治療薬)



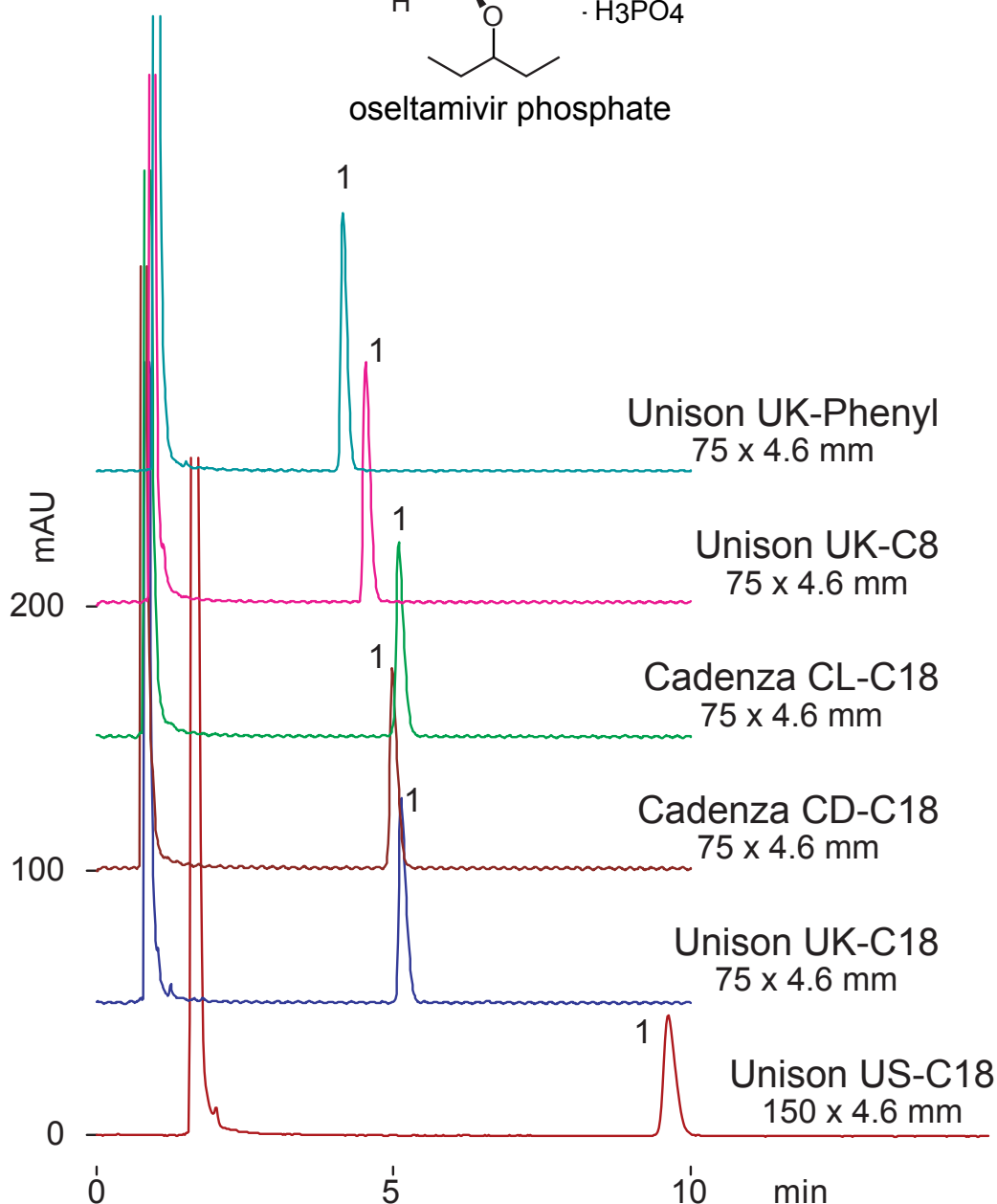
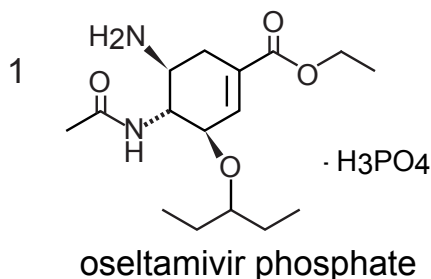
50mM ammonium formate / acetonitrile = 70 / 30  
 1 mL/min (6-7MPa), 37 deg.C, 260 nm, 2 uL (2ug, DMSO)

Unison UK-Phenyl Cadenza CD-C18 75 x 4.6 mm  
 Unison UK-C8 Unison UK-C18 150 x 4.6 mm  
 Cadenza CL-C18 Unison US-C18

Application

## Oseltamivir phosphate (Anti-flu medicine)

オセルタミビル リン酸塩 (インフルエンザ治療薬)



water / acetonitrile / trifluoroacetic acid = 74 / 26 / 0.1  
 1 mL/min (4-5MPa), 37 deg.C, 220 nm, 1 uL (1ug, DMSO)

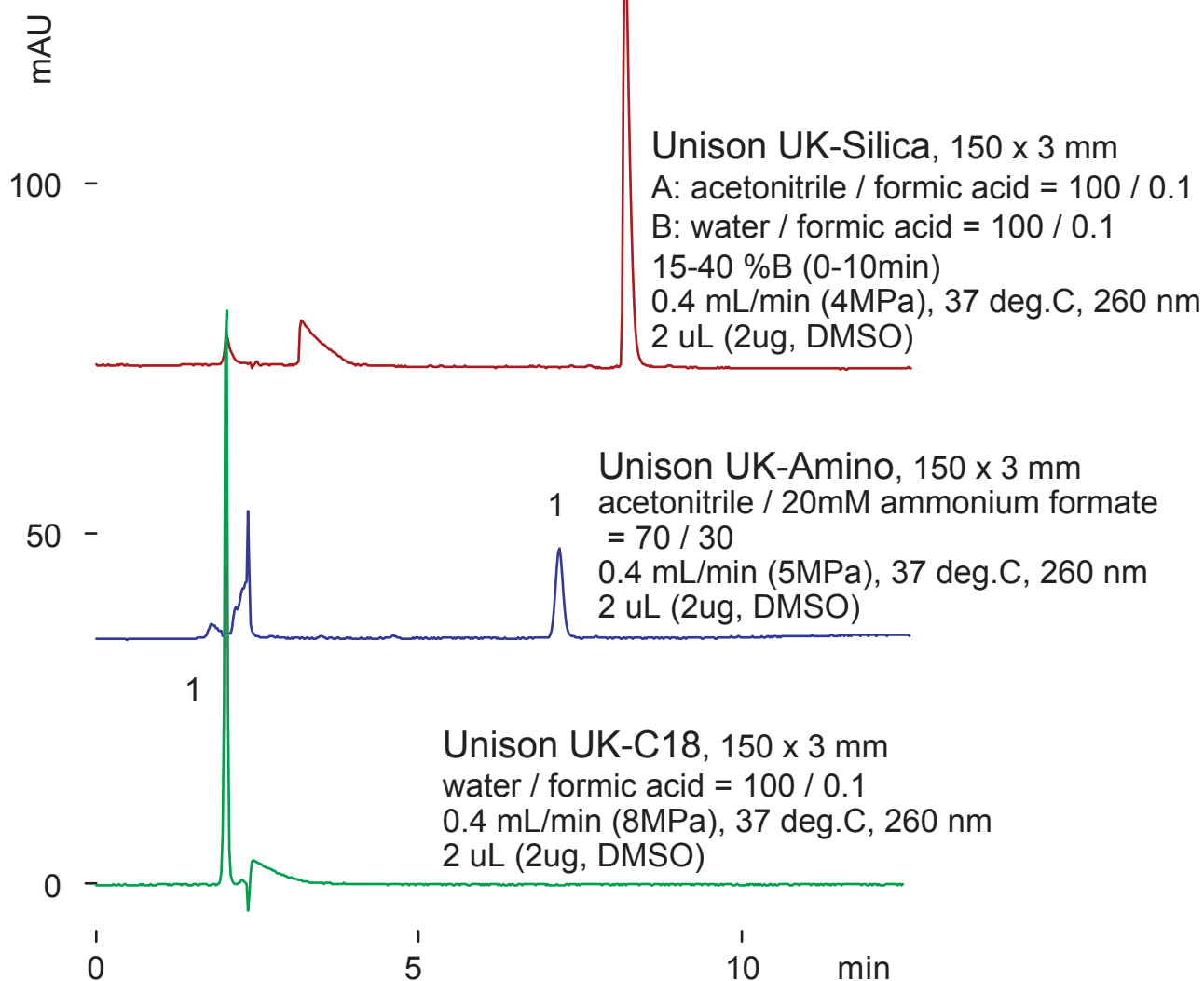
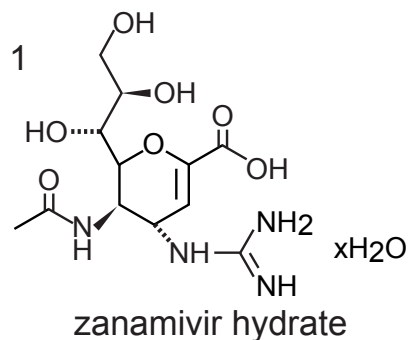
Unison UK-Silica  
 Unison UK-Amino  
 Unison UK-C18

150 x 3 mm

Application

### Zanamivir (Anti-flu medicine)

ザナミビル(インフルエンザ治療薬)

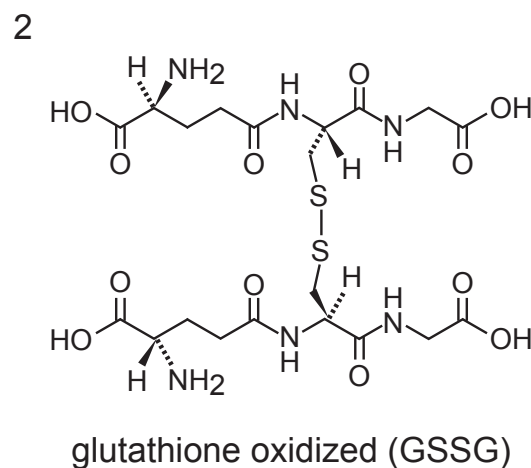
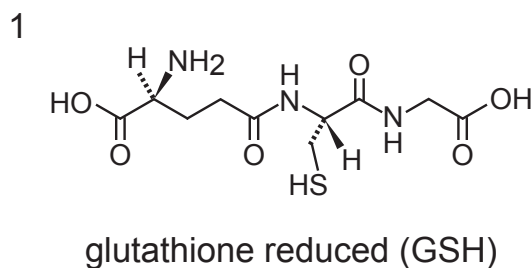
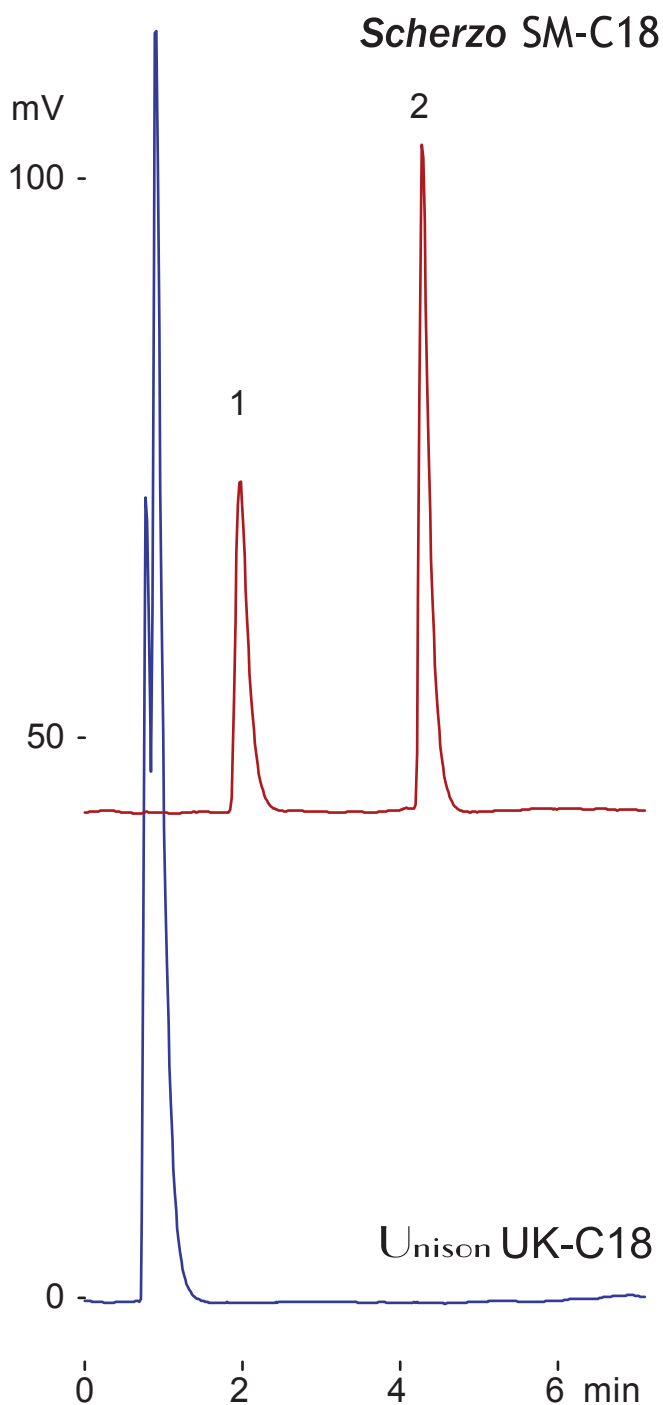


**Scherzo SM-C18**  
Unison UK-C18

50 x 3 mm

Application

**Glutathiones**  
グルタチオン



50 x 3 mm  
 A: 5mM ammonium acetate  
 B: 100mM ammonium acetate / ACN  
 = 50 / 50  
 0-100 %B (0-5min), 0 %B (5-10min)  
 0.4 mL/min (3MPa), 37 deg.C, ELSD  
 2 uL (2ug)

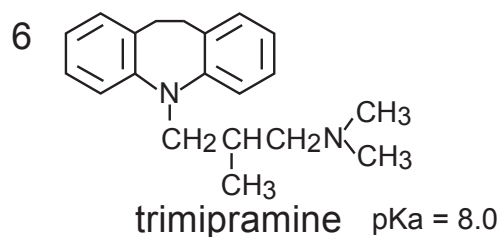
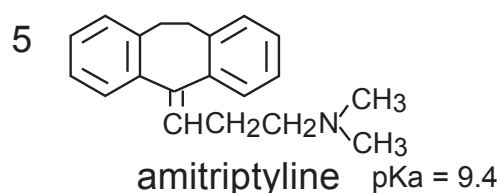
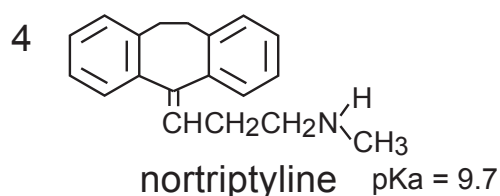
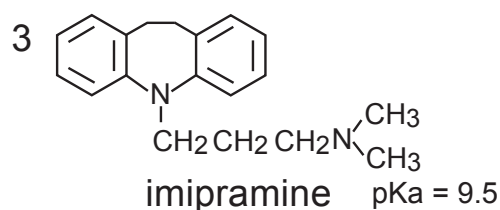
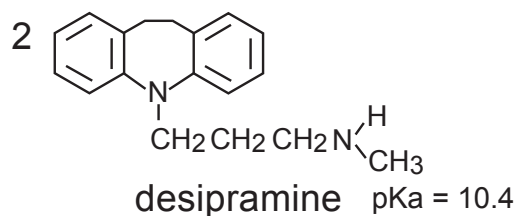
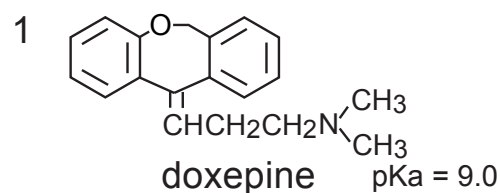
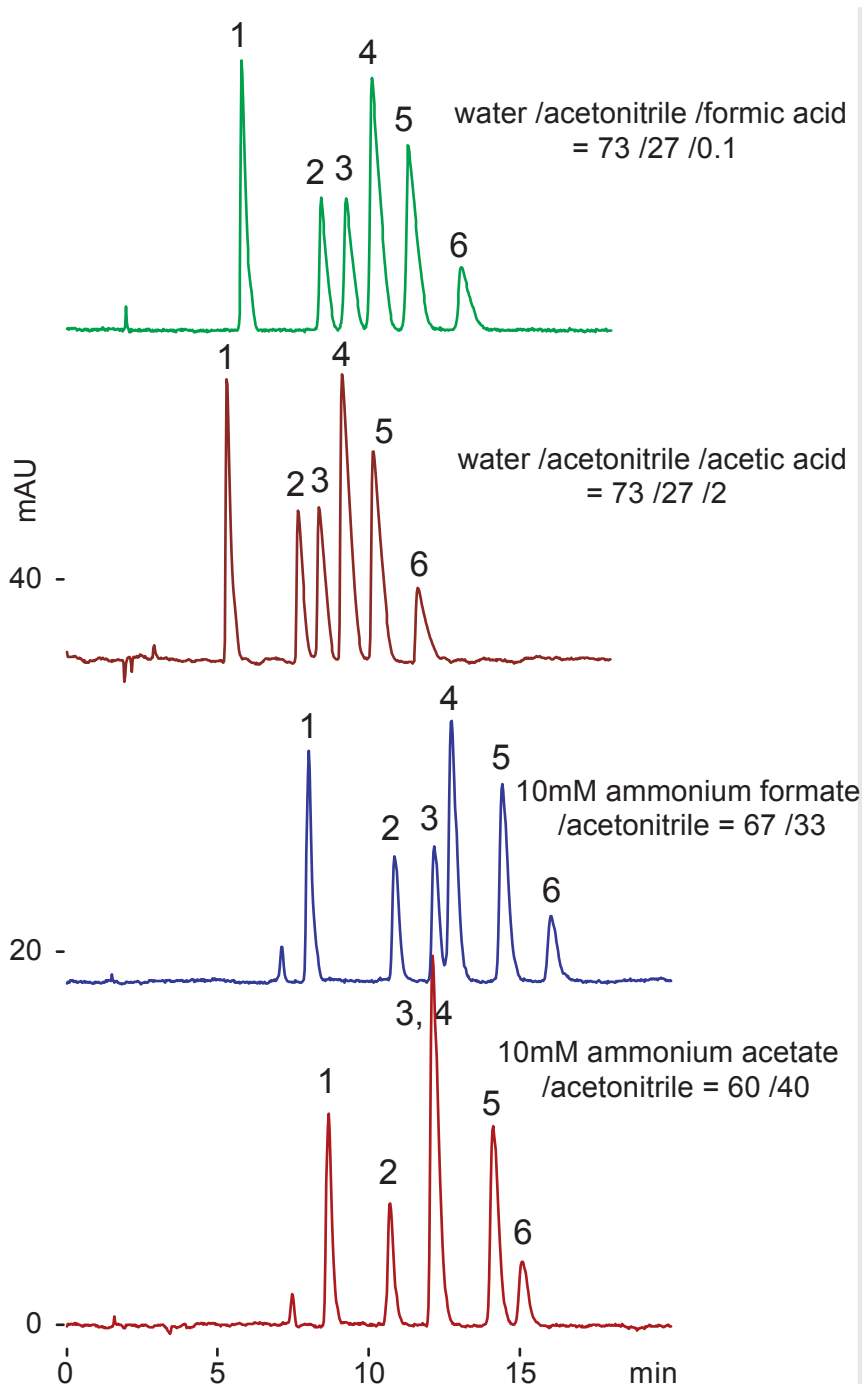
Scherzo SM-C18

150 x 3 mm

Application

Basic compounds: Antidepressant drugs

塩基性化合物: 抗うつ薬



Scherzo SM-C18, 150 x 3 mm  
0.4 mL/min (9-11MPa), 37 deg.C, 240 nm  
0.6 uL (120ng)



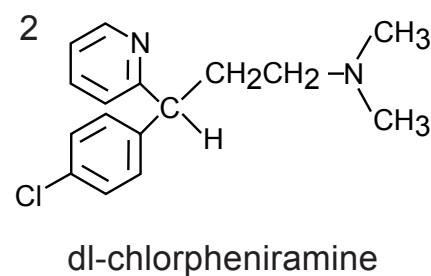
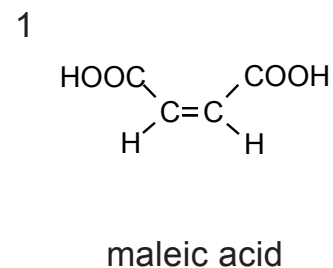
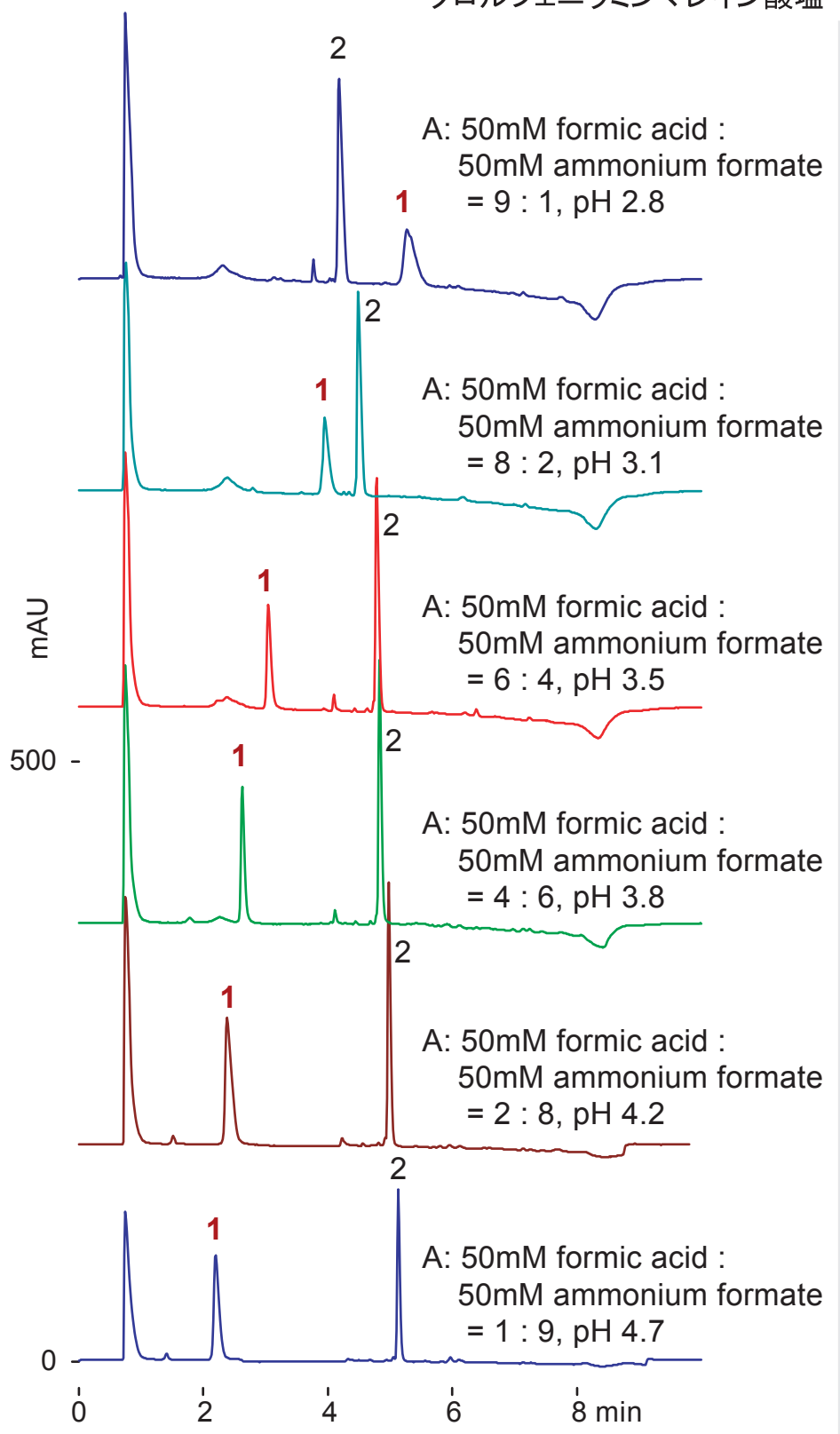
Scherzo SM-C18

50 x 3 mm

Application

**Chlorpheniramine maleate**

クロルフェニラミンマレイン酸塩



Scherzo SM-C18  
 50 x 3 mm  
 A: formate buffer  
 B: acetonitrile  
 0-70 %B (0-7min)  
 0.4 mL/min (5MPa)  
 37 deg.C, 240 nm  
 2 uL (2ug)

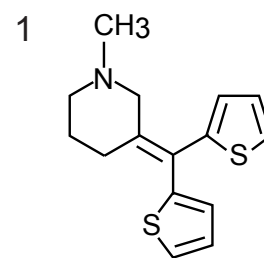
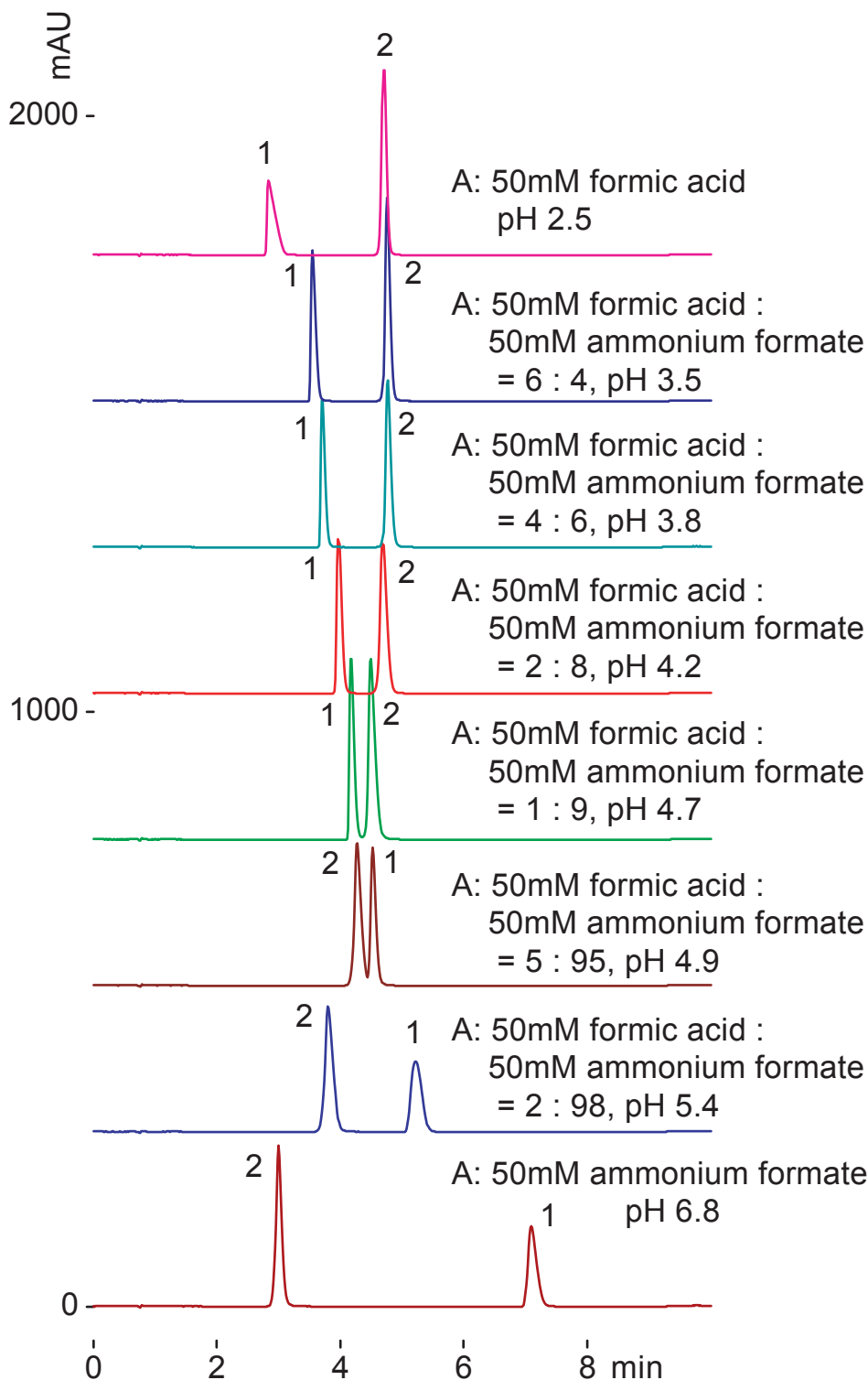
Scherzo SM-C18

50 x 3 mm

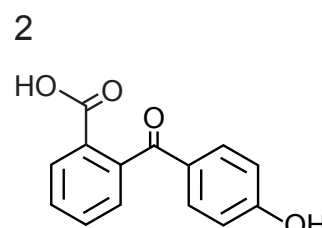
Application

Tipepidine hibenzate

チペピジン ヒベンズ酸塩



tipepidine



hibenzic acid

Scherzo SM-C18

50 x 3 mm

A: formate buffer

B: acetonitrile

20-60 %B (0-8min)

0.4 mL/min (6-8MPa)

37 deg.C, 280 nm

0.6 uL (1.2ug)

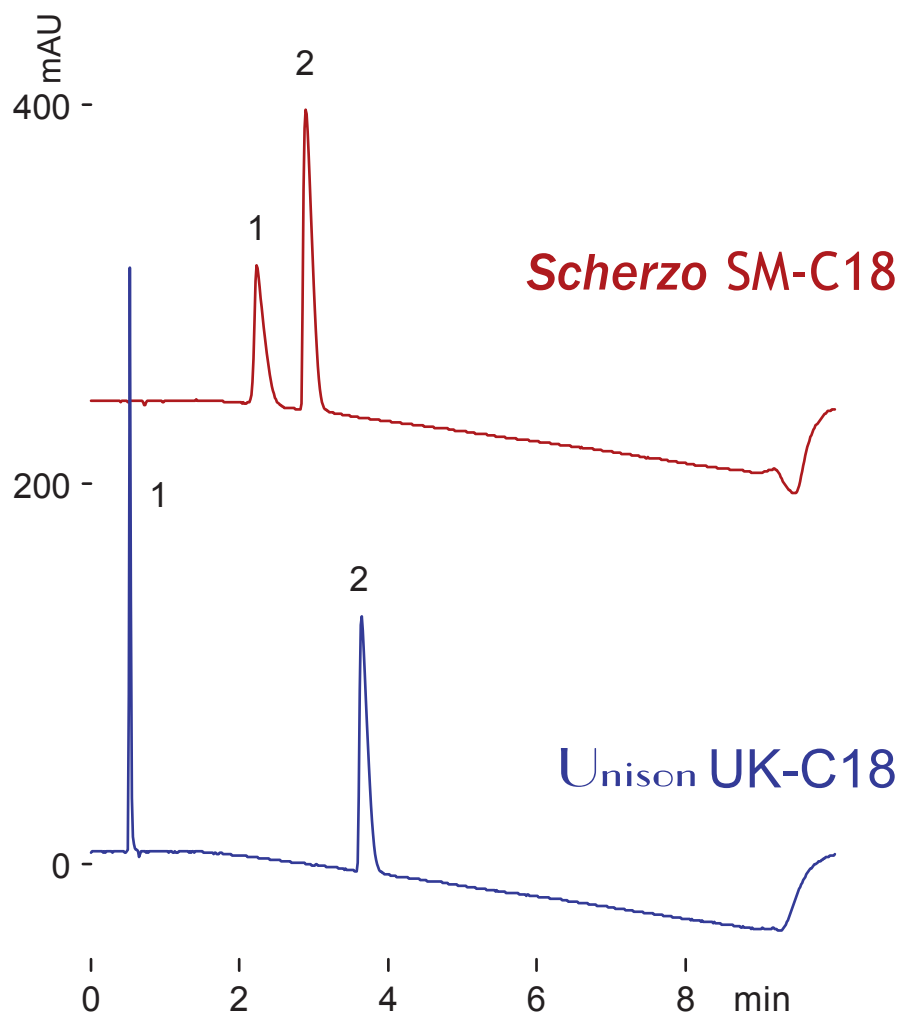
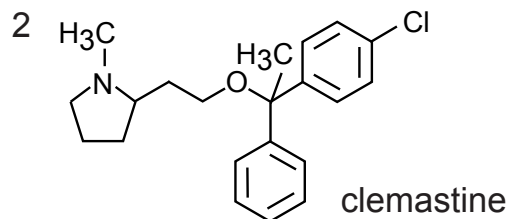
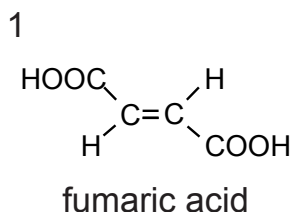
**Scherzo SM-C18**  
Unison UK-C18

50 x 3 mm

Application

**Clemastine fumarate**

クレマスチン フマル酸塩



50 x 3 mm

A: 50mM formic acid : 50mM ammonium formate = 4 : 6, pH 3.8

B: acetonitrile, 40-70 %B (0-8min), 0.4 mL/min (7MPa)

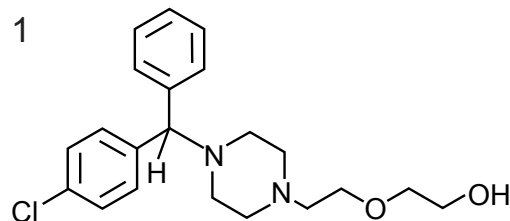
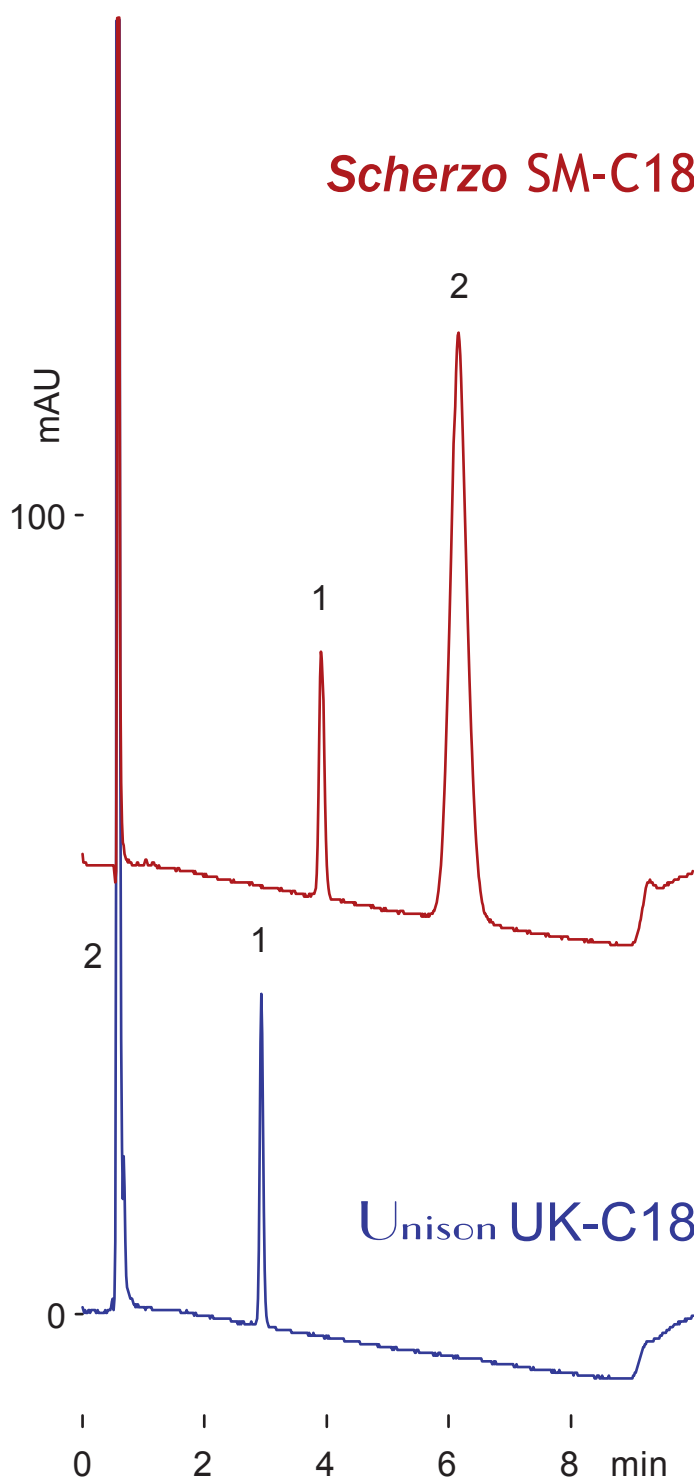
37 deg.C, 230 nm, 0.6 uL (1.2ug)

Scherzo SM-C18  
Unison UK-C18

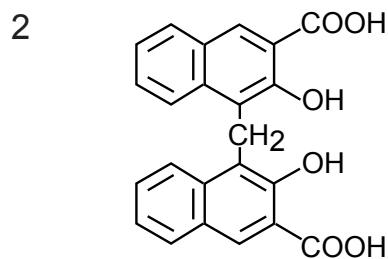
50 x 3 mm

Application

Hydroxyzine pamoate  
ヒドロキシジン パモ酸塩



hydroxyzine



pamoic acid

50 x 3 mm  
A: 100mM ammonium formate  
B: acetonitrile  
40-70 %B (0-8min)  
0.4 mL/min (8MPa), 37 deg.C  
235 nm, 1 uL (0.1ug)

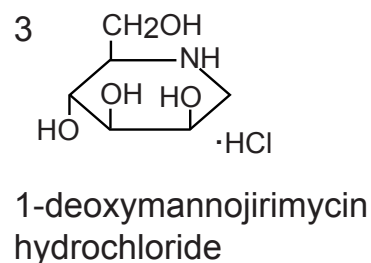
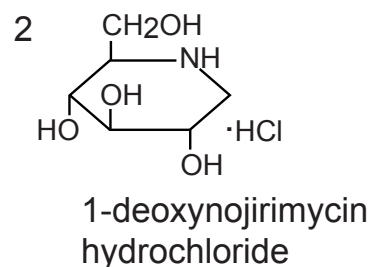
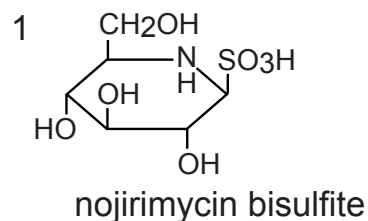
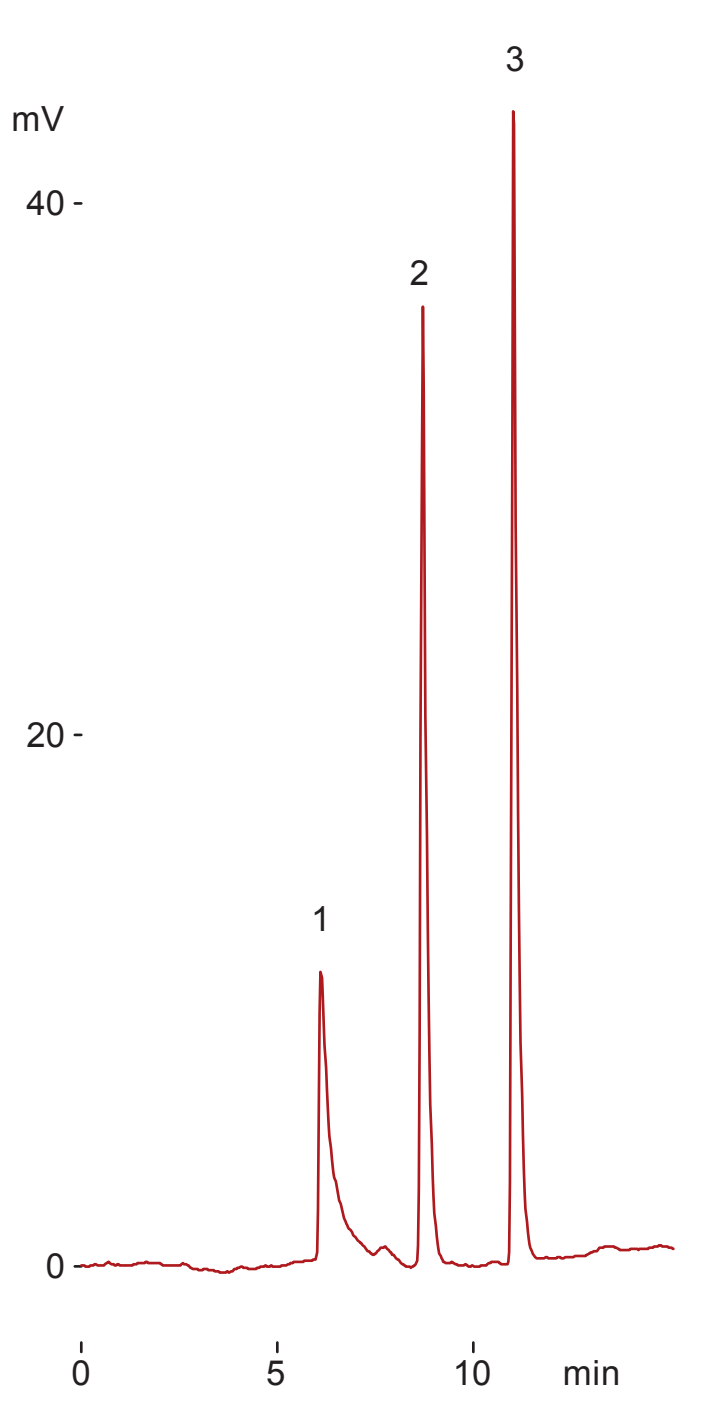
Scherzo SM-C18

250 x 4.6 mm

Application

Nojirimycin relative compounds

ノジリマイシン関連化合物



Scherzo SM-C18, 250 x 4.6 mm

A: 5mM ammonium acetate

B: 200mM ammonium acetate / acetonitrile = 80 / 20

0 -40 %B (0-10min)

0.5 mL/min (7MPa), 37 deg.C

ELSD (spray chamber 50 deg.C, drift tube 100 deg.C)

5 uL (1.25-2.5ug)

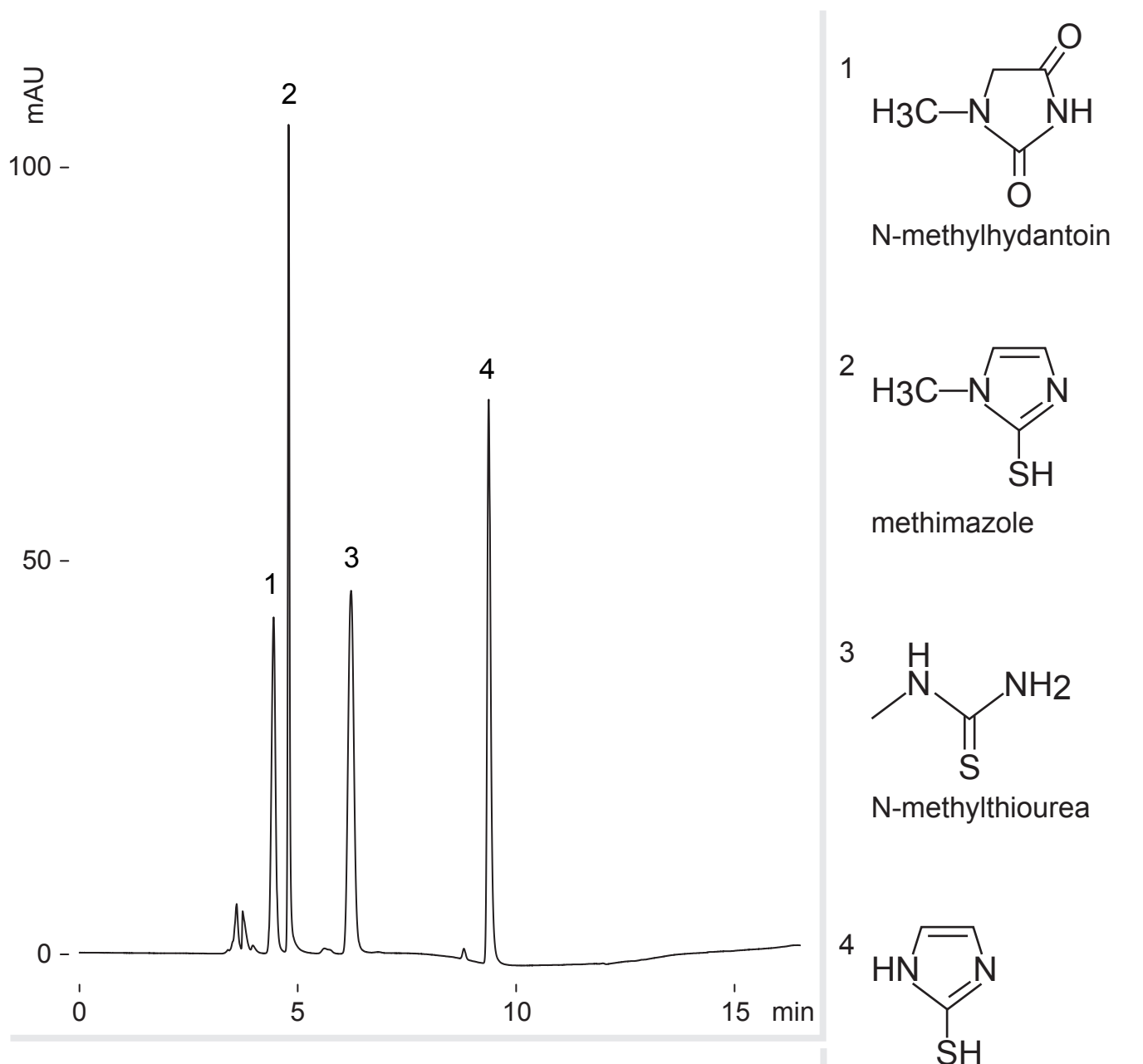
Unison UK-Amino

250 x 3 mm

Application

Methimazole and potential metabolites

メチマゾールと代謝物



Unison UK-Amino, 250 x 3 mm  
 A: acetonitrile, B: 10mM ammonium formate  
 1-25 %B (0-15min)  
 0.4 mL/min (5MPa), 50 deg.C, 230 nm  
 2.4 uL (0.07-0.35 ug, diluted with ethanol)

Courtesy of Takeo Sakuma, Ph.D, MDS Analytical Technologies (SCIEX), Canada

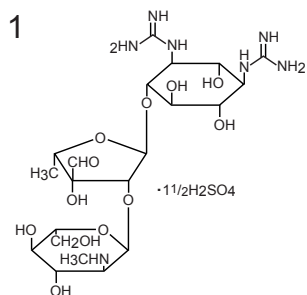
Scherzo SM-C18

150 x 3 mm

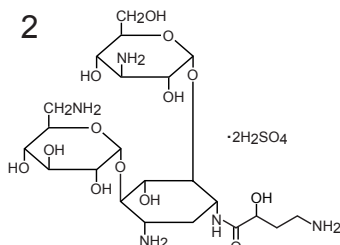
Application

**Aminoglycoside antibiotics**

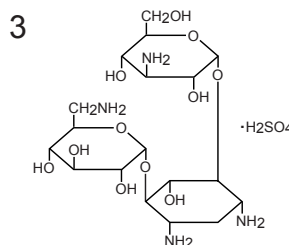
アミノグリコシド系抗生物質



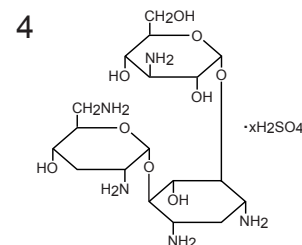
streptomycin sulfate



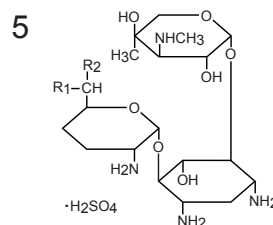
amikacin disulfate



kanamycin sulfate

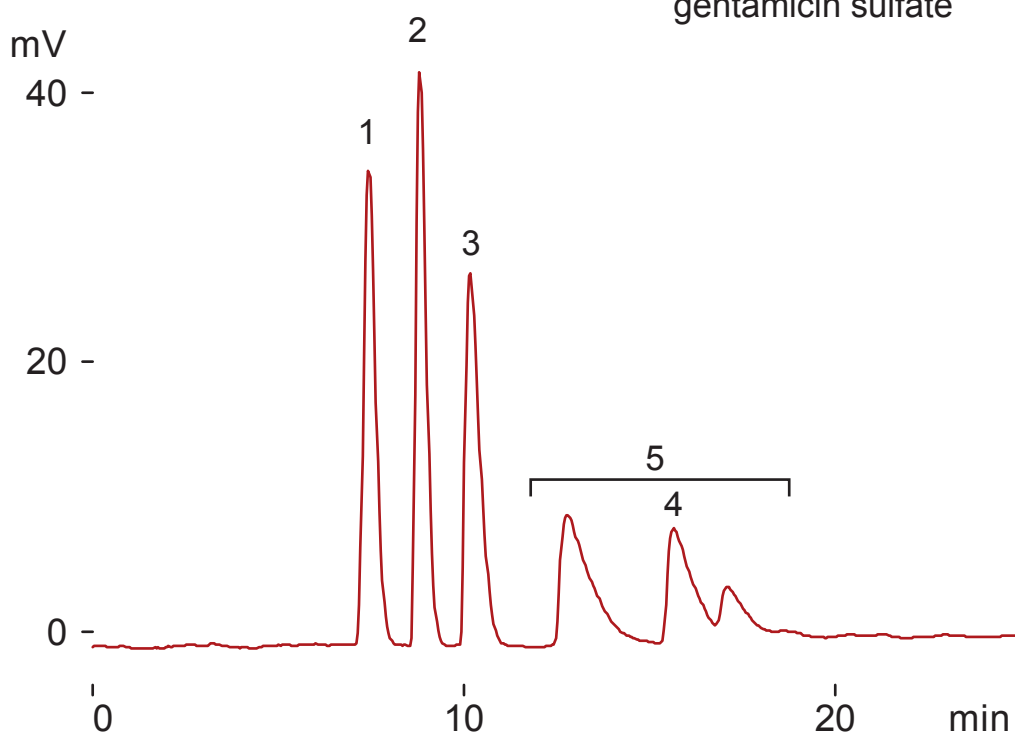


tobramycin sulfate



gentamicin sulfate

C1 : R1 = CH3  
R2 = NHCH3  
C2 : R1 = CH3  
R2 = NH2  
C2b: R1 = H  
R2 = NHCH3



Scherzo SM-C18, 150 x 3 mm

A: 5mM acetic acid : 5mM ammonium acetate = 1 : 1, pH 4.7

B: (200mM acetic acid : 200mM ammonium acetate = 1 : 1, pH 4.7)  
/ acetonitrile = 70 / 30

0-100 %B (0-20min), 0.4 mL/min (8MPa), 37 deg.C

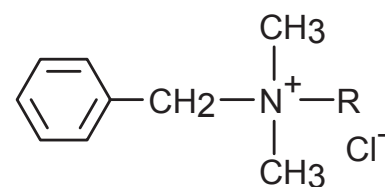
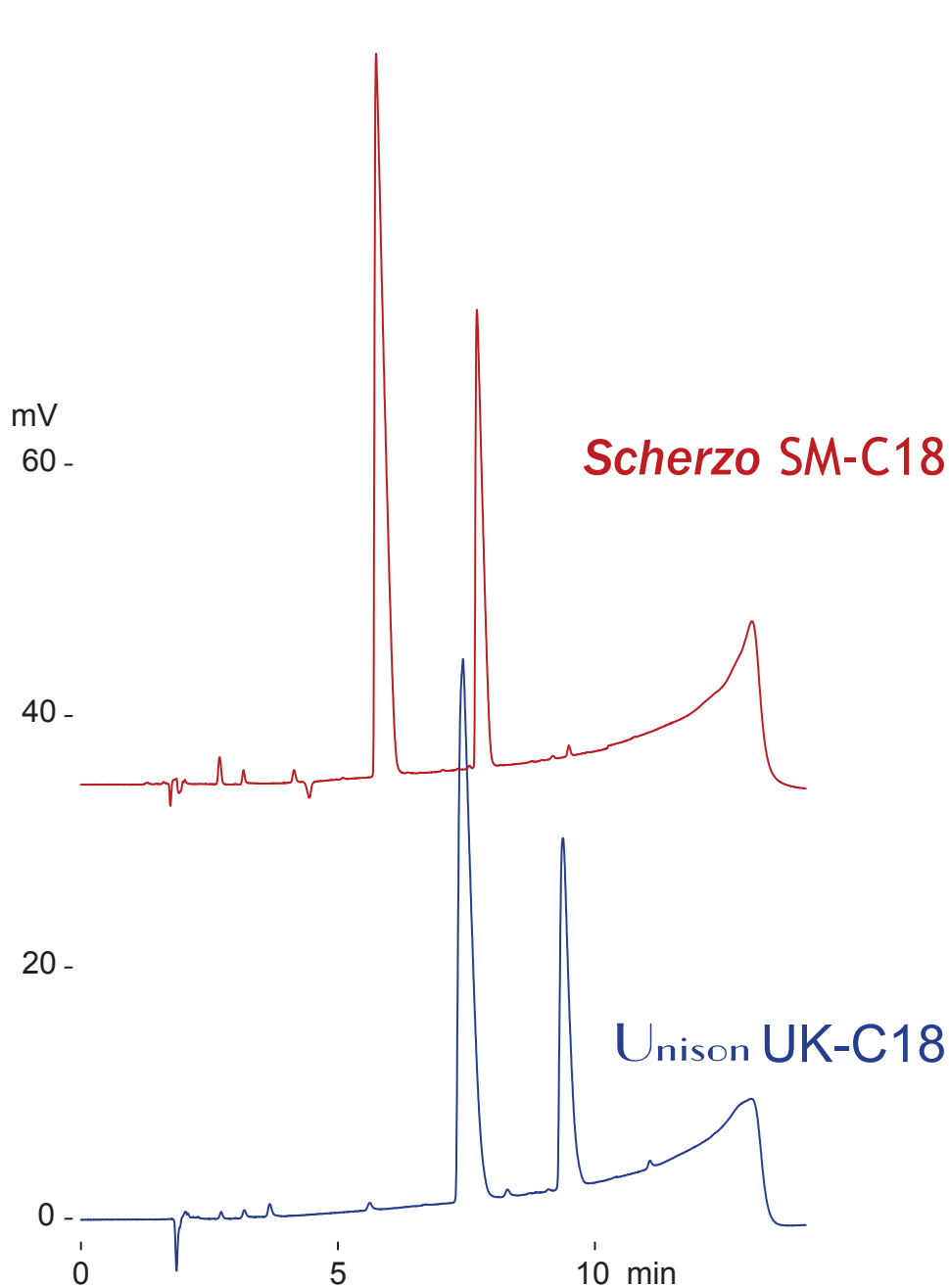
ELSD (spray chamber 50 deg.C, drift tube 100 deg.C), 1 uL (5 ug)

**Scherzo SM-C18**  
Unison UK-C18

150 x 3 mm

Application

**Benzalkonium chloride**  
塩化ベンザルコニウム



benzalkonium chloride

150 x 3 mm

A: 10mM nitric acid

B: methanol / 1M nitric acid = 100 / 1

70-100 %B (0-10min)

0.4 mL/min (12-13MPa), 37 deg.C, 260 nm, 3 uL (15 ug)



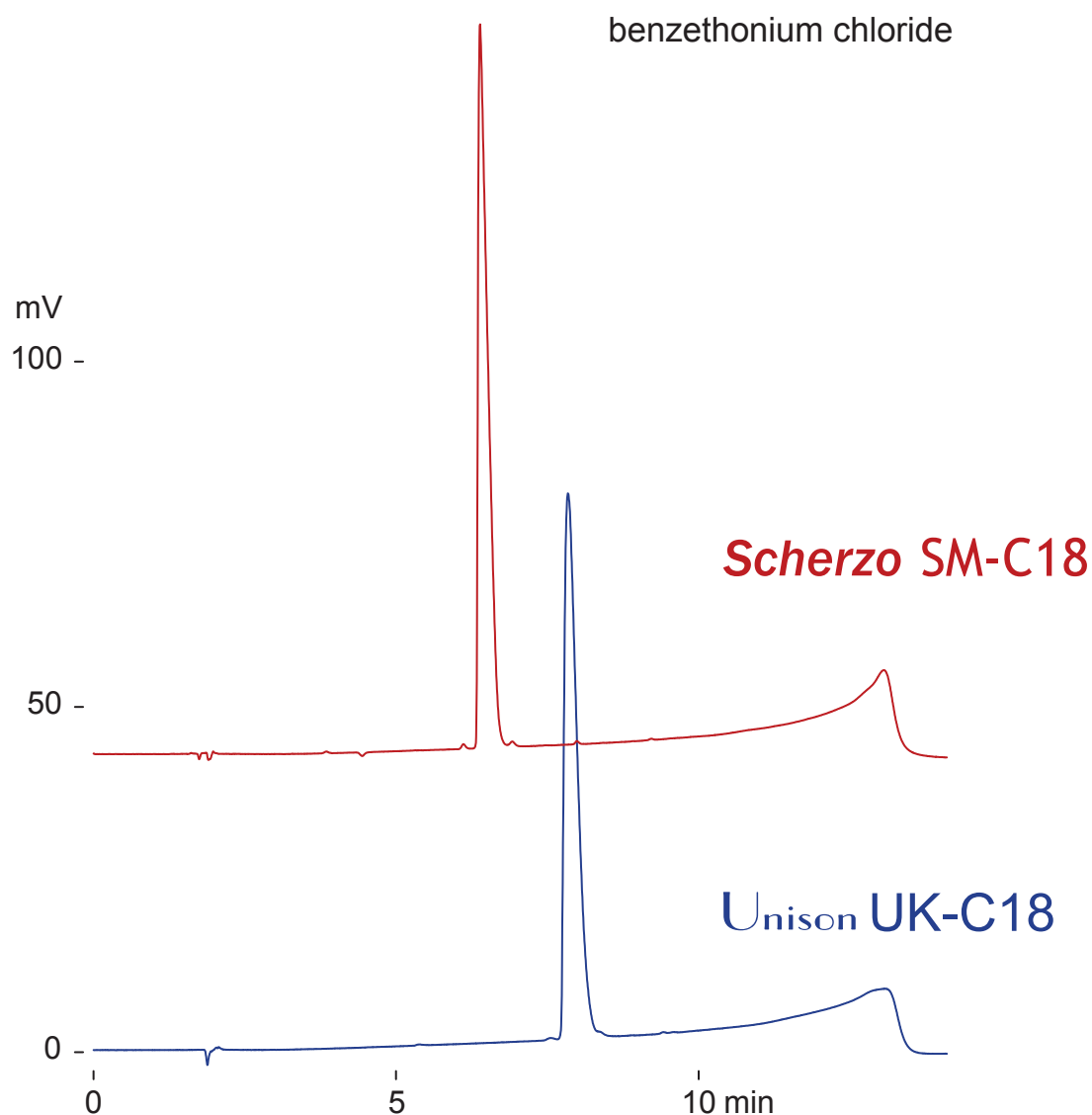
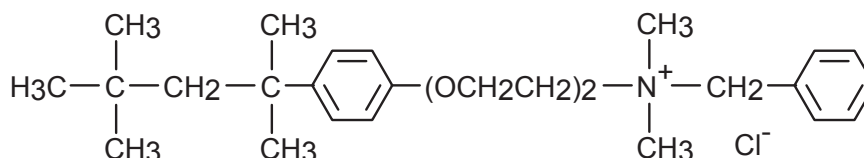
**Scherzo SM-C18**  
Unison UK-C18

250 x 3 mm

Application

**Benzethonium chloride**

塩化ベンゼトニウム



150 x 3 mm  
 A: 10mM nitric acid  
 B: methanol / 1M nitric acid = 100 / 1  
 70-100 %B (0-10min)  
 0.4 mL/min (12-13MPa), 37 deg.C, 260 nm, 1.6 uL (8 ug)

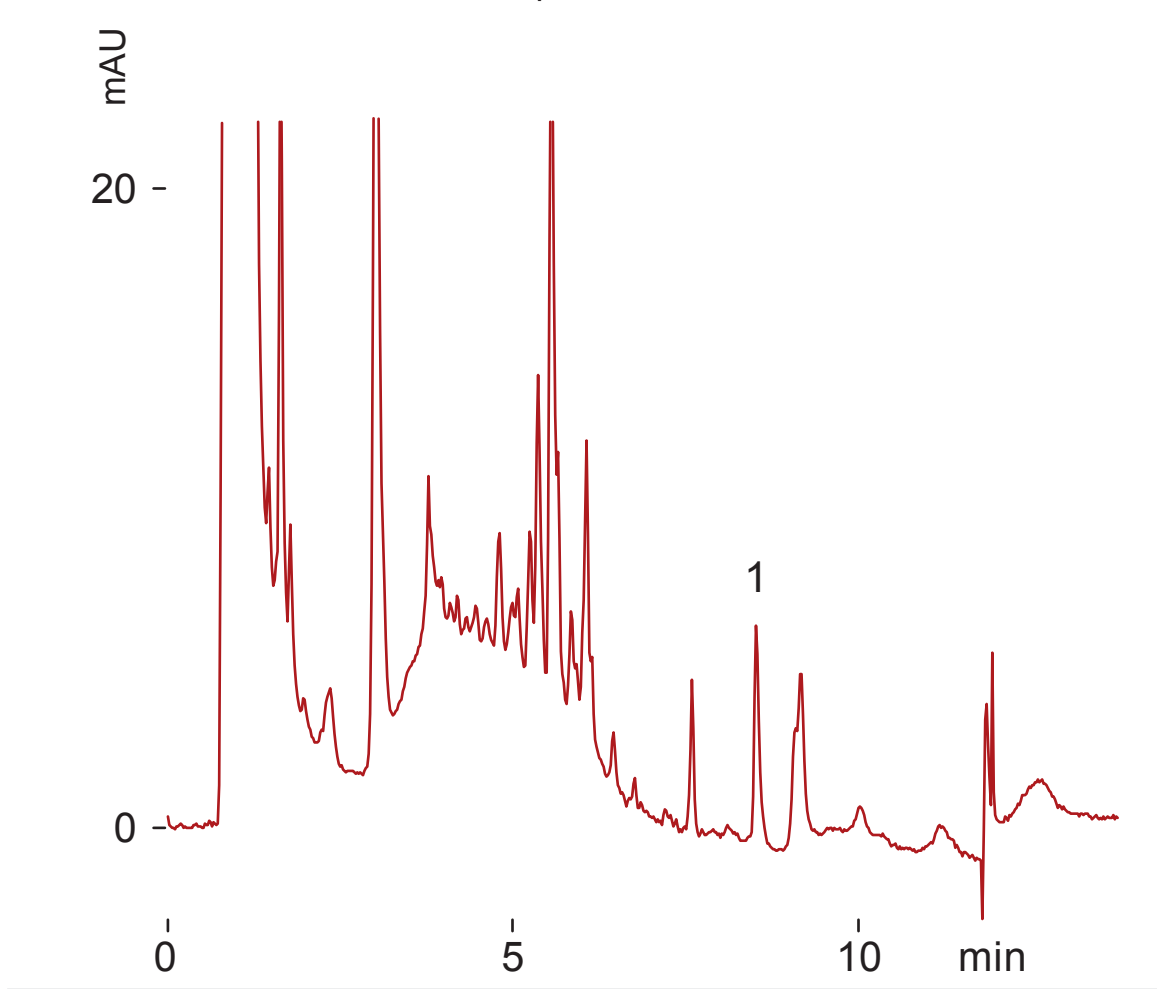
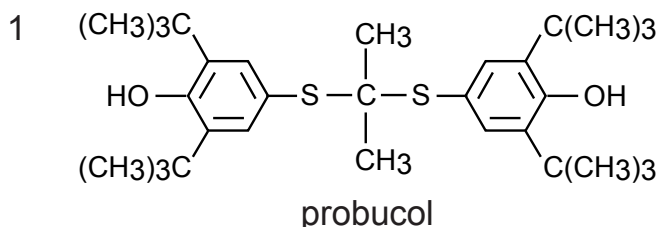
Cadenza HS-C18

150 x 3 mm

Application

Anti-hyperlipidemic drug in bovine serum (probucol)

血清中の脂質降下薬(プロブコール)



Cadenza HS-C18, 150 x 3 mm  
 A: 50mM ammonium formate, B: acetonitrile  
 0-80 %B (0-10min), 0.5 mL/min (14MPa)  
 37 deg.C, 280 nm, 5 uL (0.5ug)

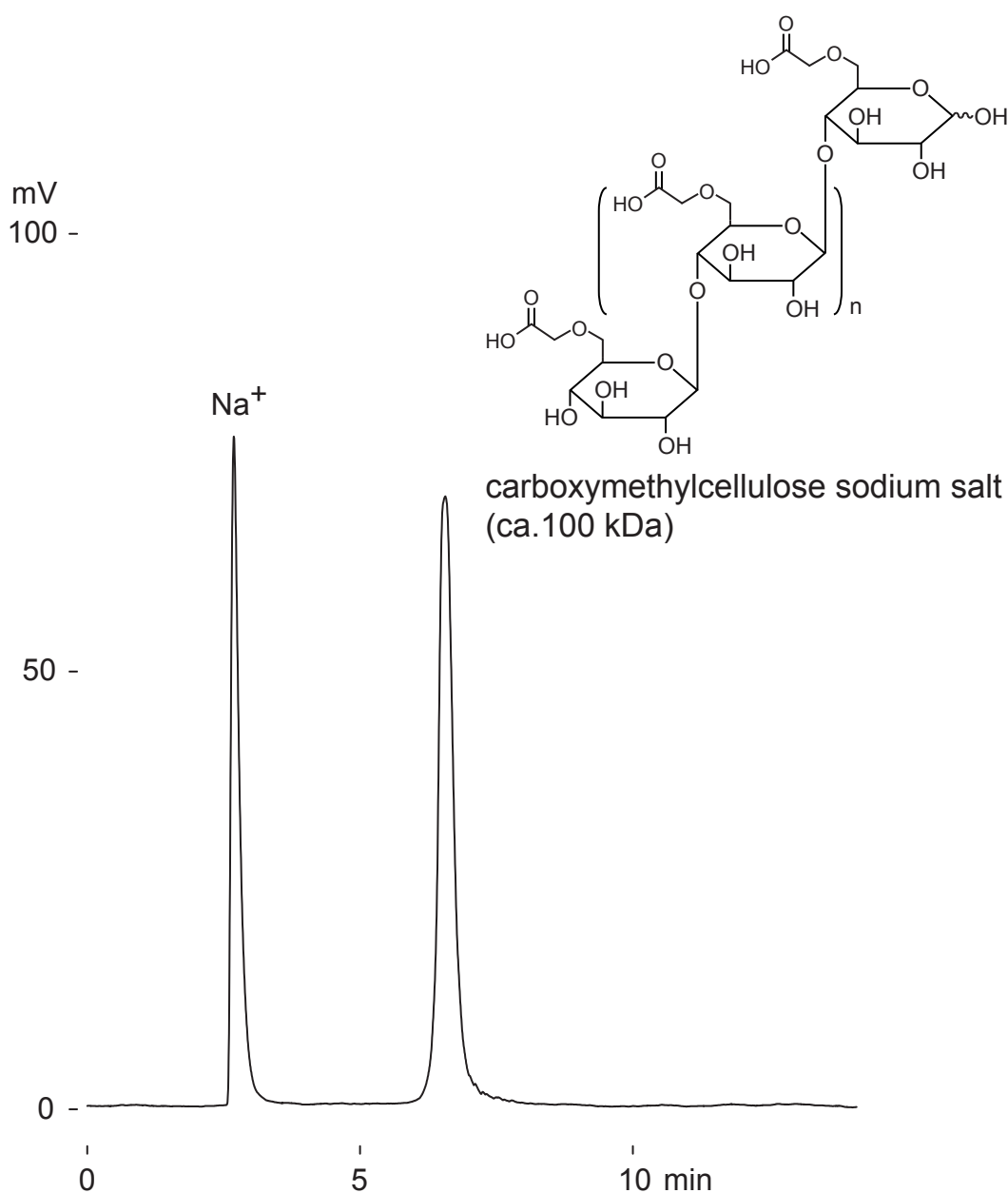
Presto FF-C18

150 x 4.6 mm

Application

## Carboxymethylcellulose

カルボキシメチルセルロース



Presto FF-C18, 150 x 4.6mm

A: water / trifluoroacetic acid = 100 / 0.1

B: acetonitrile / trifluoroacetic acid = 100 / 0.1

5-60 %B (0-10min), 0.4 mL/min (23MPa), 37 deg.C

ELSD (spray chamber 50deg.C, drift tube 100deg.C)

8 uL (16ug)

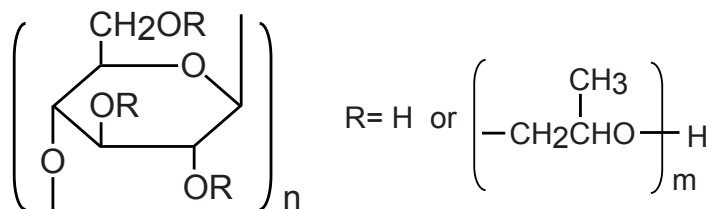
Presto FF-C18

150 x 4.6 mm

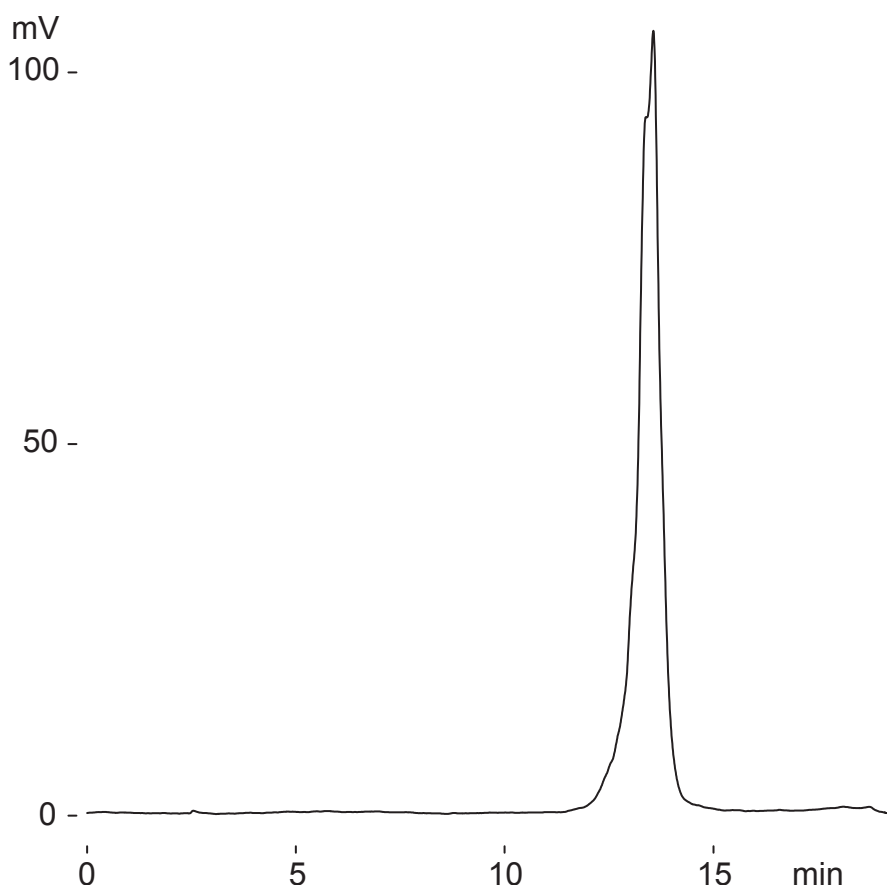
Application

### Hydroxypropylcellulose

ヒドロキシプロピルセルロース



hydroxypropylcellulose  
(55 ~ 70 kDa)



Presto FF-C18, 150 x 4.6mm

A: water

B: acetonitrile

5-90 %B (0-15min), 0.4 mL/min (21MPa), 37 deg.C

ELSD (spray chamber 50deg.C, drift tube 100deg.C), 2 uL (10ug)

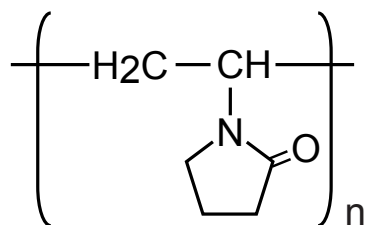
Presto FF-C18

150 x 4.6 mm

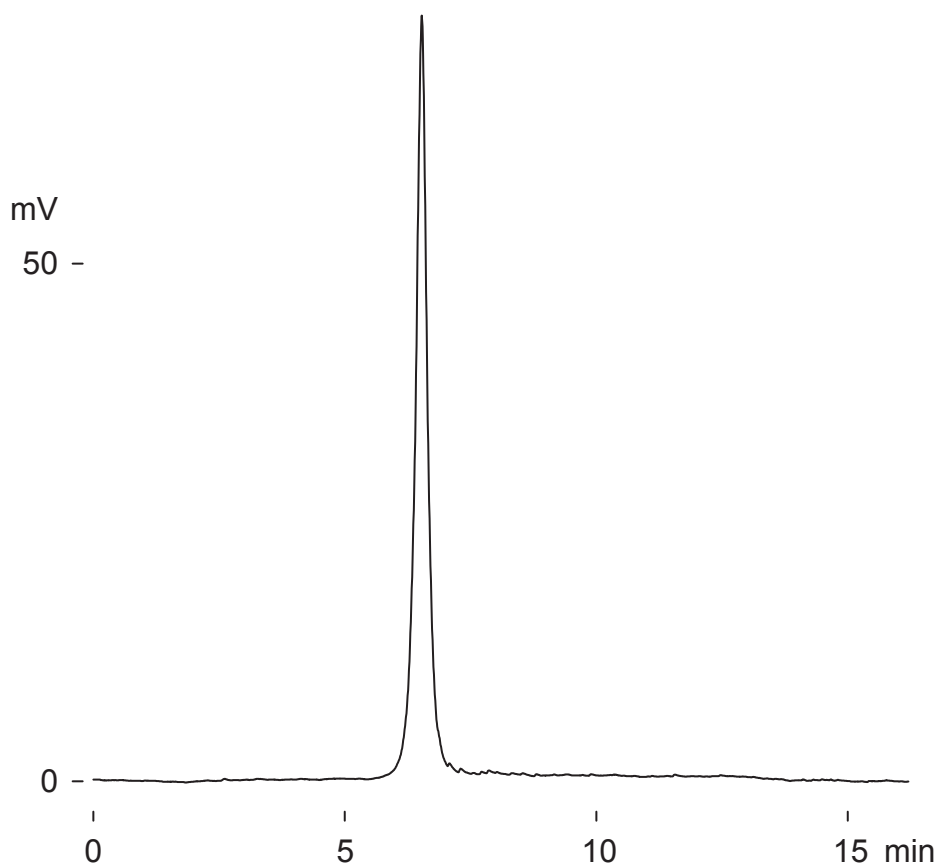
Application

**Polyvinylpyrrolidone (PVP)**

ポリビニルピロリドン



polyvinylpyrrolidone  
(ca.50 kDa)



Presto FF-C18, 150 x 4.6mm

A: water / trifluoroacetic acid = 100 / 0.1

B: acetonitrile / trifluoroacetic acid = 100 / 0.1

20-60 %B (0-10min), 0.4 mL/min (23MPa), 37 deg.C

ELSD (spray chamber 50deg.C, drift tube 100deg.C), 1 uL (5ug)

Cadenza HS-C18  
Cadenza CW-C18  
Unison UK-Phenyl  
Unison UK-C8

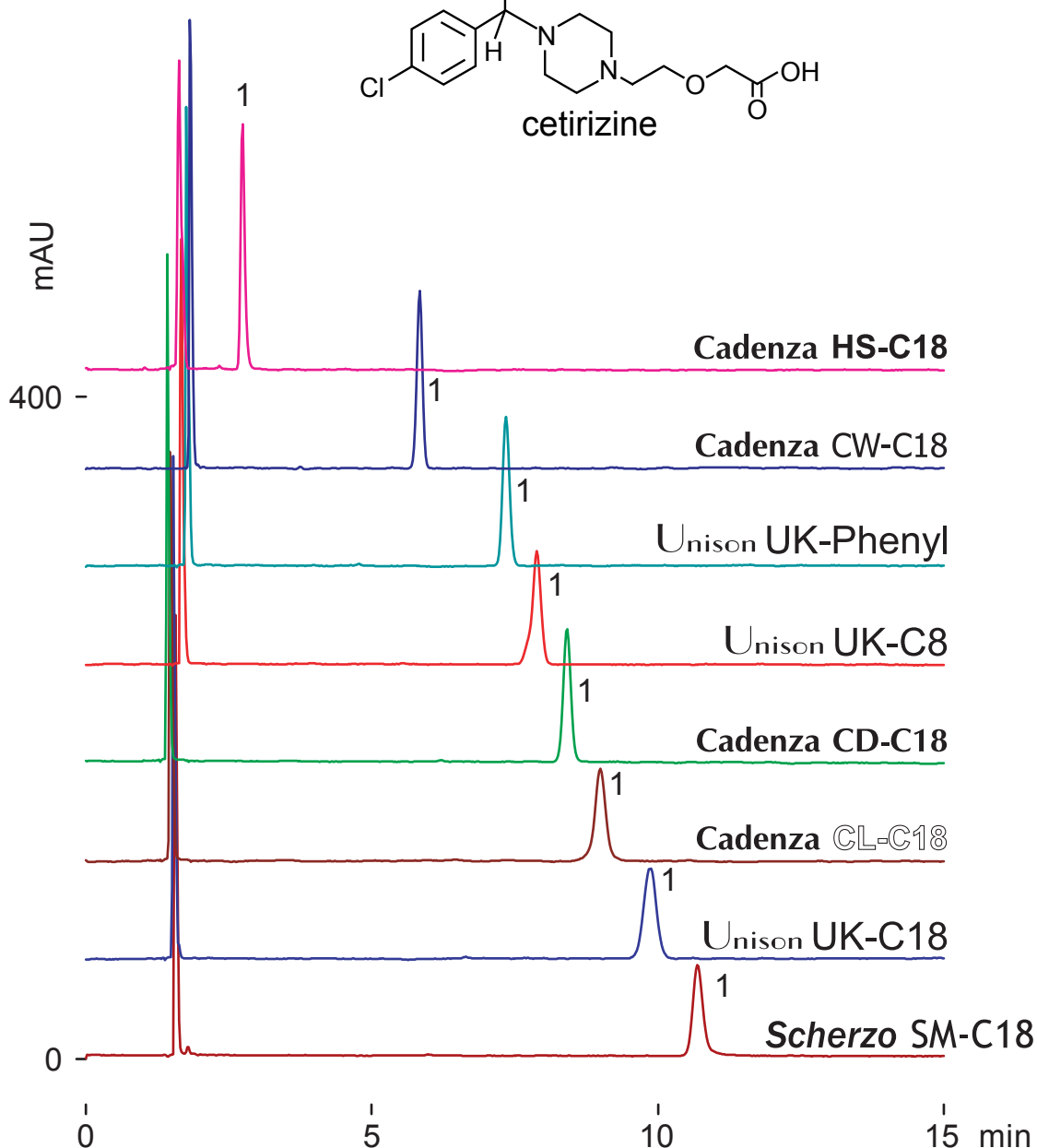
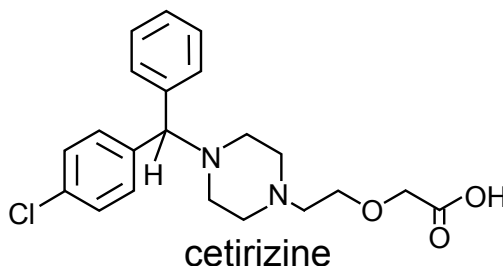
Cadenza CD-C18  
Cadenza CL-C18  
Unison UK-C18  
Scherzo SM-C18

150 x 4.6 mm

Application

### Cetirizine (Antihistamine)

セチリジン(抗ヒスタミン薬)



150 x 4.6 mm

100mM ammonium formate / acetonitrile = 67 / 33

1 mL/min (9-12MPa), 37 deg.C, 240 nm

2 uL (2 ug, DMSO)

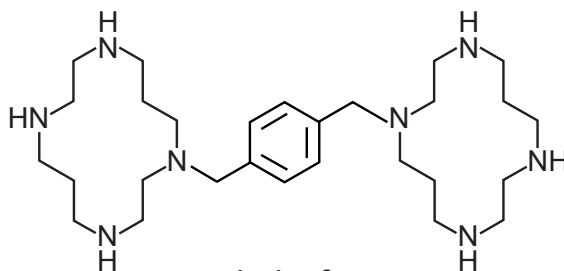
Unison UK-C18

150 x 4.6 mm

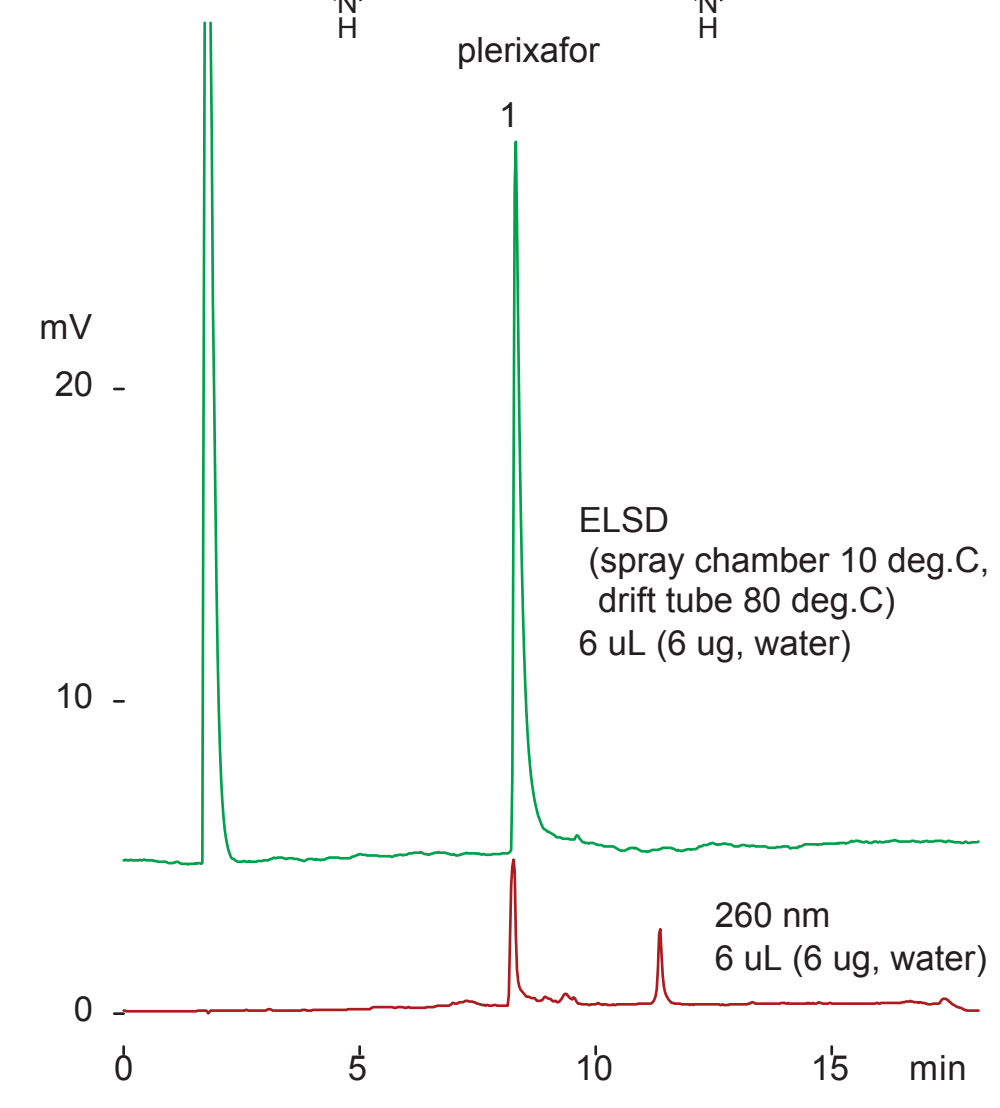
Application

**Plerixafor (Chemokine receptor antagonist)**

plerixafor (ケモカイン受容体アンタゴニスト)



plerixafor



Unison UK-C18, 150 x 4.6 mm  
A: 50mM ammonium formate, B: acetonitrile  
0-20 %B (0-15min)  
1 mL/min (10MPa), 37 deg.C

Unison UK-Phenyl

Unison UK-C8 Cadenza CD-C18

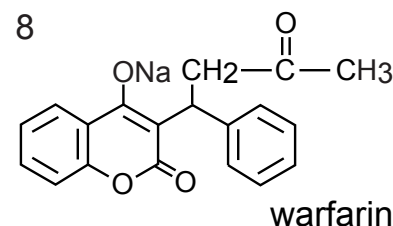
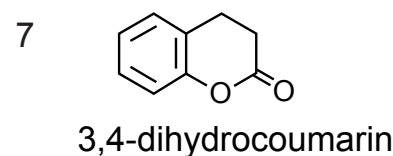
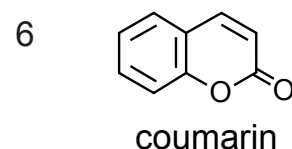
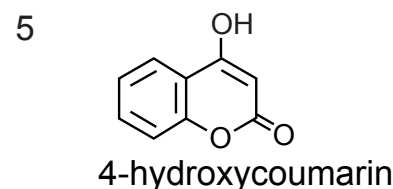
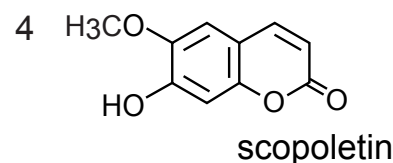
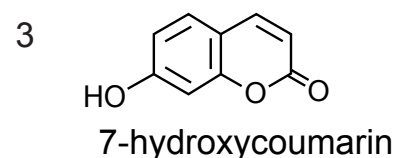
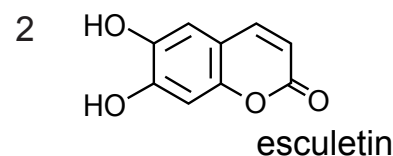
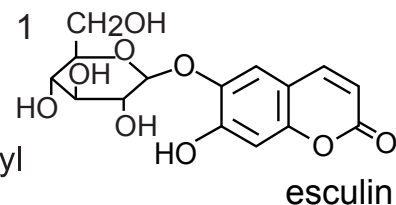
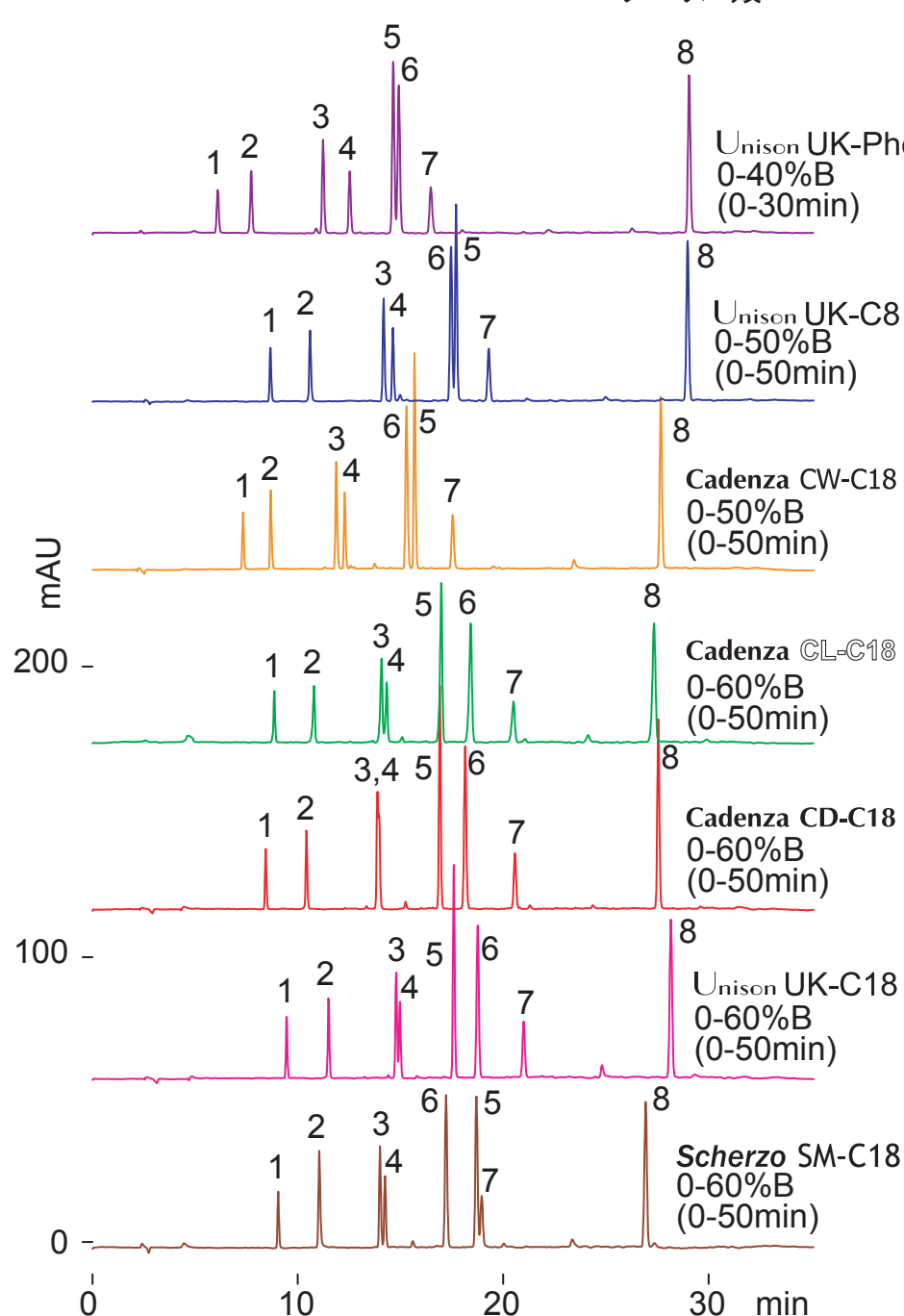
Cadenza CW-C18 Unison UK-C18

Cadenza CL-C18 Scherzo SM-C18 150 x 4.6 mm

Application

### Coumarins

クマリン類



150 x 4.6 mm  
A: water / acetic acid = 100 / 1  
B: acetonitrile / acetic acid = 100 / 1  
1 mL/min (9-11MPa), 37 deg.C, 270 nm  
2 uL (0.2-1.2 ug)



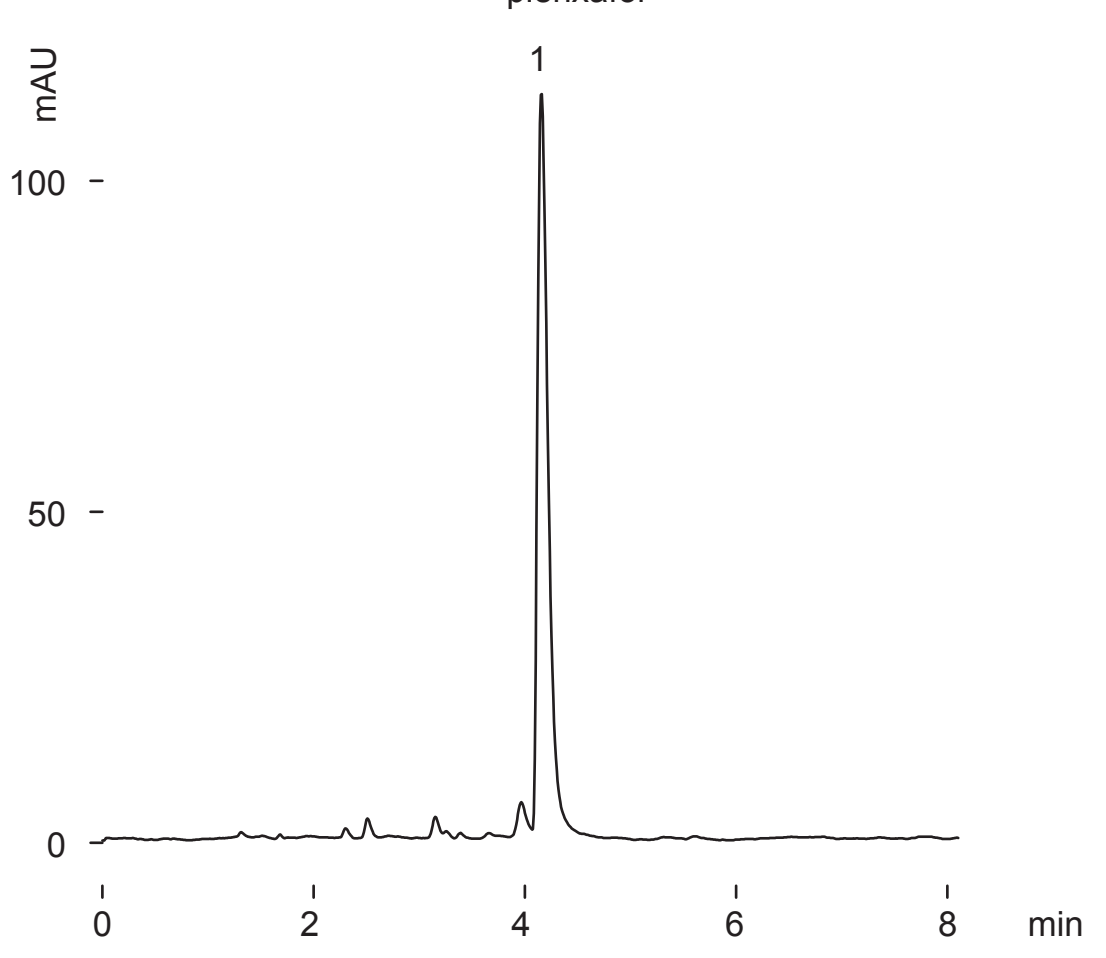
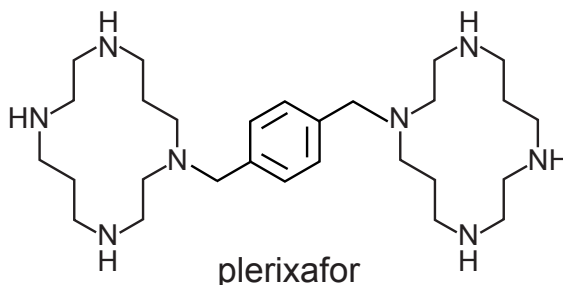
Unison UK-C18

150 x 4.6 mm

Application

**Plerixafor (Chemokine receptor antagonist)**

plerixafor (ケモカイン受容体アンタゴニスト)



Unison UK-C18, 150 x 4.6 mm  
 20mM sodium heptanesulfonate in 20mM H<sub>3</sub>PO<sub>4</sub> / acetonitrile  
 = 65 / 35  
 1 mL/min (10MPa), 37 deg.C, 220 nm, 2 uL (2 ug, water)

Scherzo SM-C18

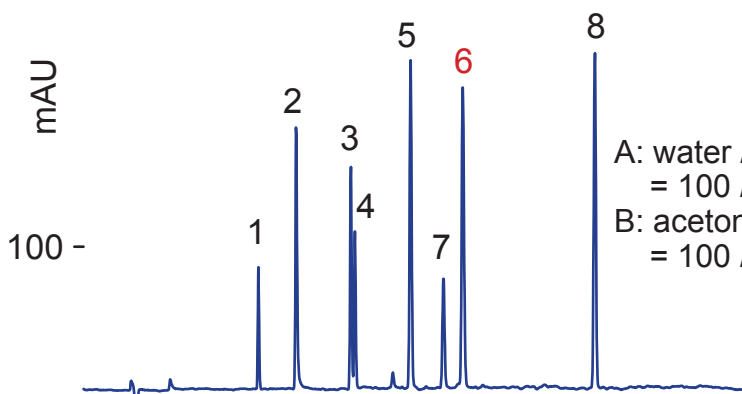
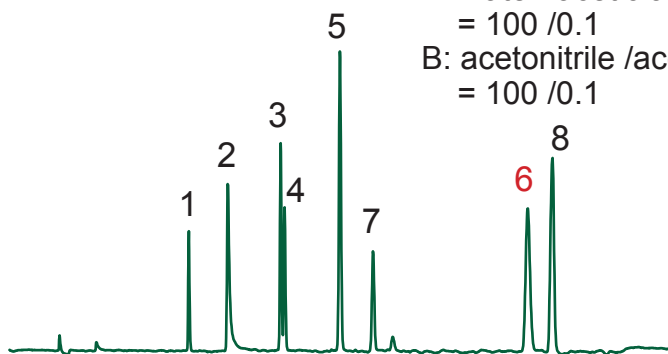
150 x 4.6 mm

Application

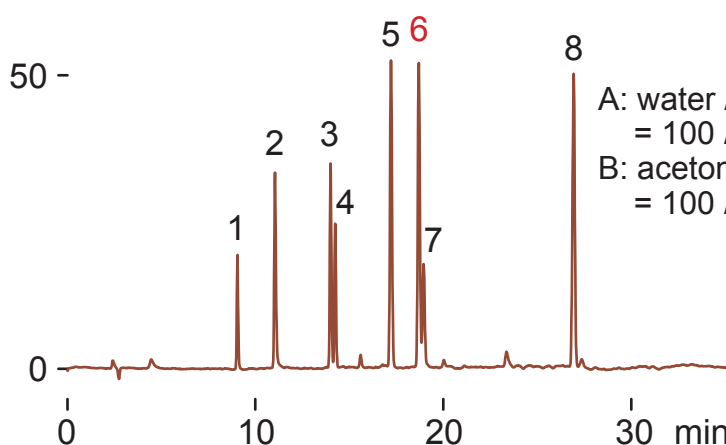
**Coumarins**

クマリン類

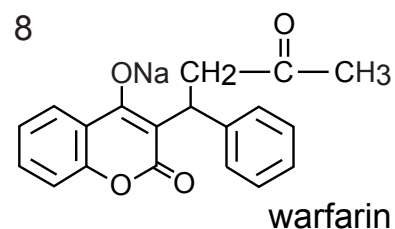
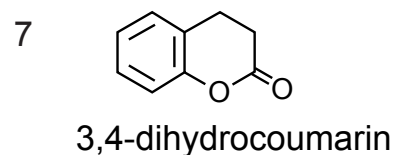
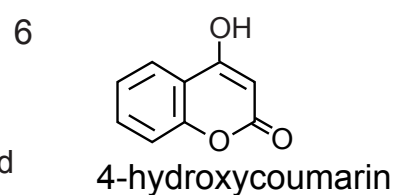
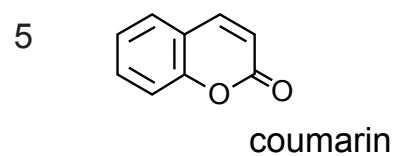
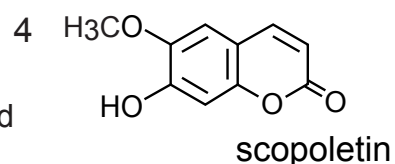
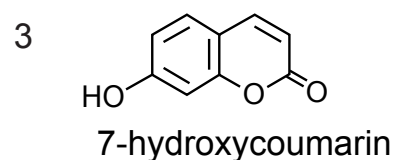
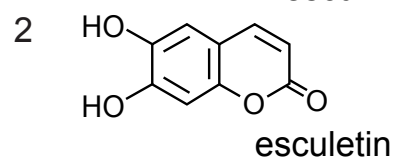
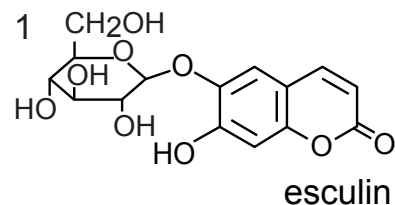
A: water /acetic acid  
= 100 /0.1  
B: acetonitrile /acetic acid  
= 100 /0.1



A: water /acetic acid  
= 100 /0.5  
B: acetonitrile /acetic acid  
= 100 /0.5



A: water /acetic acid  
= 100 /1  
B: acetonitrile /acetic acid  
= 100 /1



Scherzo SM-C18, 150 x 4.6 mm  
0-60 %B (0-30min)  
1 mL/min (9MPa), 37 deg.C, 270 nm  
2 uL (0.2-1.2 ug)

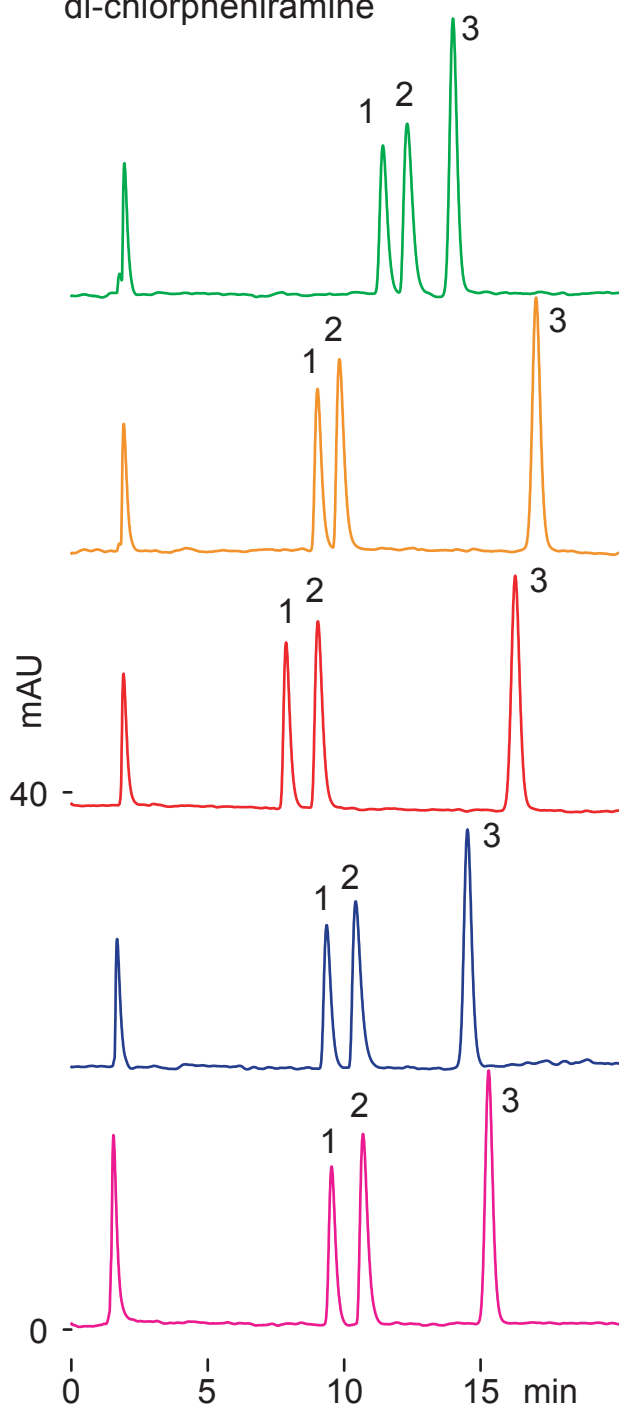
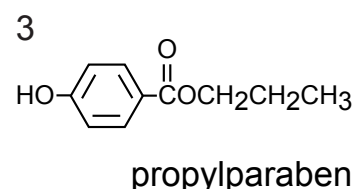
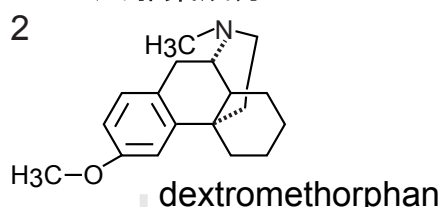
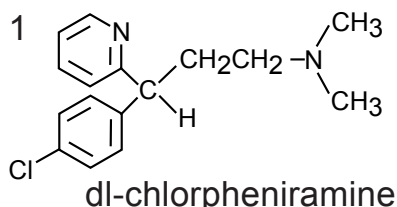
Unison UK-Phenyl  
 Unison UK-C8  
 Cadenza CW-C18  
 Cadenza CD-C18  
 Unison UK-C18

150 x 4.6 mm

Application

**Cold medicine compounds**

風邪薬成分



**Unison UK-Phenyl**, 150 x 4.6 mm  
 100mM ammonium formate / acetonitrile  
 = 80 / 20  
 1 mL/min (9MPa), 37 deg.C, 235 nm,  
 2 uL (0.4-1.8 ug)

**Unison UK-C8**, 150 x 4.6 mm  
 100mM ammonium formate / methanol  
 = 60 / 40  
 1 mL/min (16MPa), 37 deg.C, 235 nm,  
 2 uL (0.4-1.8 ug)

**Cadenza CW-C18**, 150 x 4.6 mm  
 100mM ammonium formate / methanol  
 = 60 / 40  
 1 mL/min (17MPa), 37 deg.C, 235 nm,  
 2 uL (0.4-1.8 ug)

**Unison UK-C18**, 150 x 4.6 mm  
 100mM ammonium formate / methanol  
 = 50 / 50  
 1 mL/min (16MPa), 37 deg.C, 235 nm,  
 2 uL (0.4-1.8 ug)

**Cadenza CD-C18**, 150 x 4.6 mm  
 100mM ammonium formate / methanol  
 = 50 / 50  
 1 mL/min (17MPa), 37 deg.C, 235 nm,  
 2 uL (0.4-1.8 ug)

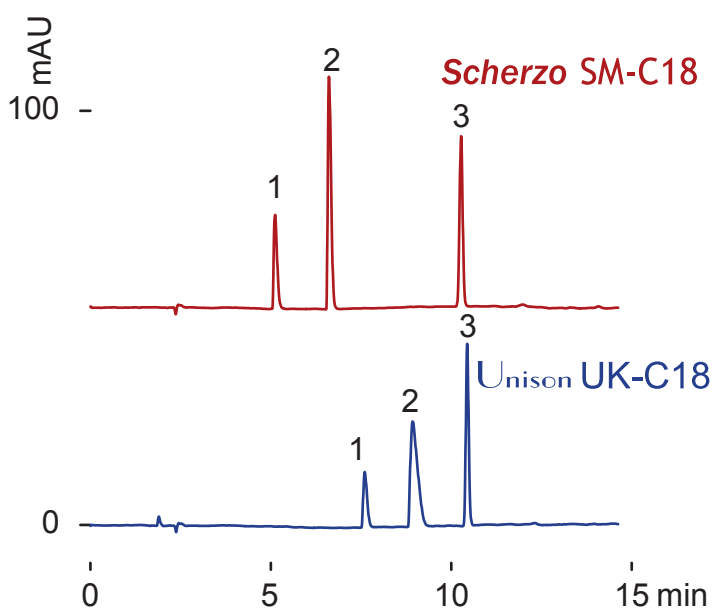
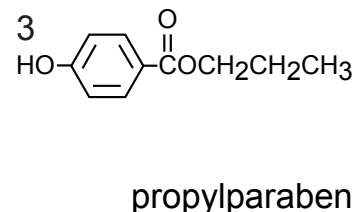
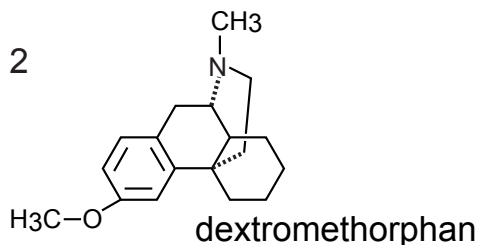
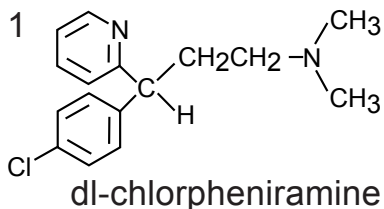
**Scherzo SM-C18**  
Unison UK-C18

150 x 3 mm

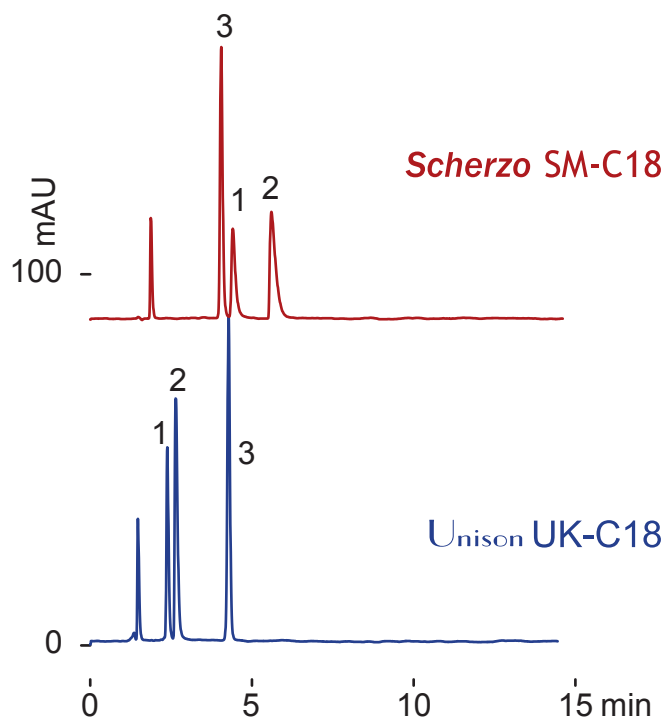
Application

**Cold medicine compounds**

風邪薬成分



A: water / formic acid = 100 / 0.1 □  
B: acetonitrile / formic acid = 100 / 0.5 □  
15-80 %B (0-10min)  
80 %B (10-13min)  
15 %B (13-30min) □  
mixer: 600uL  
0.4 mL/min (8MPa)  
37 deg.C, 280 nm  
1 uL (0.2-0.9ug)



100mM ammonium formate / acetonitrile = 45 / 55  
0.4 mL/min (8MPa)  
37 deg.C, 235nm,  
1 uL (0.2-0.9ug)

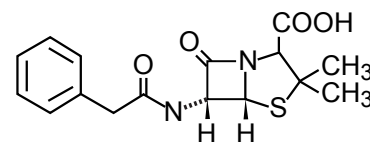
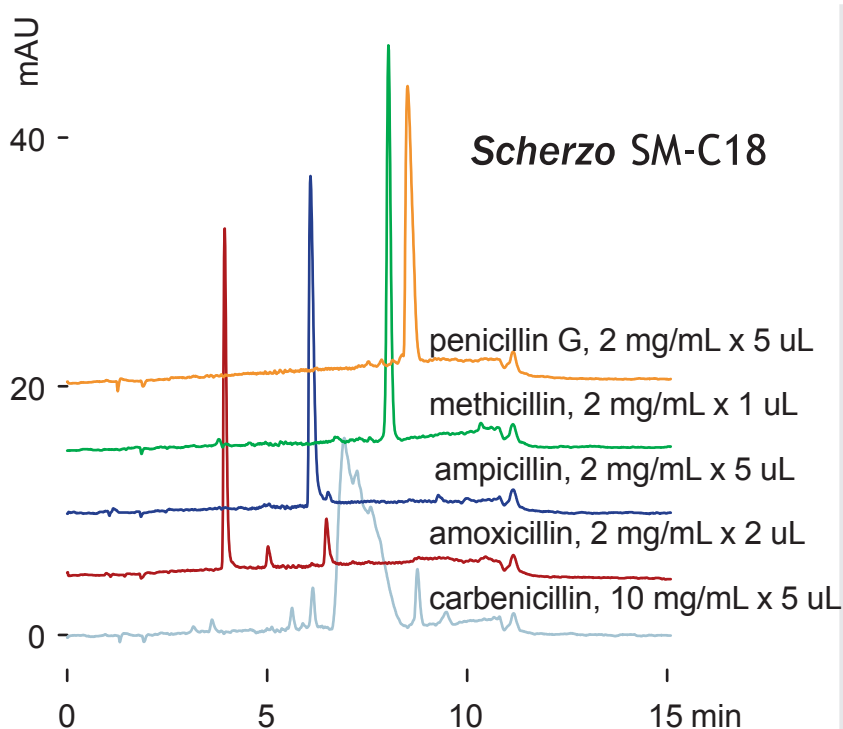
**Scherzo SM-C18**  
Unison UK-C18

75 x 4.6 mm

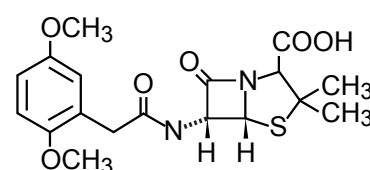
Application

**Penicillin antibiotics**

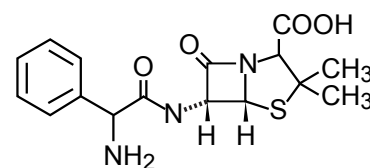
ペニシリン系抗生物質



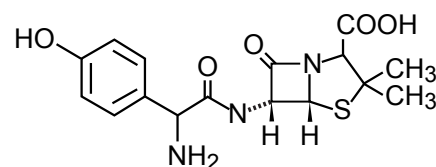
penicillin G



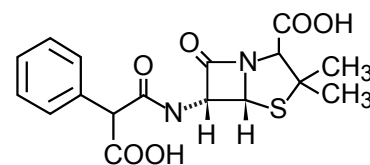
methicillin



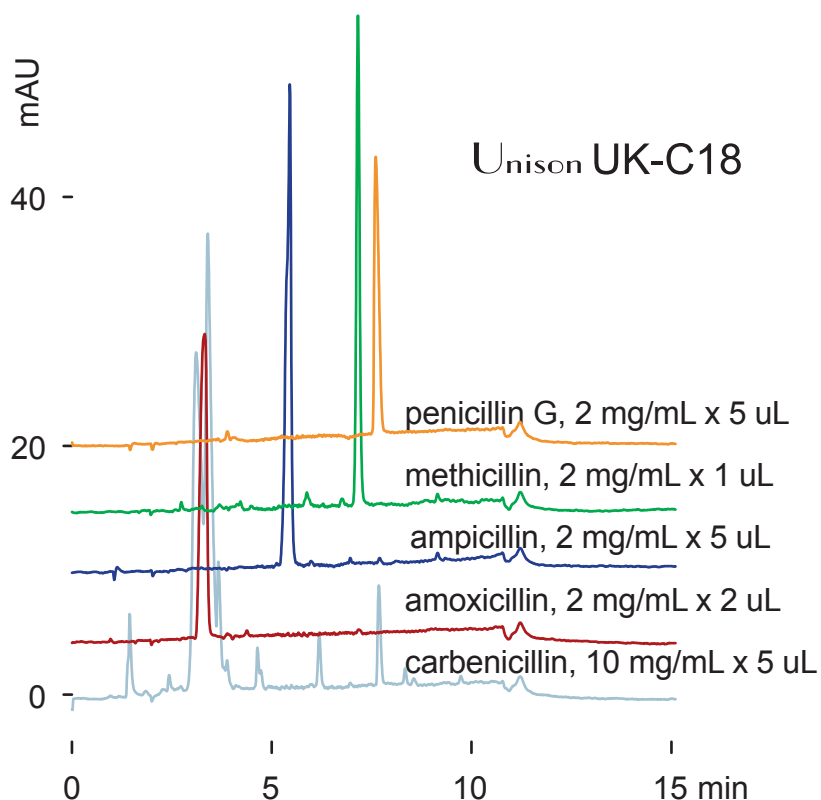
ampicillin



amoxicillin



carbenicillin



75 x 4.6mm

A: 5mM ammonium acetate

B: 100mM ammonium acetate / acetonitrile = 50 / 50 □

0-70 %B (0-10min)

1.0 mL/min(6-7MPa)

37 deg.C, 260 nm

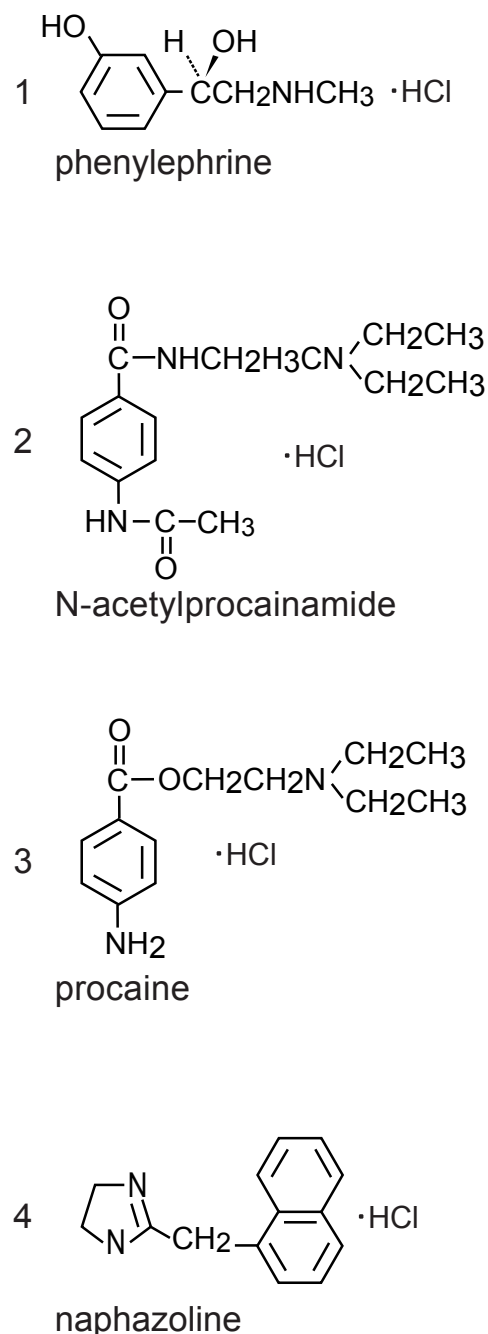
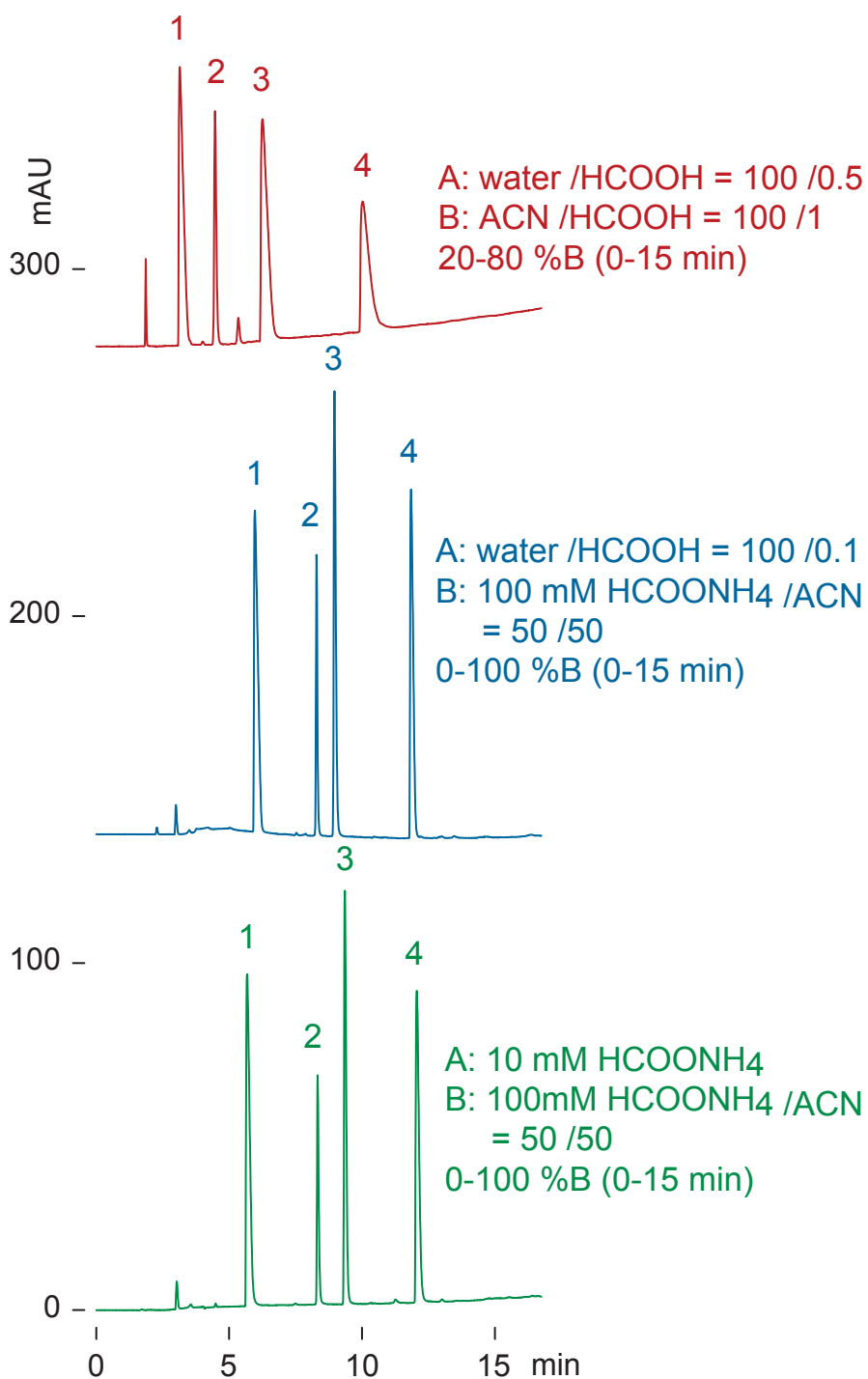
Scherzo SW-C18

150 x 3 mm

Application

Basic pharmaceutical compounds

塩基性医薬品



Scherzo SW-C18, 150 x 3 mm  
 0.4 mL/min (9 MPa), 37 deg.C, 260 nm, 2 uL (0.05-3.2 ug)

Cadenza CD-C18 HT

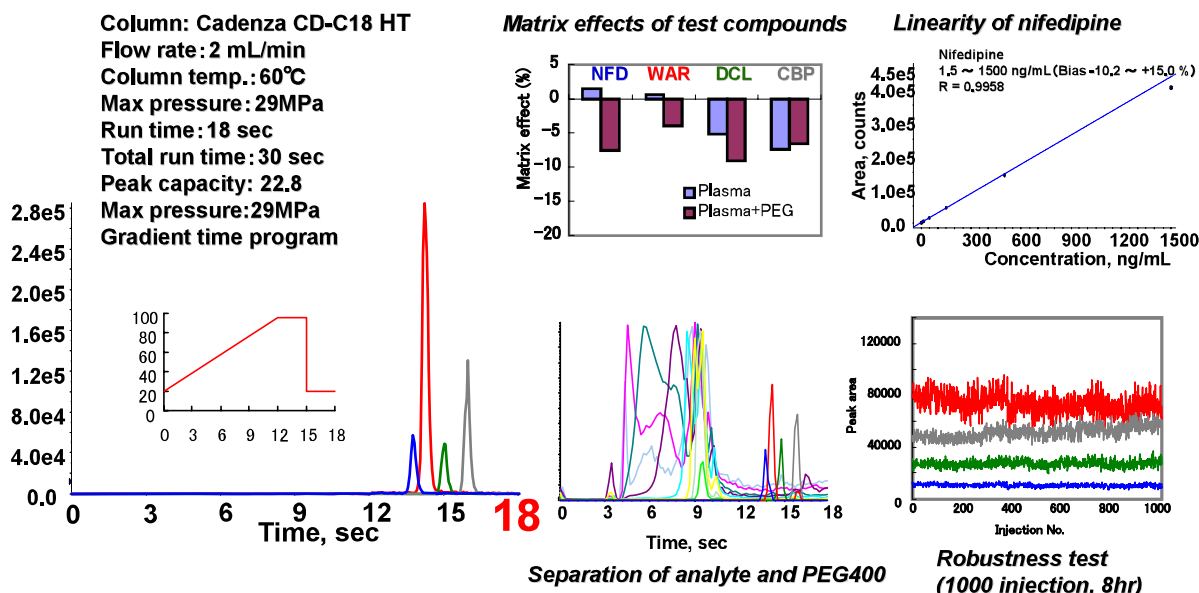
50 x 2 mm

Application

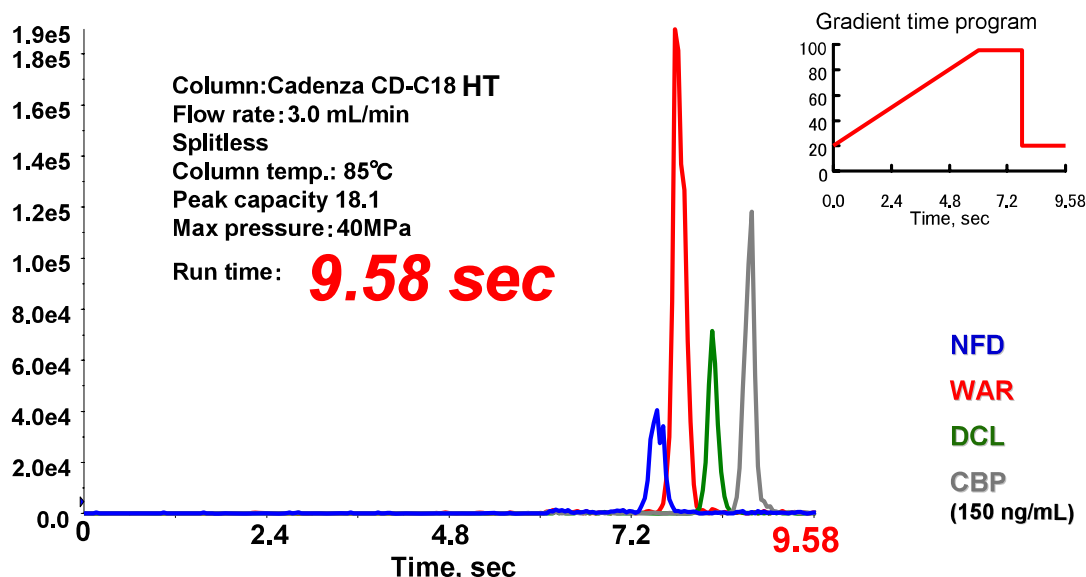
Ultra-high throughput LC-MS/MS analysis of drugs in blood plasma

LC-MS/MSによる血漿中薬物の超高速定量分析

**Results of "Ultra-high" throughput analysis (18 sec)**



**Pushing the envelope of ultra-high throughput analysis!!**



Cadenza CD-C18 HT, 50 x 2 mm  
 A: 0.1% HCOOH in water, B: 0.1% HCOOH in acetonitrile  
 2µL (20µL plasma + 500µL acetonitrile)  
 Shimadzu UFLC - AB Sciex API5000 (ESI positive, MRM)  
 NFD(nifedipine) 347 > 254, WAR(warfarin) 309 > 163,  
 DCL(diclofenac) 296 > 214, CBP(2-amino-5-chlorobenzophenone) 232 > 126

Courtesy of Dr. IKEHARA Tatsuya, Shionogi Co., Ltd., JAPAN

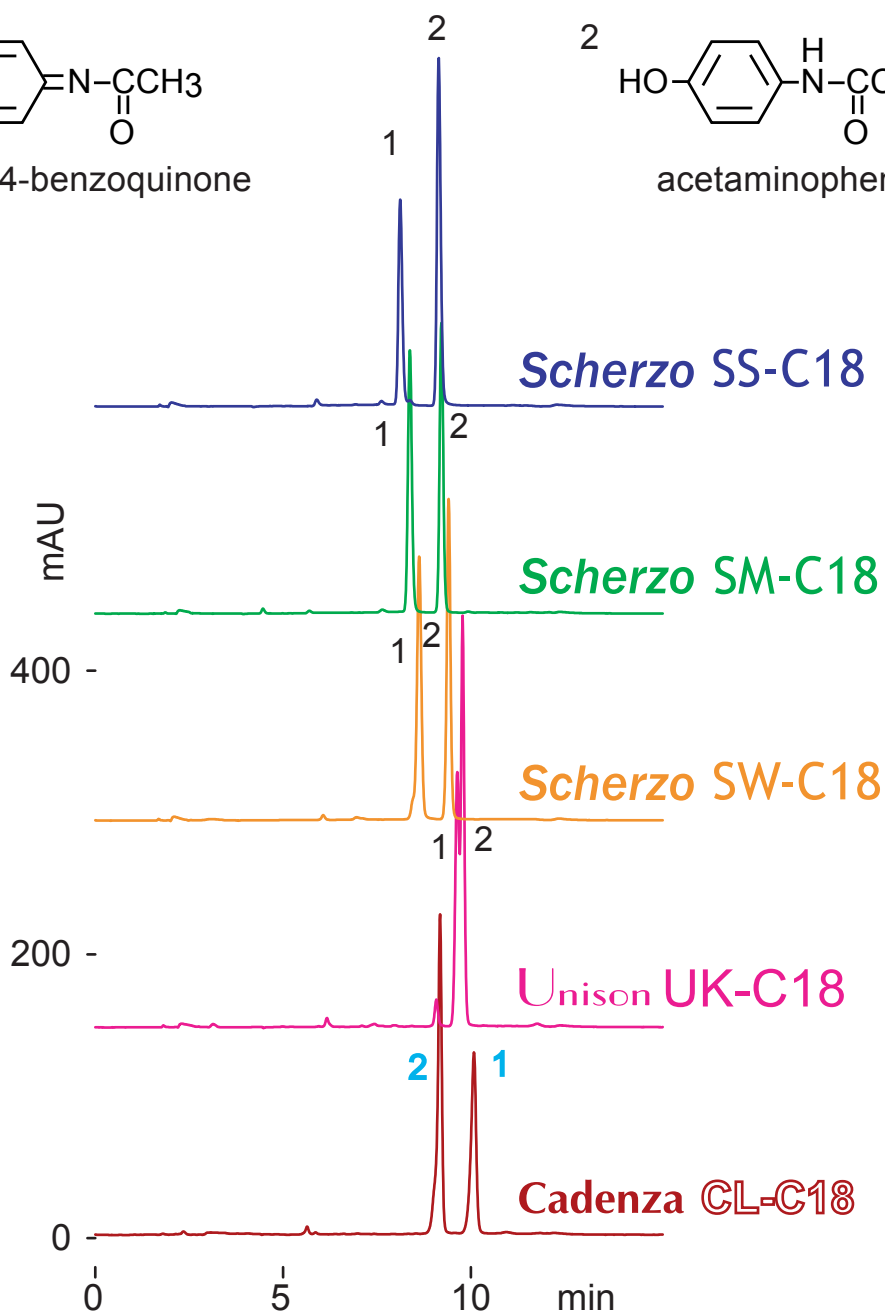
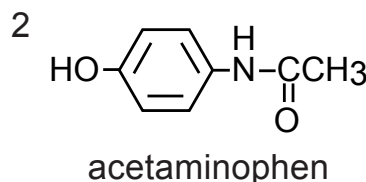
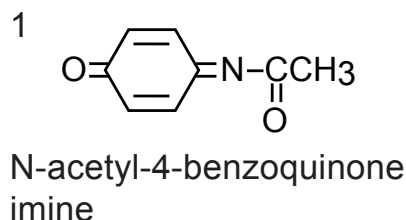
Scherzo SS-C18  
 Scherzo SM-C18  
 Scherzo SW-C18  
 Unison UK-C18  
 Cadenza CL-C18

150 x 3 mm

Application

### Acetaminophen and metabolite

アセトアミノフェンと代謝物(中性条件)



150 x 3 mm  
 A: 2mM ammonium acetate  
 B: 100mM ammonium acetate / acetonitrile = 50 / 50  
 0-20 %B (0-10min)  
 0.5 mL/min (9-11MPa), 37 deg.C, 260 nm, 1 uL (0.8 ug)



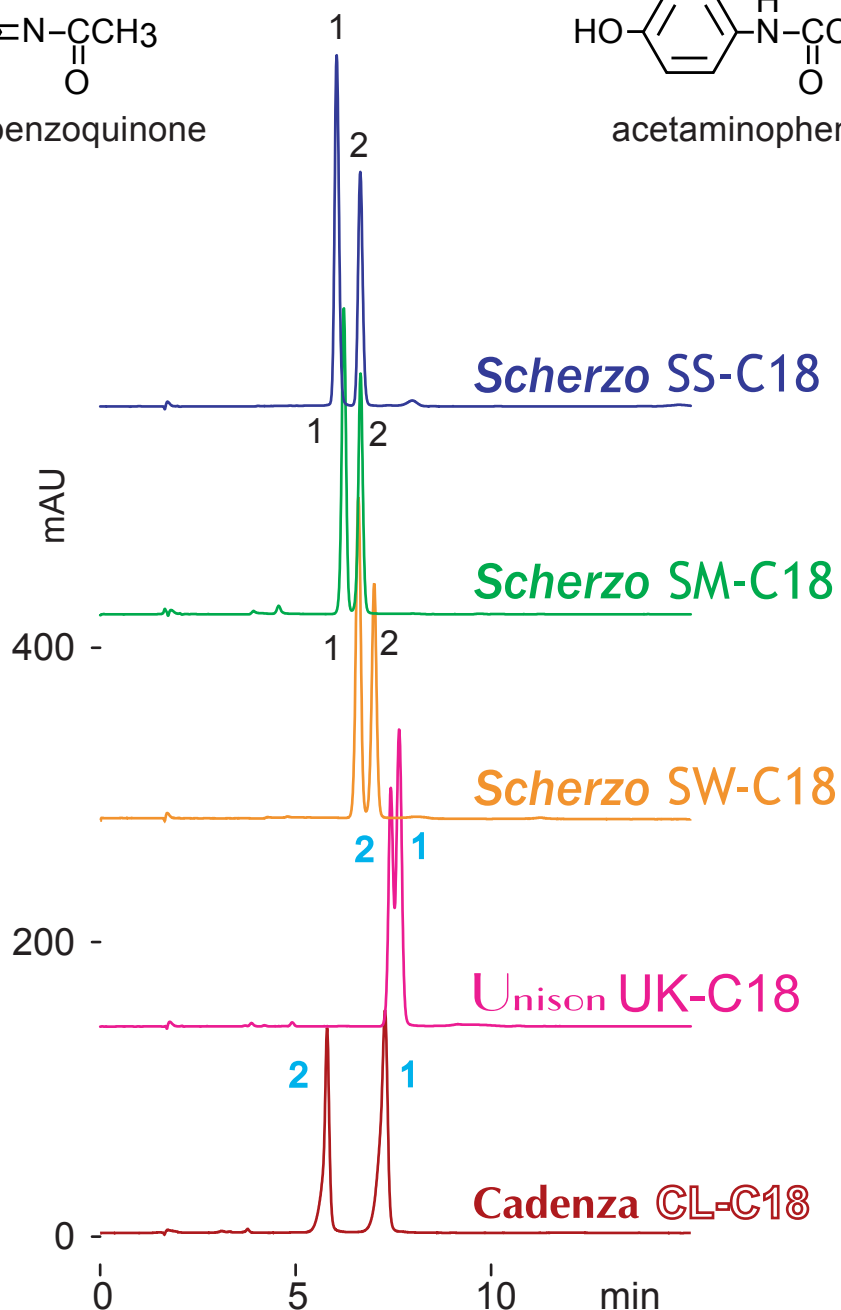
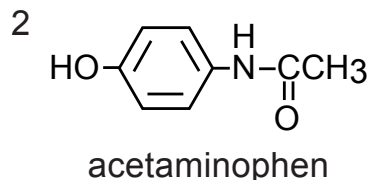
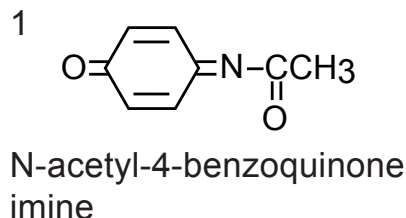
Scherzo SS-C18  
 Scherzo SM-C18  
 Scherzo SW-C18  
 Unison UK-C18  
 Cadenza CL-C18

150 x 3 mm

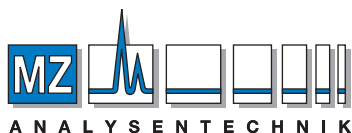
Application

## Acetaminophen and metabolite

アセトアミノフェンと代謝物(酸性条件)



150 x 3 mm  
 water / acetonitrile / formic acid = 95 / 5 / 0.1  
 0.5 mL/min (10-11MPa), 37 deg.C, 260 nm, 1 uL (0.8 ug)



**AUTHORIZED DISTRIBUTOR**

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