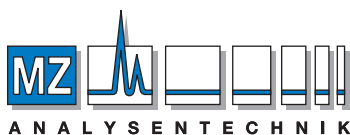


HPLC TECHNICAL INFORMATION

Lipids



AUTHORIZED DISTRIBUTOR

MZ-Analysentechnik GmbH, Barcelona-Allee 17• D-55129 Mainz

Tel +49 6131 880 96-0, Fax +49 6131 880 96-20

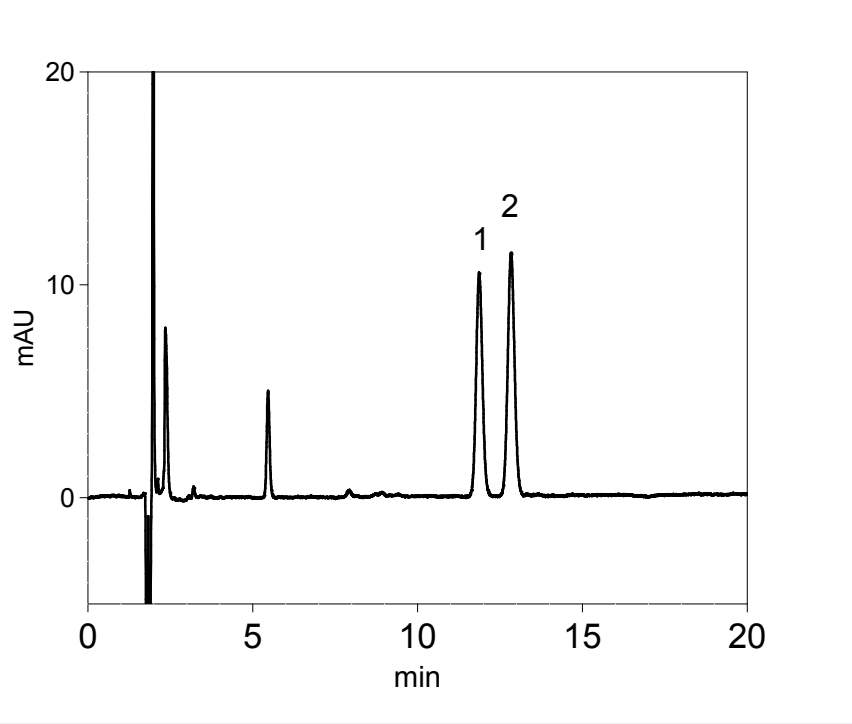
e-mail: info@mz-at.de, www.mz-at.de

Cadenza CD-C18

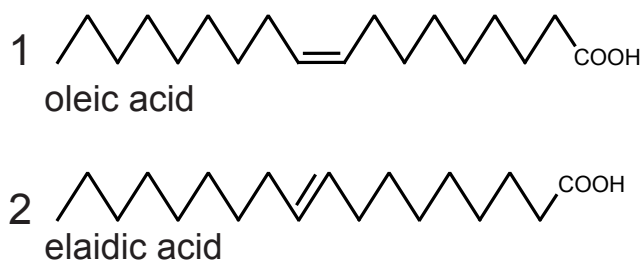
150 x 4.6 mm

Application

cis - trans Isomers of 9-octadecenoic acid



Cadenza CD-C18, 150 x 4.6 mm
 ACN / water / formic acid = 90 / 10 / 0.05
 0.8 mL/min, 37 °C
 UV at 215 nm, 3.7 MPa



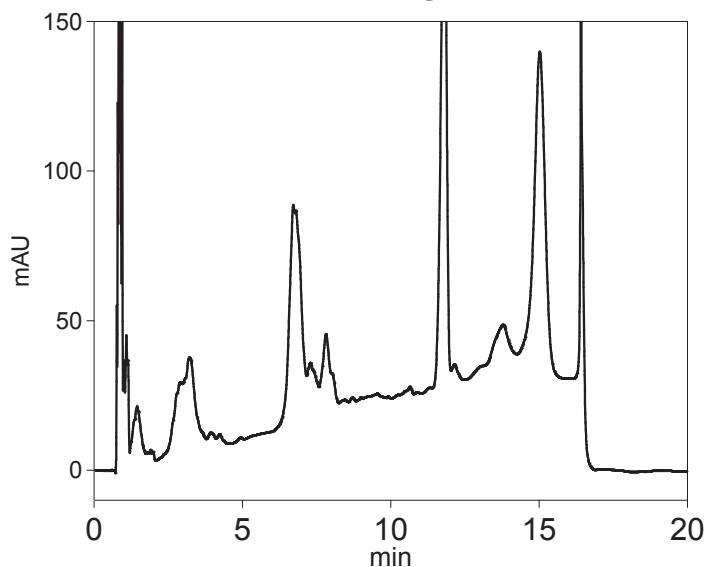
Cadenza CD-C18

75 x 4.6 mm

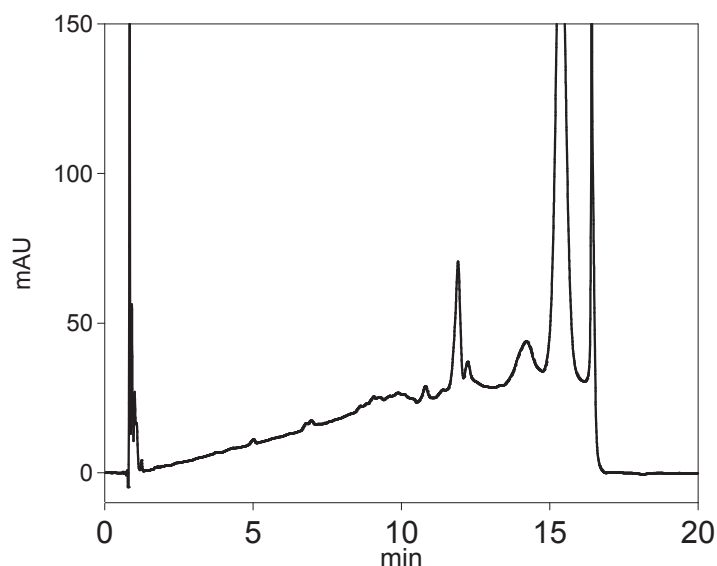
Application

Olive Oil

extra virgin



pure



Cadenza CD-C18
 75 x 4.6 mm
 A : water / formic acid
 = 100 / 0.02
 B : acetonitrile / formic acid
 = 100/0.02
 80-100%B (0-10min)
 100%B (10-15min)
 1.0 mL/min, 37 °C
 UV at 210 nm, 2.1 MPa

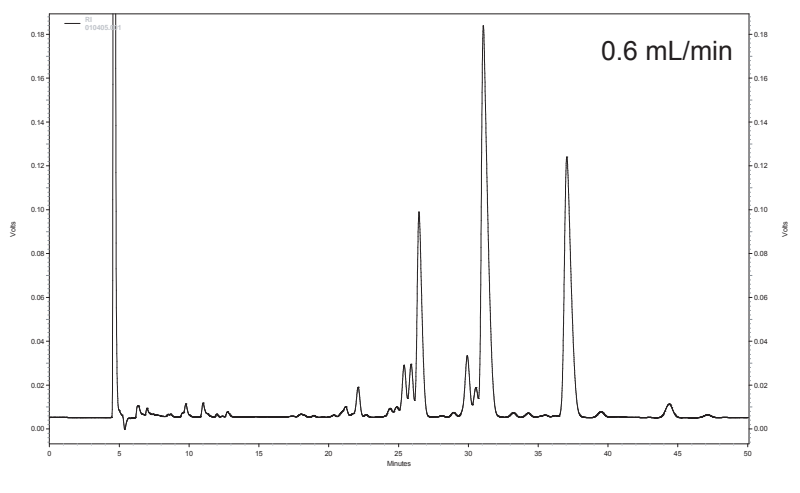
Cadenza CD-C18

250 x 4.6 mm

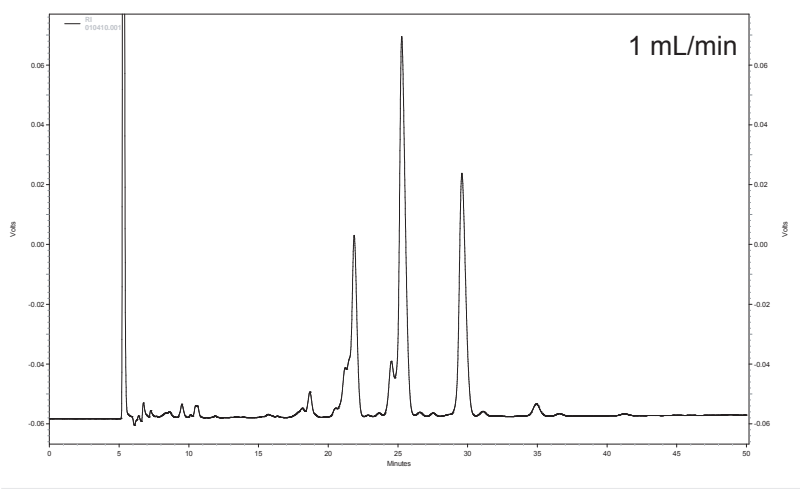
Application

Triglycerides in Cacao Butter

Cadenza CD-C18 250 x 4.6 mm



Conventional ODS (5 um), (250 x 4.6 mm) x 2



acetone / acetonitrile = 70 / 30
30 °C
RI

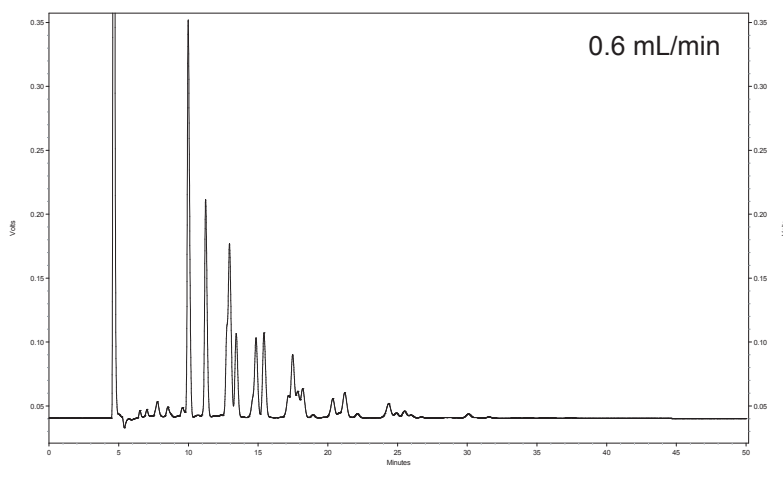
Cadenza CD-C18

250 x 4.6 mm

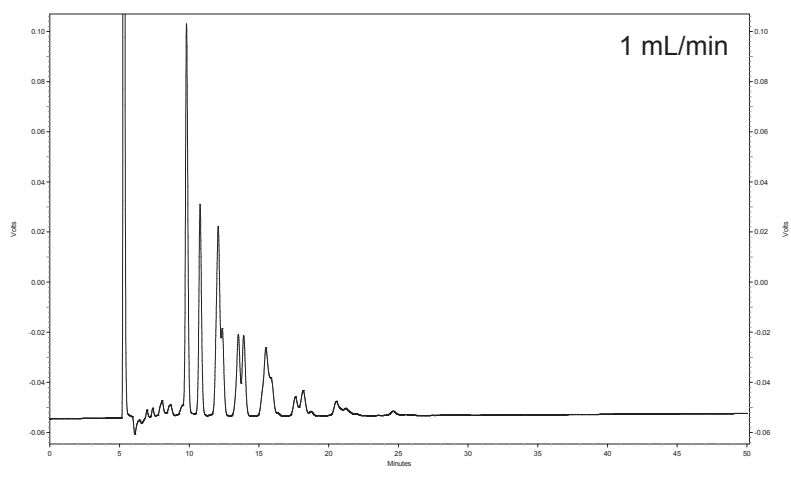
Application

Triglycerides in Linseed Oil

Cadenza CD-C18 250 x 4.6 mm



Conventional ODS (5 um), (250 x 4.6 mm) x 2



acetone / acetonitrile = 70 / 30
30 °C
RI

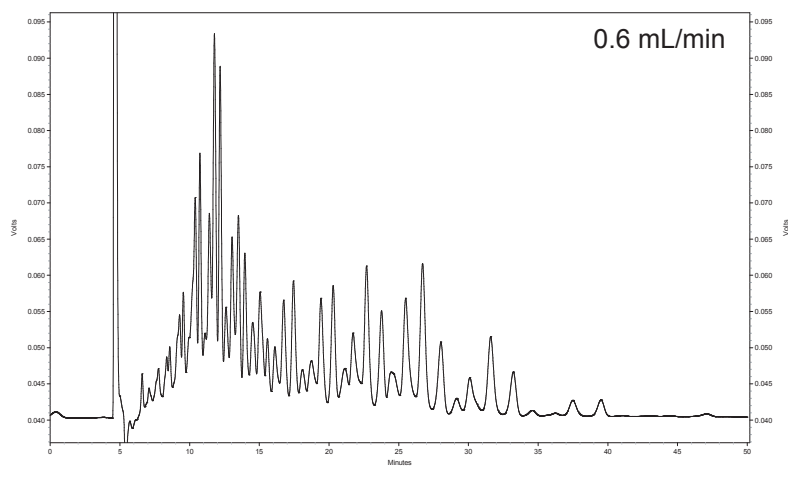
Cadenza CD-C18

250 x 4.6 mm

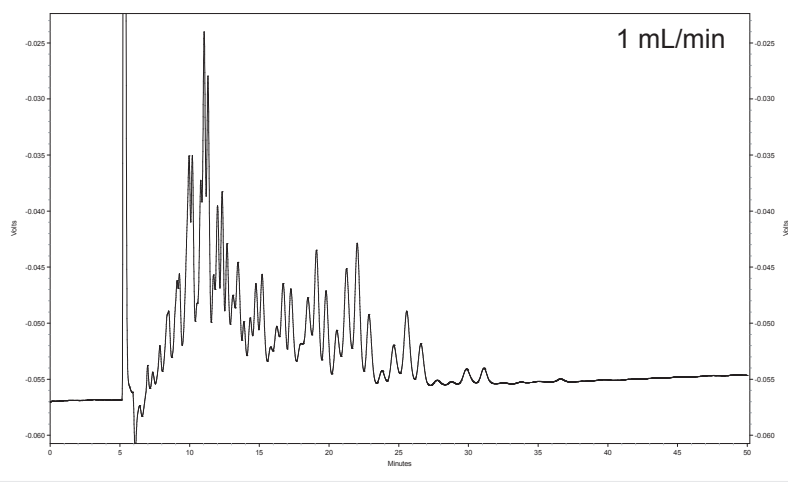
Application

Triglycerides in Milk Fat

Cadenza CD-C18 250 x 4.6 mm



Conventional ODS (5 um), (250 x 4.6 mm) x 2



acetone / acetonitrile = 70 / 30
 30 °C
 RI

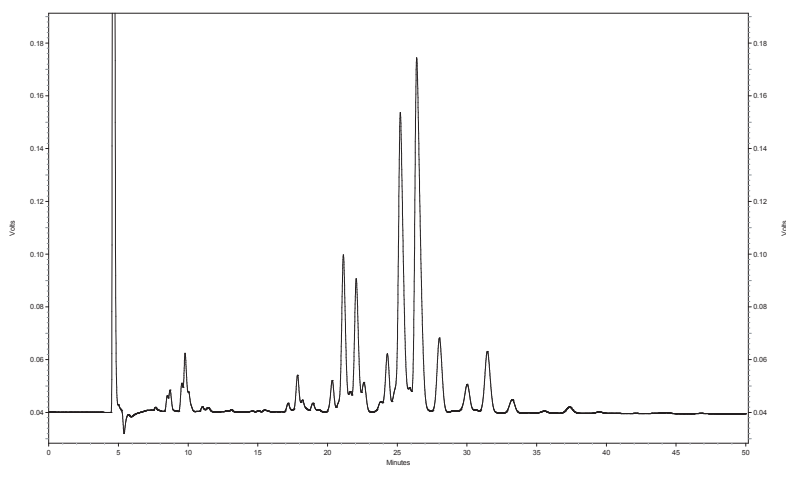
Cadenza CD-C18

250 x 4.6 mm

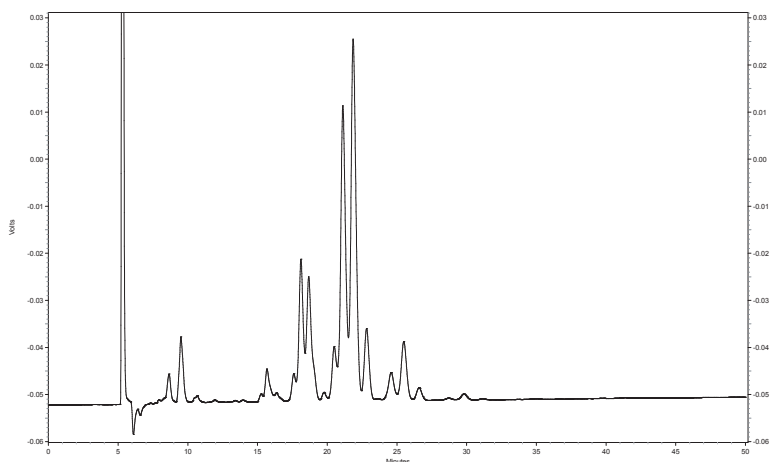
Application

Triglycerides in Palm Oil

Cadenza CD-C18 250 x 4.6 mm



Conventional ODS (5 um), (250 x 4.6 mm) x 2



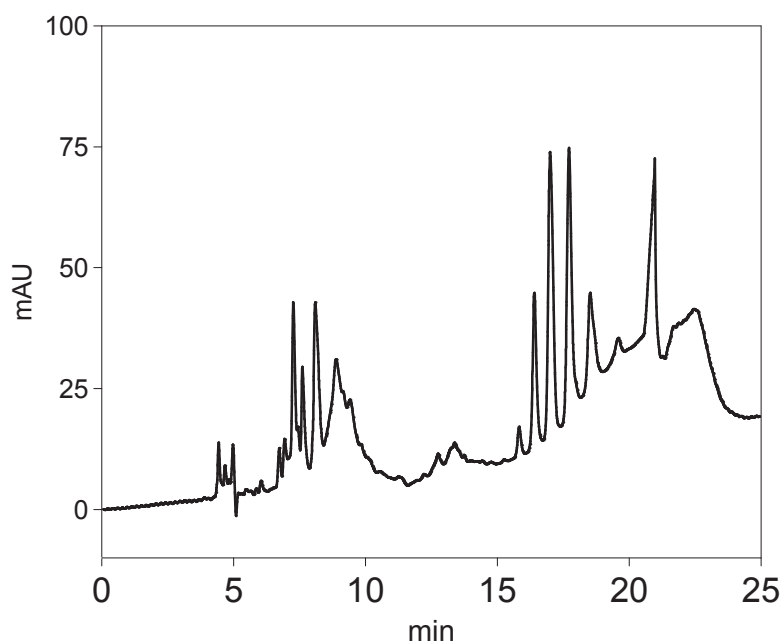
acetone / acetonitrile = 70 / 30
30 °C
RI

Cadenza CD-C18

250 x 4.6 mm

Application

Lecithin, from Soybeans



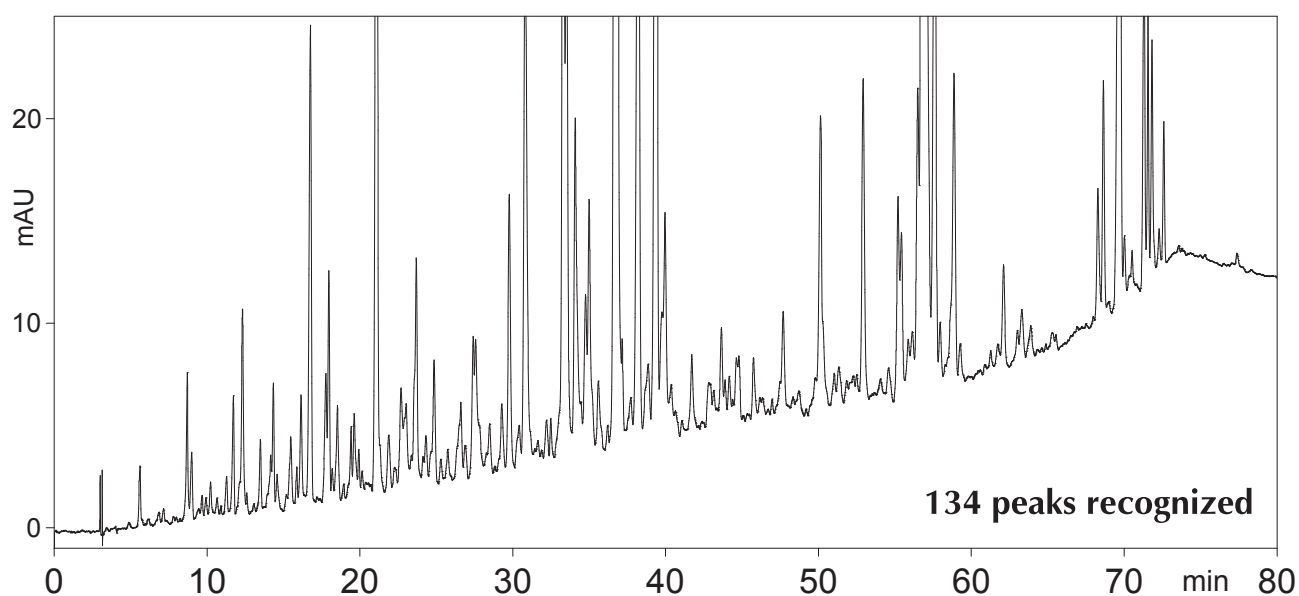
Cadenza CD-C18, 250 x 4.6 mm
A : ethanol / water / TFA = 90 / 10 / 0.1
B : cyclohexane / ethanol / TFA = 10 / 90 / 0.1
50 - 100%B (0 -10 min), 100%B (10 - 15 min)
0.5 mL/min, 37 °C, 13.9 MPa, UV at 210 nm

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

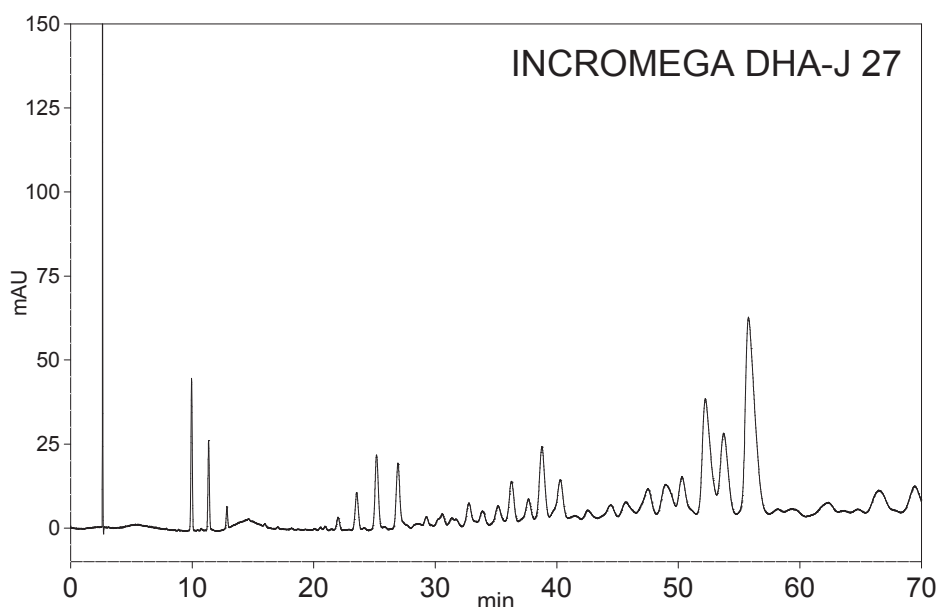
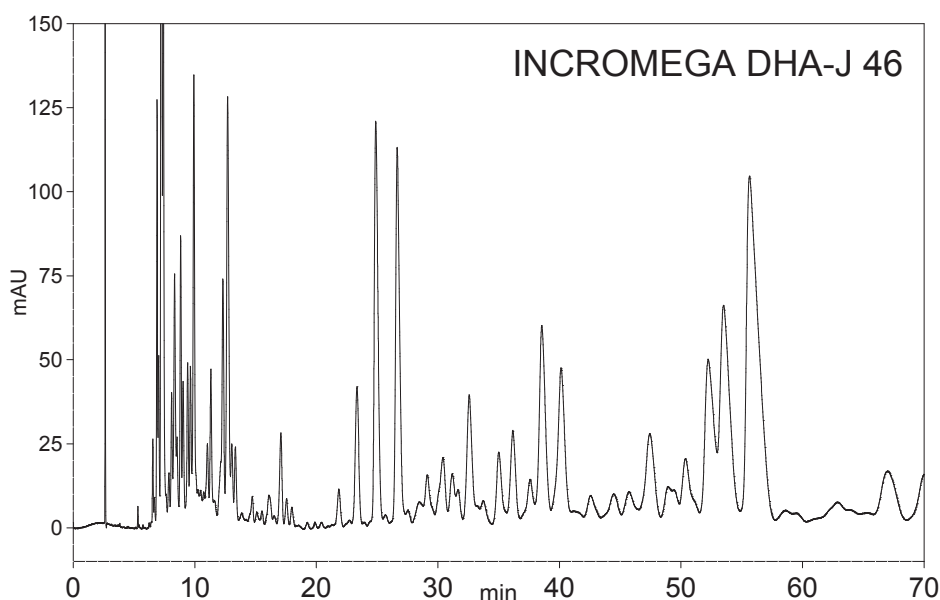
Cadenza CD-C18

250 x 4.6 mm

Application

Purified Fish Oil including DHA Glycerides

精製魚油中の脂質(含DHAグリセリド)



Cadenza CD-C18, 250 x 4.6 mm
acetonitrile / acetone = 70 / 30, 1.0 mL/min, 37 °C, 220 nm

Courtesy of Tsuji, Croda Japan

Unison UK-C8

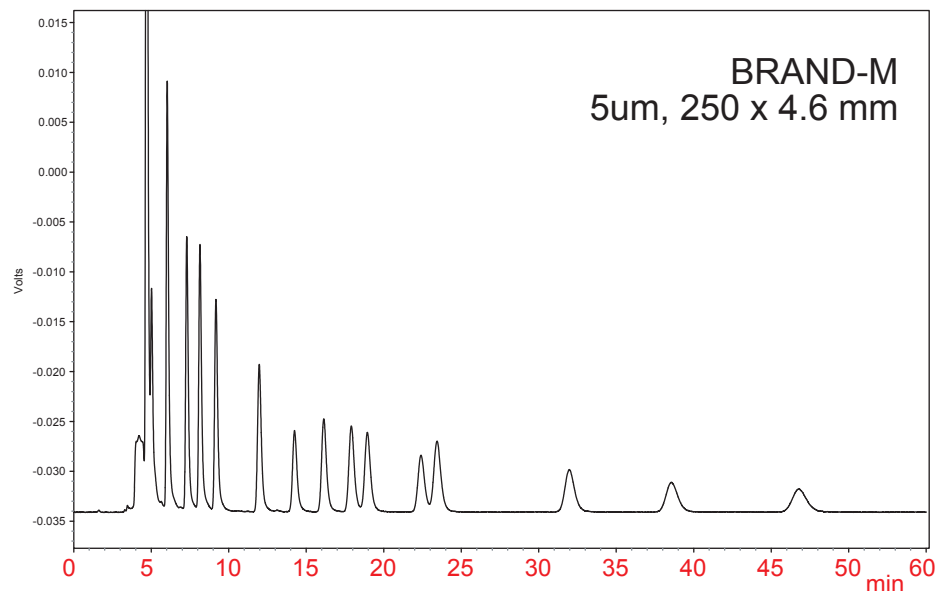
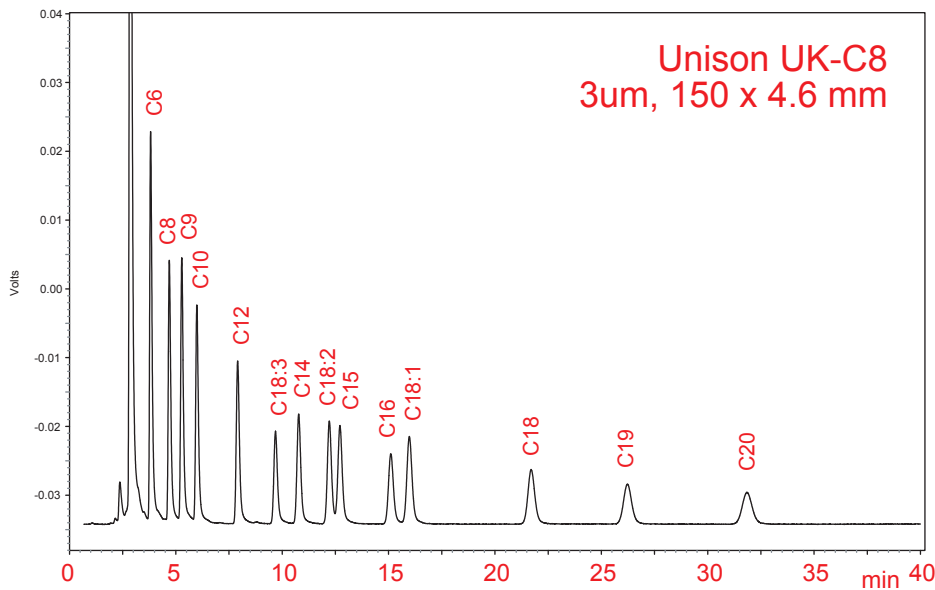
150 x 4.6 mm

Application

Fatty Acid ADAM Derivatives

脂肪酸のADAM誘導體

ADAM: 9-anthryldiazomethane



- C6** caproic acid
n-hexanoic acid
- C8** caprylic acid
n-octanoic acid
- C9** pelargonic acid
n-nonanoic acid
- C10** capric acid
n-decanoic acid
- C12** lauric acid
n-dodecanoic acid
- C18:3** alpha-linolenic acid
cis-9,12,15-octadecatrienoic acid
- C14** myristic acid
n-tetradecanoic acid
- C18:2** linoleic acid
cis-9,12-octadecadienoic acid
- C15** pentadecanoic acid
n-pentadecanoic aci
- C16** palmitic acid
n-hexadecanoic acid
- C18:1** oleic acid
cis-9-octadecenoic acid
- C18** stearic acid
n-octadecanoic acid
- C19** nonadecanoic acid
n-nonadecanoic acid
- C20** arachidic acid
eicosanoic acid

Unison UK-C8, 150 x 4.6 mm
 water / acetonitrile = 15 / 85, 1.0 mL/min, 30 °C
 FLS Ex365 nm, Em412 nm

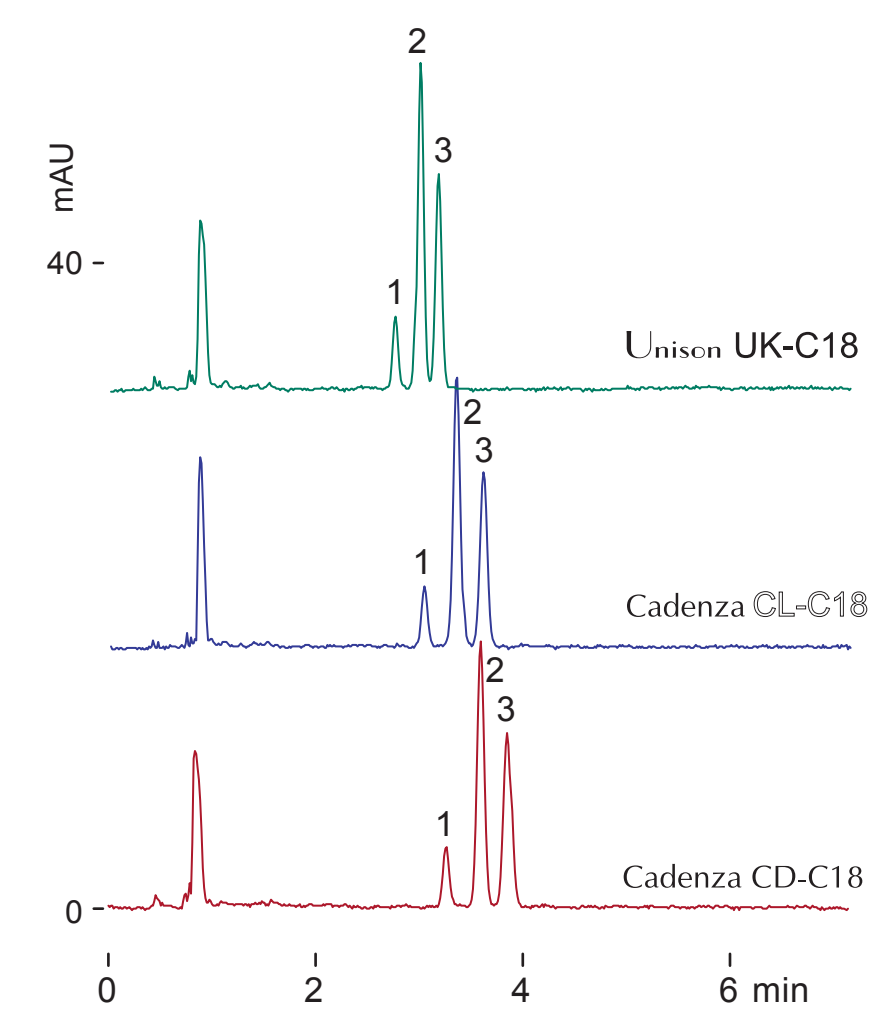
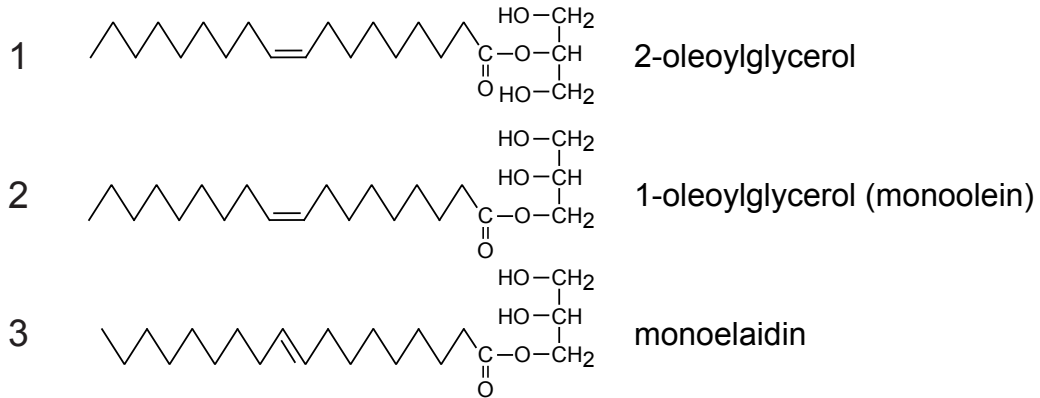
Unison UK-C18
Cadenza CL-C18
Cadenza CD-C18

75 x 4.6 mm

Application

Monoglycerides

モノグリセリド



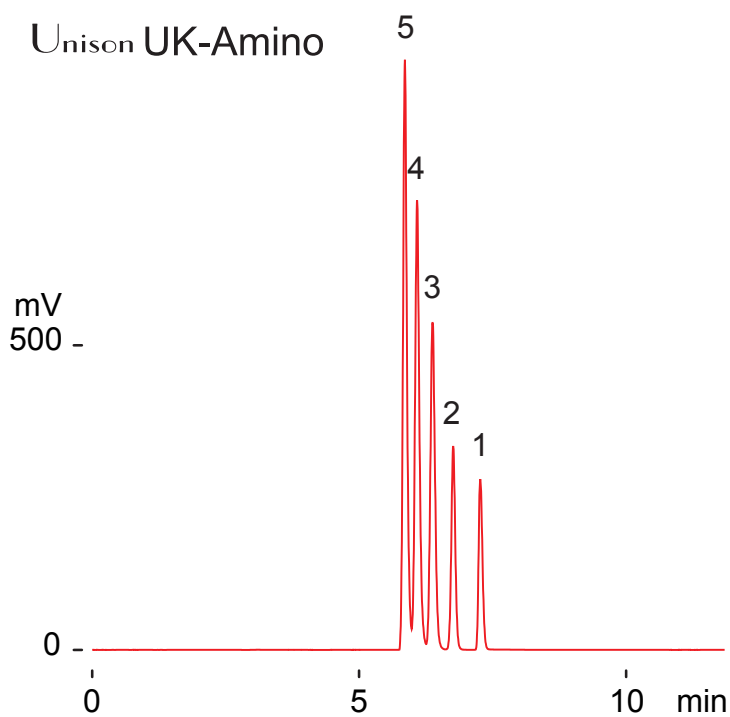
75 x 4.6 mm, water / acetonitrile = 10 / 90
1 mL/min, 37 degC, 210 nm, 5 uL (2.5 ug)

Unison UK-Amino
Cadenza CD-C18

250 x 3 mm

Application

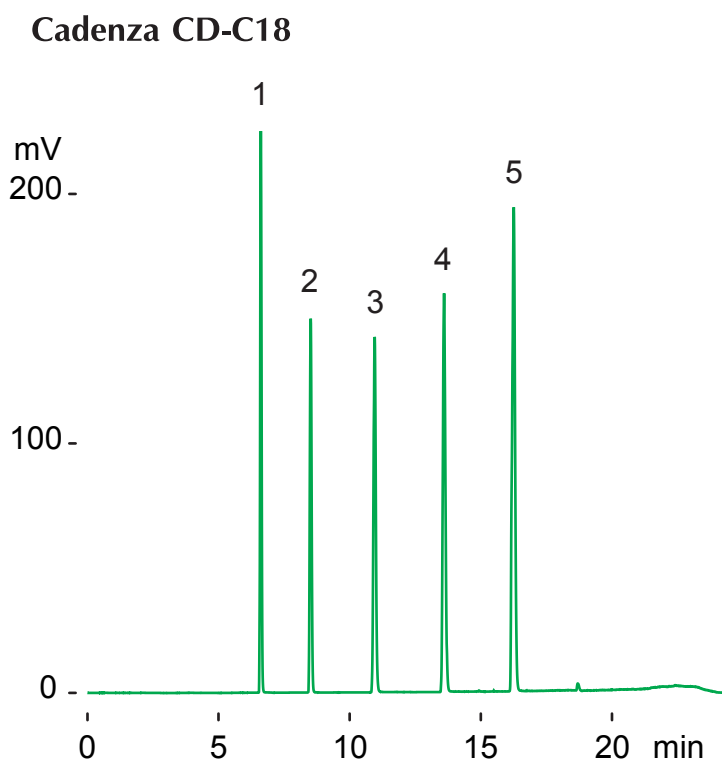
Fatty Acids
脂肪酸
CH₃(CH₂)_nCOOH



1. lauric acid (n=10)
2. myristic acid (n=12)
3. palmitic acid (n=14)
4. stearic acid (n=16)
5. arachidic acid (n=18)

normal phase

Unison UK-Amino, 250 x 3 mm
acetonitrile /
10mM ammonium acetate = 90 / 10
0.4mL/min (6 MPa), 50deg.C
ELSD, 0.5uL (0.6-3ug)



reversed phase

Cadenza CD-C18, 250 x 3 mm
A: water / formic acid = 100 / 0.1
B: acetonitrile / THF / formic acid
= 50 / 50 / 0.1
75-95%B (0-20min)
0.4mL/min (12 MPa), 37deg.C
ELSD, 0.7uL (0.8-4ug)

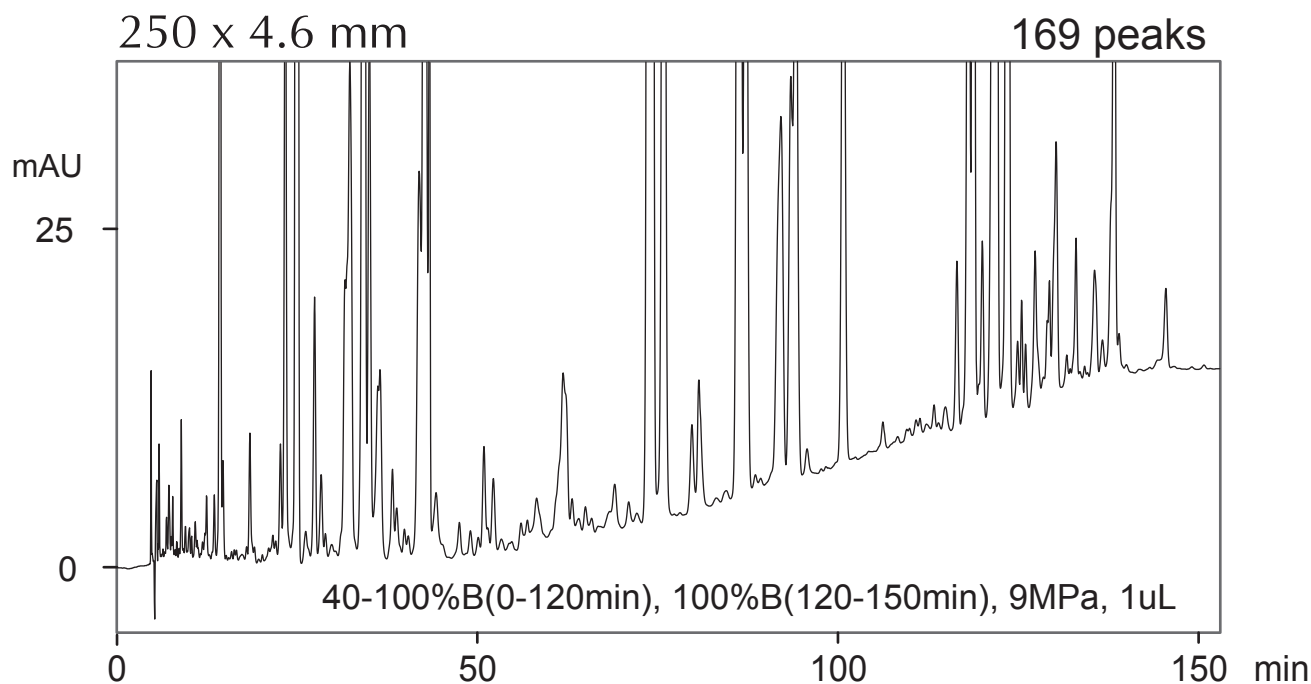
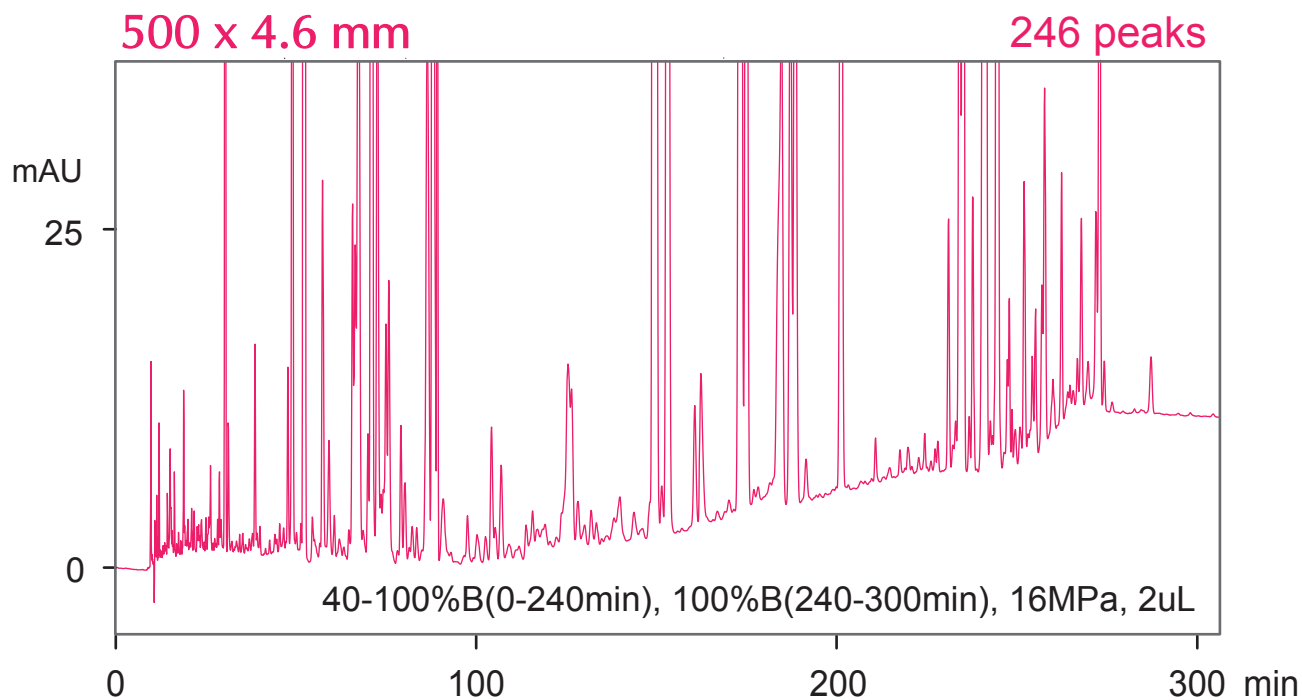
Cadenza CD-C18

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

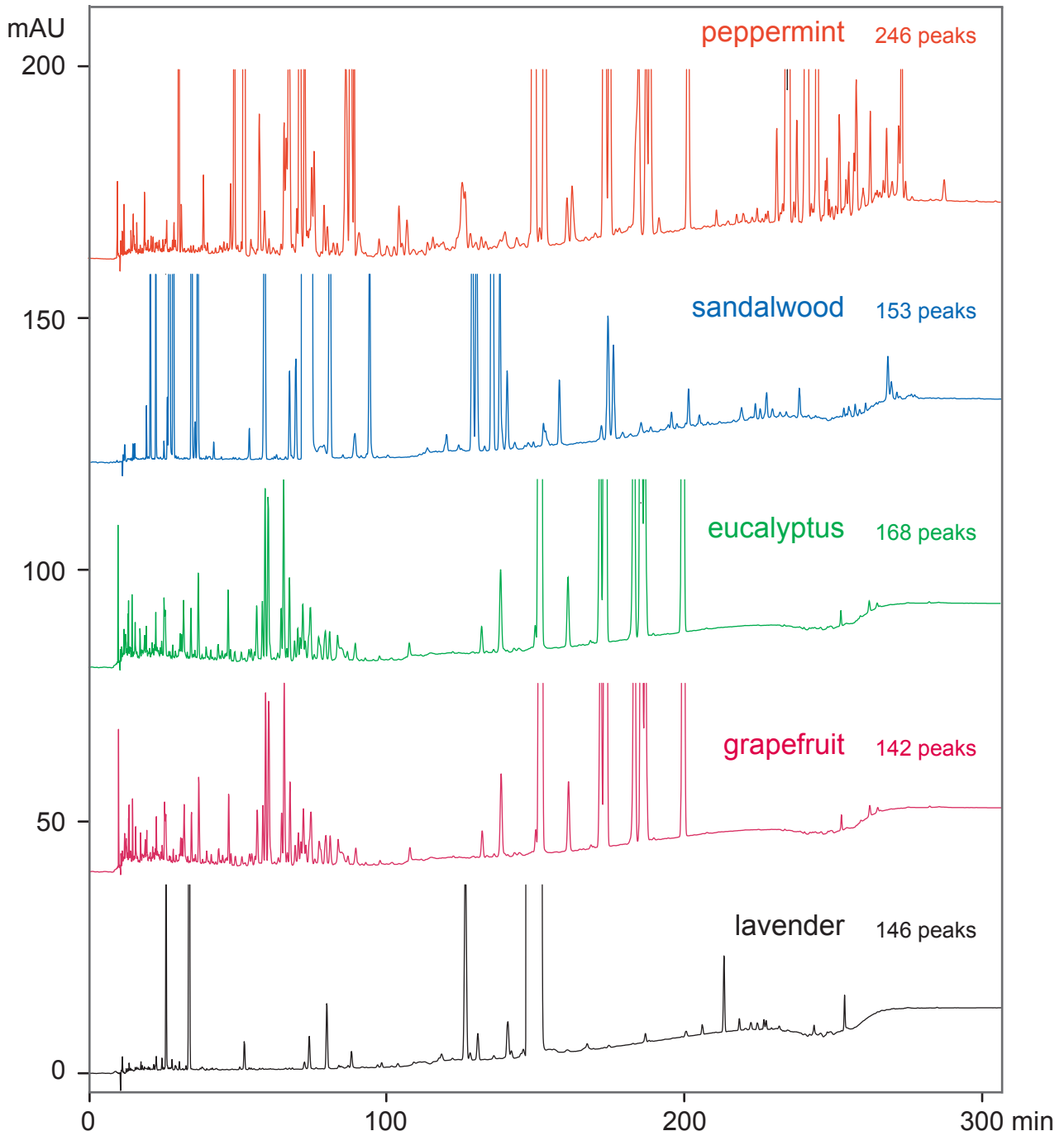
Cadenza CD-C18

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

Cadenza CW-C18

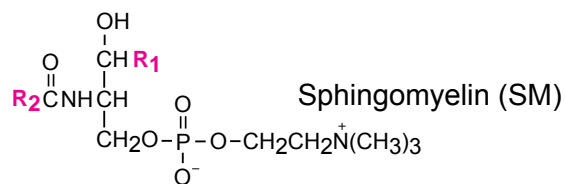
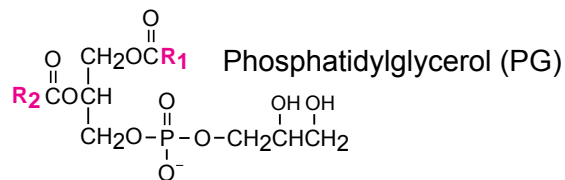
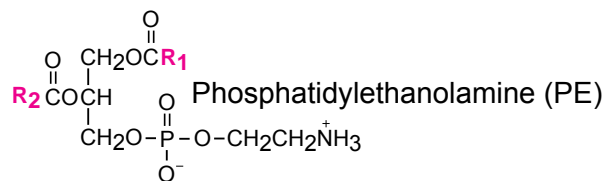
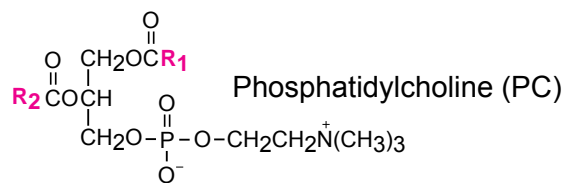
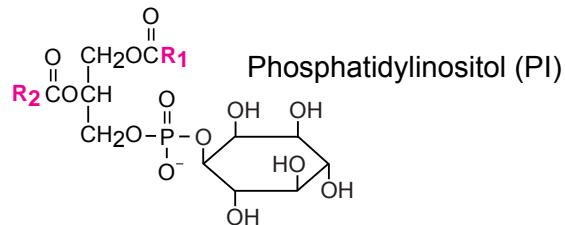
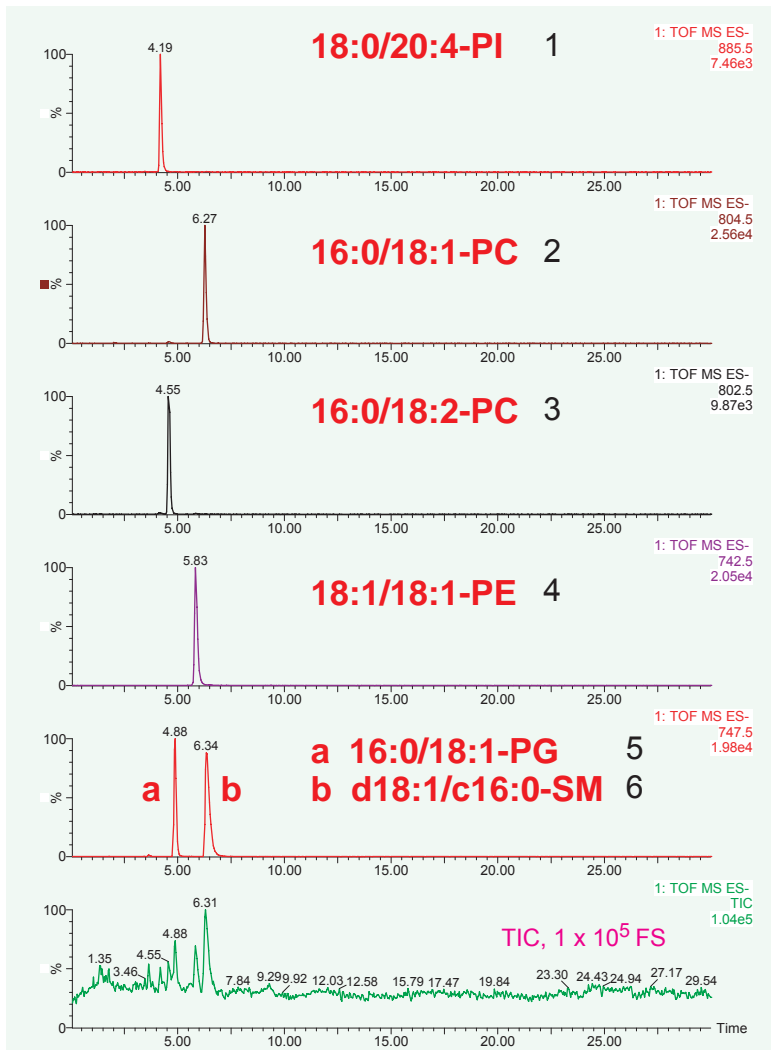
100 x 2 mm

Application

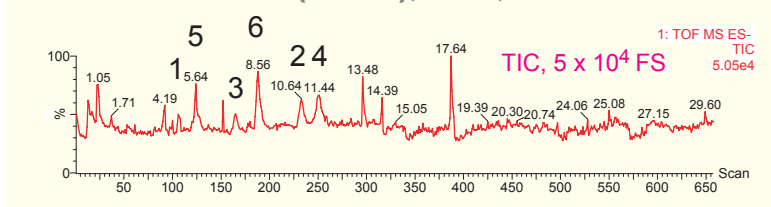
LC-MS application for phospholipids

リン脂質のLC-MS高速分析

Cadenza CW-C18



Fused Core™ (2.7um), ODS, 100 x 2.1 mm



Cadenza CW-C18, 100 x 2 mm
 5mM HCOONH₄ in (acetonitrile / methanol = 1 / 1)
 0.2mL/min, 20deg.C
 ESI-TOFMS, Negative

Courtesy of Yasuko Yoshioka, Inst. Health Biosciences, Univ. of Tokushima, Japan

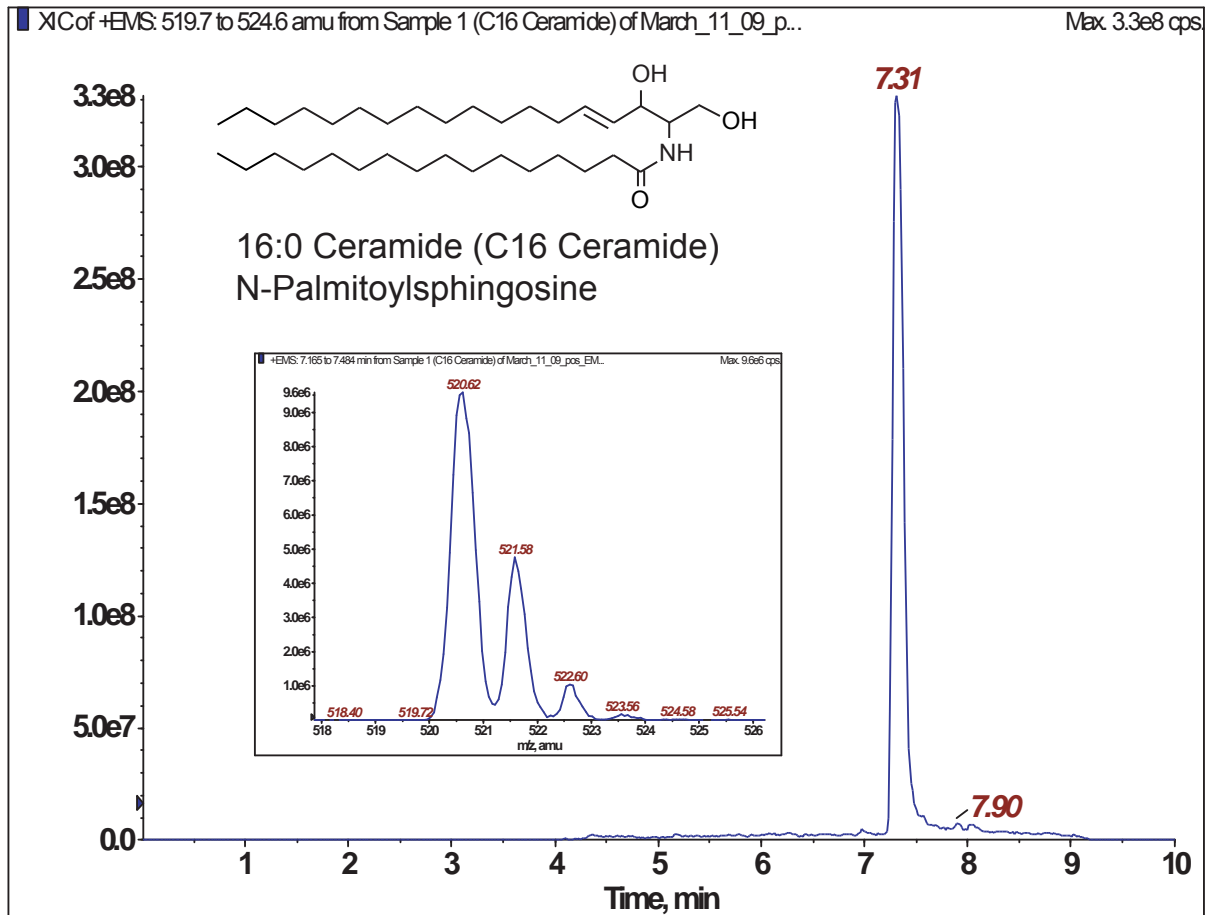
Cadenza CW-C18

150 x 2 mm

Application

LC-MS/MS Application for Sphingolipids (Ceramide)

スフィンゴ脂質(セラミド)のLC-MS/MS分析



Cadenza CW-C18, 150 x 2 mm

A: [water / HCOOH (100:0.2 v/v)] containing 7mM ammonium formate

B: [methanol / HCOOH (100:0.2 v/v)] containing 5mM ammonium formate

70-90%B (0-1min), 90%B (1-1.5min), 90-100%B (1.5-2.5min),

100%B (2.5-6min), 100-40%B (6-6.5min), 40%B (6.5-10min)

0.2mL/min - 0.28mL/min (0-6min), 0.2mL/min (6-10min)

48deg.C, 5uL (50ug / mL)

Applied Biosystems QTrap, ESI Positive [M-H₂O+H]

Courtesy of Jennifer Ro and Joe Williams
Department of Evolution, Ecology, and Organismal Biology, Ohio State University - USA

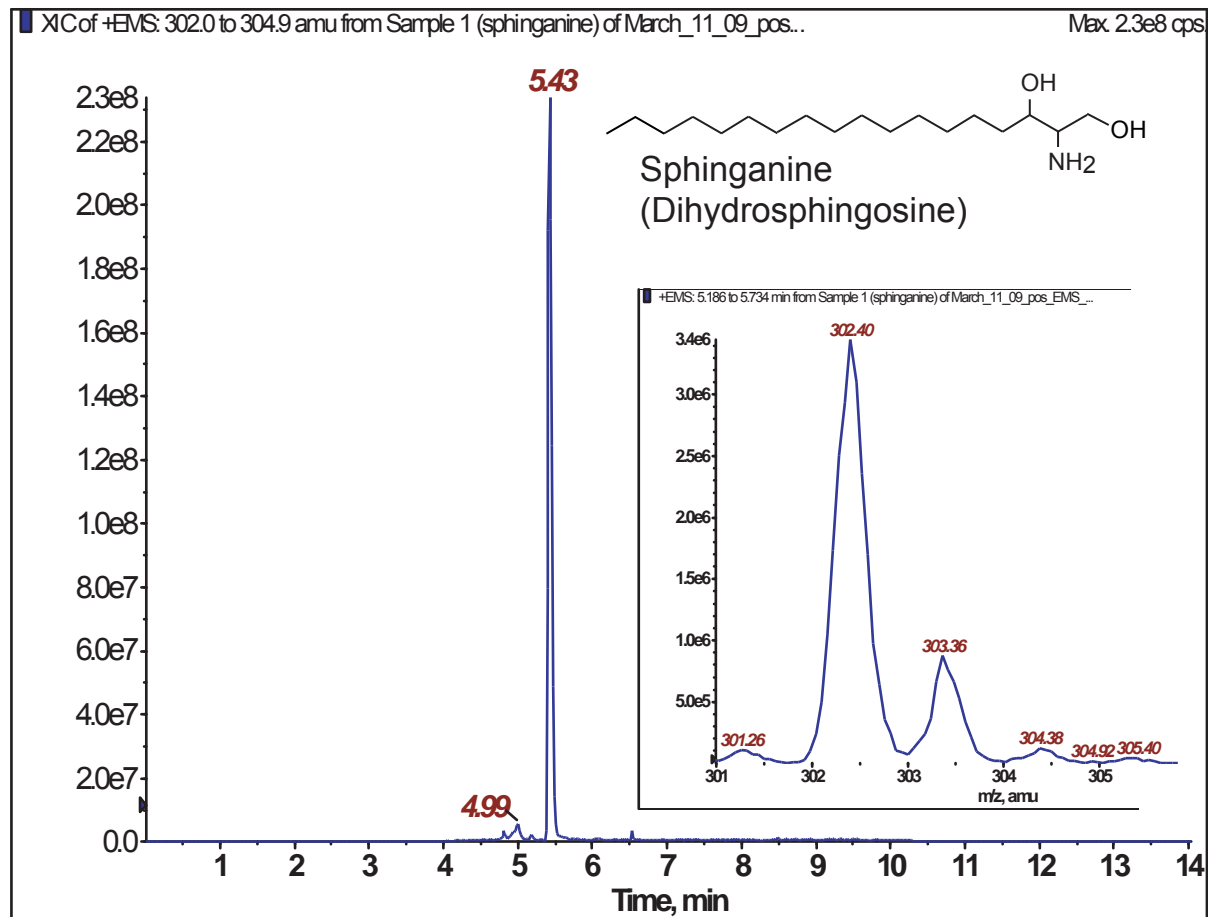
Cadenza CW-C18

150 x 2 mm

Application

LC-MS/MS Application for Sphingolipids (Sphinganine)

スフィンゴ脂質(スフィンガニン)のLC-MS/MS分析



Cadenza CW-C18, 150 x 2 mm

A: [water / HCOOH (100:0.2 v/v)] containing 7mM ammonium formate

B: [methanol / HCOOH (100:0.2 v/v)] containing 5mM ammonium formate

70-90%B (0-1min), 90%B (1-1.5min), 90-100%B (1.5-2.5min),

100%B (2.5-6min), 100-40%B (6-6.5min), 40%B (6.5-10min)

0.2mL/min - 0.28mL/min (0-6min), 0.2mL/min (6-10min)

48deg.C, 5uL (50ug / mL)

Applied Biosystems QTrap, ESI Positive

Courtesy of Jennifer Ro and Joe Williams
Department of Evolution, Ecology, and Organismal Biology, Ohio State University - USA

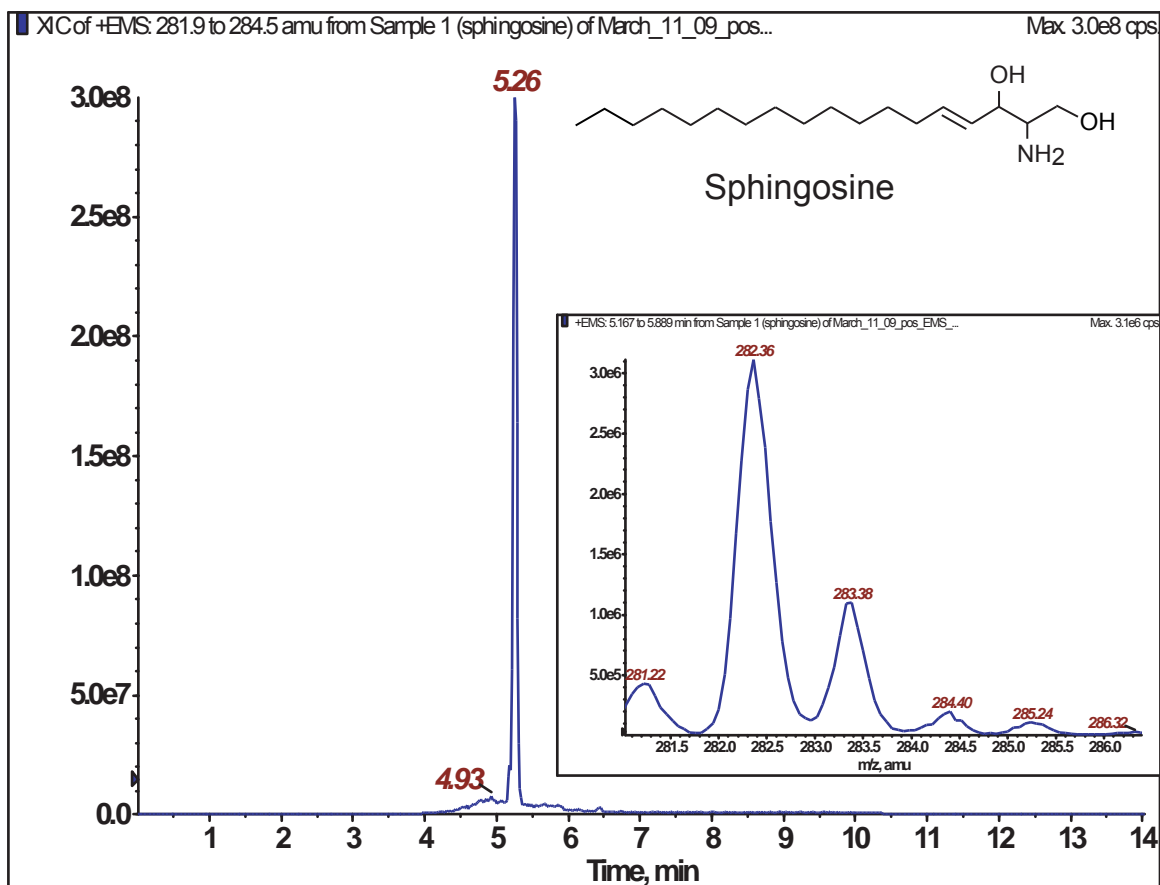
Cadenza CW-C18

150 x 2 mm

Application

LC-MS/MS Application for Sphingolipids (Sphingosine)

スフィンゴ脂質(スフィンゴシン)のLC-MS/MS分析



Cadenza CW-C18, 150 x 2 mm

A: [water / HCOOH (100:0.2 v/v)] containing 7mM ammonium formate

B: [methanol / HCOOH (100:0.2 v/v)] containing 5mM ammonium formate

70-90%B (0-1min), 90%B (1-1.5min), 90-100%B (1.5-2.5min),

100%B (2.5-6min), 100-40%B (6-6.5min), 40%B (6.5-10min)

0.2mL/min - 0.28mL/min (0-6min), 0.2mL/min (6-10min)

48deg.C, 5uL (50ug / mL)

Applied Biosystems QTrap, ESI Positive [M-H₂O+H]

Courtesy of Jennifer Ro and Joe Williams
Department of Evolution, Ecology, and Organismal Biology, Ohio State University - USA

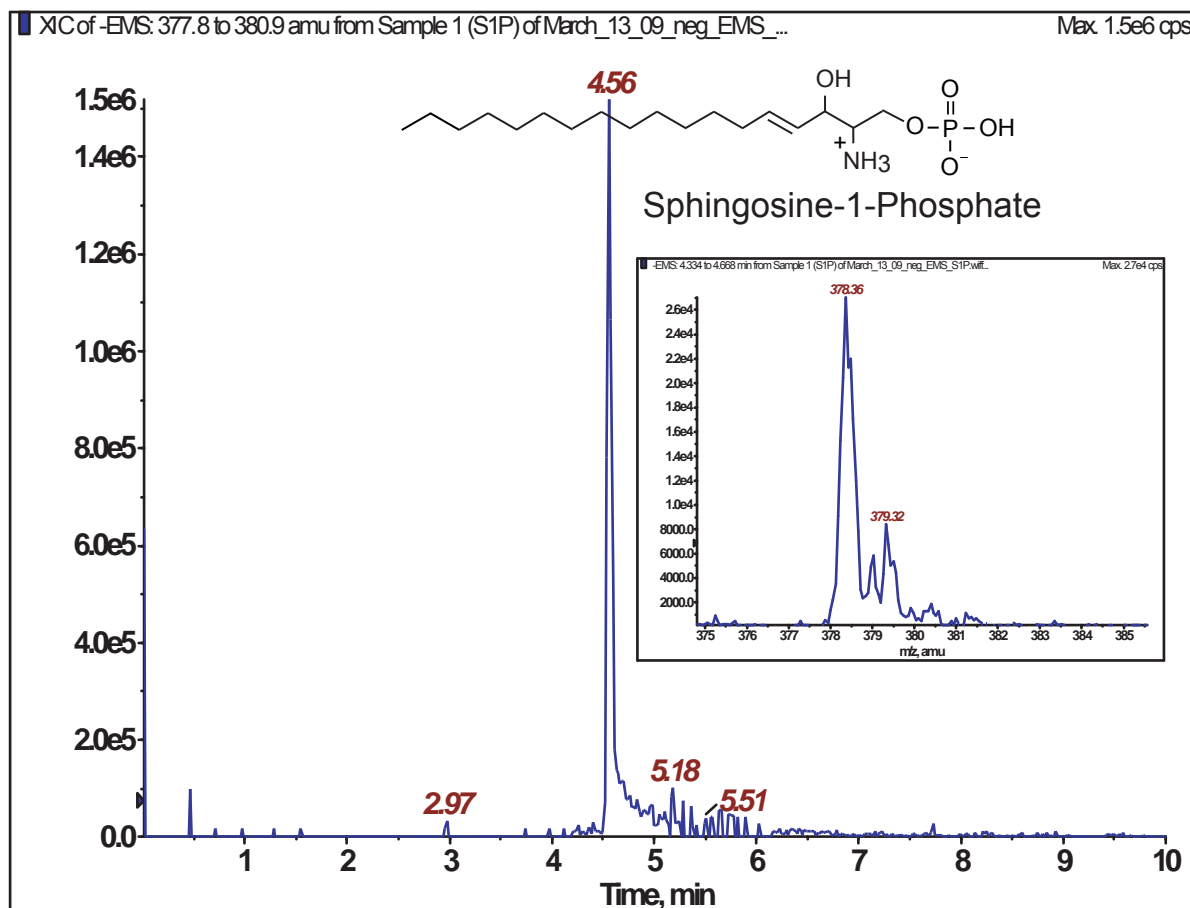
Cadenza CW-C18

150 x 2 mm

Application

LC-MS/MS Application for Sphingolipids (Sphingosine-1-PO4)

スフィンゴ脂質(スフィンゴシン-1-リン酸)のLC-MS/MS分析



Cadenza CW-C18, 150 x 2 mm

A: [water / HCOOH (100:0.2 v/v)] containing 7mM ammonium formate

B: [methanol / HCOOH (100:0.2 v/v)] containing 5mM ammonium formate

70-90%B (0-1min), 90%B (1-1.5min), 90-100%B (1.5-2.5min),

100%B (2.5-6min), 100-40%B (6-6.5min), 40%B (6.5-10min)

0.2mL/min - 0.28mL/min (0-6min), 0.2mL/min (6-10min)

48deg.C, 5uL (3ug / mL)

Applied Biosystems QTrap, ESI Negative

Courtesy of Jennifer Ro and Joe Williams
Department of Evolution, Ecology, and Organismal Biology, Ohio State University - USA

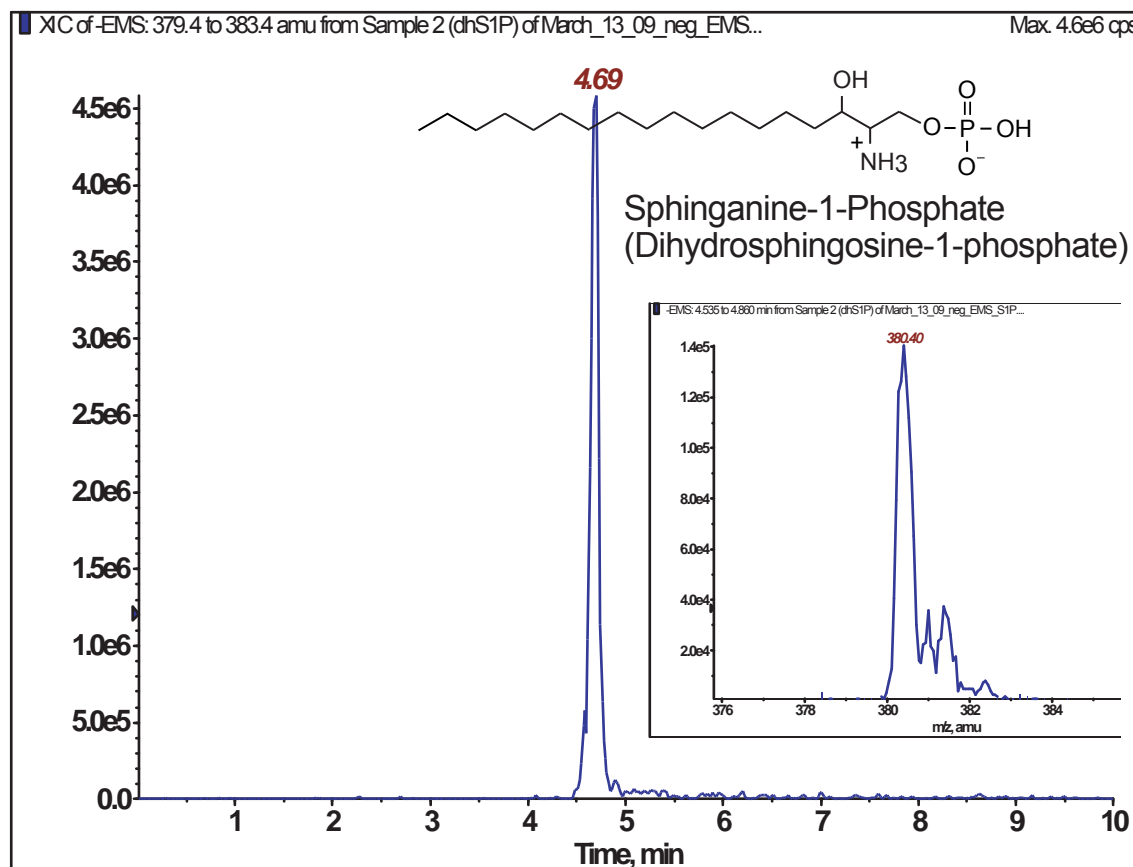
Cadenza CW-C18

150 x 2 mm

Application

LC-MS/MS Application for Sphingolipids (Sphinganine-1-PO₄)

スフィンゴ脂質(スフィンガニン-1-リン酸)のLC-MS/MS分析



Cadenza CW-C18, 150 x 2 mm

A: [water / HCOOH (100:0.2 v/v)] containing 7mM ammonium formate

B: [methanol / HCOOH (100:0.2 v/v)] containing 5mM ammonium formate

70-90%B (0-1min), 90%B (1-1.5min), 90-100%B (1.5-2.5min),

100%B (2.5-6min), 100-40%B (6-6.5min), 40%B (6.5-10min)

0.2mL/min - 0.28mL/min (0-6min), 0.2mL/min (6-10min)

48deg.C, 5uL (50ug / mL)

Applied Biosystems QTrap, ESI Negative

Courtesy of Jennifer Ro and Joe Williams
Department of Evolution, Ecology, and Organismal Biology, Ohio State University - USA

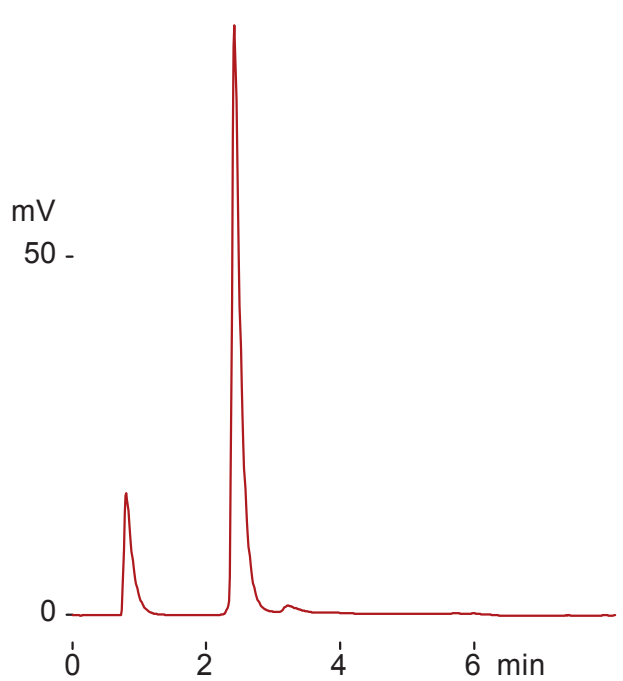
Presto FF-C18

50 x 4.6 mm
150 x 4.6 mm

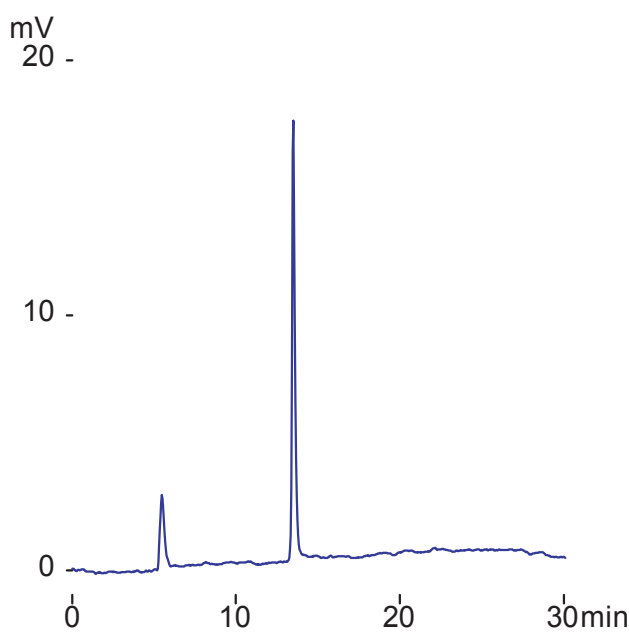
Application

Lipopolysaccharide (from *E.coli* O127)

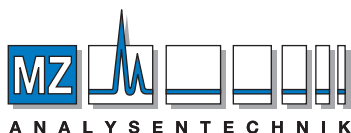
リポ多糖(大腸菌O127由来)



Presto FF-C18, 50 x 4.6 mm
A: water / formic acid = 100 / 0.1
B: acetonitrile / formic acid = 100 / 0.1
0-70 %B (0-5 min)
0.5 mL/min (7 MPa), 37 deg.C
ELSD (spray chamber 30 deg.C,
drift tube 80 deg.C)
5 uL (10 ug)



Presto FF-C18, 150 x 4.6 mm
A: water / formic acid = 100 / 0.1
B: acetonitrile / formic acid = 100 / 0.1
0-70 %B (0-25 min)
0.2 mL/min (7 MPa), 37 deg.C
ELSD (spray chamber 30 deg.C,
drift tube 80 deg.C)
5 uL (10 ug)



AUTHORIZED DISTRIBUTOR

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