

ACE[®]

UHPLC and HPLC Columns

Clinical, Forensic and Bioanalysis Applications Guide





Ultra-Inert Base Deactivated UHPLC/HPLC Columns

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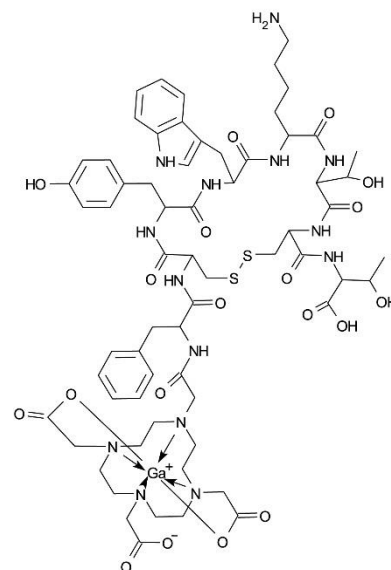
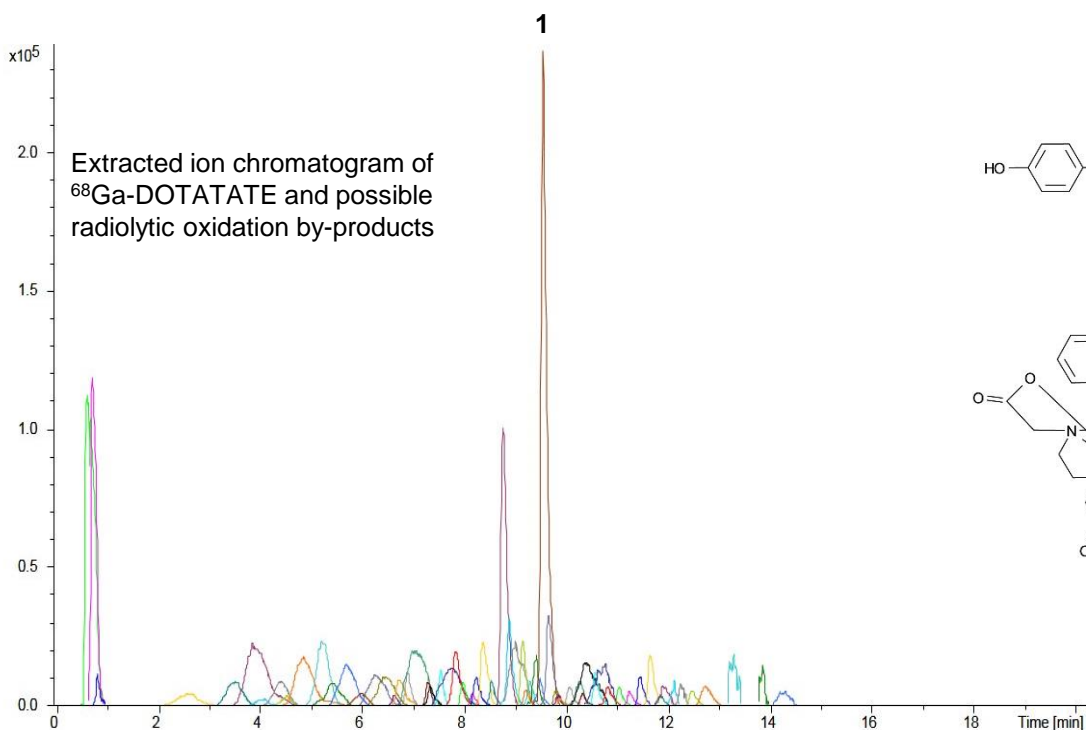
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Conditions

Column: ACE 3 C18
Dimensions: 50 x 4.6 mm
Part Number: ACE-111-0546
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeCN

Time (mins)	%B
0	2
10	25
20	25

Flow Rate: 1 mL/min
Injection: 10 µL
Detection: Bruker ESI-Q-TOF
ESI positive ion mode



1. ⁶⁸Ga-DOTATATE

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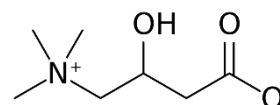
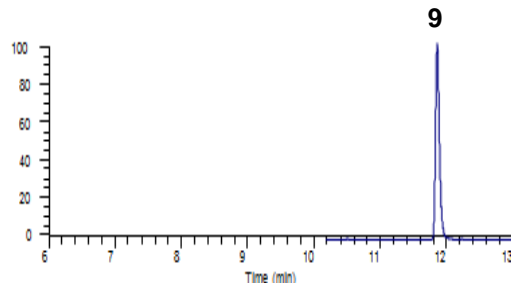
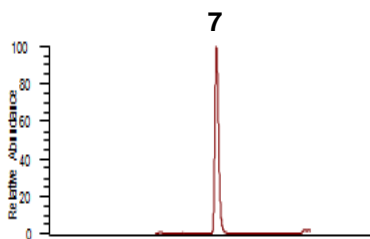
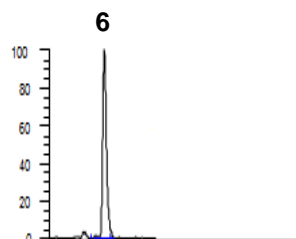
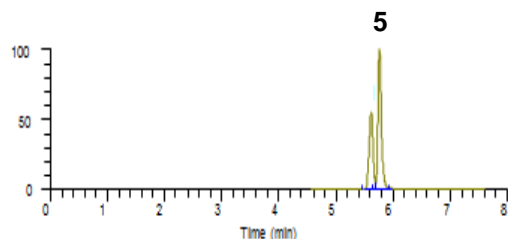
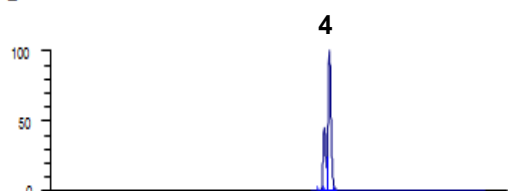
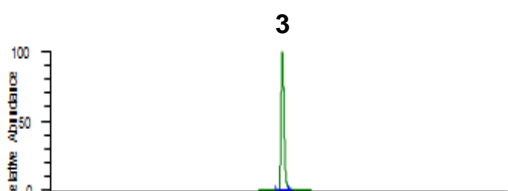
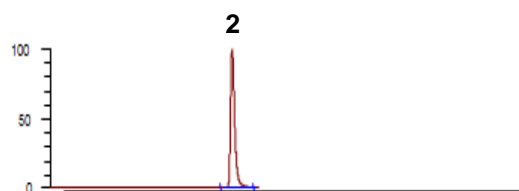


Conditions

Column: ACE Excel 2 C18-PFP
Dimensions: 100 x 2.1 mm
Part Number: EXL-1010-1002U
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeOH

Time (mins)	%B
0.0	0.5
0.5	0.5
9.0	90.0
13.0	90.0

Flow Rate: 0.3 mL/min
Sample: Dried serum extract
Detection: Positive mode ESI



1. Carnitine
(*m/z* 162.16 → 85.25-85.35)
2. Acetylcarnitine
(*m/z* 204.13 → 85.25-85.35)
3. Propionylcarnitine
(*m/z* 218.13 → 85.25-85.35)
4. Butyrylcarnitine & Isobutyrylcarnitine
(*m/z* 232.15 → 85.25-85.35)
5. Isovalerylcarnitine & 2-Methylbutyrylcarnitine
(*m/z* 246.20 → 85.25-85.35)
6. Hexanoylcarnitine
(*m/z* 260.20 → 85.25-85.35)
7. Octanoylcarnitine
(*m/z* 288.20 → 85.25-85.35)
8. Myristoylcarnitine
(*m/z* 372.30 → 85.25-85.35)
9. Palmitoylcarnitine
(*m/z* 400.30 → 85.25-85.35)

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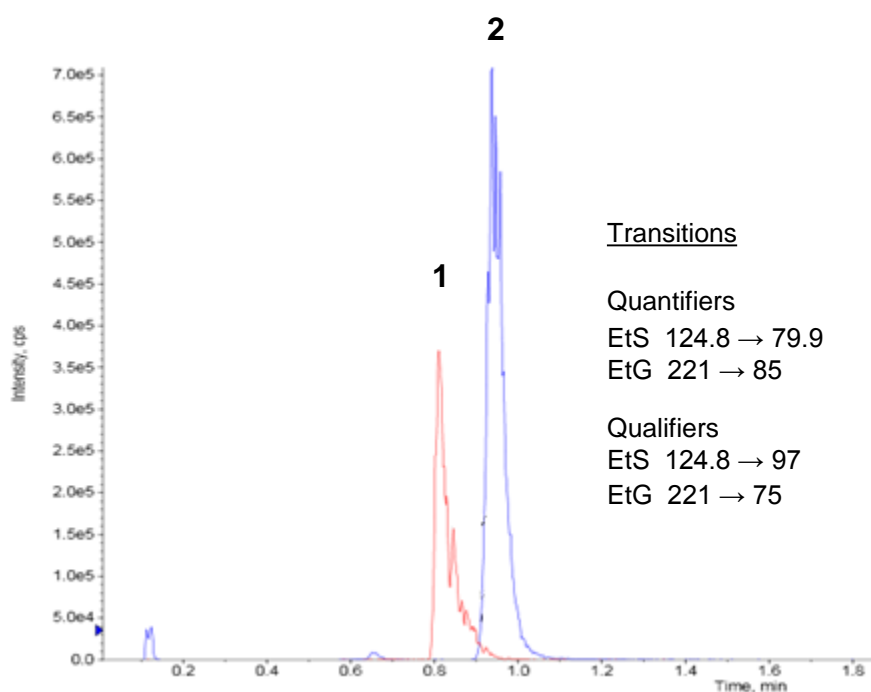
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Conditions

Column: ACE Excel 1.7 C18
Dimensions: 100 x 2.1 mm
Part Number: EXL-171-1002U
Mobile Phase: A: 1 mM ammonium fluoride
B: MeCN

Time (mins)	%B
0.0	0
0.5	20
1.5	20
2.0	100
4.0	100
4.5	0

Flow Rate: 0.4 mL/min
Injection: 1 µL
Temperature: 40 °C
Detection: AB SCIEX triple quad 5500
Negative ESI MRM
Source temperature: 750 °C
IonSpray voltage: -4500 V



Transitions

Quantifiers

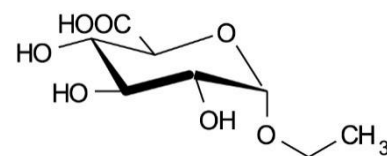
EtS 124.8 → 79.9

EtG 221 → 85

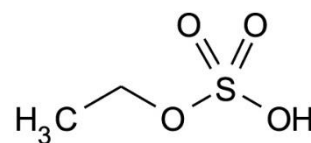
Qualifiers

EtS 124.8 → 97

EtG 221 → 75



1. Ethyl glucuronide (EtG)



2. Ethyl sulphate (EtS)

Fluoride counter-ion thought to enhance negative ESI response

Detection limit ~ 1 ng/mL in oral fluid

Amino Acids Derivatized with Dabsyl Chloride

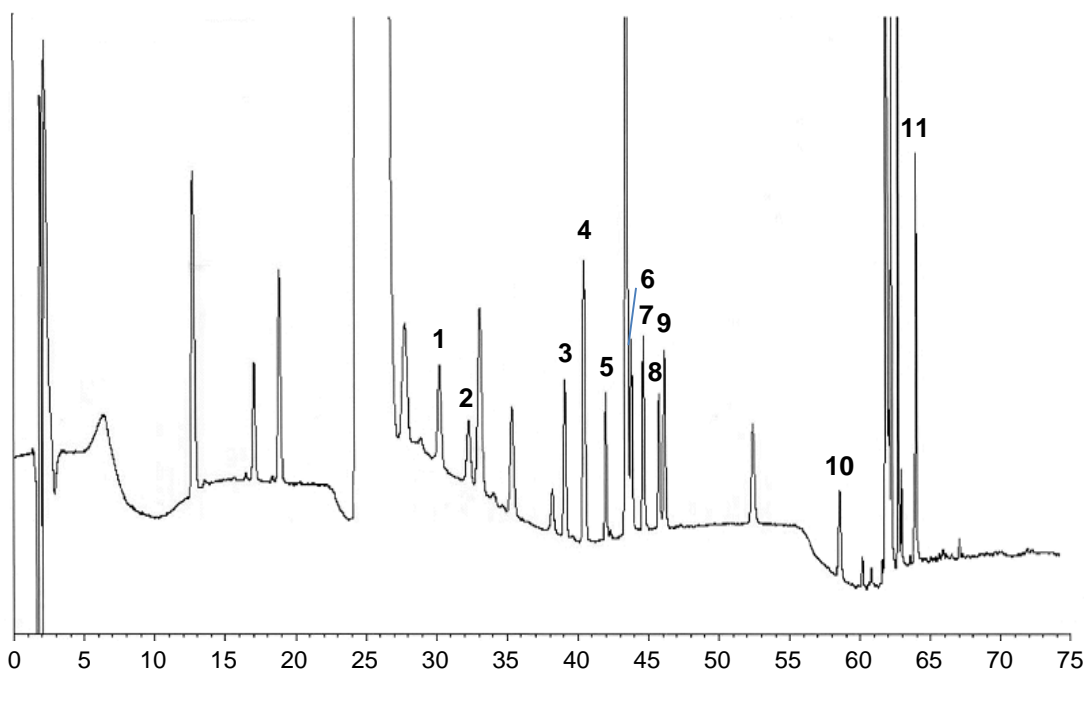
Application #AN3420

Conditions

Column: ACE 3 C18
Dimensions: 150 x 3.0 mm
Part Number: ACE-111-1503
Mobile Phase: A: 10 mM potassium dihydrogen phosphate pH 6.55 in H₂O
B: MeCN/IPA (70:30 v/v)

Time (mins)	%B
0.0	10
3.0	18
17.0	18
27.0	22
35.0	22
50.0	35
57.0	35
70.0	65
70.1	65
89.0	10
90.0	10

Flow Rate: 0.5 mL/min
Injection: 20 µL
Temperature: 50 °C
Detection: UV, 436 nm



1. L-Arginine
2. L-Threonine
3. L-Proline
4. L-Valine
5. L-Methionine
6. L-Isoleucine
7. L-Tryptophan
8. L-Norleucine
9. L-Leucine
10. Ammonium ion
11. L-Lysine

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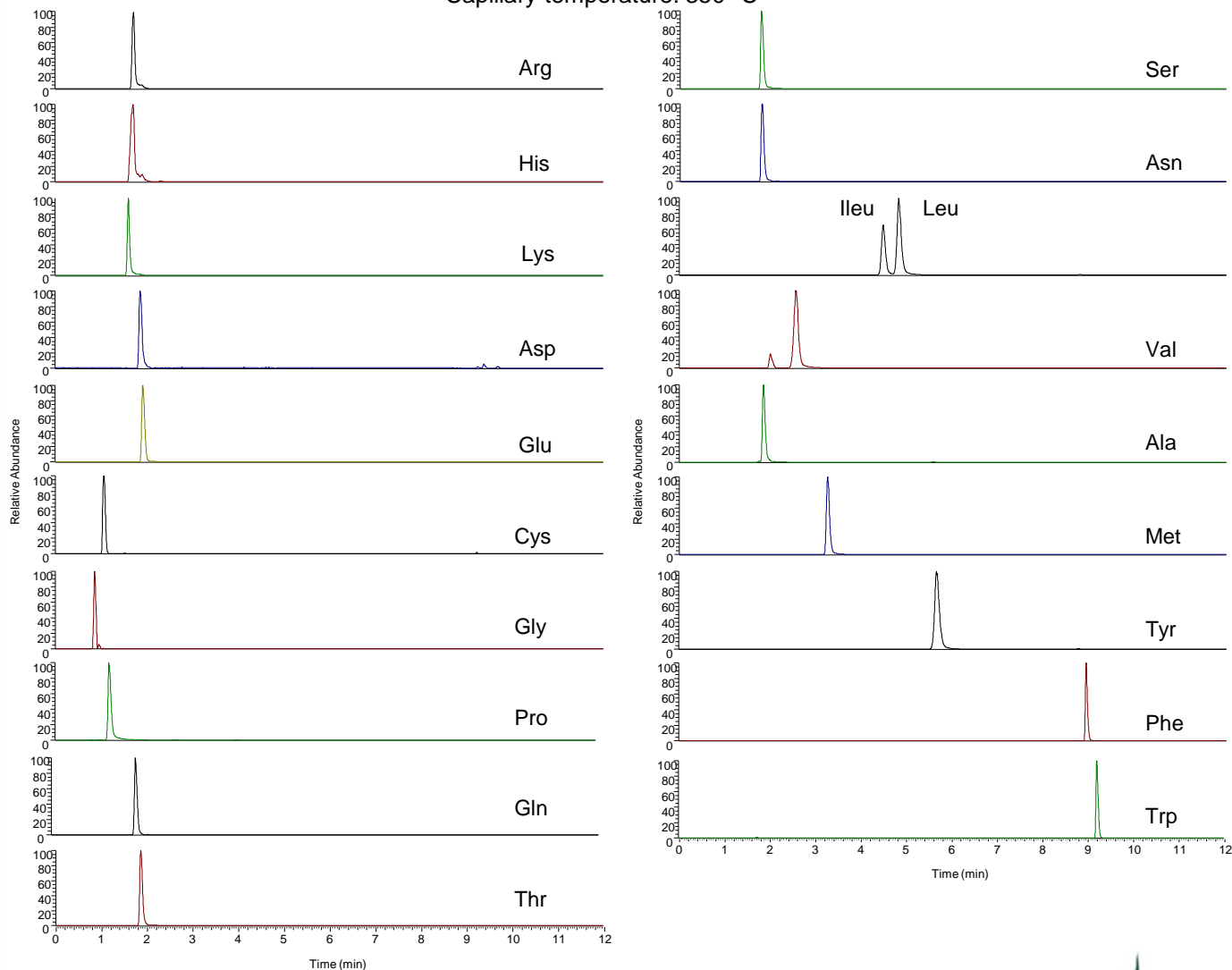
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Conditions

Column: ACE 3 AQ
 Dimensions: 150 x 3.0 mm
 Part Number: ACE-116-1503
 Mobile Phase: A: 0.1% formic acid in H₂O
 B: 0.1% formic acid in MeCN

Time (mins)	%B
0	0
10	100

Flow Rate: 0.4 mL/min
 Injection: 5 µL
 Temperature: 30 °C
 Detection: Exactive Orbitrap high resolution MS
 ESI positive ion mode
 Capillary temperature: 350 °C



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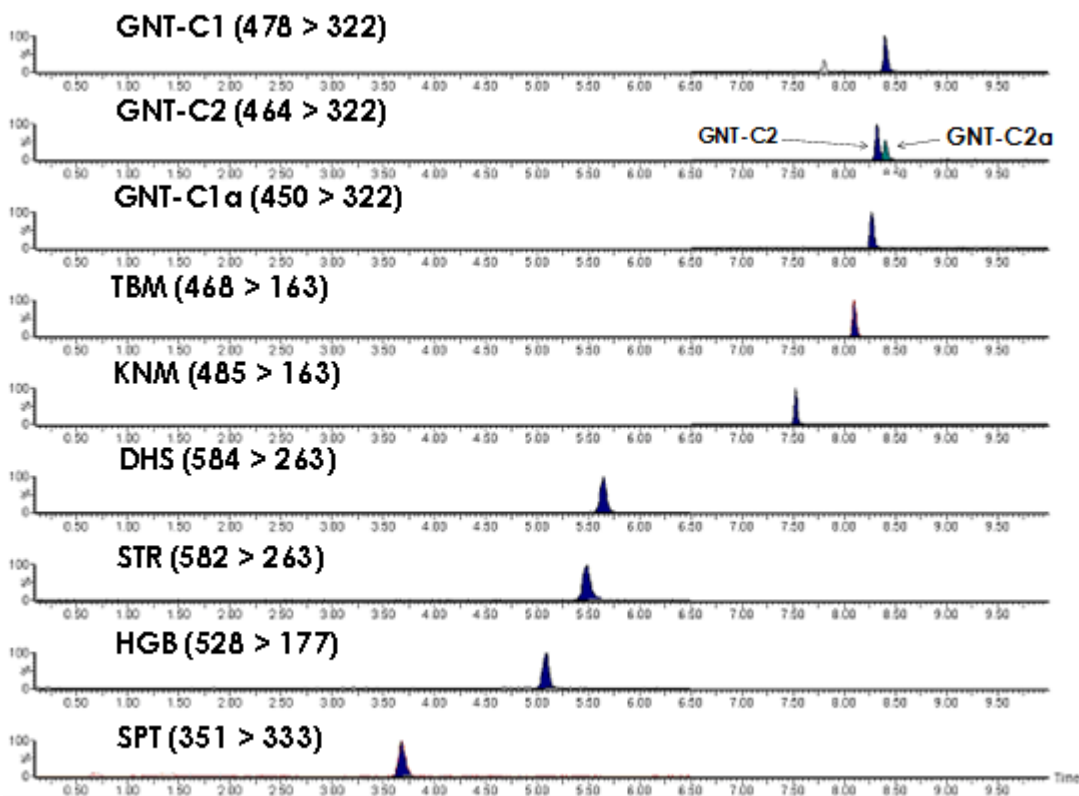


Conditions

Column: ACE Excel 2 C18-PFP
Dimensions: 100 x 2.1 mm
Part Number: EXL-1010-1002U
Mobile Phase: A: 20 mM HFBA in H₂O/MeCN (98:2 v/v)
B: 20 mM HFBA in MeCN/H₂O (98:2 v/v)

Time (mins)	%B	Curve
0.0	5.0	-
2.0	15.0	6
4.5	19.0	6
5.5	19.5	8
6.0	22.0	6
7.0	35.0	6
9.0	48.0	8
9.5	5.0	6

Flow Rate: 0.4 mL/min
Temperature: 40 °C
Detection: Positive ESI MRM (transitions as shown)
Sample: Extraction at low pH, clean up with WCX SPE cartridge
Egg sample spiked at 100 µg/kg (CCα)



Key
GNT Gentamicin
TBM Tobramycin
KNM Kanamycin
DHS Dihydrostreptomycin
STR Streptomycin
HGB Hygromycin B
SPT Spectinomycin

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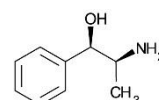
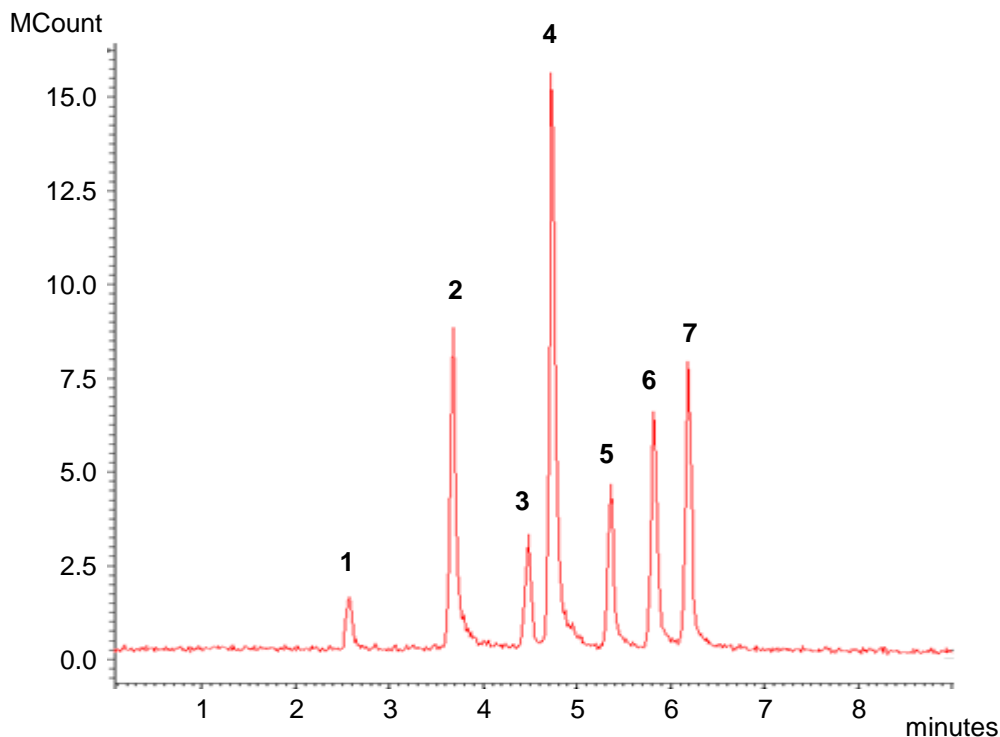
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Conditions

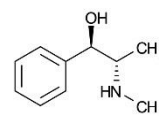
Column: ACE Excel 3 SuperC18
Dimensions: 75 x 2.1 mm
Part Number: EXL-1111-7502U
Mobile Phase: A: 5 mM ammonium hydroxide pH 10.8 in H₂O
B: 5 mM ammonium hydroxide pH 10.8 in MeOH/H₂O (90:10 v/v)

Time (mins)	%B
0	30
8	95

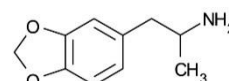
Flow Rate: 0.6 mL/min
Injection: 2 µL
Temperature: 60 °C
Detection: Varian 320 Triple Quadrupole MS
Electrospray voltage: +5 kV
Inlet capillary voltage: 30 V
CID with argon at 1.5 mTorr
Collision cell potential ranges from 5 to 17 V
Drying gas (nitrogen) temperature: 325 °C
Nebulizing gas (nitrogen) pressure: 35 psi
Extended Dynamic Range



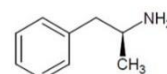
1. Phenylpropanolamine
LOD (est) 4 ppb
(*m/z* 151.6 → 134.0)



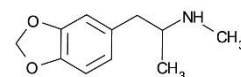
2. (l)-Ephedrine
LOD (est) 2 ppb
(*m/z* 166.2 → 148.0)



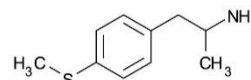
3. (dl)-3,4-MDA
LOD (est) 30 ppb
(*m/z* 179.7 → 163.0)



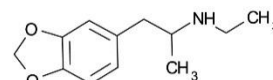
4. (d)-Amphetamine
LOD (est) 4 ppb
(*m/z* 135.8 → 90.9)



5. (dl)-3,4-MDMA
LOD (est) 2 ppb
(*m/z* 193.7 → 163.0)



6. 4-Methylthioamphetamine
LOD (est) 10 ppb
(*m/z* 182.2 → 165.0)



7. (±)-MDEA
LOD (est) 1 ppb
(*m/z* 207.7 → 165.0)

Anabolic Steroids from Horse Urine by LC-MS/MS

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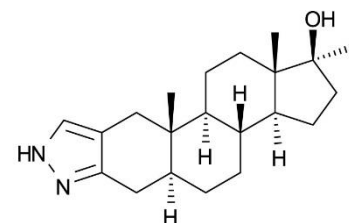
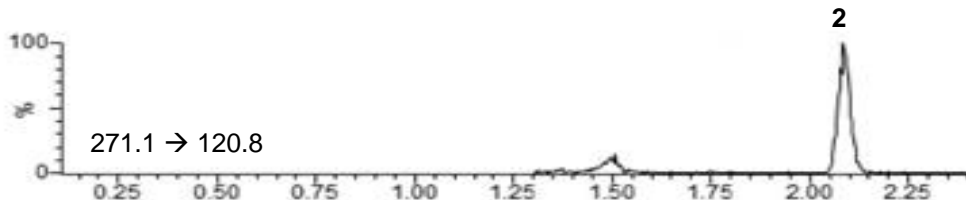
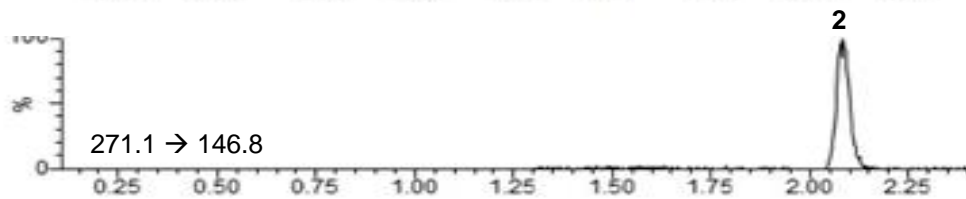
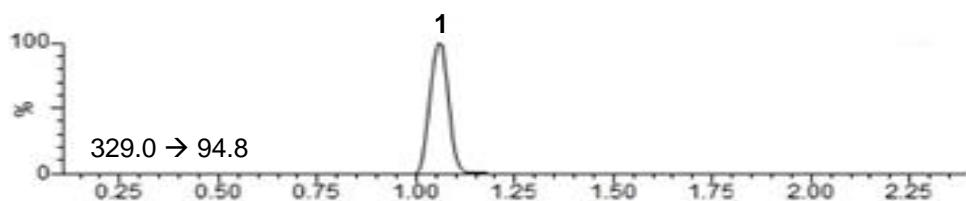
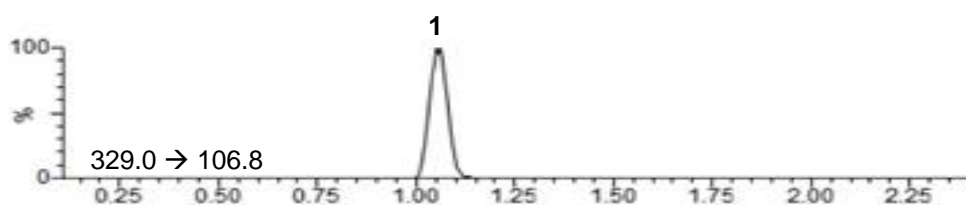
Application #AN2360

Conditions

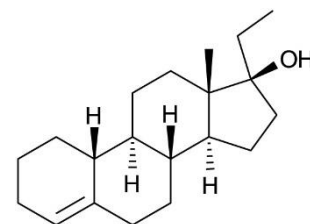
Column: ACE Excel 2 C18
Dimensions: 50 x 2.1 mm
Part Number: EXL-101-0502U
Mobile Phase: A: 2 mM ammonium acetate, 0.1% formic acid in H₂O
B: 2 mM ammonium acetate, 0.1% formic acid in MeOH

Time (mins)	%B
0.00	75
0.25	75
1.50	90
1.51	100
3.50	100
3.51	75
4.00	75

Flow Rate: 0.4 mL/min
Injection: 10 µL
Temperature: 40 °C
Detection: Premier XE triple quad MS
MRM positive ion mode
Desolvation temperature: 450 °C
Ion Source temperature: 120 °C



1. Stanozolol
(*m/z* 329.0 → 94.8)
(*m/z* 329.0 → 106.8)



2. Ethylestrenol
(*m/z* 271.1 → 120.8)
(*m/z* 271.1 → 146.8)

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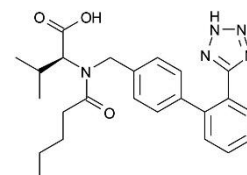
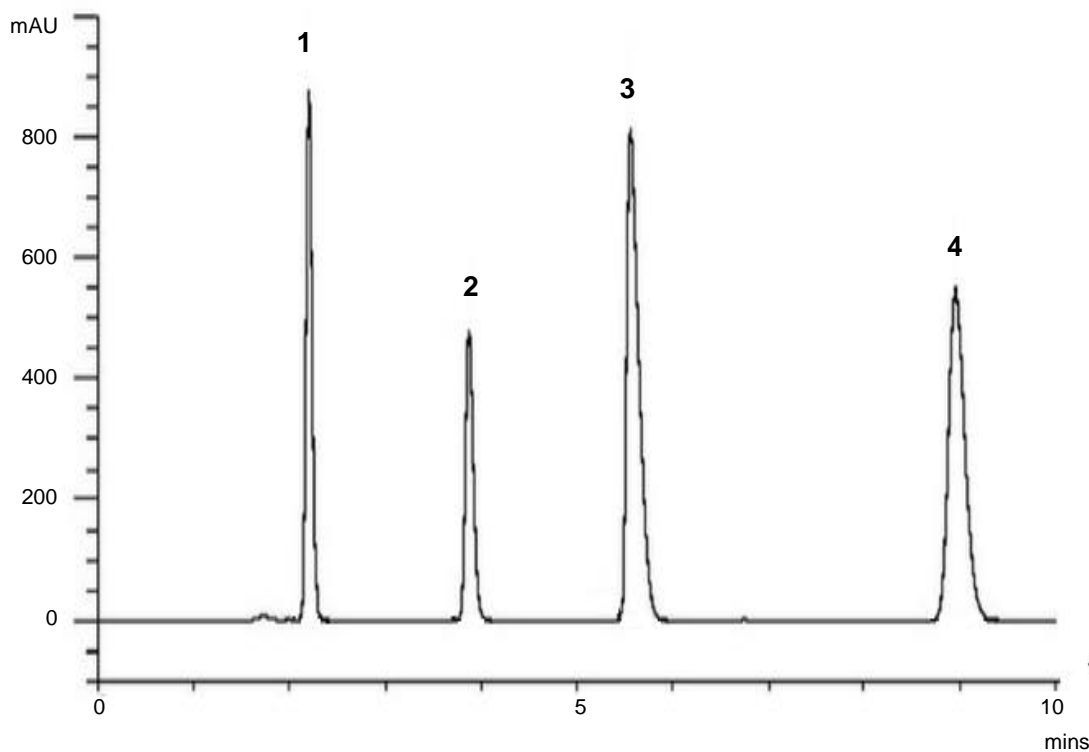
Angiotensin II Receptor Antagonists by LC-UV

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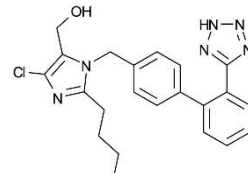
Application #AN3460

Conditions

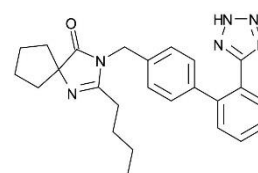
Column: ACE 5 C18
Dimensions: 250 x 4.6 mm
Part Number: ACE-121-2546
Mobile Phase: 0.025 M KH₂PO₄ pH 6.0/MeCN (65:35 v/v)
Flow Rate: 1.5 mL/min
Temperature: 40 °C
Detection: UV, 220 nm



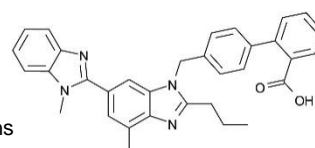
1. Valsartan



2. Losartan



3. Irbesartan



4. Telmisartan

Elshanawane AA, Abdelaziz LM, Hafez HM (2012) Stability Indicating HPLC Method for Simultaneous Determination of Several Angiotensin-II Receptor Antagonists in Their Dosage Forms. *Pharmaceut Anal Acta* 3:175. doi:10.4172/2153-2435.1000175

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Columns

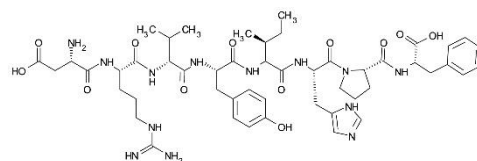
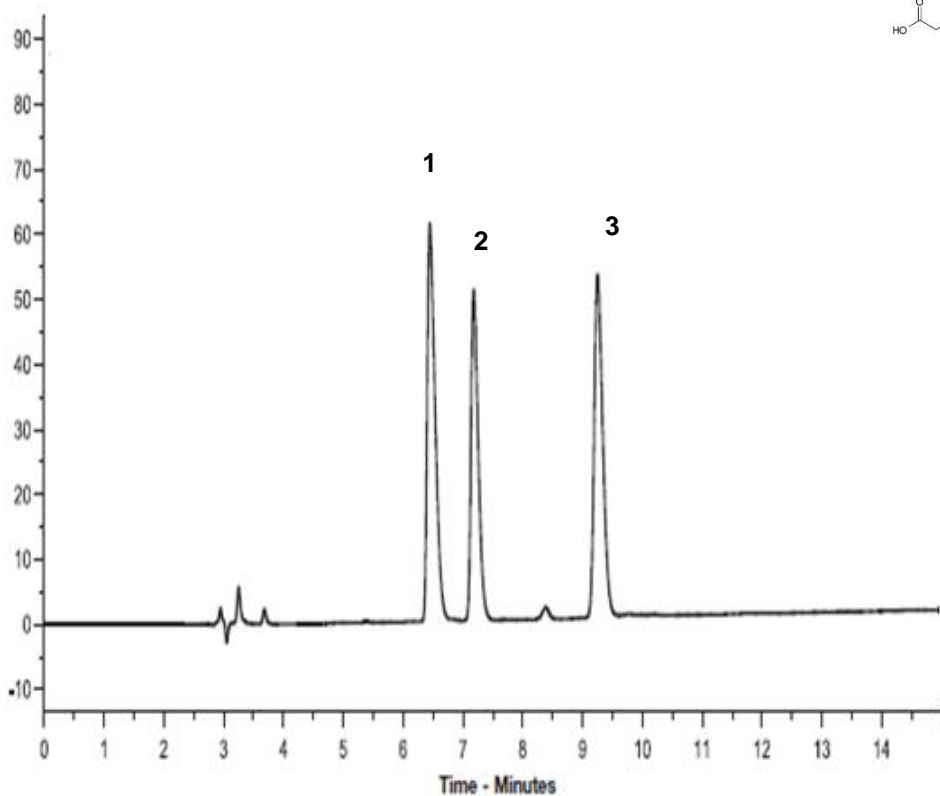
Application #AN2150

Conditions

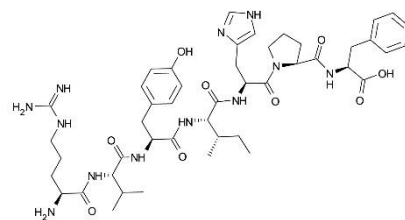
Column: ACE 5 C18-300
 Dimensions: 250 x 4.6 mm
 Part Number: ACE-221-2546
 Mobile Phase: A: 0.1 % TFA in H₂O
 B: 0.1% TFA in H₂O/MeCN (80:20 v/v)

Time (mins)	%B
0	25
15	40

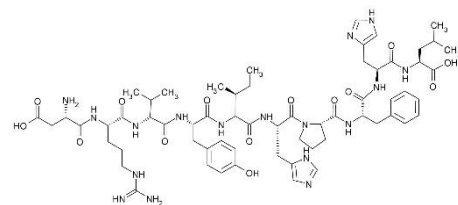
Flow Rate: 1 mL/min
 Temperature: Ambient
 Detection: UV, 215 nm



1. Angiotensin II
(*m/z* 1046.2)



2. Angiotensin III
(*m/z* 931.1)



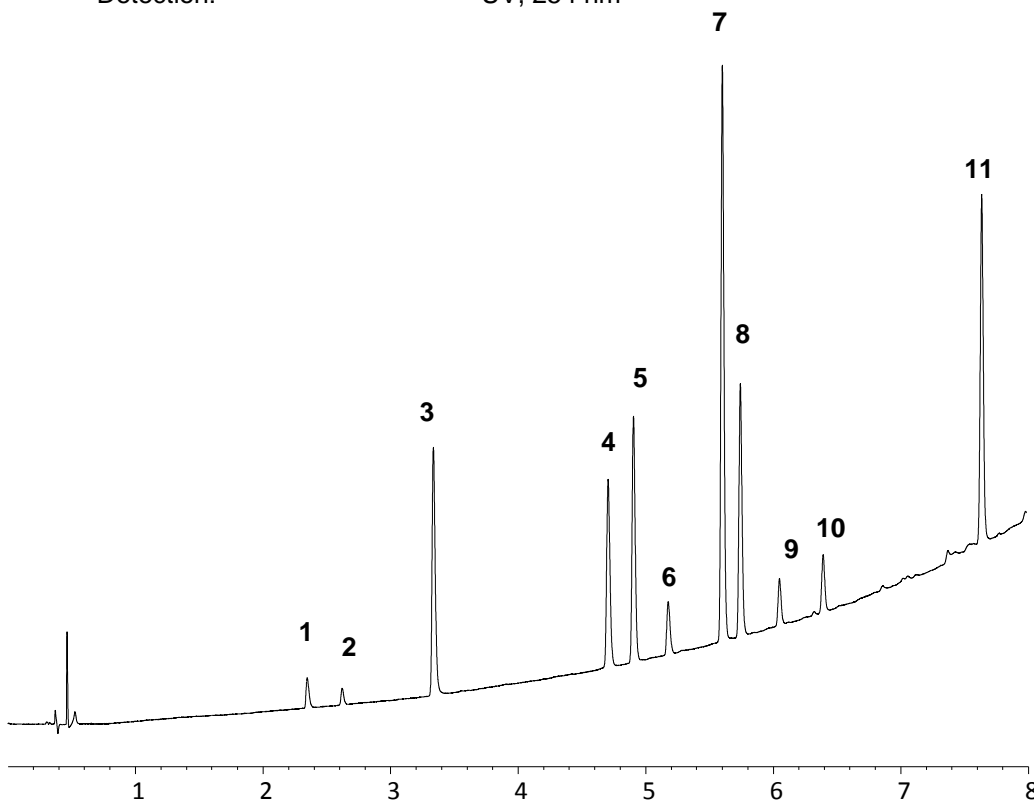
3. Angiotensin I
(*m/z* 1296.5)

Conditions

Column: ACE UltraCore 2.5 SuperC18
 Dimensions: 100 x 3.0 mm
 Part Number: CORE-25A-1003U
 Mobile Phase: A: 20 mM ammonium formate pH 3.0 in H₂O
 B: 20 mM ammonium formate pH 3.0 in MeOH/H₂O (9:1 v/v)

Time (mins)	%B
0.0	0
7.5	100
8.5	100
9.0	0

Flow Rate: 1.2 mL/min
 Injection: 2 µL
 Temperature: 25 °C
 Detection: UV, 254 nm



1. Pseudoephedrine
2. Scopolamine
3. Doxylamine
4. Chlorpheniramine
5. Triprolidine
6. Diphenhydramine
7. Acrivastine
8. Promethazine
9. Fexofenadine
10. Cetirizine
11. Loratadine



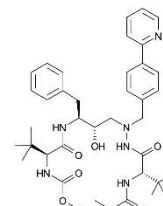
Antiretrovirals in Human Mononuclear Cell Extracts by LC-MS/MS

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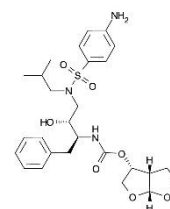
Application #AN3470

Conditions

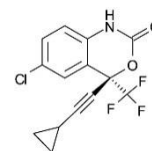
Column: ACE 3 C18
Dimensions: 100 x 3.0 mm
Part Number: ACE-111-1003
Mobile Phase: MeCN/H₂O/formic acid (60:40:0.1 v/v/v)
Flow Rate: 0.5 mL/min
Injection: 40 µL
Temperature: 40 °C
Detection: SCIEX API 6500 triple quad MS
Positive ion mode ESI (negative mode for efavirenz)
Ion spray voltage: +5500 V (-4500 V for efavirenz)
Temperature: 450 °C (650 °C for efavirenz)



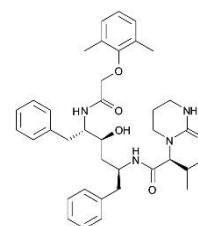
1. Atazanavir
(*m/z* 705.4 → 168.2)
LLOQ: 0.04 fmol/sample



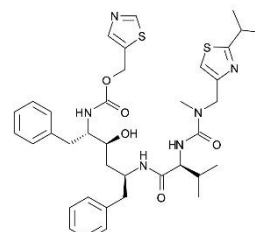
2. Darunavir
(*m/z* 548.3 → 392.3)
LLOQ: 1.0 fmol/sample



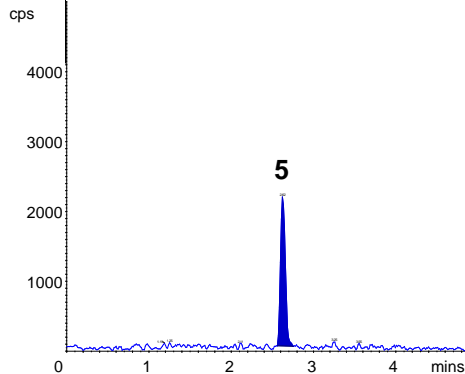
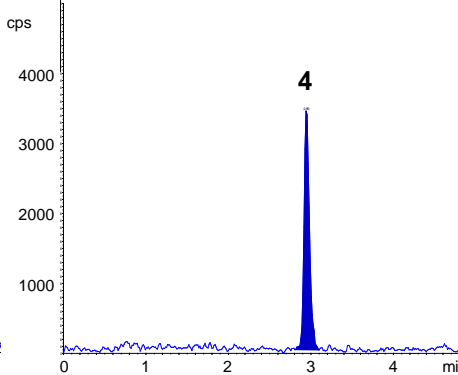
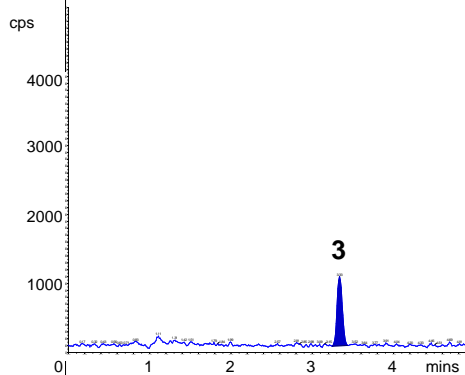
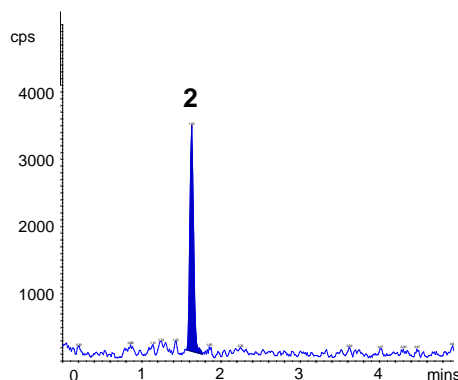
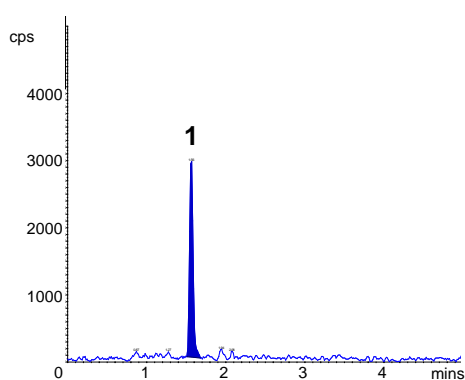
3. Efavirenz
(*m/z* 313.9 → 244.0)
LLOQ: 4.0 fmol/sample



4. Lopinavir
(*m/z* 629.4 → 447.3)
LLOQ: 1.0 fmol/sample



5. Ritonavir
(*m/z* 721.4 → 268.2)
LLOQ: 1.0 fmol/sample



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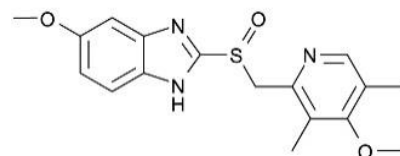
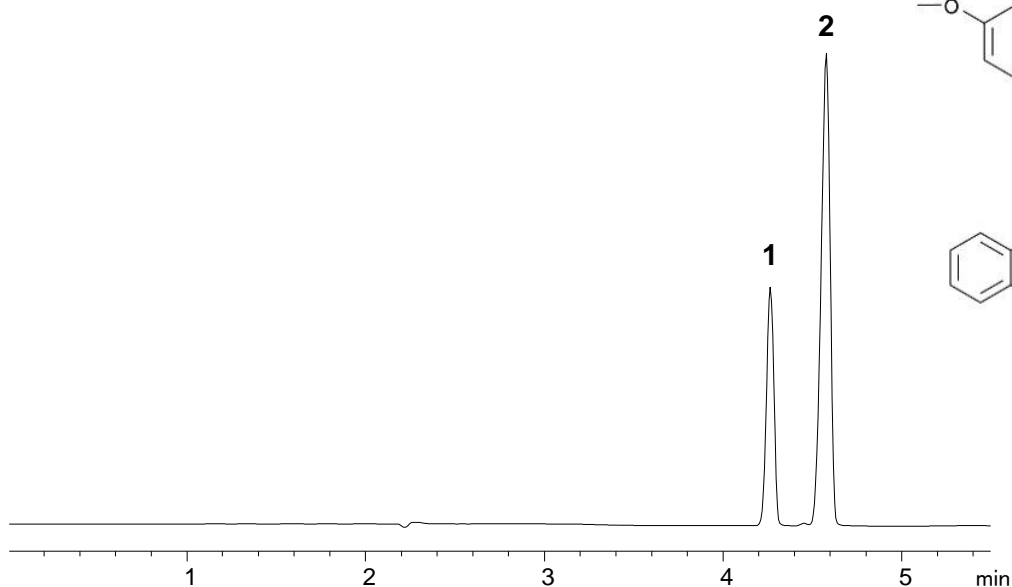
Anti-Ulcer Drugs in Basic Mobile Phase Conditions

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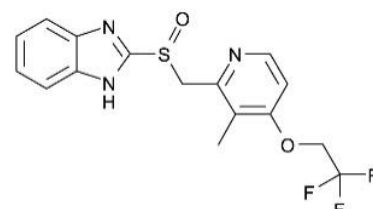
Application #AN1950

Conditions

Column: ACE 5 SuperC18
Dimensions: 150 x 4.6 mm
Part Number: EXL-1211-1546U
Mobile Phase: A: 0.1% ammonia in H₂O
B: 0.1% ammonia in MeCN/H₂O (90:10 v/v)
Flow Rate: 1 mL/min
Injection: 5 µL
Temperature: 30 °C
Detection: UV, 280 nm



1. Omeprazole



2. Lansoprazole

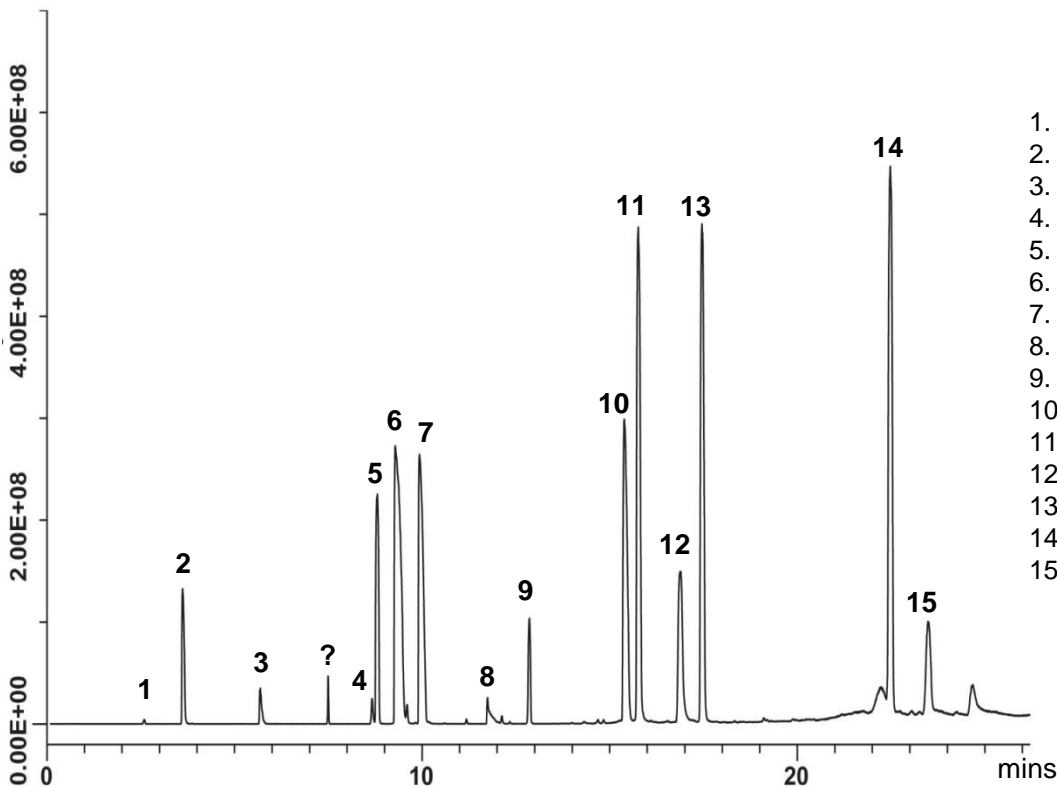


Conditions

Column: ACE Excel 2 SuperC18
 Dimensions: 100 x 2.1 mm
 Part Number: EXL-1011-1002U
 Mobile Phase: A: 10 mM ammonium acetate pH 9.35 with ammonium hydroxide
 B: 10 mM ammonium acetate pH 9.35/MeCN (10:90 v/v)

Time (mins)	%B
0.0	11.11
1.0	11.11
21.0	100
23.0	100

Flow Rate: 0.5 mL/min
 Injection: 2 µL
 Temperature: 25 °C
 Detection: MS



1. Caffeine
2. Ephedrine
3. Phentermine
4. Phenolphthalein
5. Chlordiazepoxide
6. Lorcaserin
7. Fenfluramine
8. Fluoxetine
9. Diethylpropion
10. Sertraline
11. Didesmethylsibutramine
12. Rimonabant
13. N-Desmethylsibutramine
14. Sibutramine
15. Orlistat



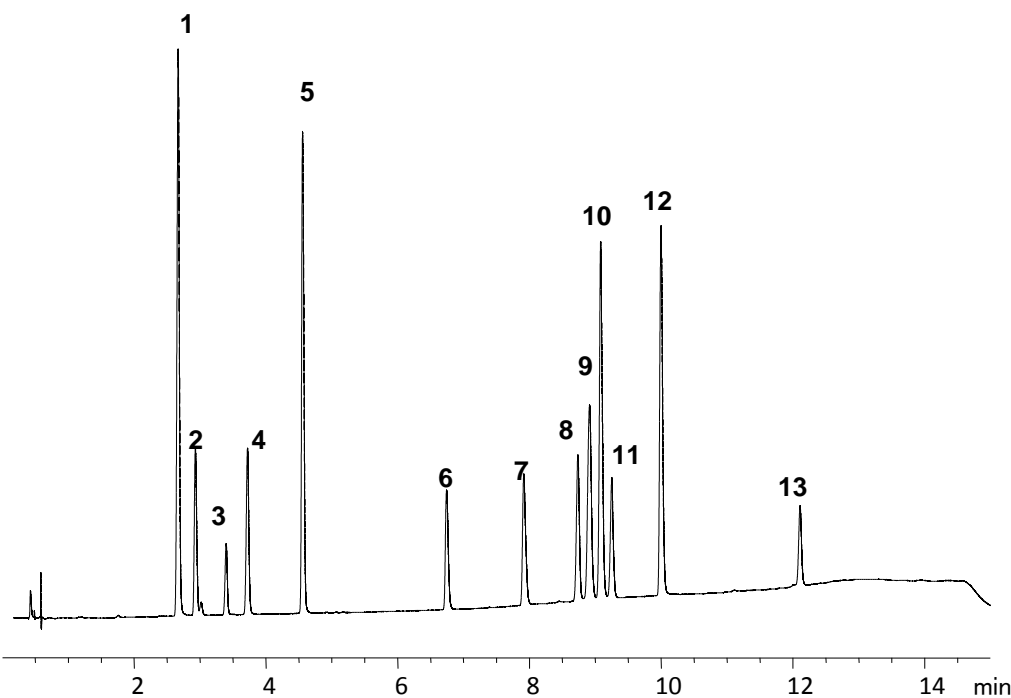
Conditions

Column: ACE 3 C18
Dimensions: 100 x 2.1 mm
Part Number: EXL-111-1002
Mobile Phase: A: 20 mM KH₂PO₄, pH 2.7
B: 20 mM KH₂PO₄, pH 2.7 in MeCN/H₂O (65:35 v/v)

Time (mins)	%B
0	5
1	5
12	95
13	95
14	5

Post time 3 minutes

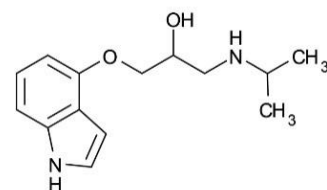
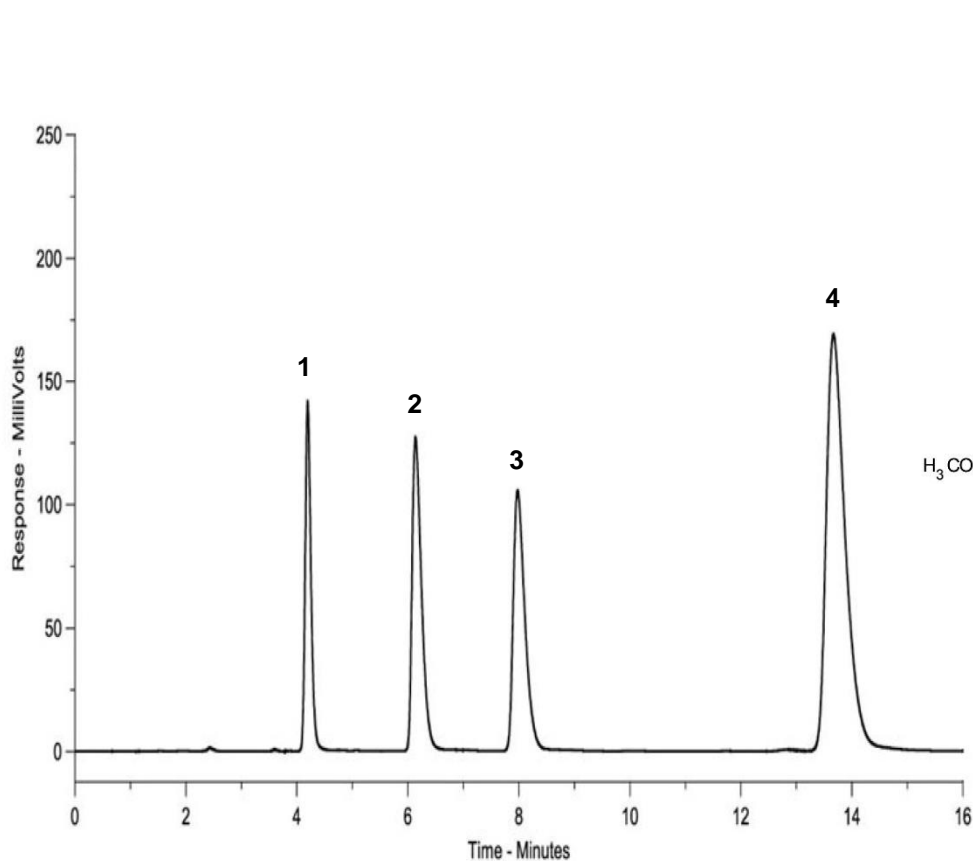
Flow Rate: 0.6 mL/min
Injection: 2 µL
Temperature: 36 °C
Detection: UV, 214 nm



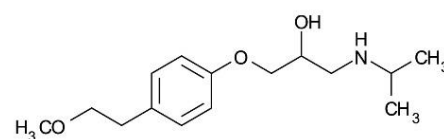
1. Hydrochlorothiazide
2. Sotalol
3. Amiloride
4. Atenolol
5. Pindolol
6. Metoprolol
7. Oxprenolol
8. Furosemide
9. Indapamide
10. Propranolol
11. Bendroflumethiazide
12. Carvedilol
13. Spironolactone

Conditions

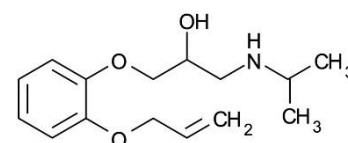
Column: ACE 5 C18
Dimensions: 250 x 4.6 mm
Part Number: ACE-121-2546
Mobile Phase: 50 mM 1-methylpiperidine pH 11/MeOH (35:65 v/v)
Flow Rate: 1 mL/min
Temperature: Ambient
Detection: UV, 215 nm



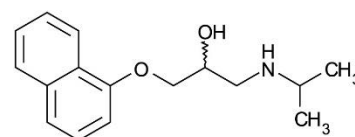
1. Pindolol



2. Metoprolol



3. Oxprenolol



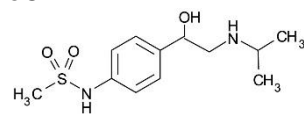
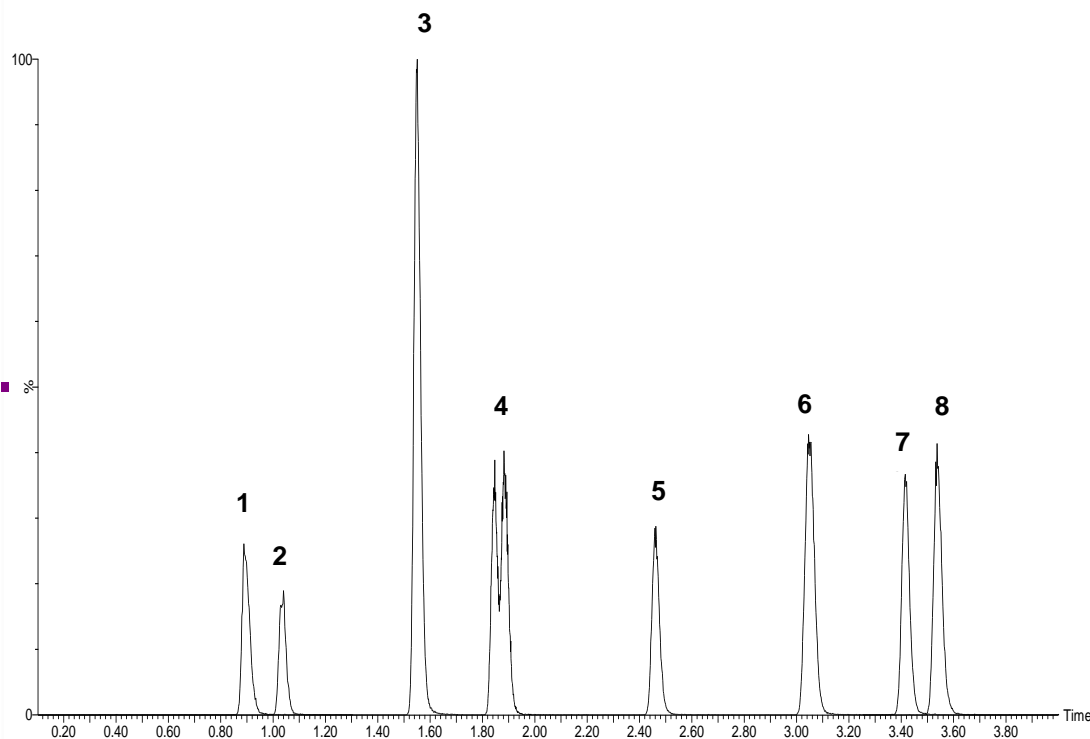
4. Propranolol

Conditions

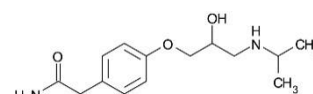
Column: ACE Excel 2 C18
 Dimensions: 50 x 2.1 mm
 Part Number: EXL-101-0502U
 Mobile Phase: A: 2 mM ammonium acetate + 0.1% formic acid in H₂O
 B: 2 mM ammonium acetate + 0.1% formic acid in MeOH

Time (mins)	%B
0.0	10
3.0	50
3.1	10

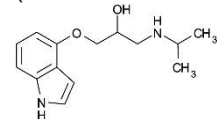
Flow Rate: 0.4 mL/min
 Injection: 10 μL
 Temperature: 40 °C
 Detection: MS/MS
 ESI in positive ion mode
 Sample: 2.5 pg/μL



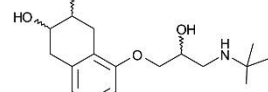
1. Sotalol
(*m/z* 272.9 → 212.8)



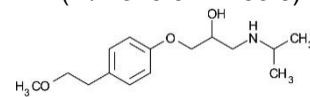
2. Atenolol
(*m/z* 267.0 → 189.8)



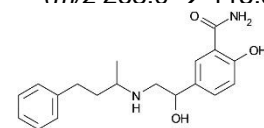
3. Pindolol
(*m/z* 248.9 → 115.8)



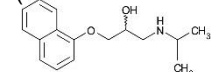
4. Nadolol diastereomers
(*m/z* 310.0 → 253.9)



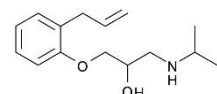
5. Metoprolol
(*m/z* 268.0 → 115.8)



6. Labetalol
(*m/z* 329.1 → 161.8)



7. Propranolol
(*m/z* 260.0 → 115.7)



8. Alprenolol
(*m/z* 250.0 → 115.8)

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Benzo(a)pyrene-7,8-quinone Derived Deoxynucleotide DNA Adducts

ACE[®]
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UHPLC & HPLC Columns

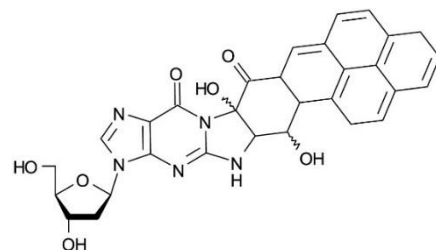
Application #AN3170

Conditions

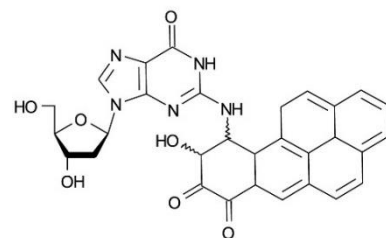
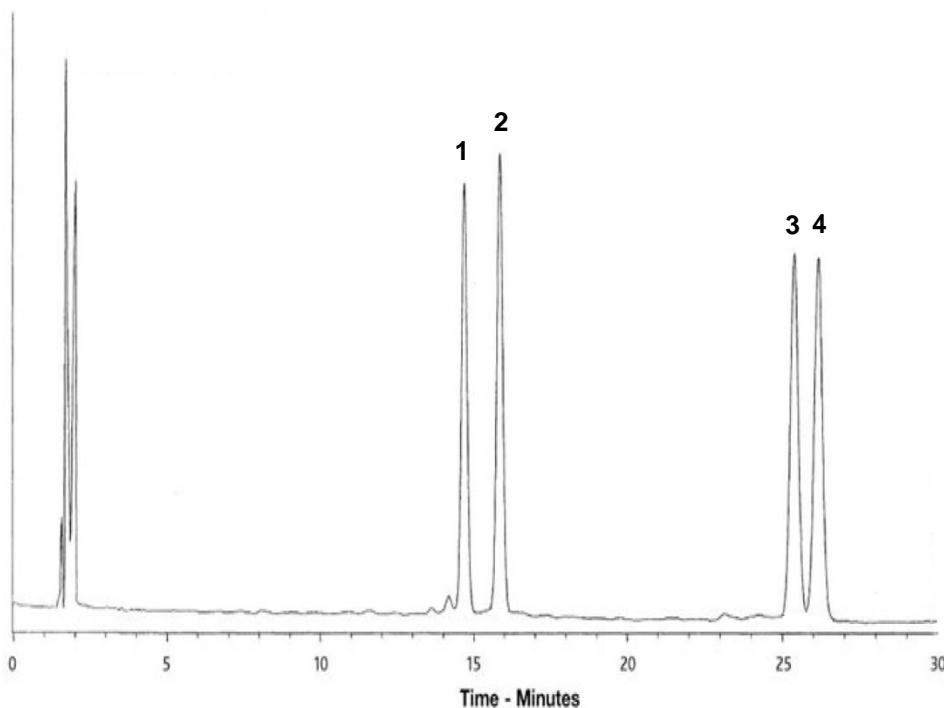
Column: ACE 3 C18
Dimensions: 150 x 4.6 mm
Part Number: ACE-111-1546
Mobile Phase: A: 0.1% formic acid in H₂O
B: MeCN

Time (mins)	%B
0	25
8	55

Flow Rate: 1 mL/min
Injection: 5 µL
Temperature: 35 °C
Detection: UV, 285 nm



1. BPQ-dG#1
2. BPQ-dG#2



3. BPQ-dG#3
4. BPQ-dG#4

Biomarker Analysis for Gaucher Disease by LC-MS/MS

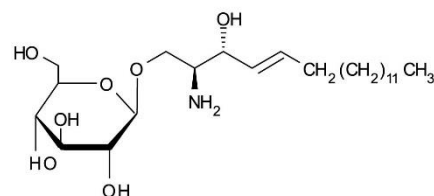
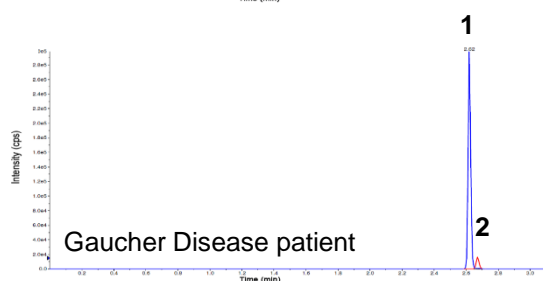
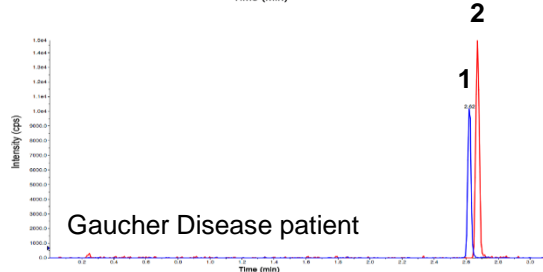
Application #AN3490

Conditions

Column: ACE 3 C8
Dimensions: 50 x 2.1 mm
Part Number: ACE-112-0502
Mobile Phase: A: 50 mM formic acid in H₂O
B: 50 mM formic acid in MeCN/acetone (1:1 v/v)

Time (mins)	%B
0.0	5
4.0	66
4.1	100
5.1	100
5.9	5

Flow Rate: 0.9 mL/min
Injection: 5 µL
Temperature: 60 °C
Detection: API 4000 triple quad MS
ESI in positive ion mode
Temperature: 500 °C



1. Glucosylsphingosine
(*m/z* 462 → 282)

2. Lyso-Gb2 (IS)
(*m/z* 624 → 282)

Rolf A, Giese AK, Grittner U, Mascher D, Elstein D, et al. (2013) Glucosylsphingosine Is a Highly Sensitive and Specific Biomarker for Primary Diagnostic and Follow-Up Monitoring in Gaucher Disease in a Non-Jewish, Caucasian Cohort of Gaucher Disease Patients. PLoS ONE 8(11): e79732. doi:10.1371/journal.pone.0079732

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Biomarker for Niemann-Pick Type C1 Disease by LC-MS/MS

Application #AN3480

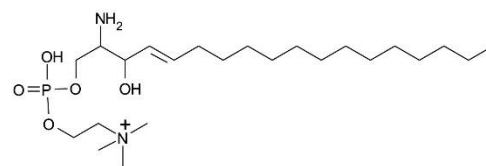
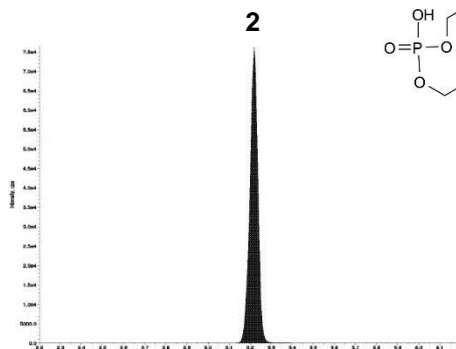
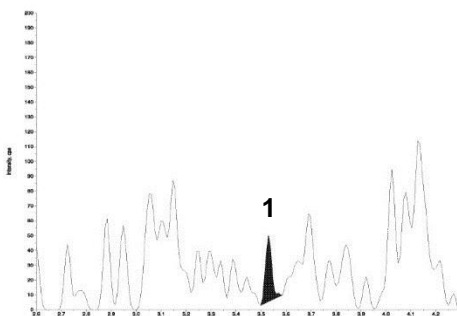
Conditions

Column: ACE 3 C8
Dimensions: 50 x 2.1 mm
Part Number: ACE-112-0502
Mobile Phase: A: 50 mM formic acid in H₂O
B: 50 mM formic acid in MeCN/acetone (1:1 v/v)

Time (mins)	%B
0.0	5
4.0	66
4.1	100
5.1	100
5.9	5

Flow Rate: 0.9 mL/min
Injection: 5 µL
Temperature: 60 °C
Detection: API 4000 triple quad MS
ESI in positive ion mode
Temperature: 500 °C

Human Control Plasma

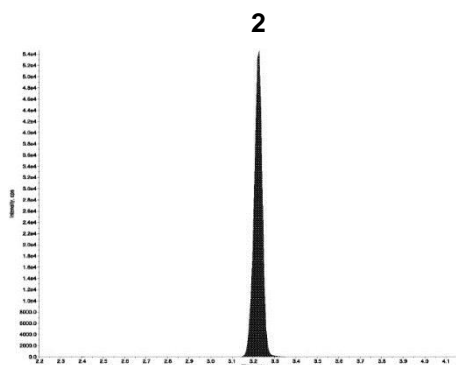
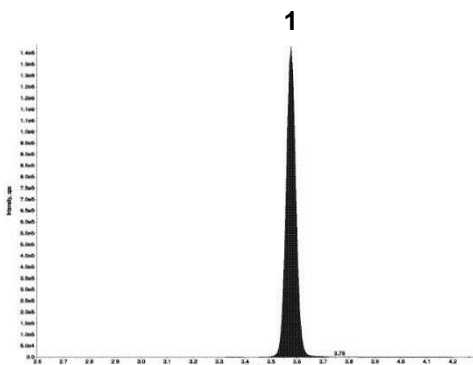


Lyso-SM (lyso-sphingomyelin)

1. Lyso-SM-509
(*m/z* 509 → 184)

2. Lyso-Gb2 (IS)
(*m/z* 624 → 282)

Niemann-Pick Patient Sample



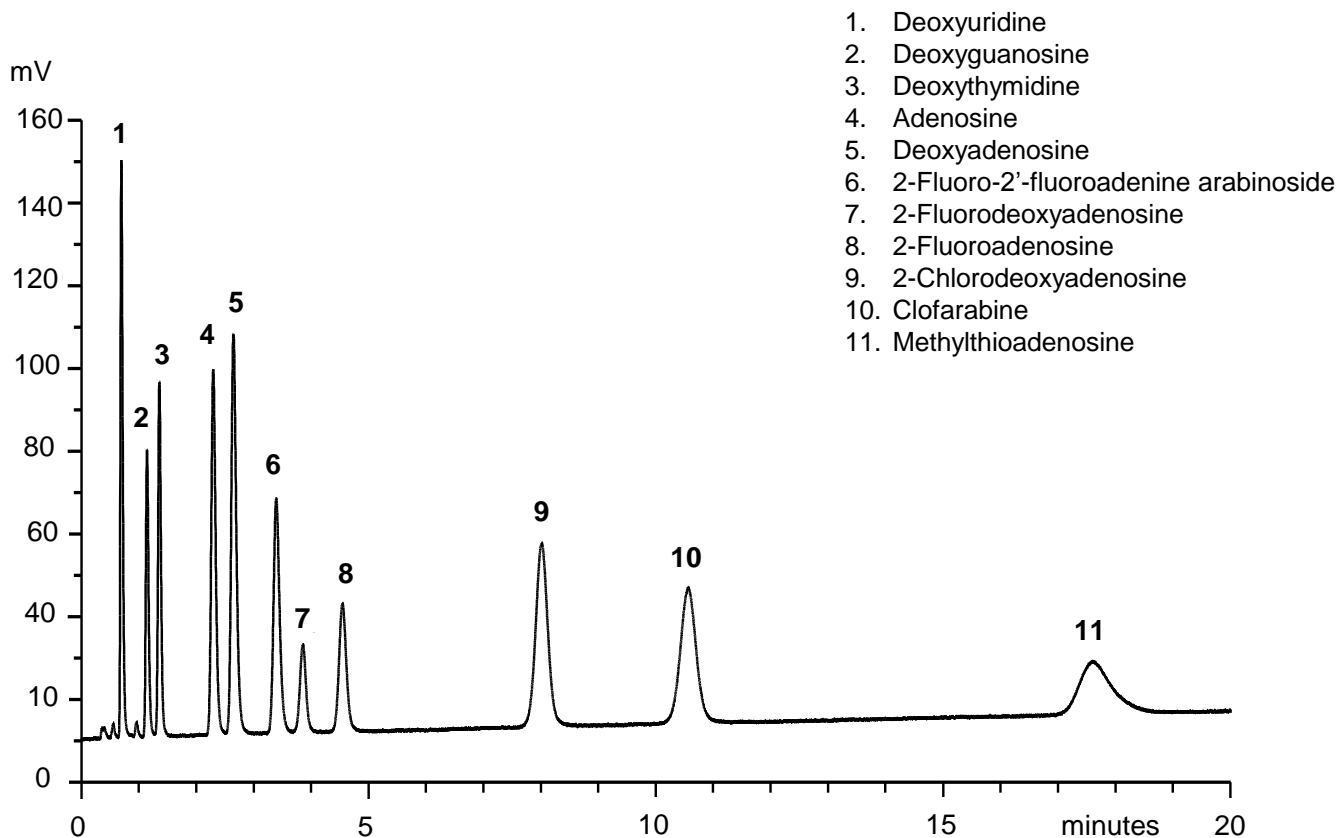
Giese A, Mascher H, Grittner U, Eichler S, Kramp G, Lukas J, te Vrugte D, Eisa N, Cortina-Borja M, Porter F, Platt F, Rolfs A. Orphanet Journal of Rare Diseases (2015) 10:78 A novel, highly sensitive and specific biomarker for Niemann-Pick type C1 disease. DOI 10.1186/s13023-015-0274-1

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Conditions

Column: ACE UltraCore 2.5 SuperC18
Dimensions: 50 x 2.1 mm
Part Number: CORE-25A-1502U
Mobile Phase: A: 7% methanol, 2.1 mM tetrabutylammonium bisulphate + 84 mM KH₂PO₄, pH 6 with KOH
B: 7% methanol, 2.1 mM tetrabutylammonium bisulphate + 8.4 mM KH₂PO₄, pH 6 with KOH
A/B (90:10 v/v)
Flow Rate: 0.4 mL/min
Injection: 2 µL
Temperature: Ambient
Detection: UV, 260 nm



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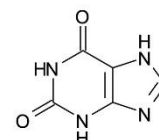
Conditions

Column: ACE 5 SuperC18
 Dimensions: 150 x 4.6 mm
 Part Number: EXL-1211-1546U
 Mobile Phase: A: 20 mM ammonium acetate pH 7.0 in H₂O
 B: 20 mM ammonium acetate pH 7.0 in MeCN/H₂O (90:10 v/v)

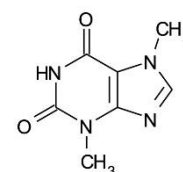
Time (mins)	%B
0	2
45	15
48	15
49	2

Post time 10 minutes

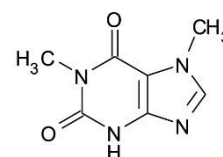
Flow Rate: 1 mL/min
 Injection: 1 µL
 Temperature: 60 °C
 Detection: UV, 273 nm



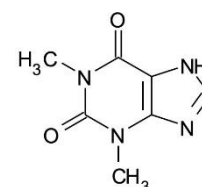
1. Xanthine



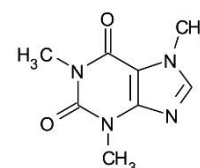
2. Theobromine



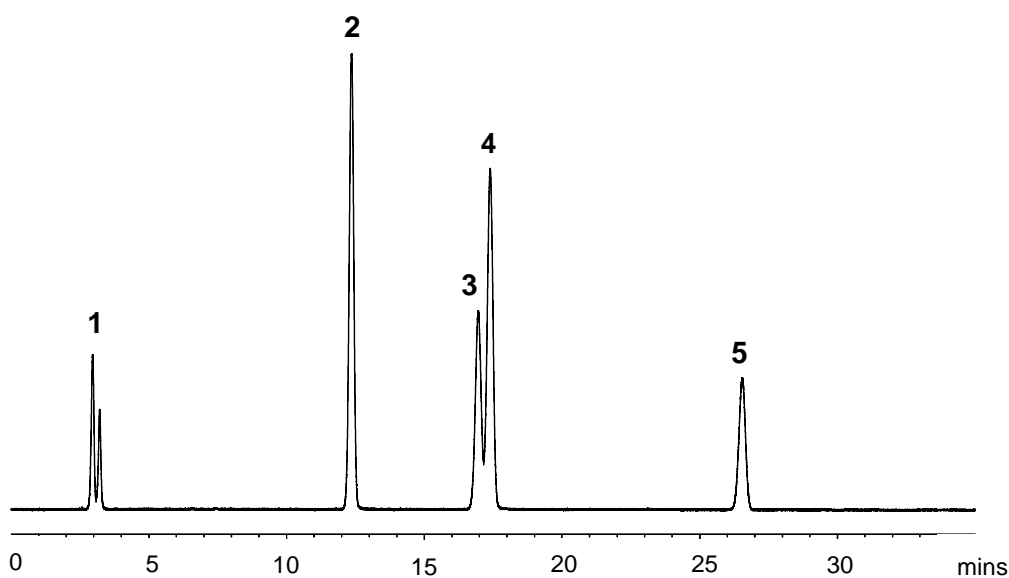
3. Paraxanthine



4. Theophylline

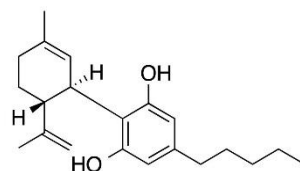


5. Caffeine

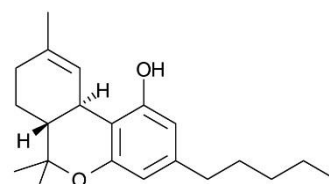


Conditions

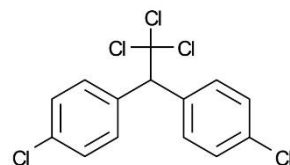
Column:	ACE 3 C18-PFP
Dimensions:	150 x 4.6 mm
Part Number:	ACE-1110-1546
Mobile Phase:	H ₂ O/MeCN (38:62 v/v)
Flow Rate:	1 mL/min
Injection:	30 µL
Temperature:	55 °C
Detection:	UV, 220 nm



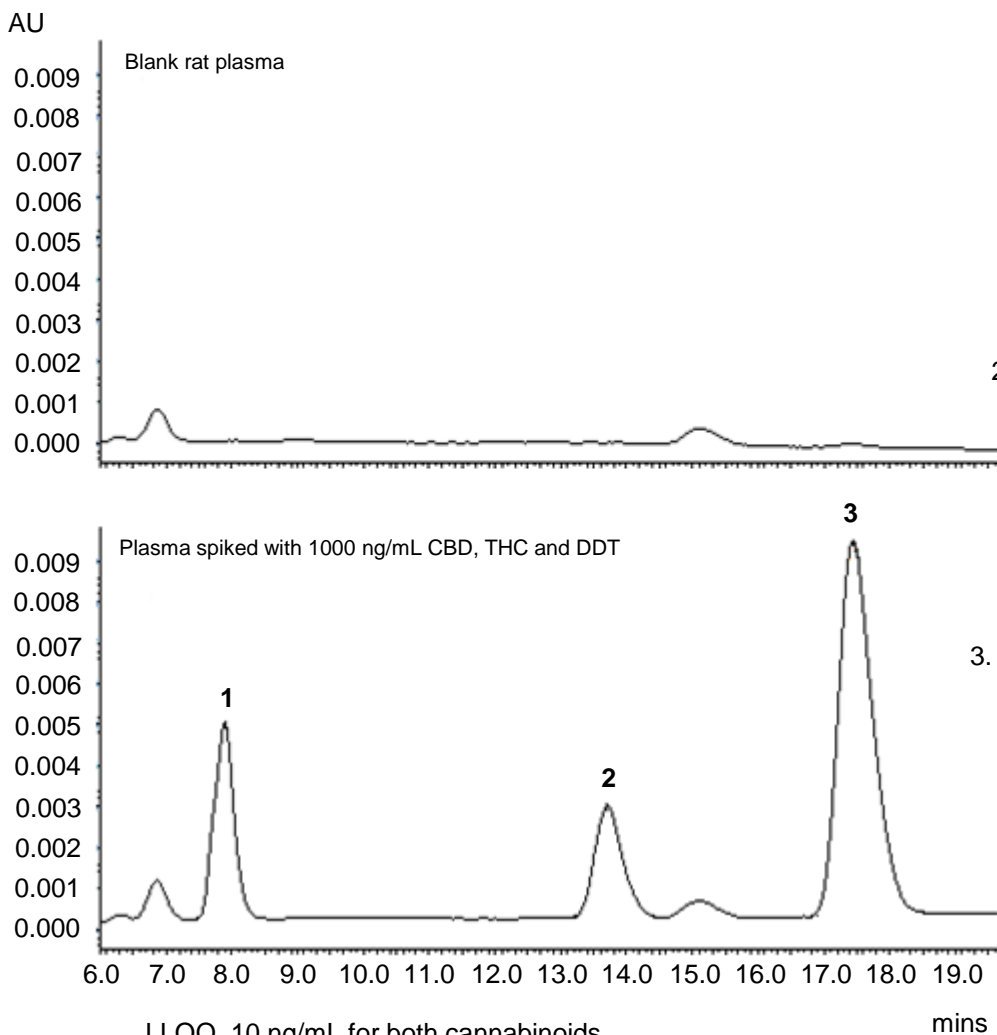
1. Cannabidiol (CBD)



2. Δ⁹-Tetrahydrocannabinol (THC)



3. 4,4-Dichlorodiphenyltrichloroethane (DDT) (IS)



LLOQ 10 ng/mL for both cannabinoids
Method linearity 10 – 10,000 ng/mL

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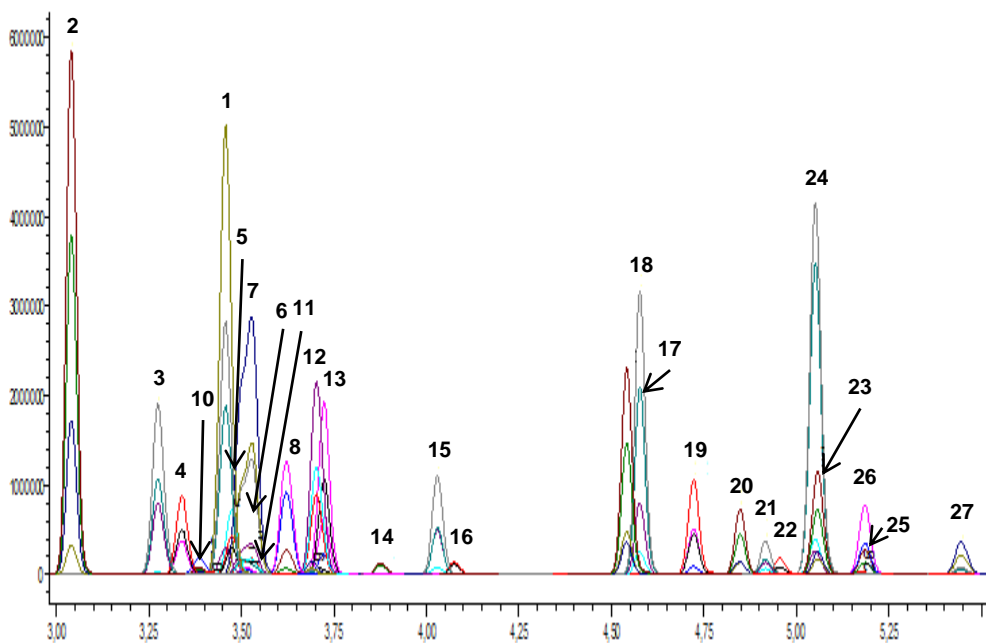
Conditions

Column: ACE Excel 3 C18-AR
Dimensions: 100 x 3.0 mm
Part Number: EXL-119-1003U
Mobile Phase: A: 15 mM ammonium formate pH 4.0 in H₂O
B: 0.1% formic acid in MeCN

Time (mins)	%B
0.00	40
3.74	90
8.00	90
8.50	40

Flow Rate: 0.5 mL/min
Injection: 10 µL
Temperature: 40 °C
Detection: Shimadzu LCMS 8040 MS
Positive ion ESI

1. JWH-018 N-5-OH-pentyl-d5
(*m/z* 362.90 → 155.05; 127.00; 128.05)
2. JWH-250 N-5-OH-pentyl
(*m/z* 352.20 → 121.15; 91.10; 186.05)
3. JWH-073 N-4-OH-butyl
(*m/z* 344.20 → 155.00; 127.10; 54.95)
4. JWH-018 N-pentanoic
(*m/z* 372.20 → 155.05; 127.10)
5. JWH-018 N-5-OH-pentyl
(*m/z* 357.80 → 155.05; 127.05)
6. AM2201 N-4-OH-pentyl
(*m/z* 376.40 → 155.00; 127.00; 144.00)
7. AM2201 5/6-OH-indole
(*m/z* 375.90 → 155.05; 127.05; 248.10)
8. JWH-081 N-5-OH-pentyl
(*m/z* 388.20 → 185.05; 157.05; 114.15)
9. MAM2201 N-4-OH-pentyl
(*m/z* 389.60 → 169.00; 141.05; 115.15)
10. AB-CHMINACA
(*m/z* 356.70 → 241.05; 312.20; 340.15)
11. UR-144 N-pentanoic
(*m/z* 341.60 → 125.10; 55.05; 57.10)
12. JWH-019 N-6-OH-hexyl
(*m/z* 371.80 → 155.05; 127.00; 144.00)
13. JWH-122 N-5-OH-pentyl
(*m/z* 372.20 → 169.05; 141.05; 115.15)
14. AKB48 N-pentanoic
(*m/z* 395.60 → 135.00; 93.10; 79.05)
15. JWH-018 5-OH-indole
(*m/z* 358.20 → 155.00; 127.05; 230.05)
16. AKB48 N-5-OH-pentyl
(*m/z* 381.60 → 135.10; 93.10; 79.05)
17. JWH-210 5-OH-indole
(*m/z* 386.10 → 183.05; 153.10; 155.05)
18. PB-22
(*m/z* 358.80 → 214.05; 144.05; 116.00)
19. JWH-073
(*m/z* 328.20 → 127.10; 155.05; 200.10)
20. EAM2201
(*m/z* 387.70 → 183.10; 232.10; 155.10)
21. JWH-122 N-4-pentenyl
(*m/z* 353.70 → 169.05; 141.10; 115.10)
22. JWH-018
(*m/z* 341.70 → 155.00; 127.05; 214.10)
23. JWH-081
(*m/z* 372.10 → 185.05; 157.15; 127.10)
24. AKB48F
(*m/z* 384.30 → 135.15; 107.10; 93.10)
25. THJ-018
(*m/z* 342.60 → 215.10; 145.05; 90.00)
26. JWH-122
(*m/z* 356.30 → 169.05; 141.10; 115.15)
27. JWH-210
(*m/z* 370.10 → 183.10; 155.10; 153.10)



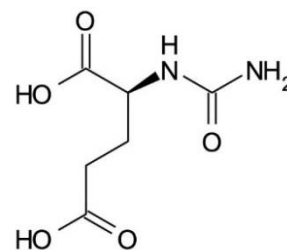
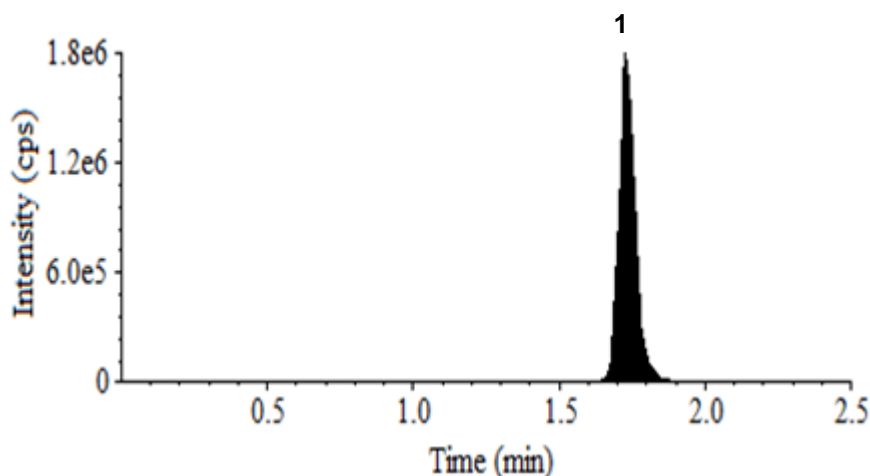
Carglumic Acid in Human Plasma by LC-MS/MS

ACE[®]
Ultra-inert
UHPLC & HPLC Columns

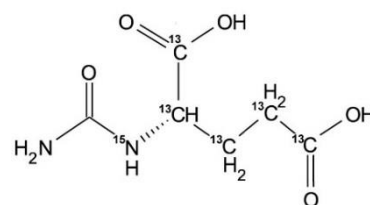
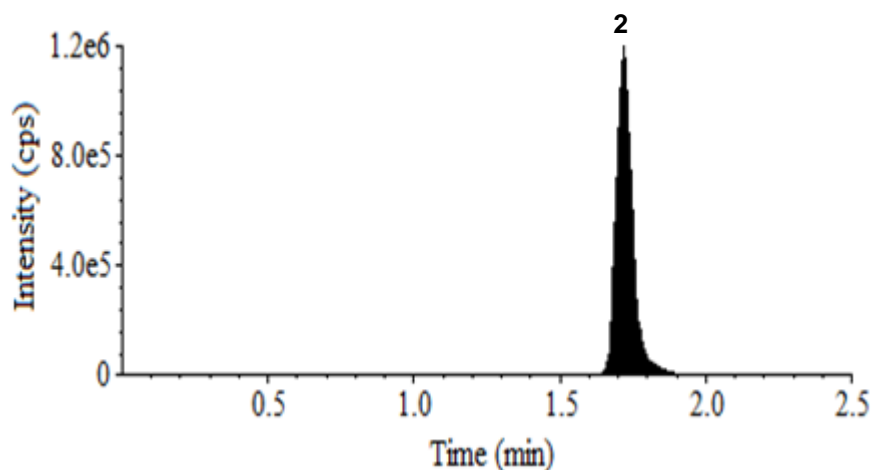
Application #AN3750

Conditions

Column: ACE 5 CN
Dimensions: 150 x 4.6 mm
Part Number: ACE-124-1546
Mobile Phase: MeCN/MeOH/0.1% acetic acid pH 3.2 (40:40:20 v/v/v)
Flow Rate: 1 mL/min
Temperature: 40 °C
Detection: MDS Sciex API-4000 triple quad MS
Negative ion mode ESI
Ion source temperature: 500 °C
Ion spray voltage: -4500 V
20% split flow to ion spray interface



1. Carglumic acid
(m/z 189 \rightarrow 146)
(LLOQ 6.0 ng/mL)



2. Carglumic acid-¹³C ¹⁵N (I.S.)
(m/z 195 \rightarrow 152)

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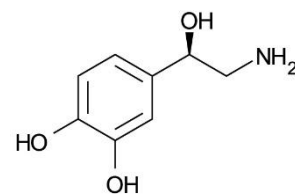
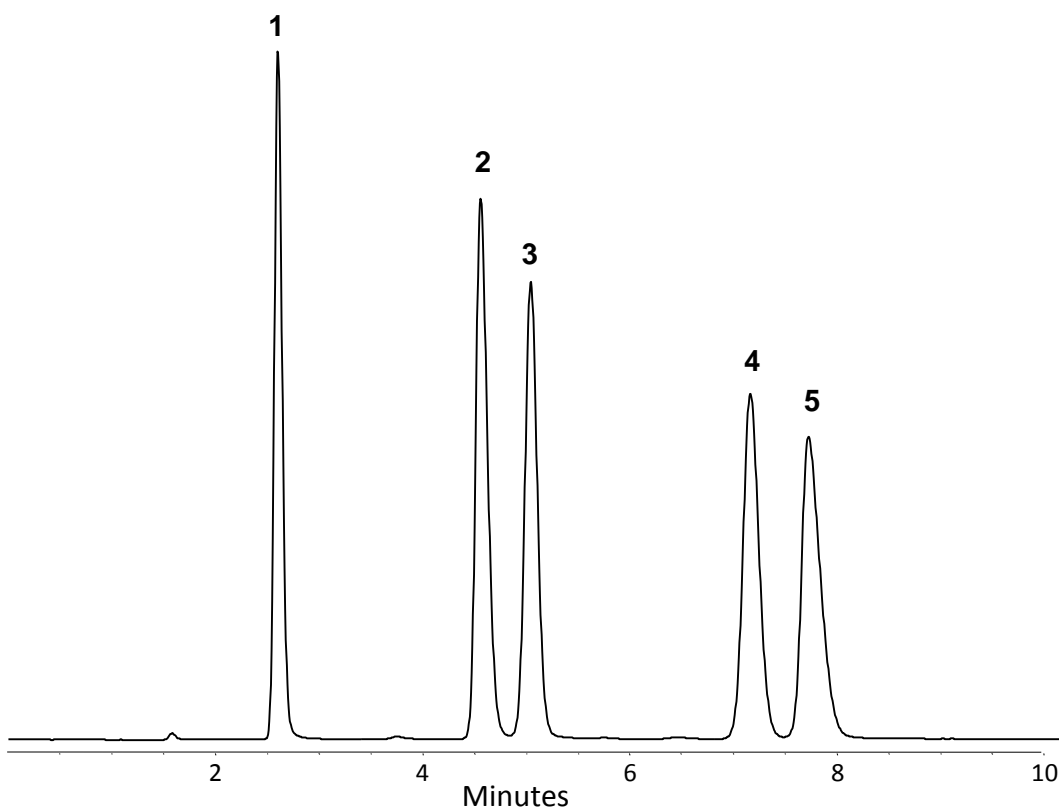


For more information contact your local ACE distributor or visit
www.ace-hplc.com or email: info@ace-hplc.com

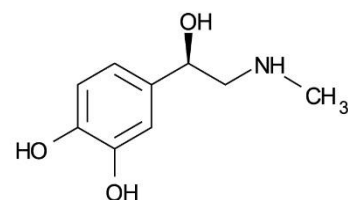
ACE[®]
UHPLC & HPLC
Columns

Conditions

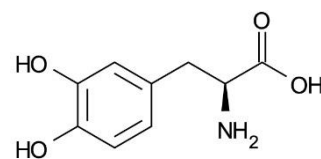
Column: ACE 5 C18-PFP
Dimensions: 150 x 4.6 mm
Part Number: ACE-1210-1546
Mobile Phase: 12.5 mM ammonium formate pH 3.0 in H₂O
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV, 266 nm



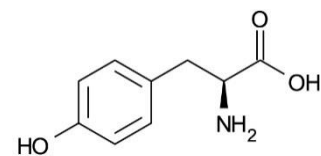
1. Norepinephrine



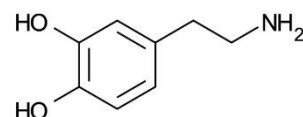
2. Epinephrine



3. Levodopa



4. Tyrosine

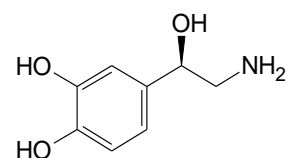
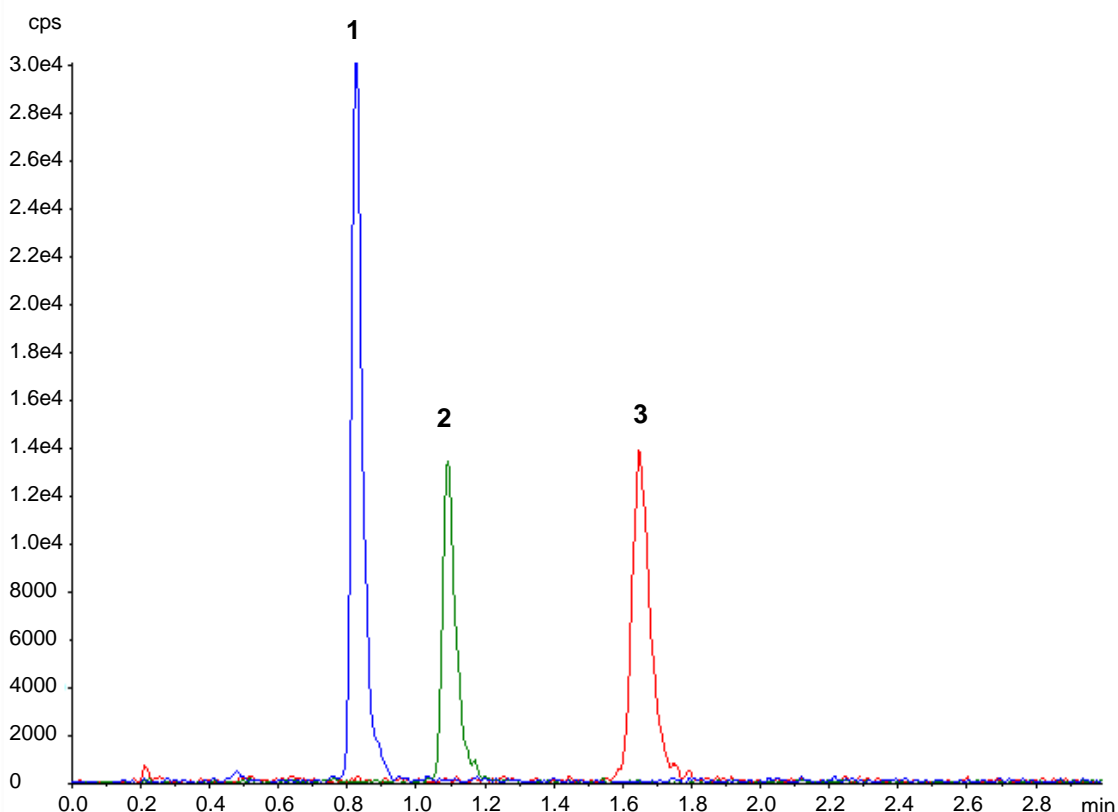


5. Dopamine

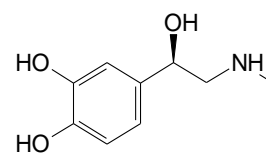


Conditions

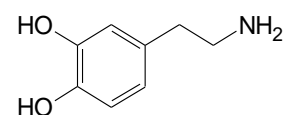
Column:	ACE Excel 2 C18-PFP
Dimensions:	100 x 2.1 mm
Part Number:	EXL-1010-1002U
Mobile Phase:	2 mM ammonium formate pH 3.2/MeOH (98:2 v/v)
Flow Rate:	0.4 mL/min
Injection:	20 µL
Temperature:	40 °C
Detection:	AB SCIEX triple quad 5500 Positive ESI mode Source temperature: 700 °C IonSpray voltage: 5500 V



1. Norepinephrine
(m/z 152.1 \rightarrow 107.1)



2. Epinephrine
(m/z 166.1 \rightarrow 107.1)



3. Dopamine
(m/z 154.1 \rightarrow 91.1)

Source conditions optimised to promote the formation of protonated, dehydrated norepinephrine and epinephrine precursors to enhance sensitivity.



Catecholamines and Metanephrines Separation (Gradient)

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Ultra-inert
UHPLC & HPLC Columns

Application #AN1480

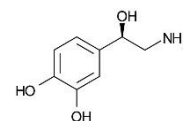
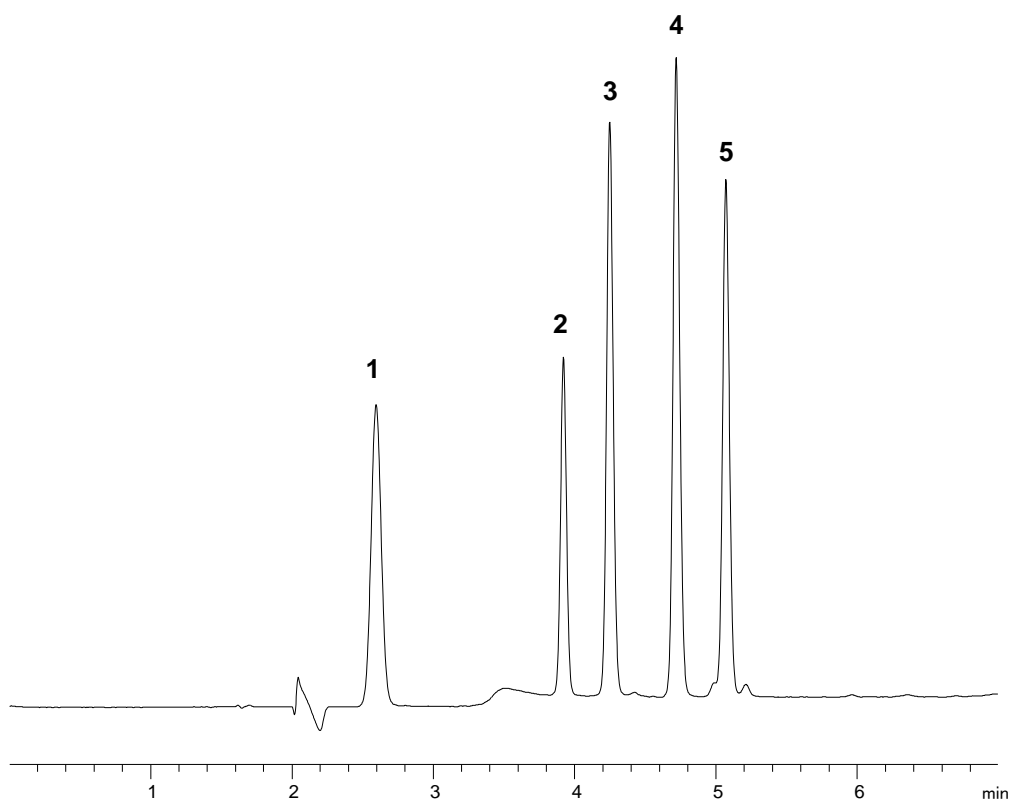
Conditions

Column: ACE 5 C18-PFP
Dimensions: 150 x 4.6 mm
Part Number: ACE-1210-1546
Mobile Phase: A: 20 mM ammonium formate pH 3.0 in H₂O
B: 20 mM ammonium formate pH 3.0 in MeOH/H₂O (90:10 v/v)

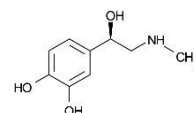
Time (mins)	%B
0	0
5	40
6	40
7	0

Post time 10 minutes

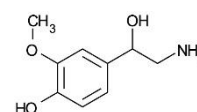
Flow Rate: 1 mL/min
Injection: 5 µL
Temperature: 25 °C
Detection: UV, 260 nm



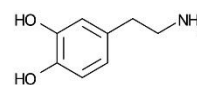
1. Norepinephrine



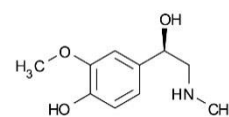
2. Epinephrine



3. Normetanephrine



4. Dopamine



5. Metanephrine

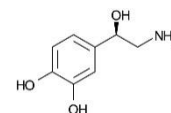
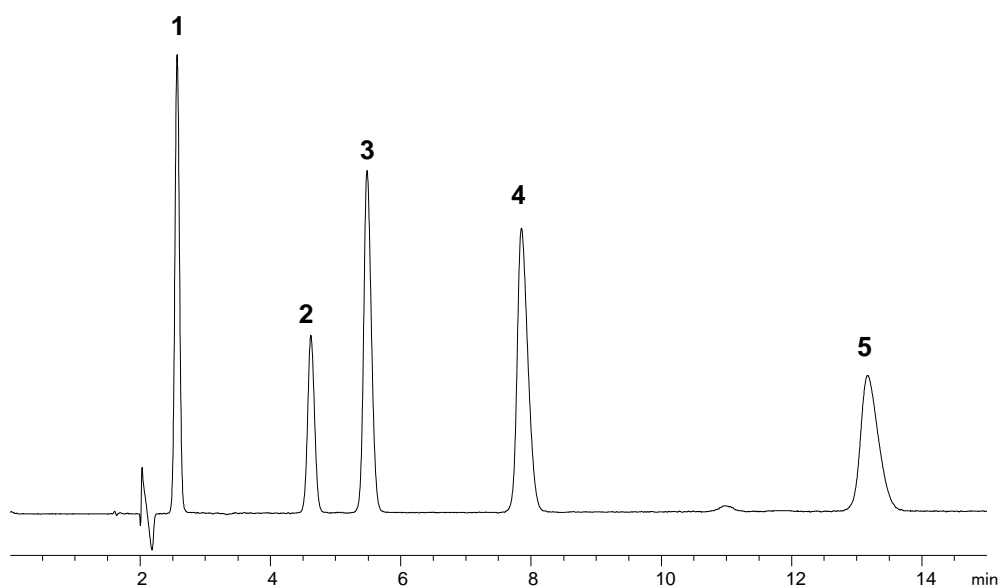
Catecholamines and Metanephrines Separation (Isocratic)

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UHPLC & HPLC Columns

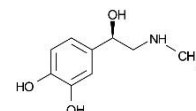
Application #AN1490

Conditions

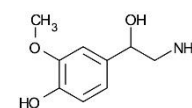
Column: ACE 5 C18-PFP
Dimensions: 150 x 4.6 mm
Part Number: ACE-1210-1546
Mobile Phase: 20 mM ammonium formate pH 3.0 in H₂O
Flow Rate: 1 mL/min
Injection: 5 µL
Temperature: 25 °C
Detection: UV, 260 nm



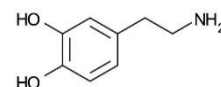
1. Norepinephrine



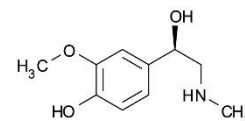
2. Epinephrine



3. Normetanephrine



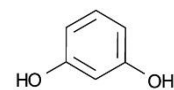
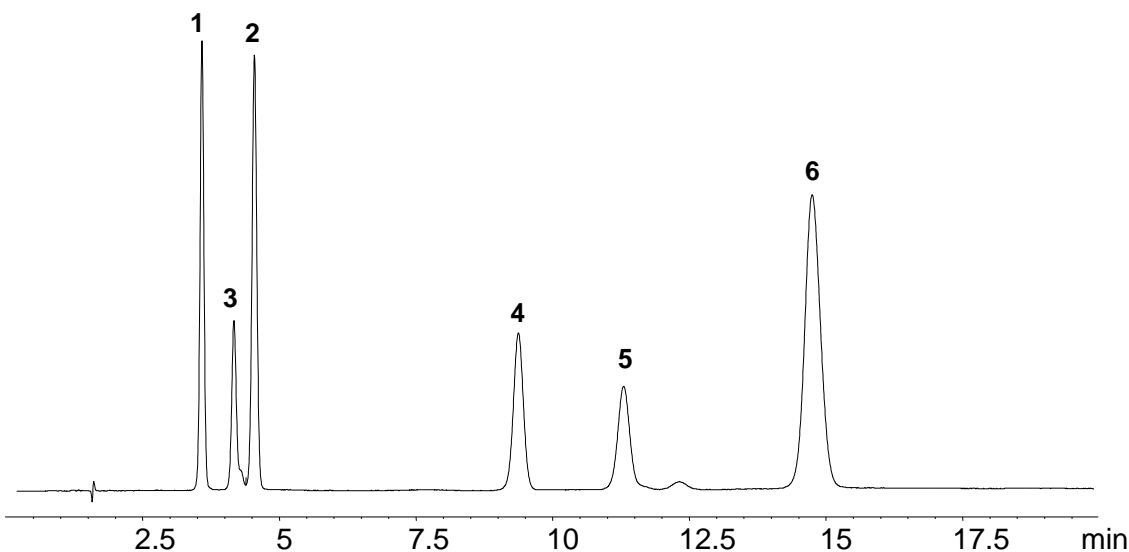
4. Dopamine



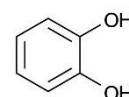
5. Metanephrine

Conditions

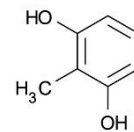
Column:	ACE 3 CN-ES
Dimensions:	150 x 4.6 mm
Part Number:	EXL-1113-1546U
Mobile Phase:	20 mM H ₃ PO ₄ in MeCN/H ₂ O (25:75 v/v)
Flow Rate:	1.5 mL/min
Injection:	5 µL
Temperature:	30 °C
Detection:	UV, 270 nm



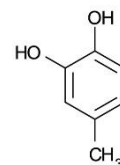
1. Resorcinol



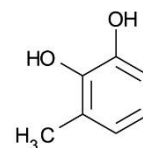
2. Catechol



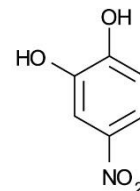
3. 2-Methylresorcinol



4. 4-Methylcatechol



5. 3-Methylcatechol



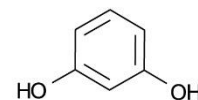
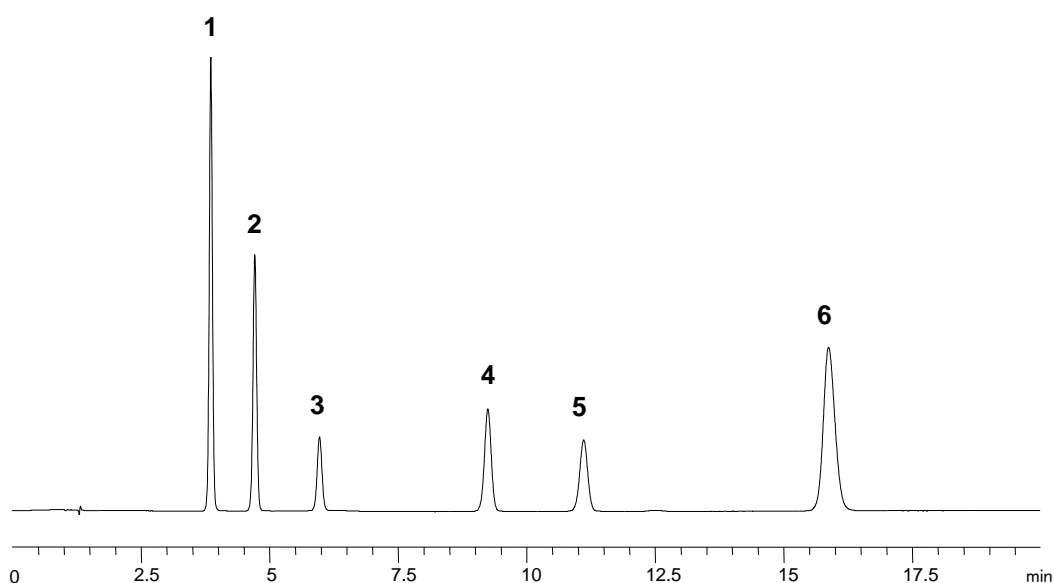
6. 4-Nitrocatechol

Catechols Mixture Separation (II)

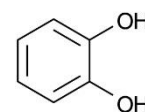
Application #AN1440

Conditions

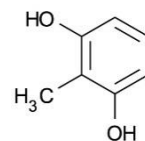
Column: ACE 3 C18-Amide
Dimensions: 150 x 4.6 mm
Part Number: EXL-1112-1546U
Mobile Phase: 20 mM H₃PO₄ in MeCN/H₂O (10:90 v/v)
Flow Rate: 1.5 mL/min
Injection: 5 µL
Temperature: 30 °C
Detection: UV, 270 nm



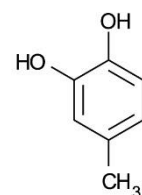
1. Resorcinol



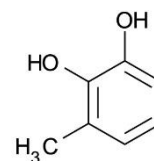
2. Catechol



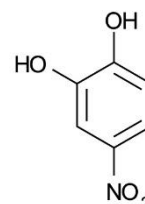
3. 2-Methylresorcinol



4. 4-Methylcatechol



5. 3-Methylcatechol



6. 4-Nitrocatechol

Cathinone Psychoactive Substances by LC-UV and LC-Amperometry

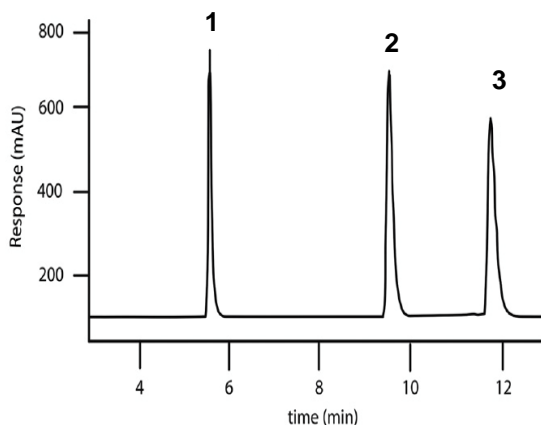
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Application #AN3500

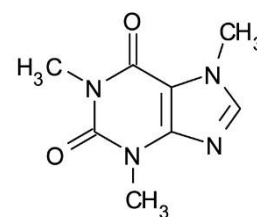
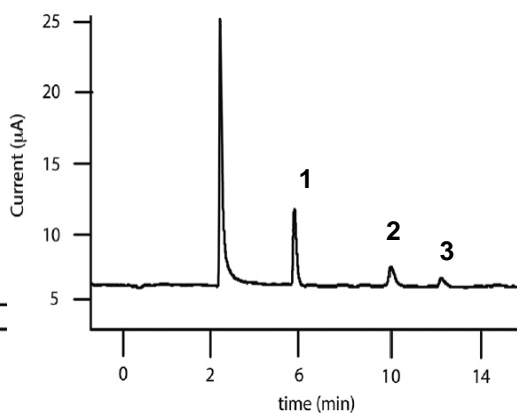
Conditions

Column: ACE 3 C18
Dimensions: 150 x 4.6 mm
Part Number: ACE-111-1546
Mobile Phase: 10 mM ammonium acetate-100 mM KCl pH 4.3/MeOH (70:30 v/v)
Flow Rate: 0.8 mL/min
Injection: 10 µL
Temperature: 22 °C
Detection: UV, 264 nm
Amperometric Potential +1.4 V

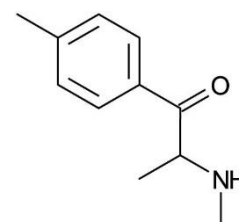
UV Detection



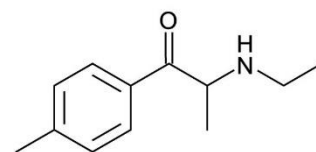
Amperometric Detection



1. Caffeine



2. 4-Methylmethcathinone
(4-MMC, mephedrone)



3. 4-Methylethcathinone
(4-MEC)

Zuway K, Smith J, Foster C, Kapur N, Banks C, Sutcliffe O (2015) Detection and quantification of new psychoactive substances (NPSs) within the evolved 'legal high' product, NRG-2, using high performance liquid chromatography-amperometric detection (HPLC-AD). *Analyst* 140, 6283. doi:10.1039/c5an01106j

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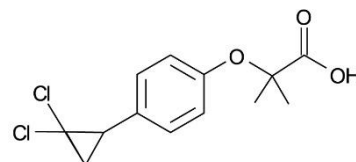
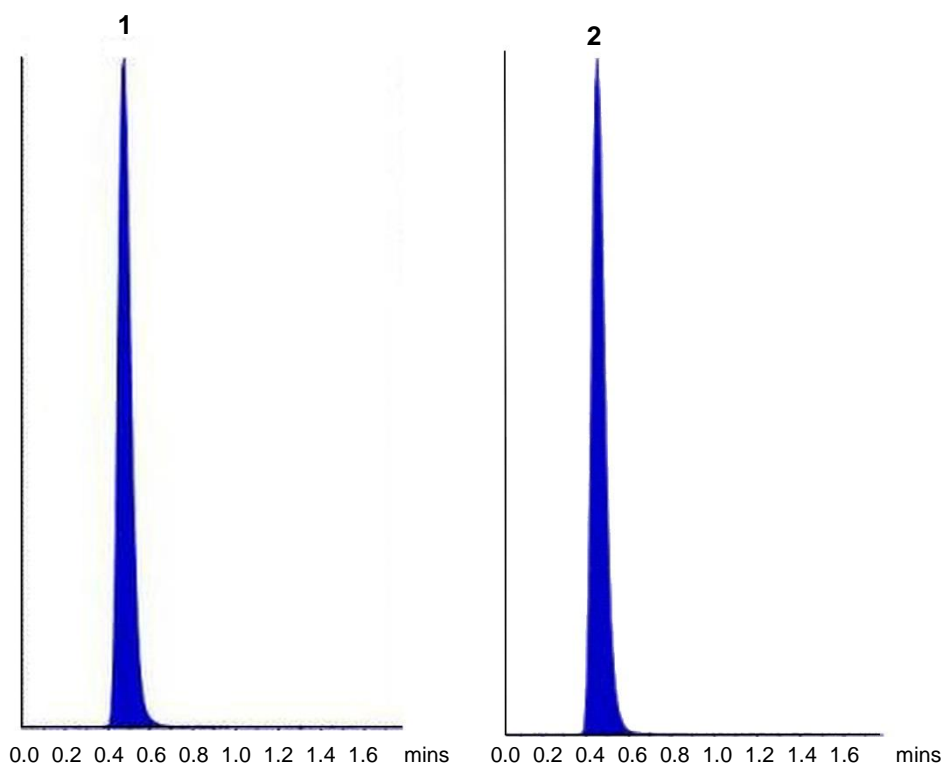
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Columns

Ciprofibrate from Human Plasma by LC-MS/MS

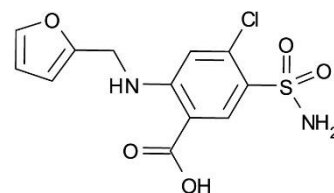
Application #AN2670

Conditions

Column:	ACE 5 C18
Dimensions:	50 x 4.6 mm
Part Number:	ACE-121-0546
Mobile Phase:	0.001% ammonia in MeOH/MeCN/H ₂ O (70:20:10 v/v/v)
Flow Rate:	1 mL/min
Injection:	20 µL
Temperature:	Ambient
Detection:	API 3200 triple quad MS ESI in negative ion mode Ion source temperature: 550 °C Ion spray voltage: 4500 V



1. Ciprofibrate
(*m/z* 287.0 → 85.0)



2. Furosemide (IS)
(*m/z* 328.9 → 204.9)

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Clenbuterol in Equine Plasma by LC-MS/MS

Application #AN2050

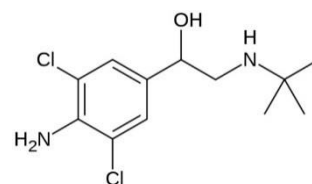
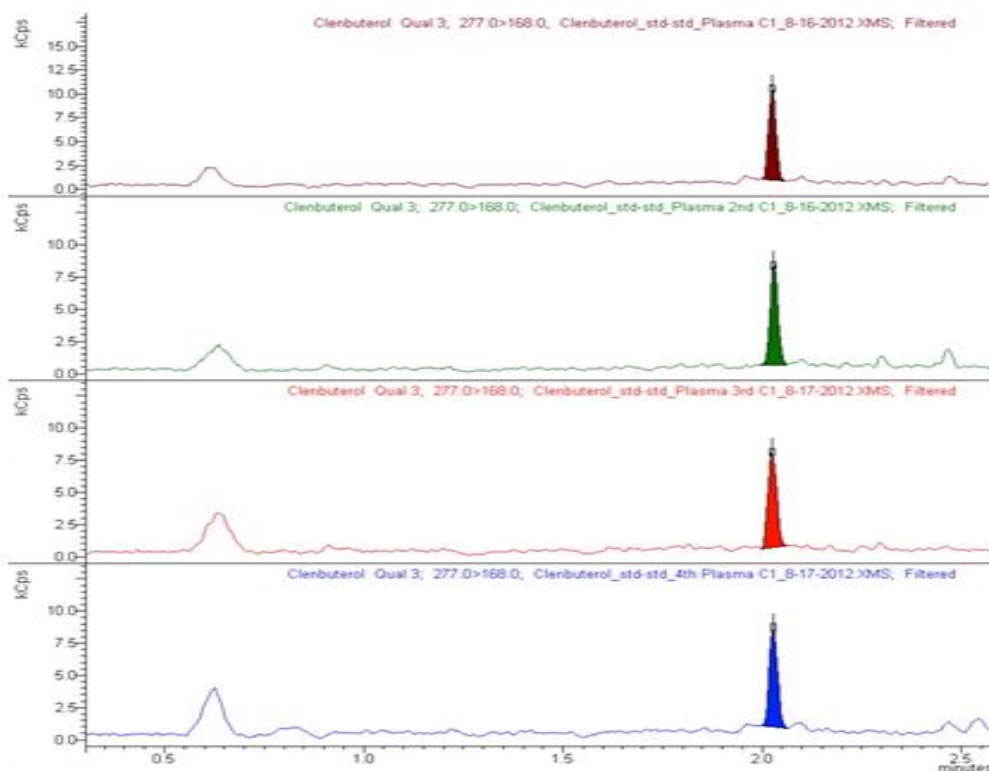
Conditions

Column: ACE 3 C18
Dimensions: 100 x 2.1 mm
Part Number: ACE-111-1002
Mobile Phase: A: 0.2% formic acid in H₂O
B: 0.2% formic acid in MeCN

Time (mins)	%B
0.0	10
0.3	10
2.5	95
2.8	10
4.5	10

Flow Rate: 0.45 mL/min
Injection: 30 µL
Detection: Bruker EVOQ Elite triple quad MS
VIP heated-ESI temperature: 300 °C
Cone gas temperature: 300 °C
Spray voltage: +3500 V

Representative MRM chromatograms of 5 ppt clenbuterol (150 fg on-column)



1. Clenbuterol
(m/z 227.1 → 168)

2. d₉-Clenbuterol (IS)
(m/z 286.1 → 204)

Clonidine Hydrochloride Oral Solution Containing Preservatives

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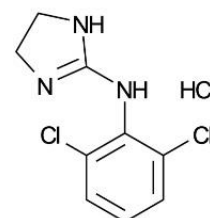
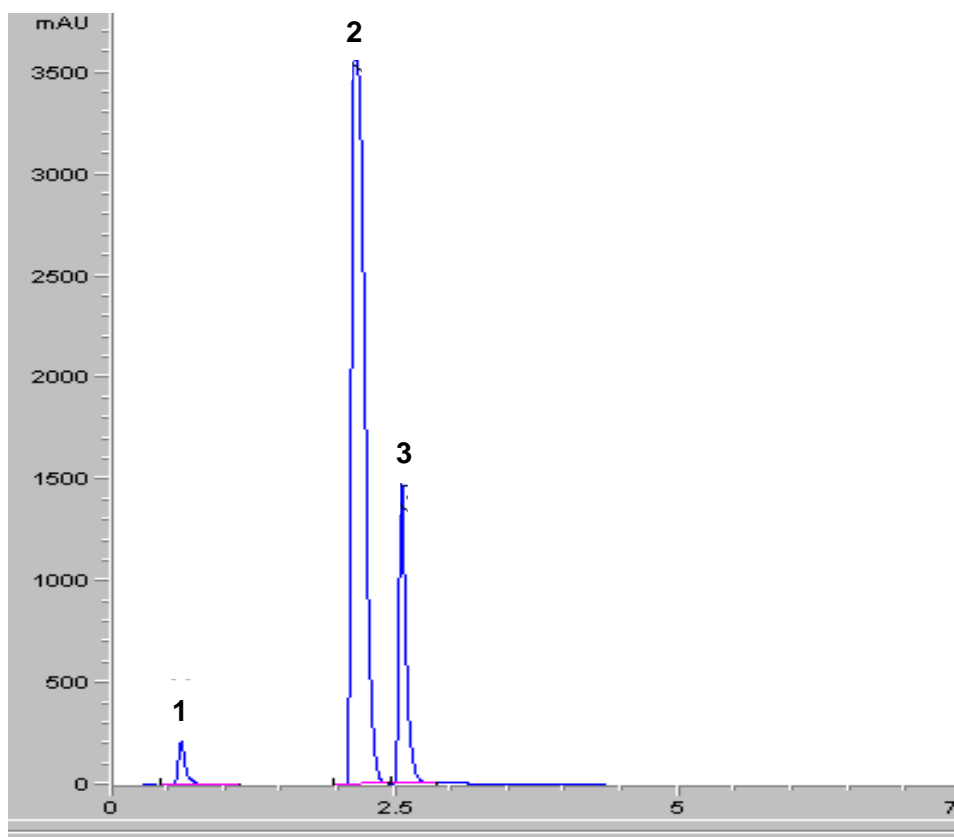
Application #AN2060

Conditions

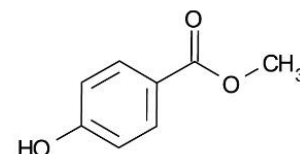
Column: ACE UltraCore 2.5 SuperC18
Dimensions: 50 x 4.6 mm
Part Number: CORE-25A-0546U
Mobile Phase: A: 0.2% w/v phosphate buffer/MeOH/MeCN (80:10:10 v/v)
B: MeCN

Time (mins)	%B
0	0
0.8	0
2.1	70
3.4	70
3.5	0

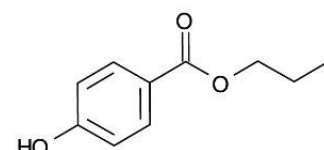
Flow Rate: 2 mL/min
Injection: 100 µL
Temperature: 20 °C
Detection: UV, 220 nm



1. Clonidine HCl
(10 µg/mL)



2. Methyl paraben
(1.5 g/mL)



3. Propyl paraben
(1.5 g/mL)

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Columns

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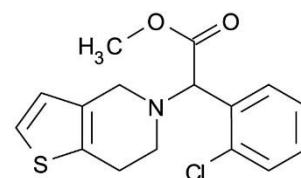
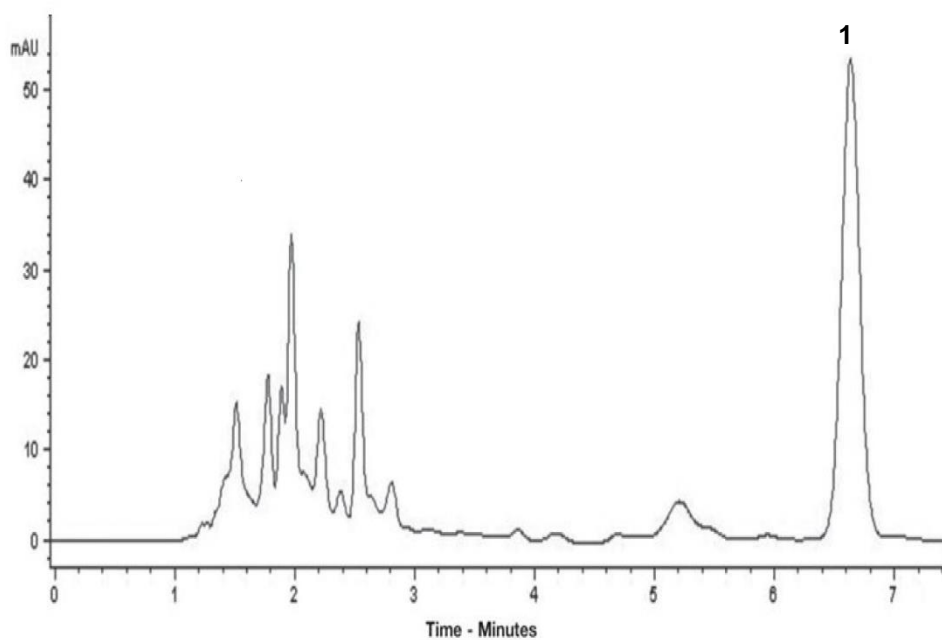
Clopidogrel and Photodegradation Products

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UHPLC & HPLC Columns

Application #AN3110

Conditions

Column: ACE 5 C18
Dimensions: 150 x 4.6 mm
Part Number: ACE-121-1546
Mobile Phase: MeOH/aqueous TEA (pH 5.3 with H₃PO₄) 75:25 v/v
Flow Rate: 1.2 mL/min
Injection: 20 µL
Temperature: 25 °C
Detection: UV, 220 nm
Sample: Exposed to UV light for 3.5 hours



1. Clopidogrel

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ACE[®]
UHPLC & HPLC
Columns

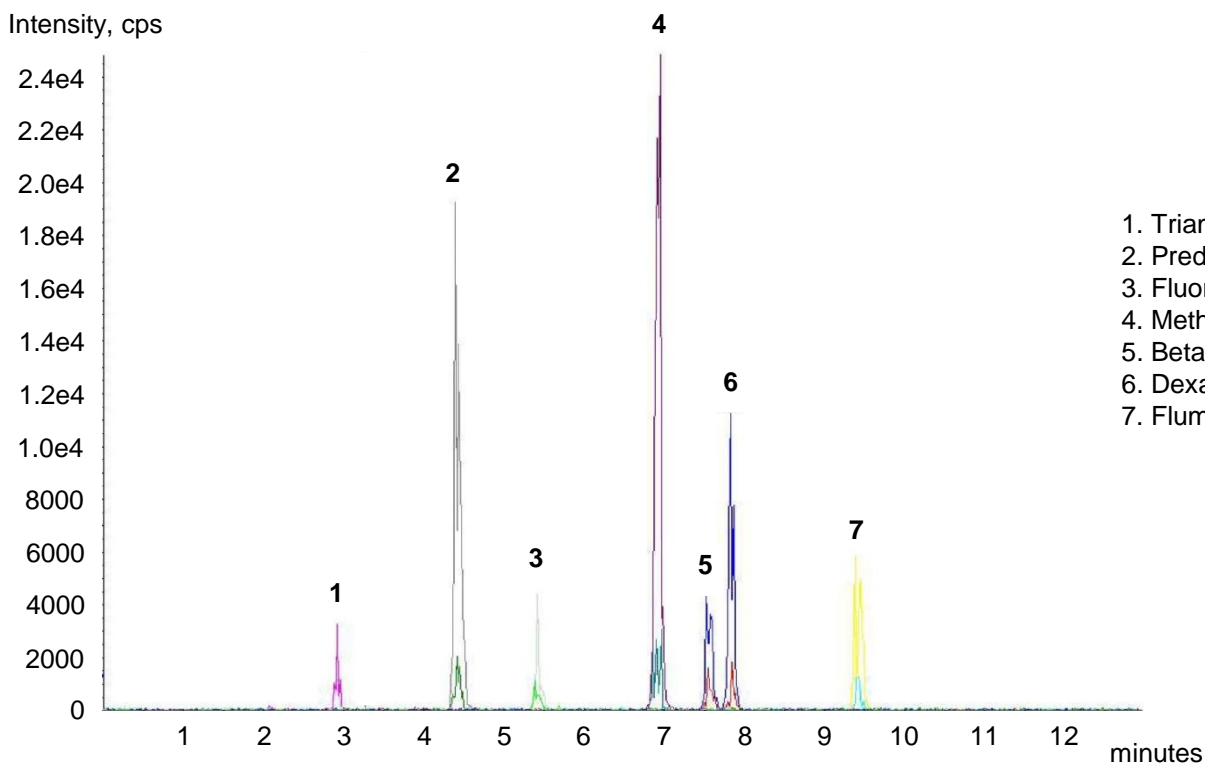
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www.ace-hplc.com or email: info@ace-hplc.com

Conditions

Column: ACE 3 C18-PFP
Dimensions: 150 x 2.1 mm
Part Number: ACE-1110-1502
Mobile Phase: A: 0.1% formic acid in H₂O
B: MeCN/0.1% formic acid in H₂O (90:10 v/v)

Time (mins)	%B
0.0	30
14.0	50
17.0	95
20.0	30

Flow Rate: 0.3 mL/min
Injection: 25 µL
Temperature: 15 °C
Detection: Turbospray, MRM

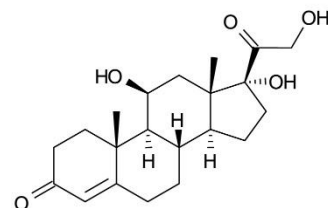
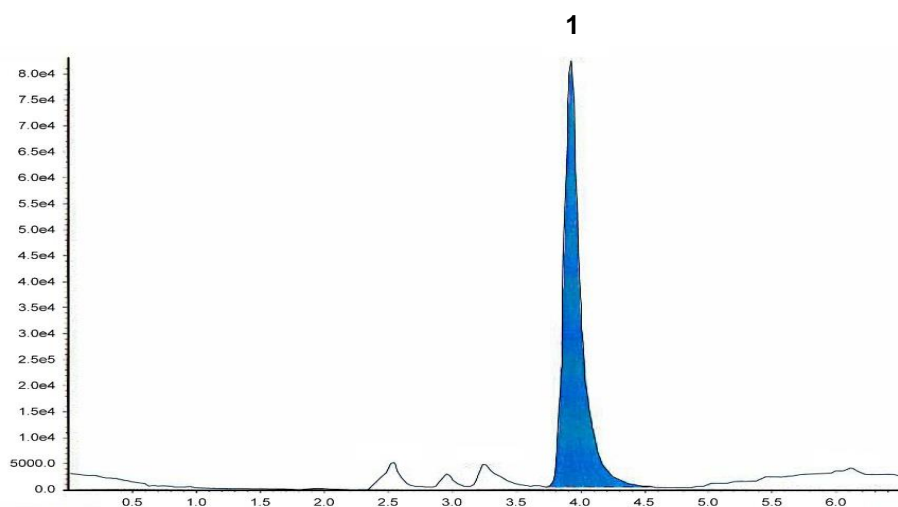


1. Triamcinolone
2. Prednisolone
3. Fluoroprednisolone
4. Methylprednisolone
5. Betamethasone
6. Dexamethasone
7. Flumethasone

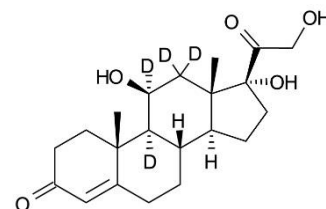
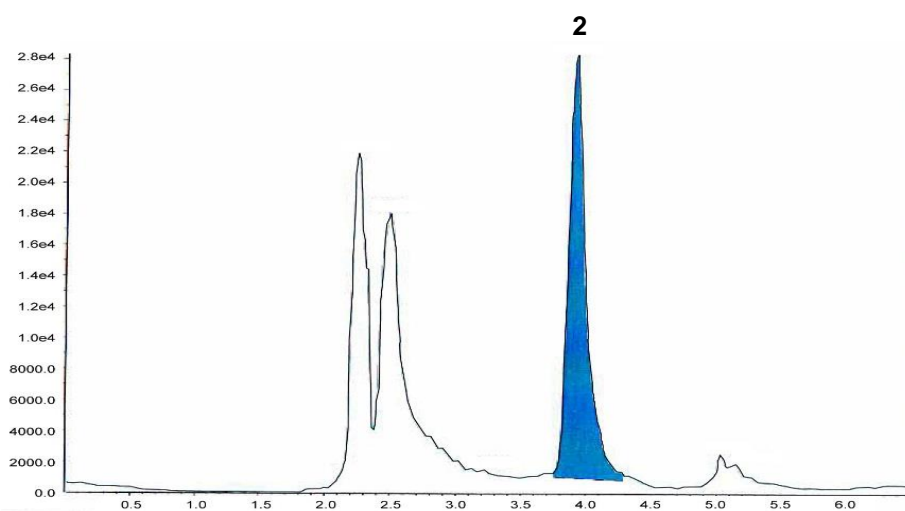


Conditions

Column:	ACE Excel 2 C18
Dimensions:	100 x 2.1 mm
Part Number:	EXL-101-1002U
Mobile Phase:	4 mM ammonium acetate in H ₂ O/0.2% (v/v) formic acid in MeOH (71.5:28.5 v/v)
Flow Rate:	0.7 mL/min
Injection:	50 µL
Temperature:	50 °C
Detection:	Applied Biosystems 5000 MS/MS APCI in positive ion mode
Sample:	BioRad Liquichek Urine Quality Control standard (16 nmol/L cortisol)



1. Cortisol
(*m/z* 363.5 → 121.3)



2. Cortisol-d4 (IS)
(*m/z* 367.3 → 331.3)

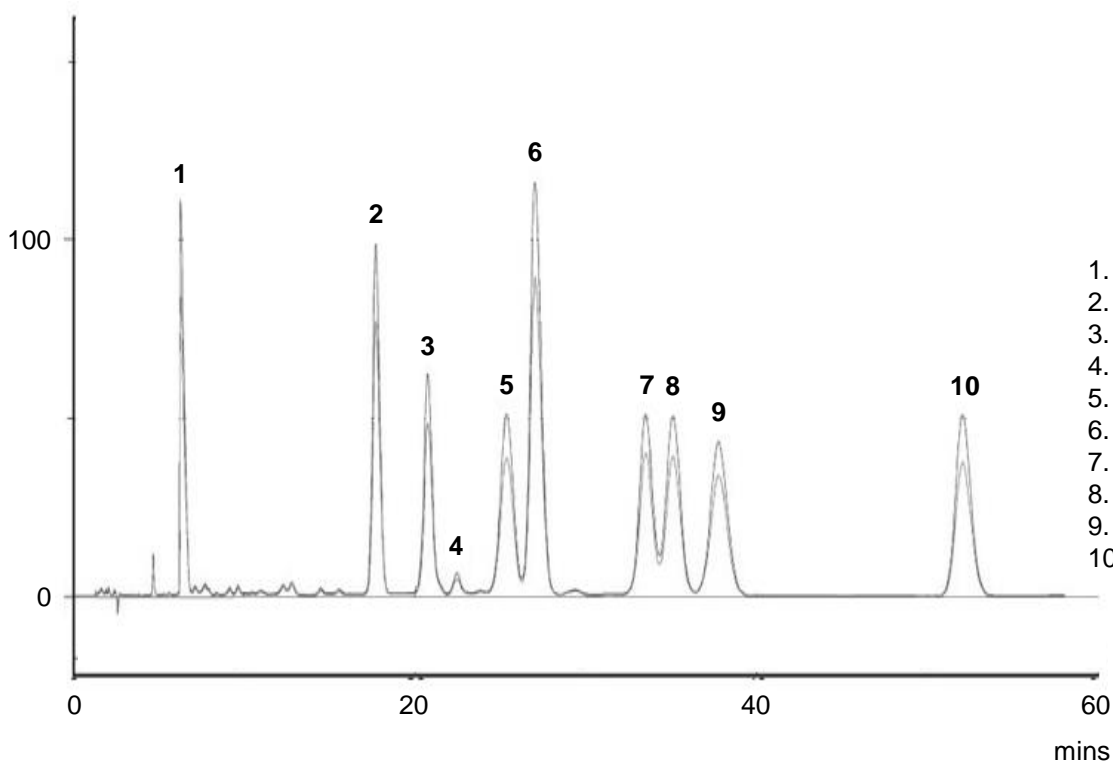
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Conditions

Column: ACE 5 C18
Dimensions: 250 x 3.0 mm
Part Number: ACE-121-2503
Mobile Phase: H₂O/MeCN/MTBE/H₃PO₄ (46:51:3:0.1 v/v/v/v)
Flow Rate: 0.8 mL/min
Temperature: 80 °C
Detection: UV, 210 nm



1. Isocyclosporin A
2. Cyclosporin C
3. Cyclosporin B
4. Cyclosporin L
5. Cyclosporin U
6. Cyclosporin A
7. Dihydrocyclosporin A
8. Cyclosporin G
9. Cyclosporin D
10. Cyclosporin E



Cytarabine Analogues by Ion-Pairing LC-MS/MS

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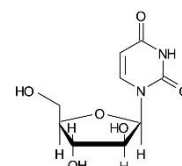
Application #AN2070

Conditions

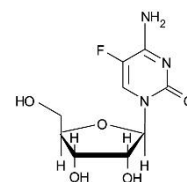
Column: ACE 3 C18
Dimensions: 50 x 2.1 mm
Part Number: ACE-111-0502
Mobile Phase: A: 0.1% perfluoropentanoic acid + 0.1% formic acid in H₂O
B: 0.1% perfluoropentanoic acid + 0.1% formic acid in MeCN

Time (mins)	%B
0.0	0
0.5	0
3.0	13
4.0	90
5.0	0

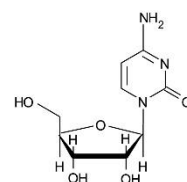
Flow Rate: 0.7 mL/min
Detection: API 4000 MS
TurbolonSpray, positive mode
Source Temperature 550 °C



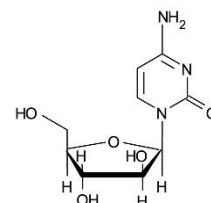
1. Uracil arabinofuranoside
(*m/z* 245 → 113)



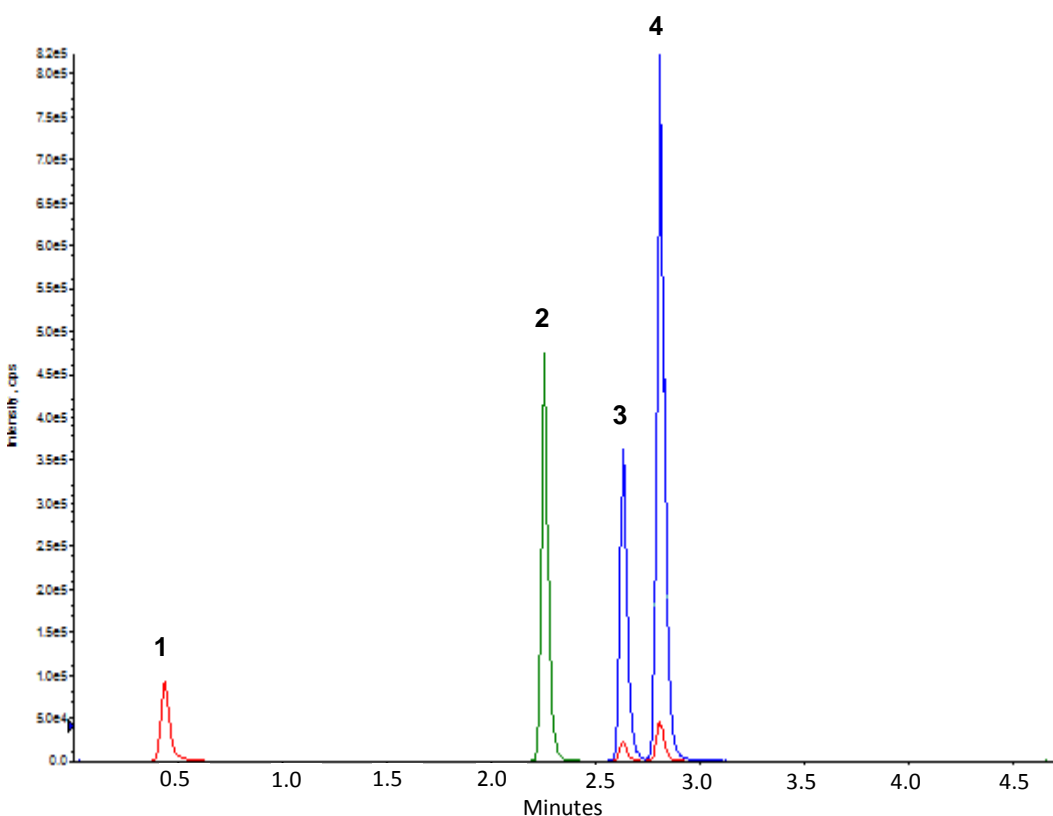
2. 5-Fluorocytidine (IS)
(*m/z* 262 → 130)



3. Cytidine
(*m/z* 244 → 112)



4. Cytarabine
(*m/z* 244 → 112)



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ACE[®]
UHPLC & HPLC
Columns

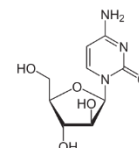
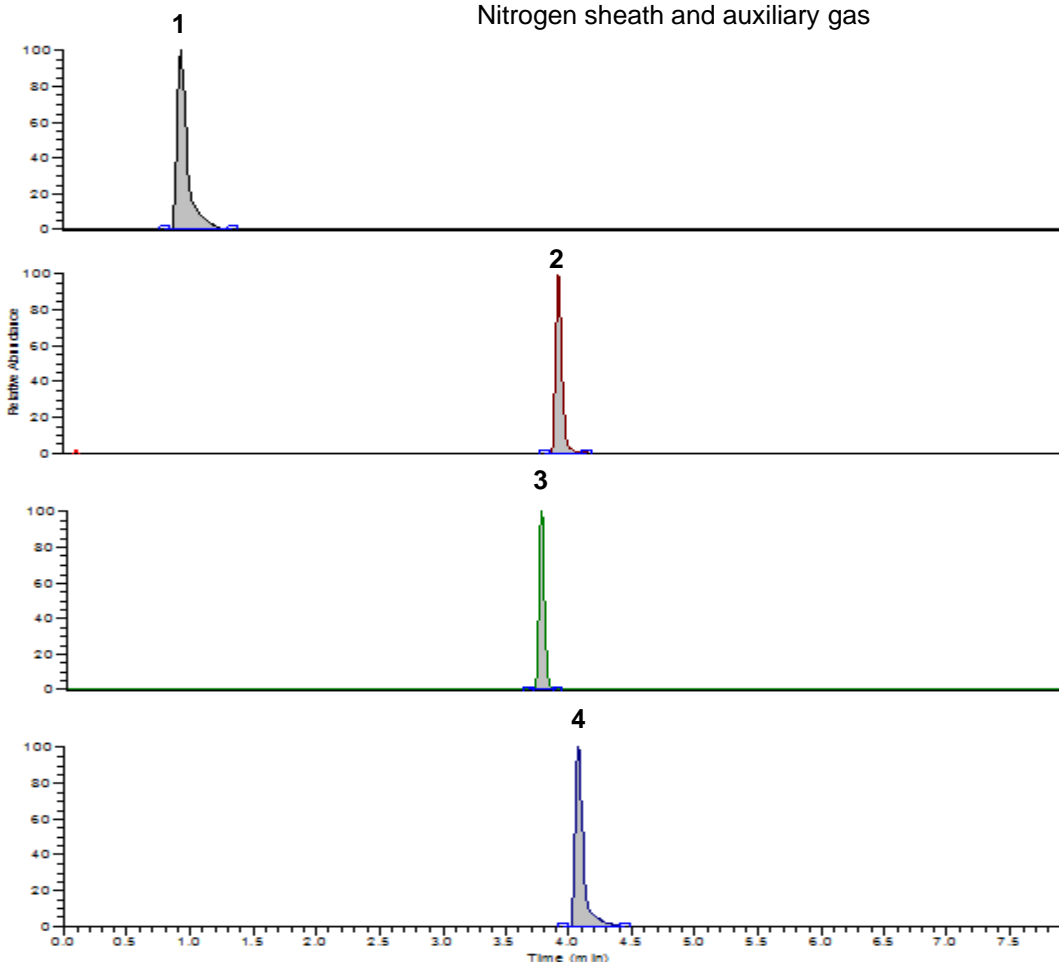
For more information contact your local ACE distributor or visit
www.ace-hplc.com or email: info@ace-hplc.com

Conditions

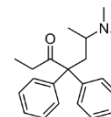
Column: ACE UltraCore 2.5 SuperC18
Dimensions: 100 x 2.1 mm
Part Number: CORE-25A-1002U
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeCN

Time (mins)	%B
0.0	2
1.0	2
3.0	80
5.0	80
5.1	2
8.0	2

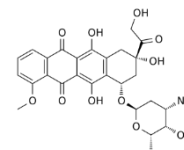
Flow Rate: 0.25 mL/min
Detection: Thermo Vantage triple quadrupole MS
MRM +ve ESI mode
Spray voltage: 3500 V
Nitrogen sheath and auxiliary gas



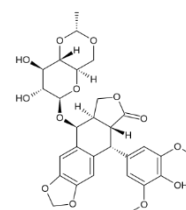
1. AraC
(*m/z* 244.1 → 112.2)



2. Methadone
(*m/z* 310.2 → 265.3)



3. Doxorubicin
(*m/z* 544.2 → 361.2)



4. Etoposide
(*m/z* 589.2 → 185.1)

Dermorphin in Equine Urine by LC-MS/MS

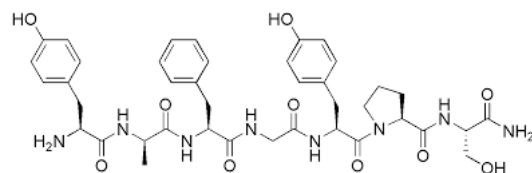
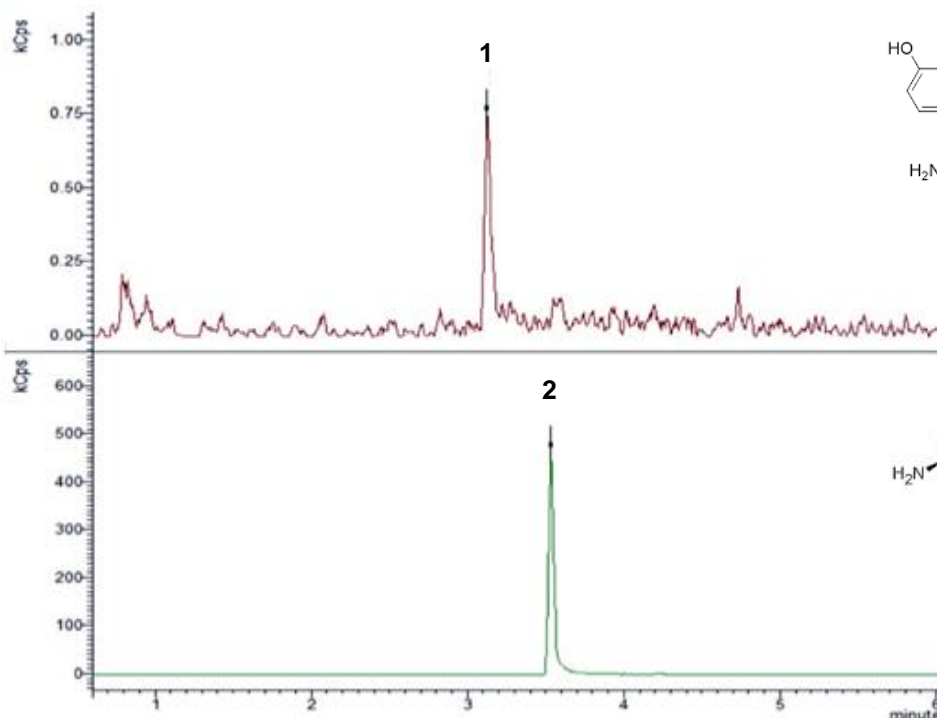
Application #AN1040

Conditions

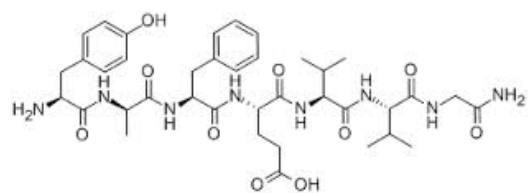
Column:	ACE 3 C18
Dimensions:	100 x 2.1 mm
Part Number:	ACE-111-1002
Mobile Phase:	A: 0.2% formic acid in H ₂ O B: 0.2% formic acid in MeCN
	Time (mins) %B
	0.00 5
	0.20 5
	8.00 95
	8.50 95
	8.51 5
	12.50 5
Flow Rate:	0.4 mL/min
Injection:	40 µL
Detection:	Bruker EVOQ Elite triple quad MS VIP heated-ESI temperature: 350 °C Cone gas temperature: 250 °C Spray voltage: +4000 V

Accurate quantification of dermorphin in equine urine in range 0.05 – 100 ng/mL

LLOQ = 0.05 ng/mL



1. Dermorphin
(m/z 803.4 → 602 (Quantifier ion))
(m/z 803.4 → 202 (Qualifier ion))



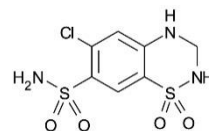
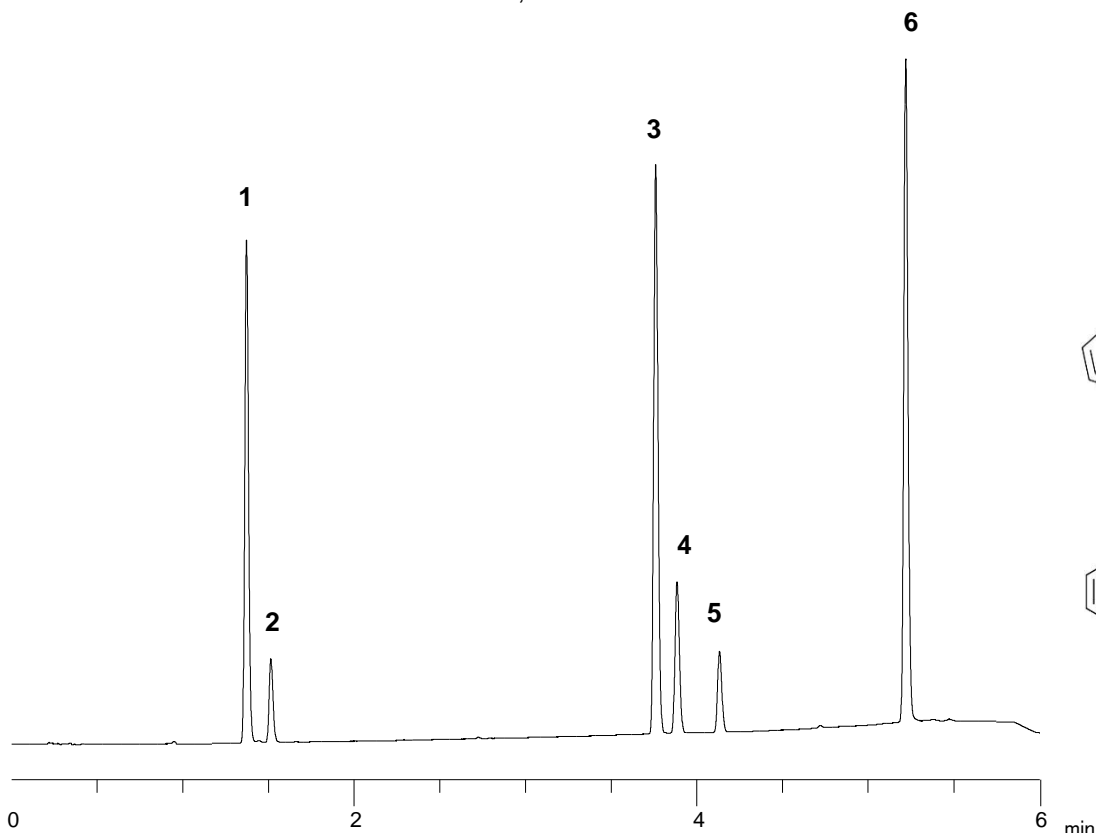
2. Deltorphin-II (IS)
(m/z 783 → 277)

Conditions

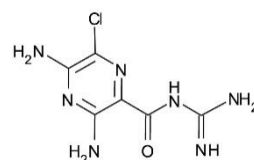
Column: ACE Excel 2 C18-PFP
 Dimensions: 50 x 3.0 mm
 Part Number: EXL-1010-0503U
 Mobile Phase: A: 10 mM ammonium formate pH 3.0 in H₂O
 B: 10 mM ammonium formate pH 3.0 in MeOH/H₂O (9:1 v/v)

Time (mins)	%B
0.0	5
0.5	5
5.0	0
5.5	70
6.0	5

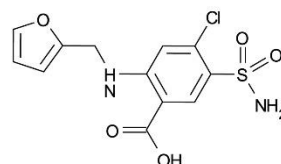
Flow Rate: 1 mL/min
 Injection: 2 µL
 Temperature: 60 °C
 Detection: UV, 254 nm



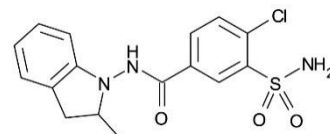
1. Hydrochlorothiazide



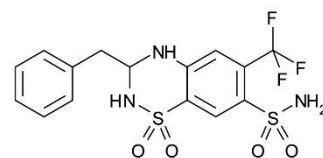
2. Amiloride



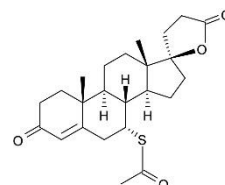
3. Furosemide



4. Indapamide



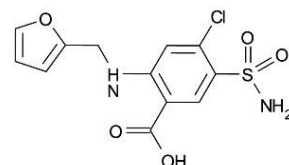
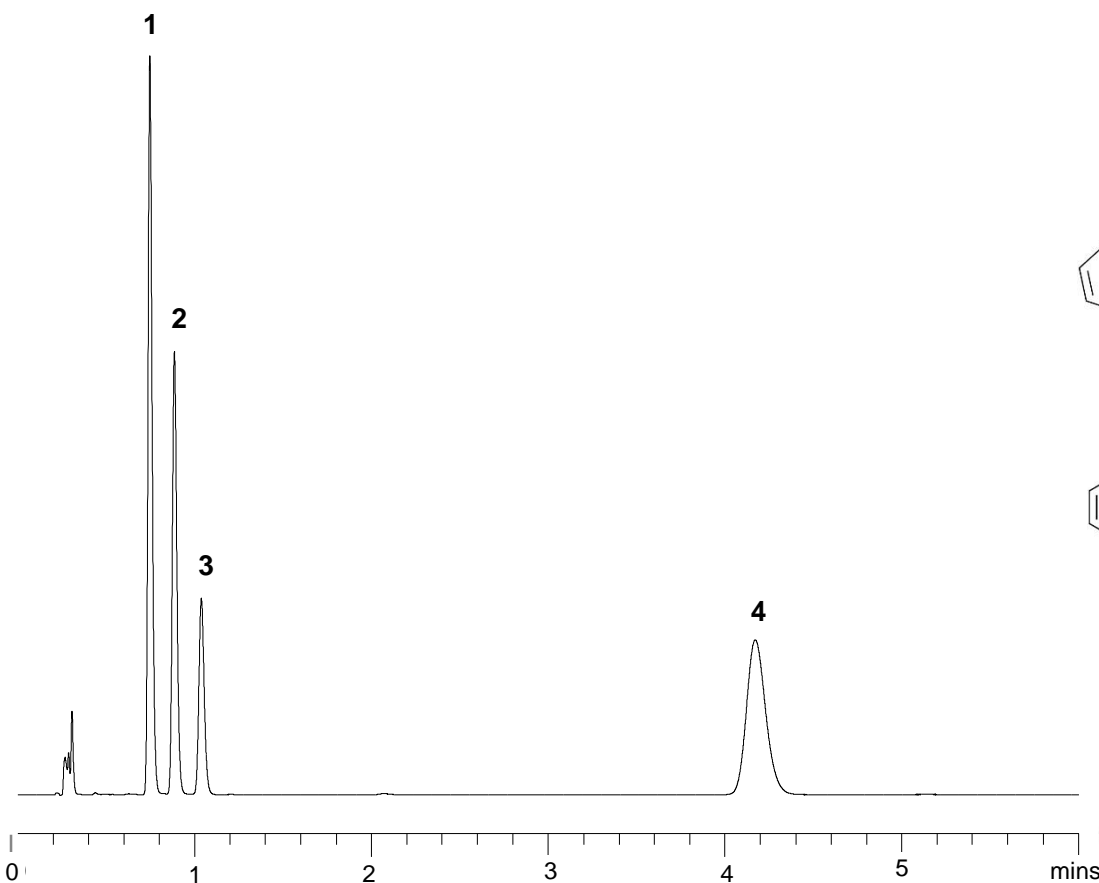
5. Bendroflumethiazide



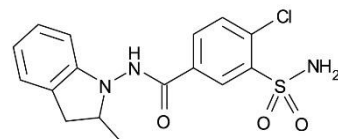
6. Spironolactone

Conditions

Column:	ACE Excel 2 C18-PFP
Dimensions:	50 x 3.0 mm
Part Number:	EXL-1010-0503U
Mobile Phase:	10 mM ammonium formate pH 3.0 in MeOH/H ₂ O (45:55 v/v)
Flow Rate:	1 mL/min
Injection:	2 µL
Temperature:	60 °C
Detection:	UV, 254 nm



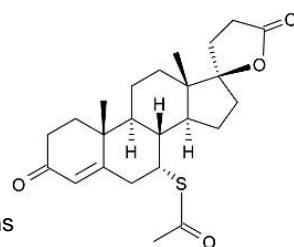
1. Furosemide



2. Indapamide



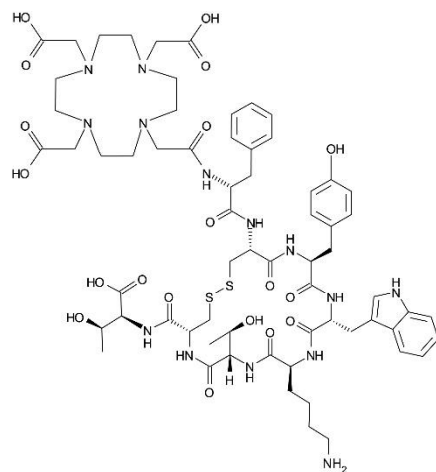
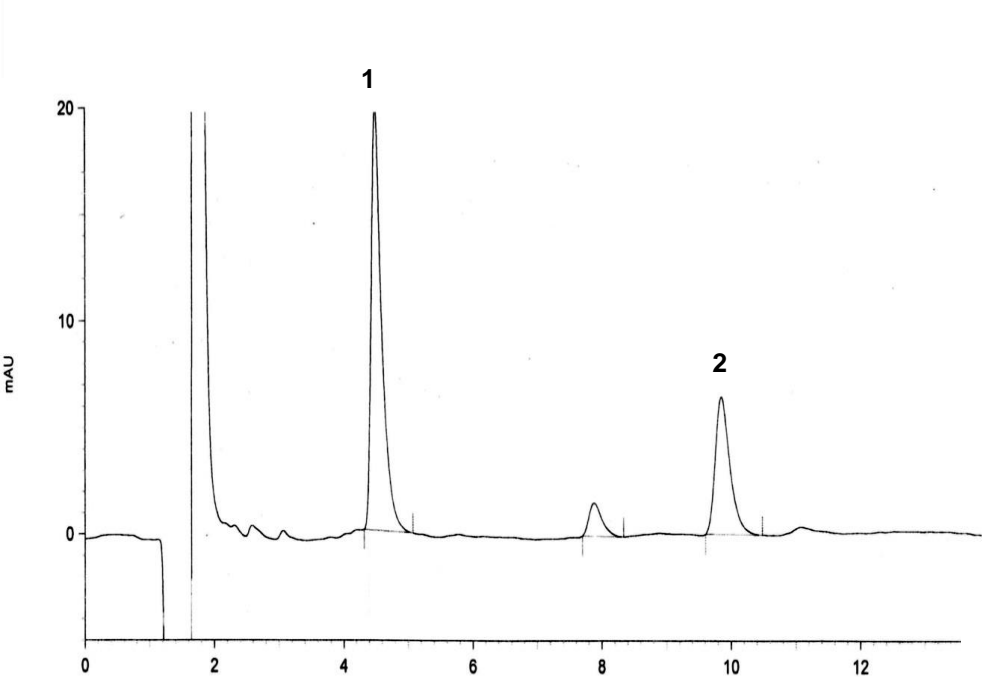
3. Bendroflumethiazide



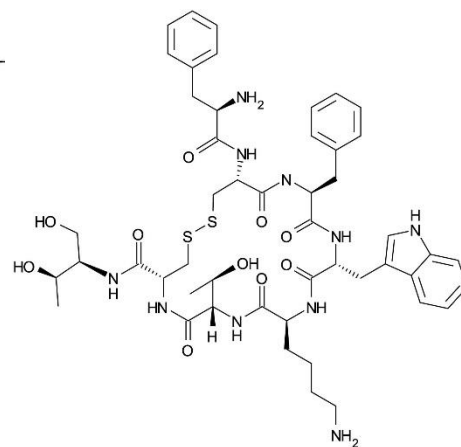
4. Spironolactone

Conditions

Column:	ACE 3 C18
Dimensions:	150 x 3.0 mm
Part Number:	ACE-111-1503
Mobile Phase:	0.1% TFA in H ₂ O/MeCN (76:24 v/v)
Flow Rate:	0.6 mL/min
Injection:	20 µL
Detection:	UV, 220 nm



1. DOTATATE



2. Octreotide

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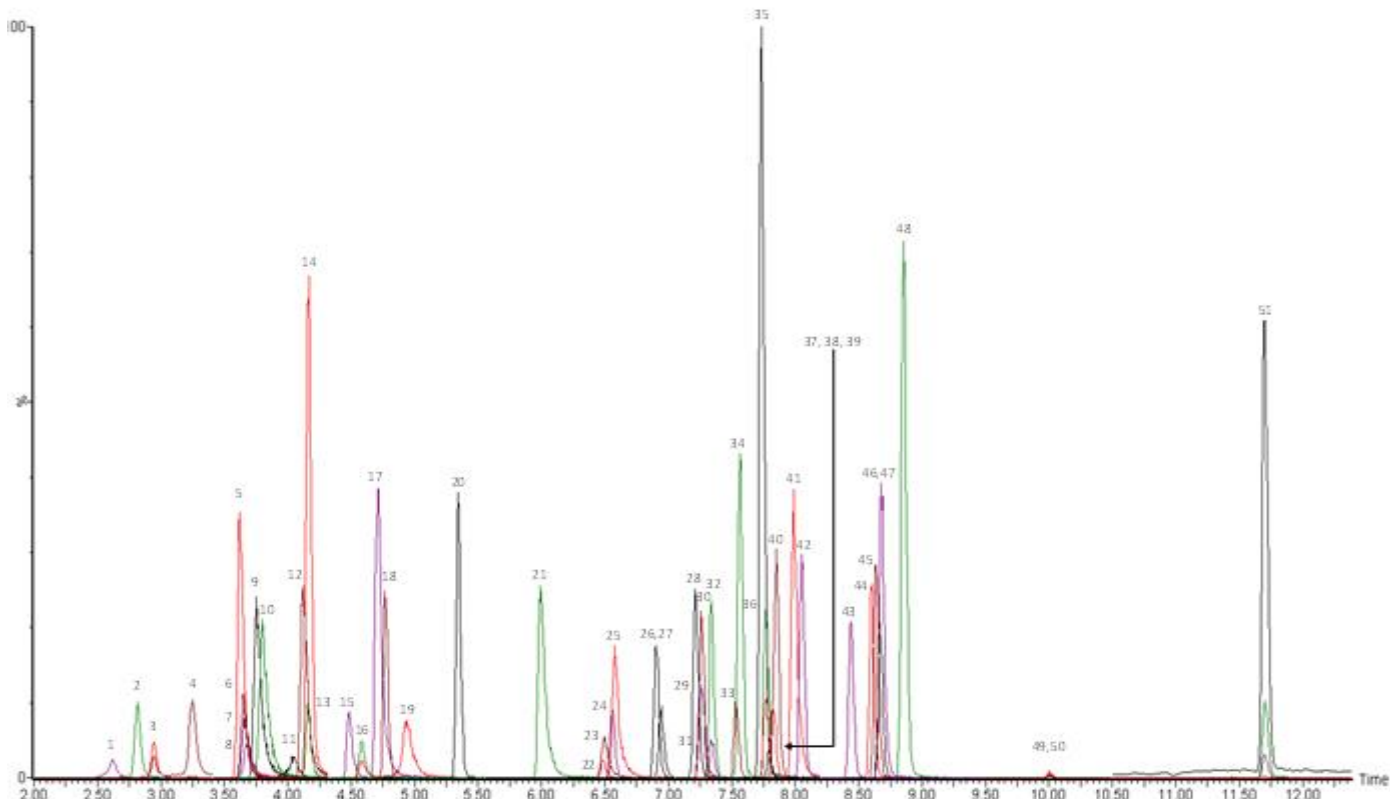
Drugs of Abuse Screen by UHPLC-MS/MS

Conditions

Column: ACE Excel 1.7 C18
Dimensions: 100 x 2.1 mm
Part Number: EXL-171-1002U
Mobile Phase: A: 5 mM ammonium acetate in H₂O
B: 5 mM ammonium acetate in MeOH

Time (mins)	%B
0.0	10
10.0	90
11.9	90
13.4	10
15.5	10

Flow Rate: 0.3 mL/min
Injection: 10 µL
Temperature: 40 °C
Detection: MS Quattro Premier XE triple quad
MRM, positive and negative ESI mode
Desolvation temperature: 450 °C
Ion source temperature: 150 °C
Collision gas pressure: 3.5 x 10⁻⁴ mbar



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Drugs Of Abuse Screen By UHPLC-MS/MS

Peak	Analyte	Rt	Q1 (Da)	Q3 (Da)	Peak	Analyte	Rt	Q1 (Da)	Q3 (Da)
1	Oxymorphone	2.62	302.2	198.1	27	Bromazepam	6.95	316.1	182.1
2	Morphine-D3	2.82	289.2	201.0	28	Ketamine	7.21	238.1	124.9
3	Morphine	2.95	286.2	201.0	29	Clonazepam	7.26	316.1	270.1
4	Hydromorphone	3.25	286.2	185.1	30	Nitrazepam	7.26	282.2	236.1
5	Amphetamine-D5	3.62	141.0	123.9	31	α -hydroxytriazolam	7.34	359.1	331.1
6	Amphetamine	3.65	136.0	118.9	32	Flunitrazepam	7.34	314.2	268.2
7	Dihydrocodeine	3.66	302.2	199.1	33	α -hydroxyalprazolam	7.54	325.2	297.1
8	MDA	3.67	180.1	105.0	34	Estazolam	7.56	295.2	267.2
9	MDMA	3.75	194.1	163.0	35	Zolpidem	7.73	308.2	235.1
10	Methamphetamine	3.80	150.0	90.9	36	Triazolam	7.77	343.0	308.1
11	Oxycodone	4.03	316.2	241.2	37	2-Hydroxyethylflurazepam	7.77	333.2	109.0
12	MDEA	4.12	208.2	163.0	38	Lorazepam	7.80	321.1	275.1
13	BZE-D3	4.15	293.1	171.0	39	Oxazepam	7.82	287.2	241.0
14	BZE	4.17	290.1	168.0	40	Alprazolam	7.85	309.2	281.2
15	6-MAM	4.48	328.2	165.1	41	Methadone	7.99	310.2	265.2
16	Codeine	4.59	300.3	215.1	42	Temazepam	8.05	301.1	255.1
17	Norfentanyl	4.71	233.1	84.0	43	Nordiazepam	8.44	271.1	139.9
18	7-Amino-clonazepam	4.77	286.2	121.0	44	Midazolam	8.61	326.2	291.2
19	Hydrocodone	4.94	300.2	199.1	45	Diazepam-D5	8.63	290.2	154.0
20	7-Amino-flunitrazepam	5.34	284.2	135.0	46	Diazepam	8.67	285.2	154.0
21	Cocaine	5.99	304.2	182.0	47	Flurazepam	8.68	388.2	315.1
22	Norbuprenorphine	6.47	414.3	101.0	48	Fentanyl	8.85	337.3	105.0
23	PCP	6.49	244.2	159.9	49	THC-COOH-D3	9.98	348.2	302.2
24	Zaleplon	6.55	306.2	264.2	50	THC-COOH	10.01	345.2	299.2
25	EDDP	6.58	278.2	234.2	51	Buprenorphine	11.70	468.3	101.0
26	Norketamine	6.90	224.1	124.9					



Ethyl Glucuronide in Water by LC-MS/MS

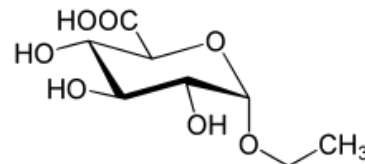
Application #AN1100

Conditions

Column: ACE Excel 2 C18-PFP
Dimensions: 100 x 2.1 mm
Part Number: EXL-1010-1002U
Mobile Phase: A: 0.05% formic acid in H₂O
B: MeOH

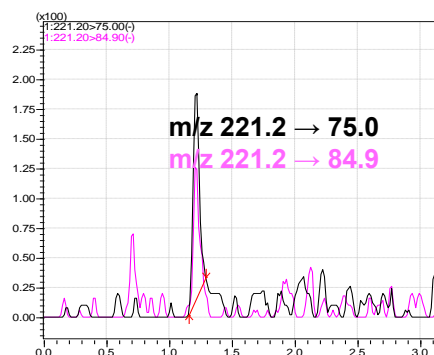
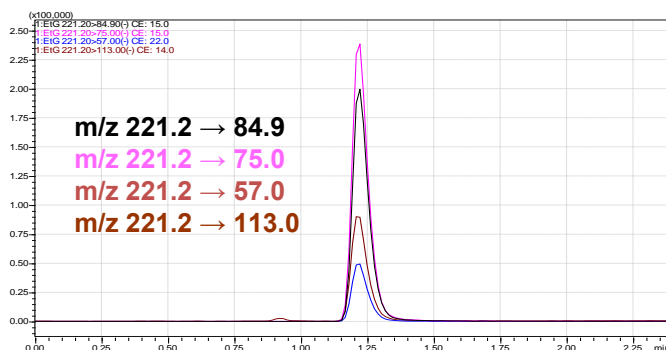
Time (mins)	%B
0.00	5
4.00	70
6.00	95
7.00	95
7.01	5

Flow Rate: 0.4 mL/min
Injection: 3 µL
Temperature: 40 °C
Detection: Shimadzu LCMS-8050
ESI voltage: -3 kV
Desolvation line: 250 °C
Interface heater: 380 °C
Nebulizing gas: 3 L/min
Heat block: 400 °C

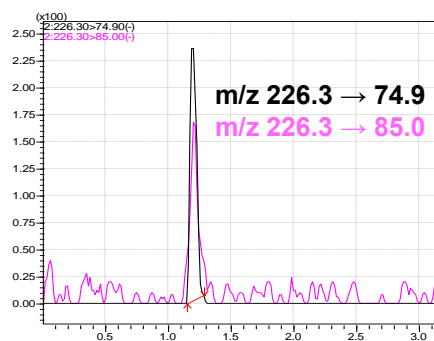
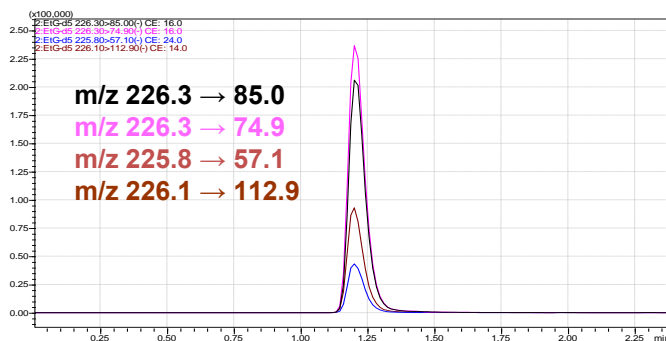


Ethyl glucuronide

Ethyl glucuronide (EtG)
LOQ in H₂O 300 fg on-column



Ethyl glucuronide-d5 (EtG-d5)



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Formoterol in Human Plasma by LC-MS/MS

Application #AN3100

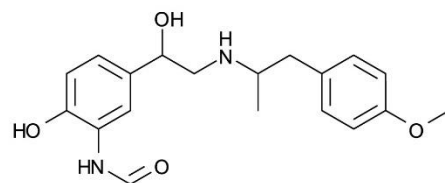
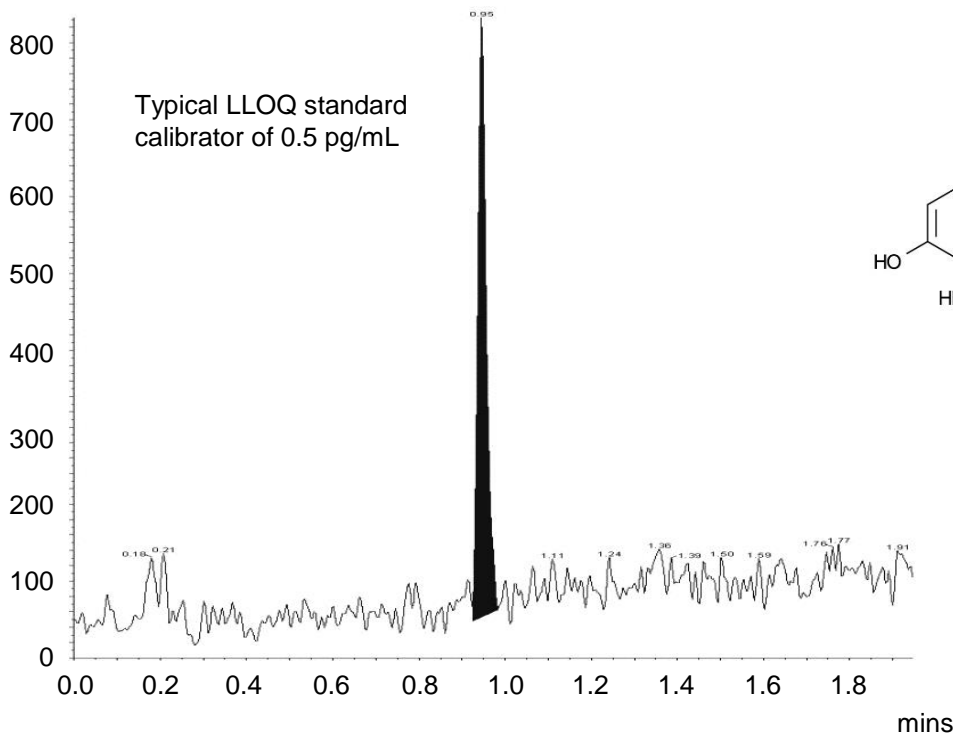
Conditions

Column: ACE Excel 2 C18-AR
Dimensions: 50 x 2.1 mm
Part Number: EXL-1012-0502U
Mobile Phase: A: 0.02% formic acid in H₂O
B: 0.02% formic acid in H₂O/MeOH (2:98 v/v)

Time (mins)	%B
0.00	10
0.20	10
2.00	40
2.01	100
3.50	100
3.51	10
4.00	10

Flow Rate: 0.75 mL/min
Temperature: 60 °C
Detection: AB SCIEX QTRAP 5500 LC-MS/MS system
Sample: Extracted by mixed mode cation exchange SPE

Intensity, cps



1. Formoterol
(*m/z* 345 → 149)



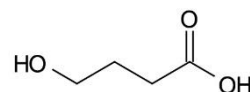
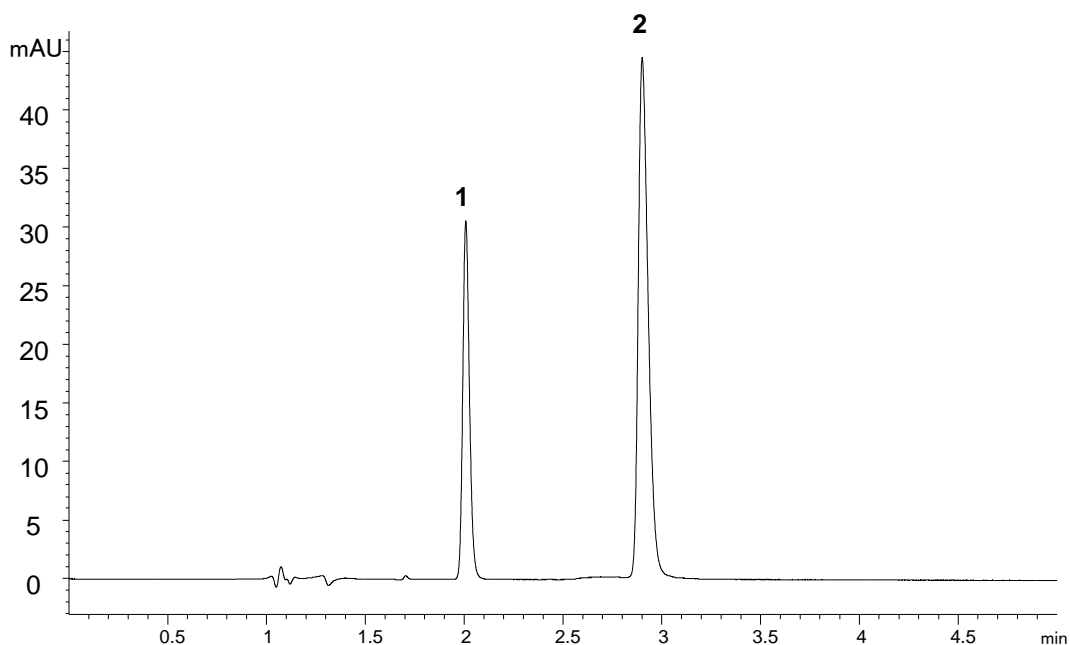
Gamma Hydroxybutyric Acid (GHB) and Gamma Butyrolactone (GBL)

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UHPLC & HPLC Columns

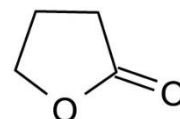
Application #AN1500

Conditions

Column: ACE Excel 2 C18-AR
Dimensions: 100 x 3.0 mm
Part Number: EXL-109-1003
Mobile Phase: 20 mM KH₂PO₄ pH 2.5 H₂O/MeCN (98:2 v/v)
Flow Rate: 0.43 mL/min
Injection: 2 µL
Temperature: 30 °C
Detection: UV, 215 nm



1. GHB



2. GBL



Hepcidin-25 and Truncated Isoforms by LC-HR-MS

Application #AN3090

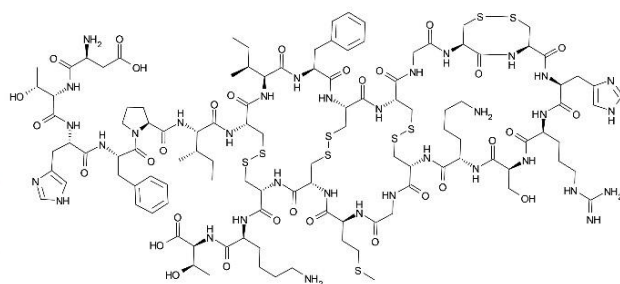
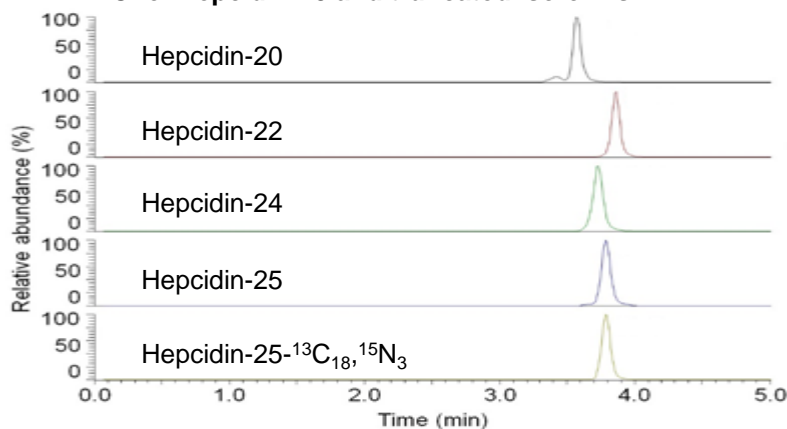
Conditions

Column: ACE 3 C18
Dimensions: 100 x 2.1 mm
Part Number: ACE-111-1002
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeCN

Time (mins)	%B
0	15
5	100
6	100

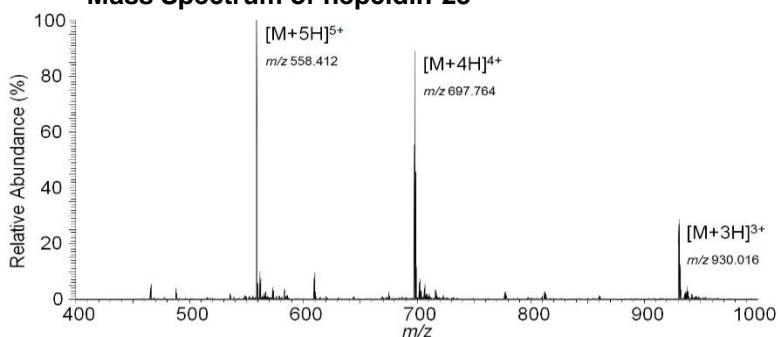
Flow Rate: 0.25 mL/min
Injection: 100 µL
Temperature: 60 °C
Detection: ThermoFisher Scientific Q-Exactive™ high resolution MS
Heated electrospray ionisation (positive mode)
Spray voltage: 4.5 kV
Vaporiser temperature: 200 °C
Capillary temperature: 320 °C
Detection: Full scan *m/z* 400 – 1000
Extracted ion chromatogram from sum of 6 most abundant isotopes of +3, +4 and +5 charge states

EIC for hepcidin-25 and truncated isoforms



Hepcidin-25
(MW 2789)

Mass Spectrum of hepcidin-25

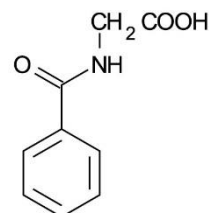
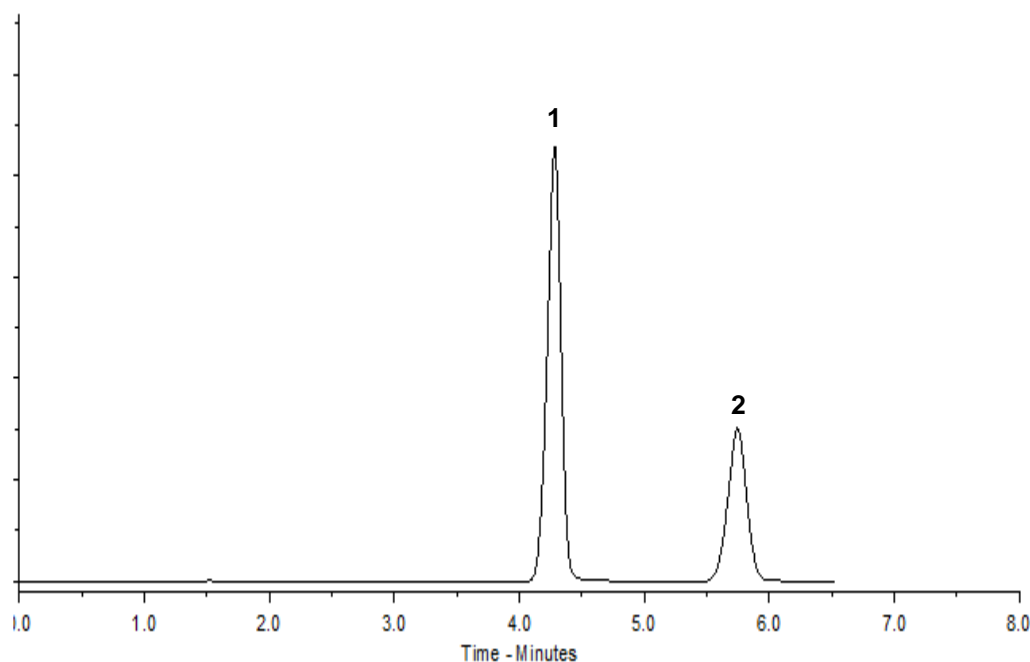


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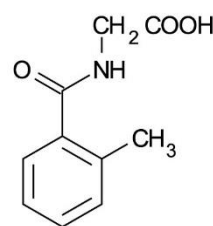


Conditions

Column: ACE 5 C18
Dimensions: 150 x 4.6 mm
Part Number: ACE-121-1546
Mobile Phase: 10 mM KH₂PO₄ pH 3.5 in H₂O/MeCN (15:85 v/v)
Flow Rate: 1 mL/min
Temperature: Ambient
Detection: UV, 254 nm



1. Hippuric acid



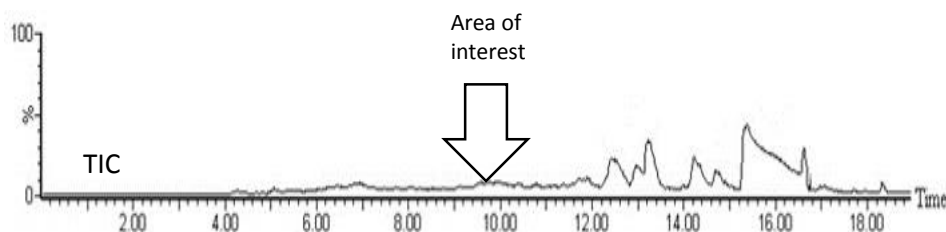
2. 2-Methylhippuric acid

Conditions

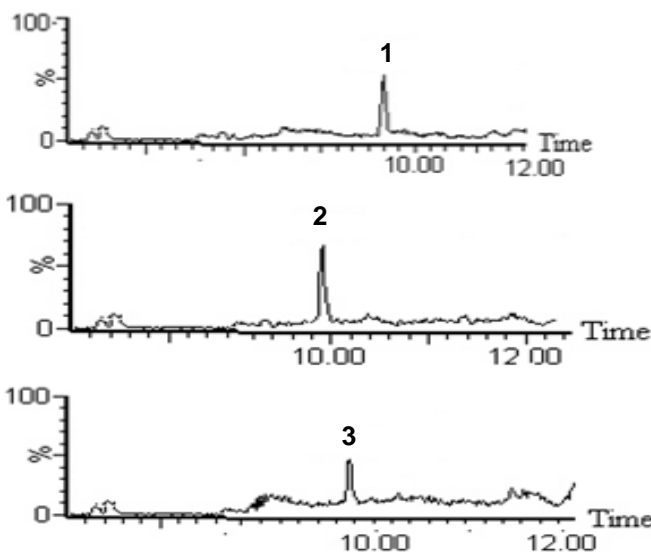
Column: ACE UltraCore 2.5 SuperC18
Dimensions: 50 x 3.0 mm
Part Number: CORE-25A-1503U
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeCN

Time (mins)	%B
0	2
2	2
17	50
19	95
20	95

Flow Rate: 0.6 mL/min
Sample Preparation: SPE on C18
Detection: Synapt G1 QToF +ESI MS
Sampling cone voltage: 40 V
Source temperature: 150 °C
Capillary voltages: 4.8 kV
Extraction cone voltages: 41 kV
Desolvation temperature: 500 °C
Acquisition: 100-2000 m/z



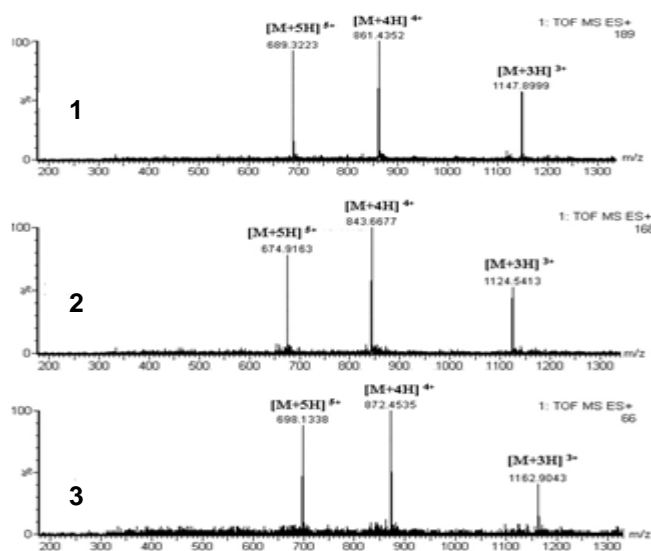
Extracted ion current chromatograms
(sum of multiply protonated ions [M+3H]³⁺, [M+4H]⁴⁺ and [M+5H]⁵⁺)



Defensin Human Neutrophil Peptides

1. HNP-1
(30 amino acid residues)
2. HNP-2
(29 amino acid residues)
3. HNP-3
(30 amino acid residues)

Mass spectra



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Human Urine Metabolite Profiling by LC-MS

Application #AN2600

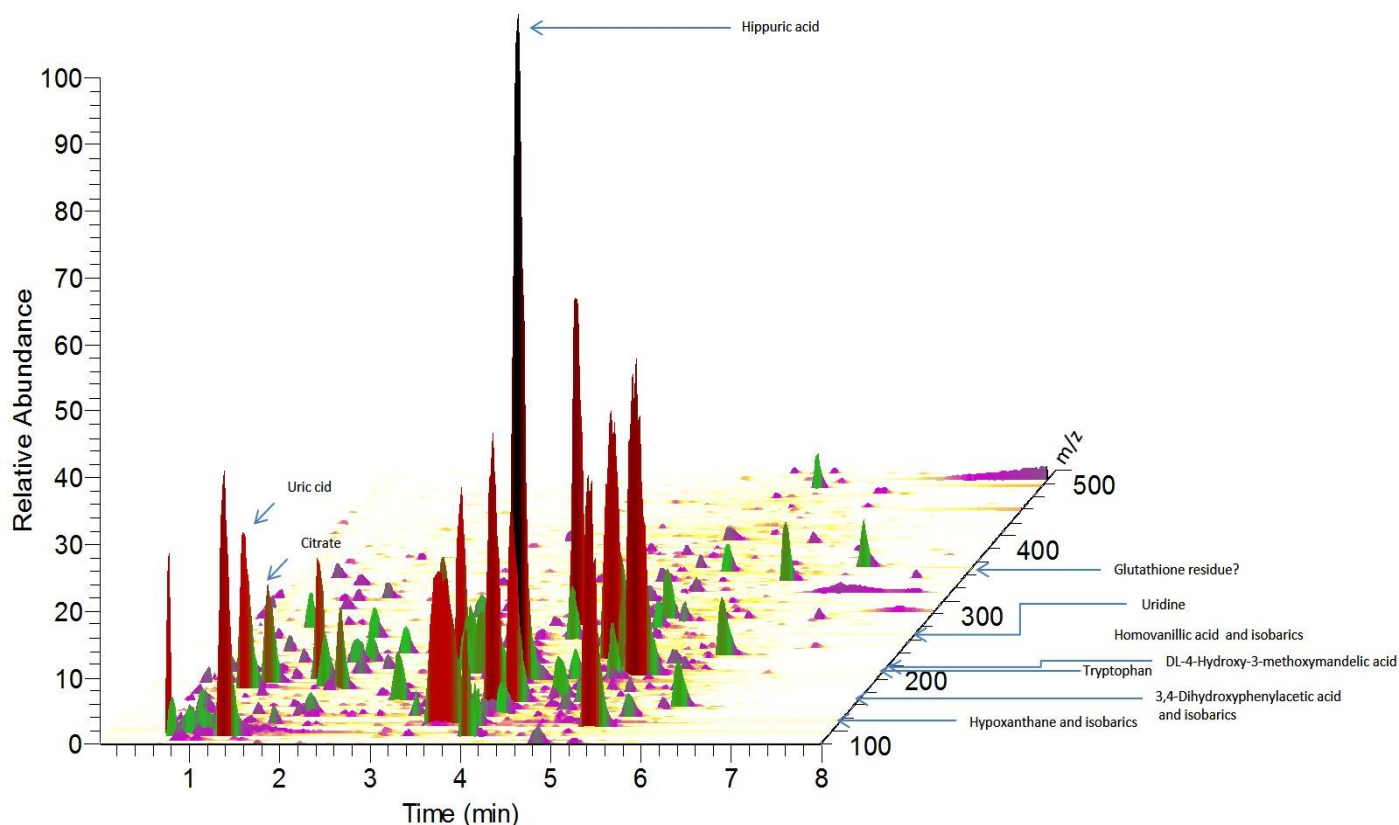
Conditions

Column: ACE Excel 1.7 C18-Amide
Dimensions: 100 x 2.1 mm
Part Number: EXL-1712-1002U
Mobile Phase: A: 0.01% formic acid in H₂O
B: 0.01% formic acid in MeCN

Time (mins)	%B
0.0	3
2.5	10
8.0	100
8.5	3
10.0	3

Flow Rate: 0.5 mL/min
Detection: Exactive accurate mass MS system
ESI in negative ion mode

Sample: Urine of healthy adult volunteer, filtered prior to injection onto column and modular Accela LC system.
Analytes between *m/z* 70-800 monitored



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Hydroxychloroquine in Whole (EDTA) Blood by LC-MS/MS

Application #AN1120

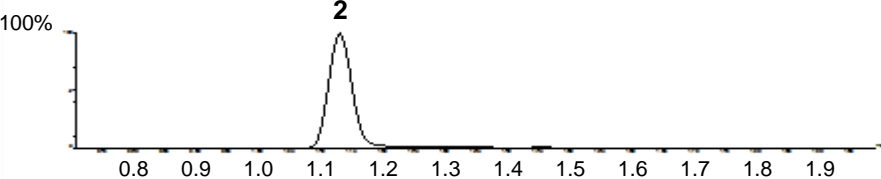
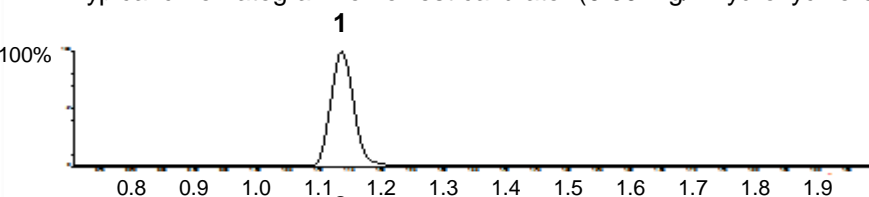
Conditions

Column: ACE Excel 2 SuperC18
Dimensions: 50 x 2.1 mm
Part Number: EXL-1011-0502U
Mobile Phase: A: 0.5% Ammonium hydroxide pH 10 in H₂O
B: 0.5% Ammonium hydroxide in MeCN

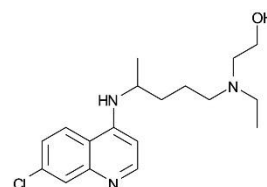
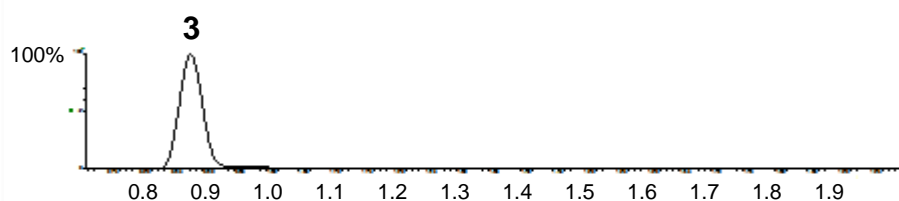
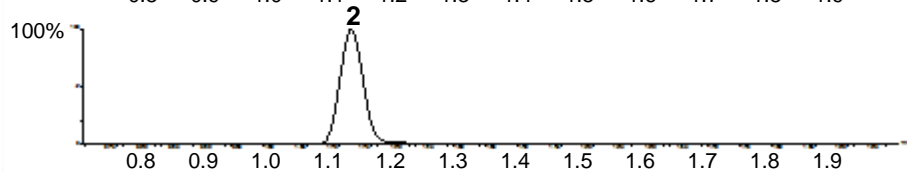
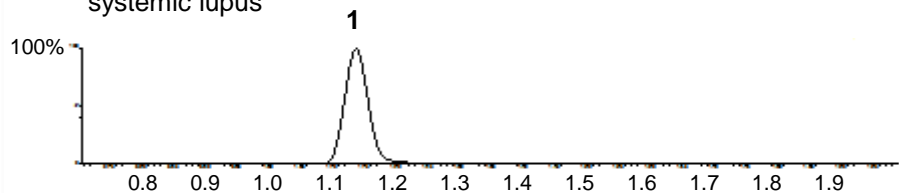
Time (mins)	%B
0.00	30
1.50	100
2.50	100
2.51	30

Flow Rate: 0.4 mL/min
Injection: 5 µL
Temperature: 40 °C
Detection: MS/MS detection with Waters TQD
ESI +ve ion mode

Typical chromatogram for lowest calibrator (0.09 mg/L hydroxychloroquine)



Typical chromatogram for whole (EDTA) blood samples from patient with systemic lupus



1. Hydroxychloroquine
(*m/z* 336 → 247)
2. D4-Hydroxychloroquine (IS)
(*m/z* 340 → 251)
3. Desethylhydroxychloroquine
(*m/z* 308 → 247)

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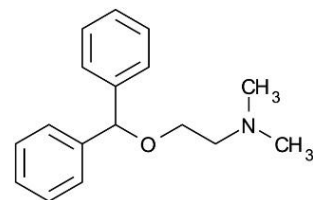
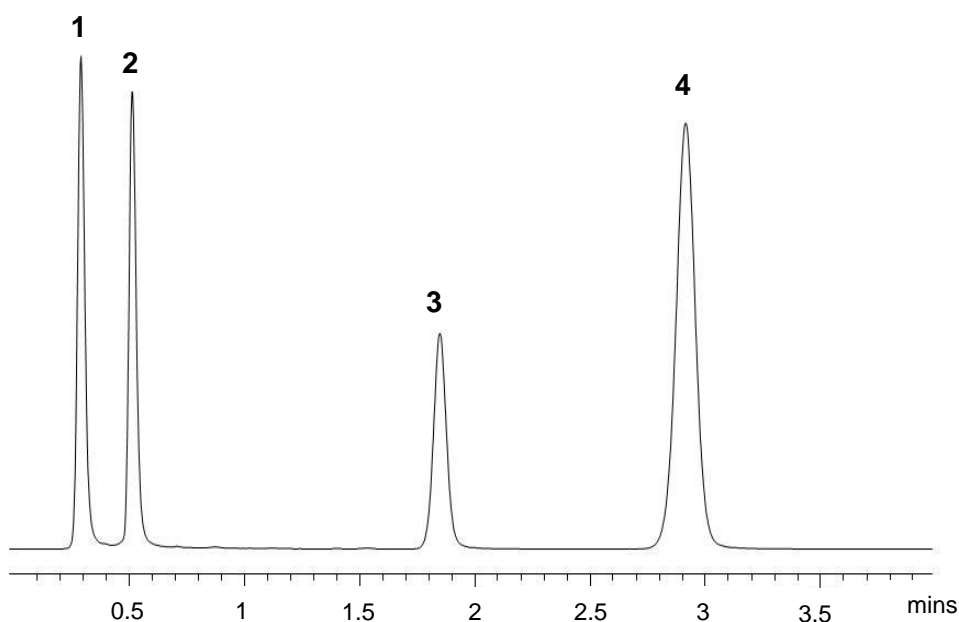
Ibuprofen in Combination with Antihistamine and Decongestant

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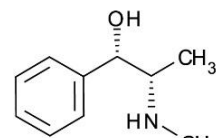
Application #AN2120

Conditions

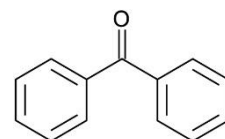
Column: ACE Excel 3 C18-Amide
Dimensions: 150 x 4.6 mm
Part Number: EXL-1112-1546U
Mobile Phase: 0.01% potassium dihydrogen phosphate/MeCN (60:40 v/v)
Flow Rate: 0.6 mL/min
Injection: 0.5 µL
Temperature: 45 °C
Detection: UV, 214 nm



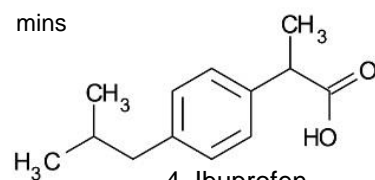
1. Diphenhydramine



2. Pseudoephedrine



3. Benzophenone



4. Ibuprofen

Insulin Analogues in Clinical and Post-Mortem Analyses

Application #AN3350

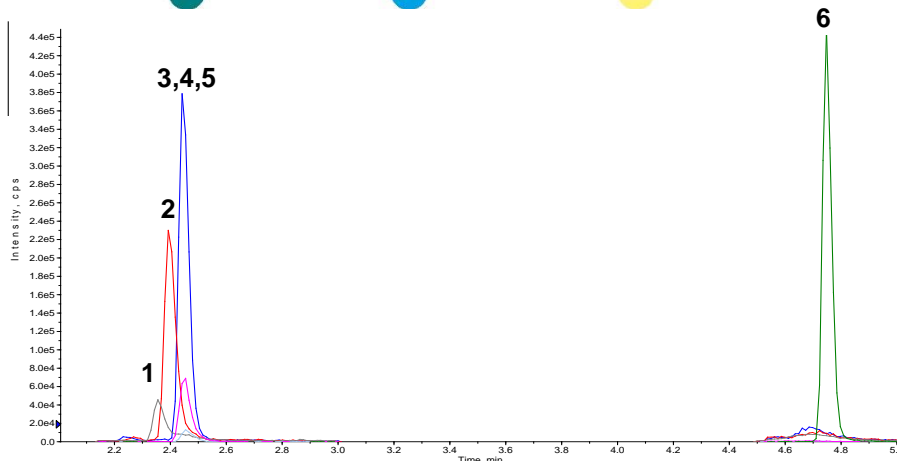
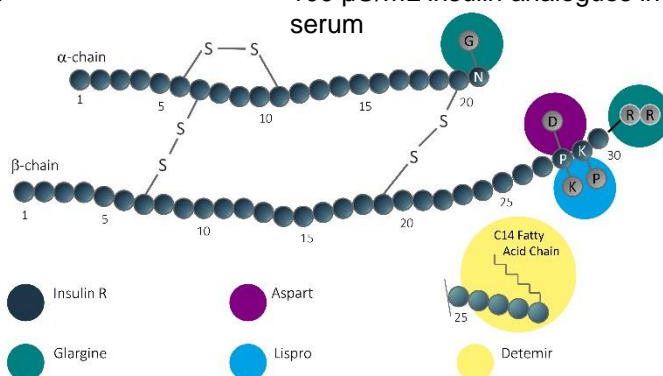
Conditions

Column: ACE 5 C18-300
Dimensions: 50 x 2.1 mm
Part Number: ACE-221-0502
Mobile Phase: A: 0.1% acetic acid in H₂O
B: 0.1% acetic acid in IPA/MeCN (25:75 v/v)

Time (mins)	%B
0.0	22
0.5	22
1.0	34
3.0	36
4.0	98
6.2	98
6.3	22

Flow Rate: 0.55 mL/min
Injection: 40 µL
Detection: AB Sciex QTRAP 5500
ESI positive ion mode
Ion spray voltage: 5500 V
Temperature: 600 °C

Sample: 100 µU/mL insulin analogues in steroid-free serum



- Glargine
MW 6063
Quantifier *m/z* 867.2 → 136
Qualifier *m/z* 1011.4 → 1164.2
Qualifier *m/z* 1011.4 → 1179.4
- Bovine insulin (IS)
MW ~5800
Quantifier *m/z* 956.5 → 136.1
Qualifier *m/z* N/A
- Aspart
MW 5826
Quantifier *m/z* 971.7 → 136
Qualifier *m/z* 1166 → 219
Qualifier *m/z* 971.7 → 226.1
- Lispro
MW 5808
Quantifier *m/z* 1162.4 → 217
Qualifier *m/z* 968.6 → 217
- Insulin R
MW 5808
Quantifier *m/z* 1162.4 → 345.2
Qualifier *m/z* 1162.3 → 65.2
Qualifier *m/z* 1162.4 → 226.1
- Detemir
MW 5917
Quantifier *m/z* 1184 → 454.4
Qualifier *m/z* 987 → 454.4
Qualifier *m/z* 1184.0 → 357.4

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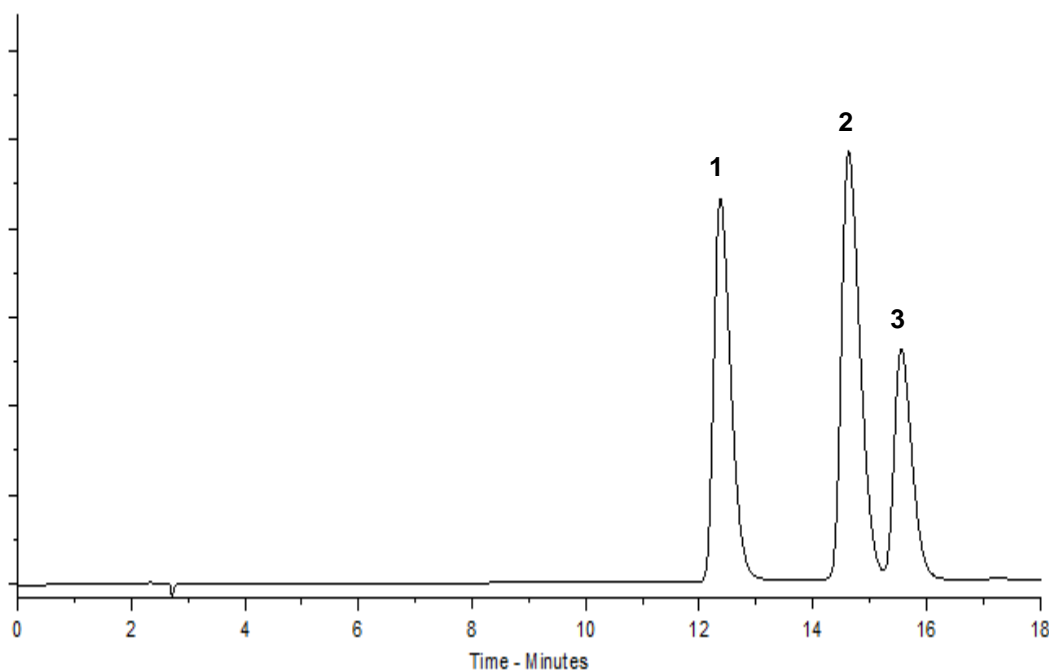


Conditions

Column: ACE 5 C18
Dimensions: 250 x 4.6 mm
Part Number: ACE-121-2546
Mobile Phase: A: 0.1% TFA in H₂O/MeCN (71:29 v/v)
B: 0.1% TFA in H₂O/MeCN (68:32 v/v)

Time (mins)	%B
0	10
16	90

Flow Rate: 1 mL/min
Temperature: Ambient
Detection: UV, 215 nm



1. Bovine insulin
2. Human insulin
3. Porcine insulin



Itraconazole and Hydroxyitraconazole in Human Whole Blood by LC-MS/MS

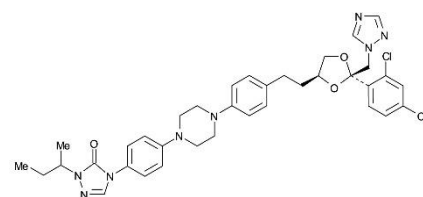
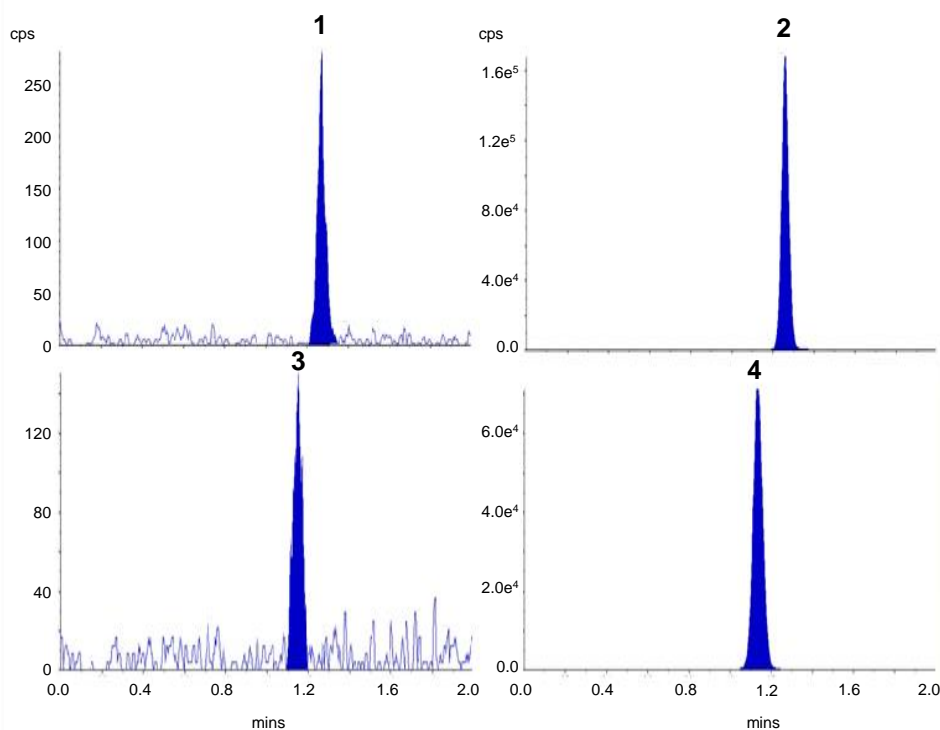
Application #AN3380

Conditions

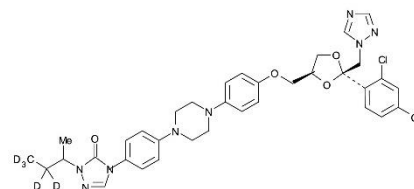
Column: ACE 3 C18-AR
Dimensions: 50 x 2.1 mm
Part Number: ACE-119-0502
Mobile Phase: A: 10 mM ammonium acetate in H₂O
B: 10 mM ammonium acetate in MeOH

Time (mins)	%B
0	75
2	98
3	98

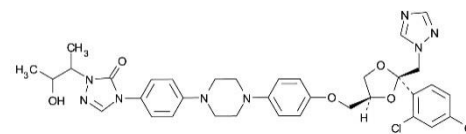
Flow Rate: 0.7 mL/min
Temperature: 45 °C
Detection: AB Sciex 4000
ESI positive ion mode
Sample: 1.0 ng/mL human whole blood (LLOQ)



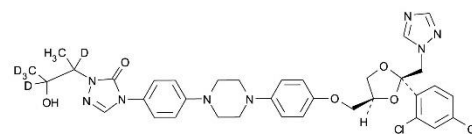
1. Itraconazole
(*m/z* 705.3 → 392.3)



2. Itraconazole-d5
(*m/z* 710.4 → 397.4)



3. Hydroxyitraconazole
(*m/z* 721.3 → 408.2)



4. Hydroxyitraconazole-d5
(*m/z* 726.4 → 413.3)



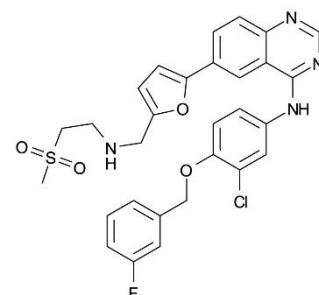
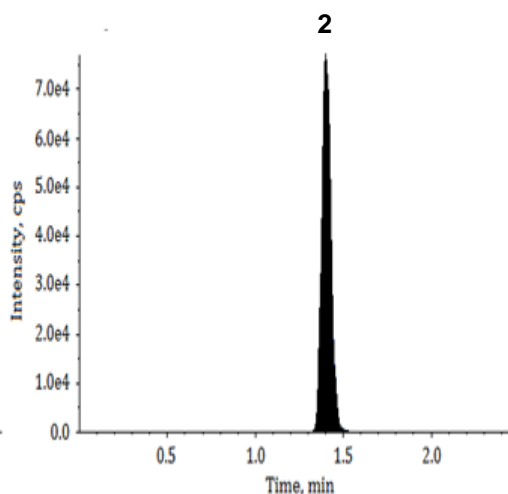
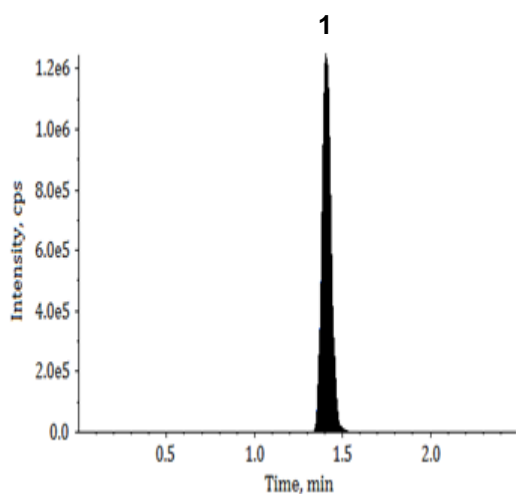
Lapatinib Anticancer Drug in Human Plasma by LC-MS/MS

Application #AN3360

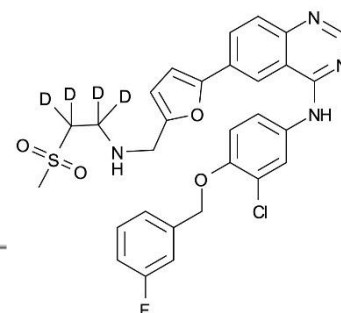
Conditions

Column:	ACE 5 C18
Dimensions:	100 x 4.6 mm
Part Number:	ACE-121-1046
Mobile Phase:	10 mM ammonium formate pH 3.5/MeCN (10:90 v/v)
Flow Rate:	1 mL/min
Injection:	0.5 μ L
Temperature:	40 $^{\circ}$ C
Detection:	API 4000 triple quad MS Positive ion mode ESI Ion spray voltage: 5500 V Temperature: 400 $^{\circ}$ C
Sample:	Extracted from 100 μ L plasma using liquid-liquid extraction

LLOQ	2.5 ng/mL
LOD	1.0 ng/mL
Method Linearity	2.5 – 2500 ng/mL



1. Lapatinib
(m/z 581.1 \rightarrow 365.2)
Concentration 1000 ng/mL



2. Lapatinib-d4 (IS)
(m/z 585.1 \rightarrow 365.0)
Concentration 100 ng/mL

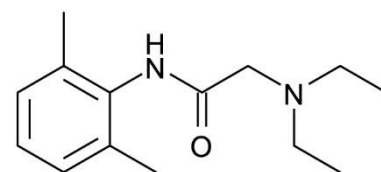
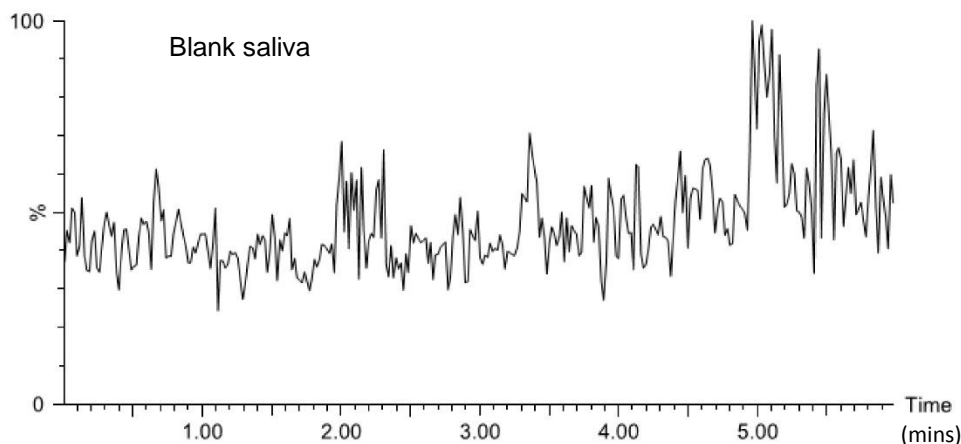


Conditions

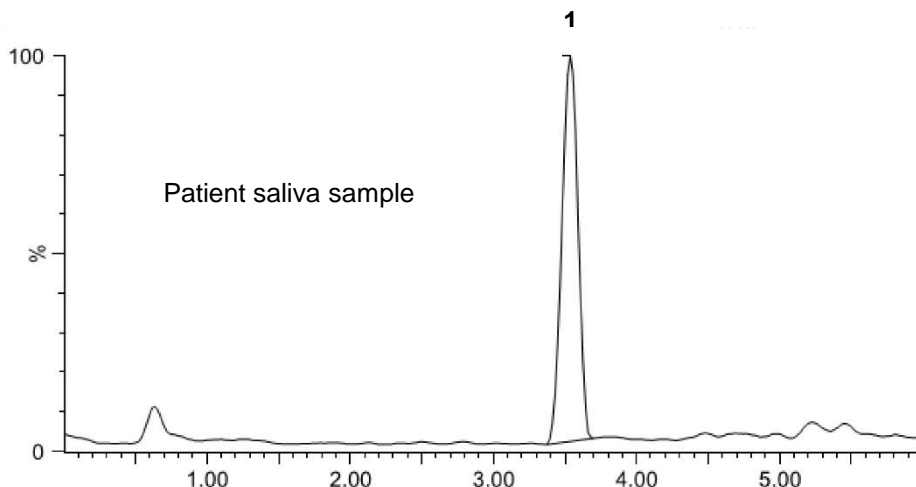
Column: ACE 3 C18
Dimensions: 100 x 3.0 mm
Part Number: ACE-111-1003
Mobile Phase: A: 0.1% formic acid in MeCN/H₂O (20:80 v/v)
B: 0.1% formic acid in MeCN/H₂O (80:20 v/v)

Time (mins)	%B
0.0	20
1.0	20
3.0	80
4.5	80

Flow Rate: 0.3 mL/min
Injection: 10 µL
Detection: Quatro-Micro triple quad MS
Positive ion mode ESI



1. Lidocaine
(*m/z* 235 → 86)

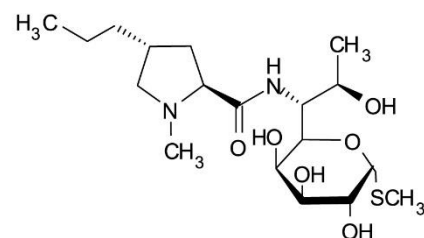
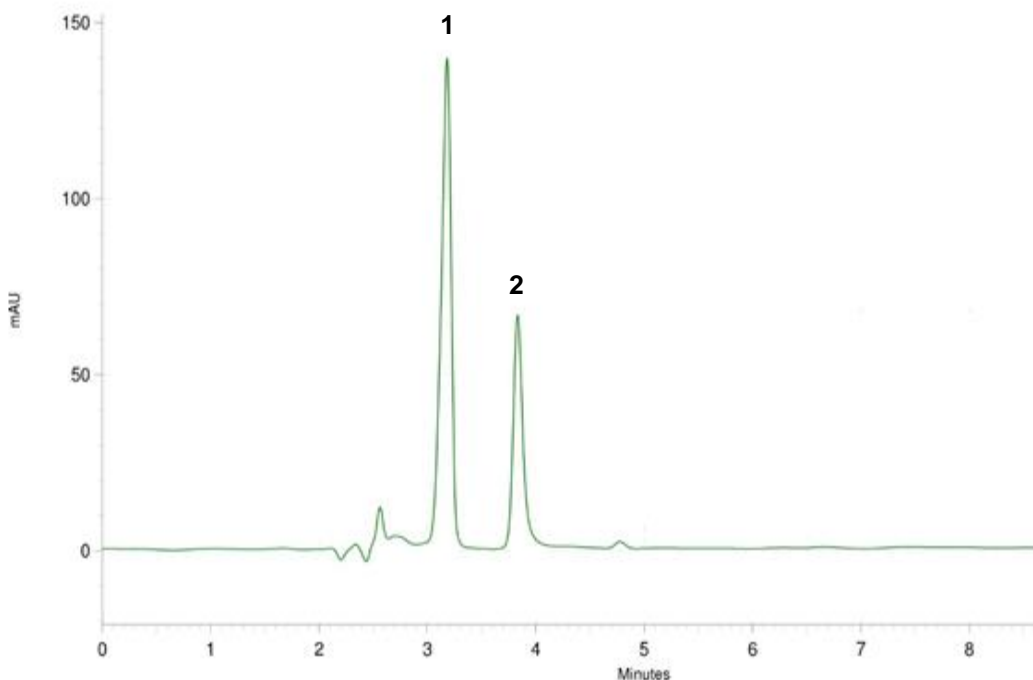


Saliva samples taken
after "Emla 5%"
application to skin

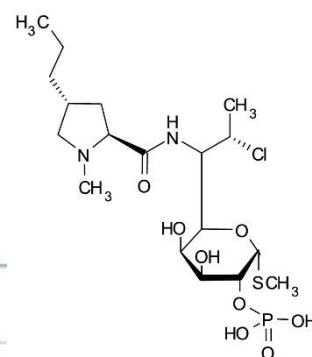


Conditions

Column:	ACE 5 C18
Dimensions:	250 x 4.6 mm
Part Number:	ACE-121-2546
Mobile Phase:	0.02 M sodium phosphate dibasic pH 3.0/MeCN (70:30 v/v)
Flow Rate:	1 mL/min
Injection:	25 µL
Temperature:	25 °C
Detection:	UV, 205 nm



1. Lincomycin HCl



2. Clindamycin phosphate

Lipid Classes Separation from *Drosophila Melanogaster*

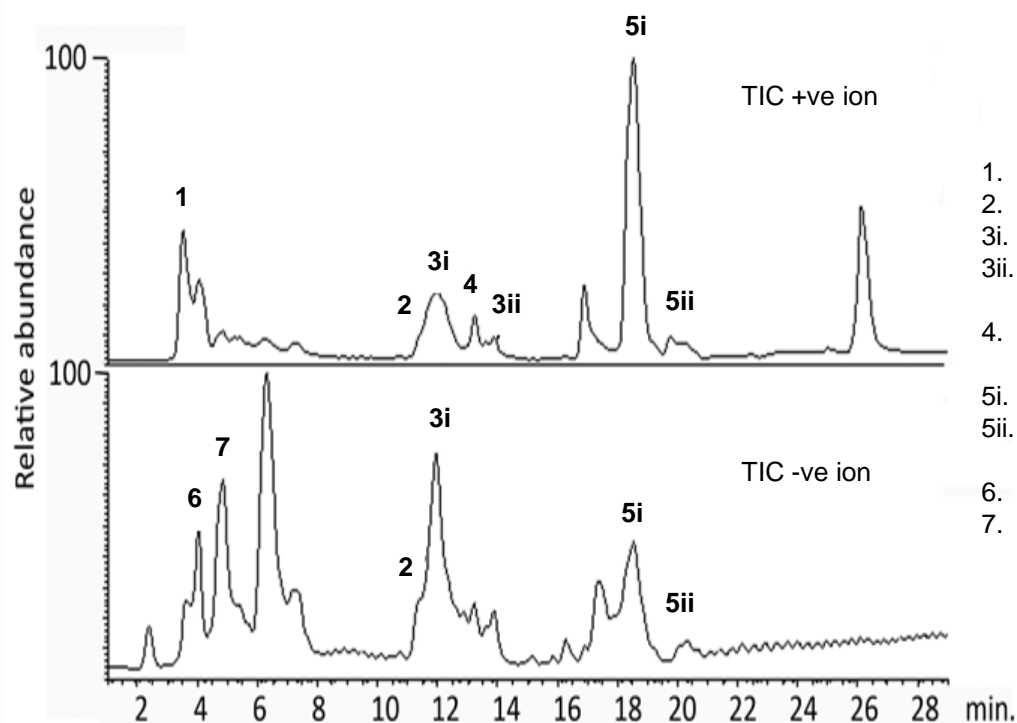
Application #AN1530

Conditions

Column: ACE 3 SIL
 Dimensions: 150 x 3.0 mm
 Part Number: ACE-117-1503
 Mobile Phase: A: IPA/MeCN (20:80 v/v)
 B: IPA/0.02 M ammonium formate (20:80 v/v)

Time (mins)	%B
0.0	8
1.0	8
5.0	9
10.0	20
16.0	25
23.0	35
26.0	8

Flow Rate: 0.3 mL/min
 Detection: LTQ Orbitrap MS
 Positive and negative ion mode



1. Triglyceride (TG)
2. Phosphoserine (PS)
- 3i. Phosphoethanolamine (PE)
- 3ii. Lyso phosphoethanolamine (Lyso PE)
4. Sphingomyelin phosphoethanolamine (SMPE)
- 5i. Phosphatidyl choline (PC)
- 5ii. Lyso phosphatidylcholine (Lyso PC)
6. Glycerophosphoglycerol (GPG)
7. Phosphoinositol (PI)

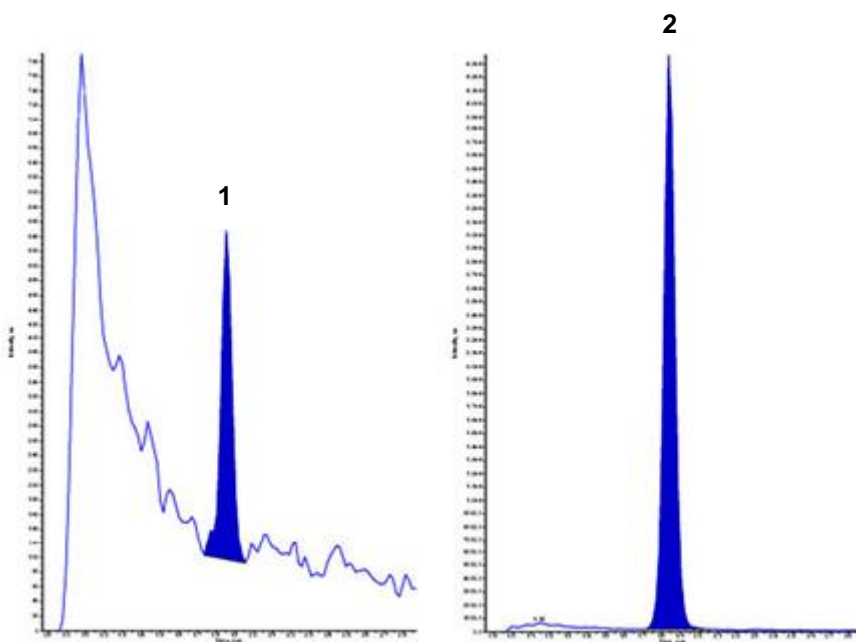


15-Hydroxy Lubiprostone in Human Plasma

Application #AN1900

Conditions

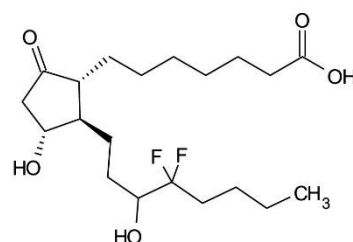
Column: ACE Excel 2 C18
Dimensions: 50 x 3.0 mm
Part Number: EXL-101-0503U
Mobile Phase: A: 0.1% formic acid in H₂O
B: MeCN
Flow Rate: 0.65 mL/min
Injection: 15 µL
Temperature: 35 °C
Detection: MDS Sciex API 5000
TurbolonSpray negative mode
IonSpray voltage -4500 V
Source Temperature 450 °C



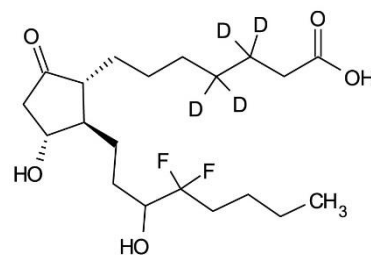
Lowest calibration standard sample containing 2.0 pg/mL in human EDTA K3 plasma.

Lubiprostone, a fatty acid derived from prostaglandin E1, is rapidly metabolised to 15-hydroxy lubiprostone.

Quantitation is based on 15-hydroxy lubiprostone, with the d4 analogue as internal standard.



1. 15-Hydroxy lubiprostone
m/z 392.5
Transition: 391.2 → 373.2



2. 15-Hydroxy lubiprostone-d4 (IS)
m/z 396.5
Transition: 395.2 → 377.2

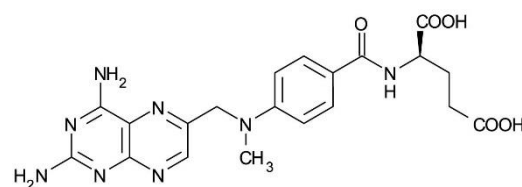
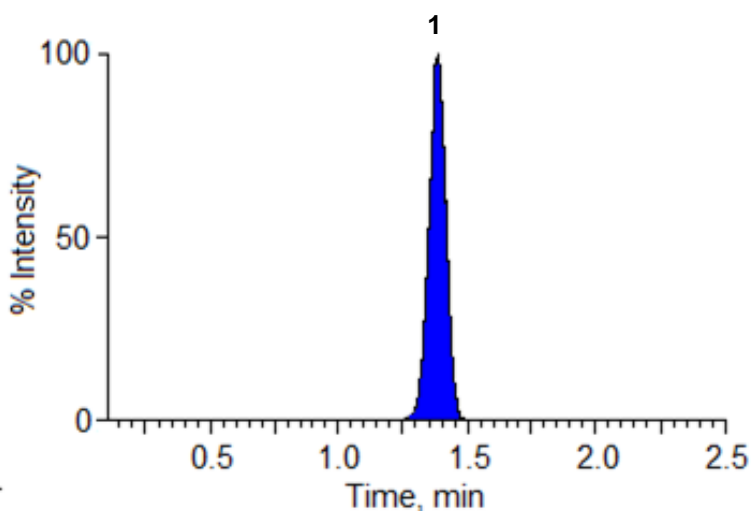
Methotrexate in K₃EDTA Human Plasma by LC-MS/MS

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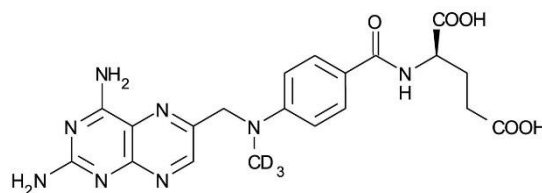
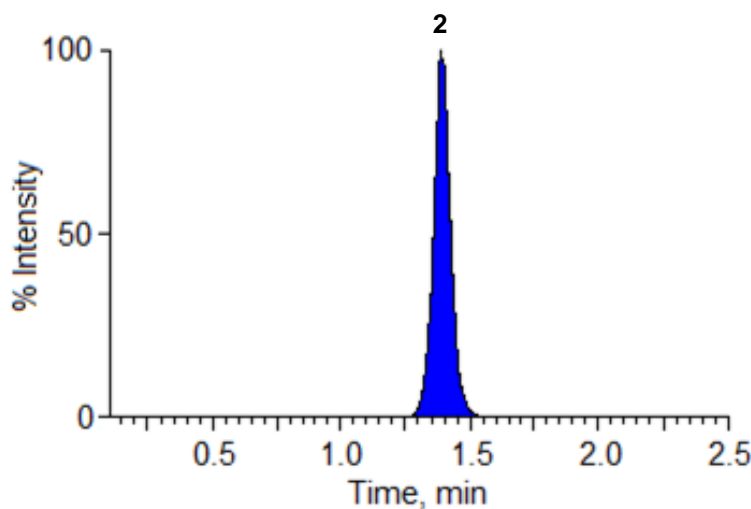
Application #AN3760

Conditions

Column:	ACE 5 CN
Dimensions:	150 x 4.6 mm
Part Number:	ACE-124-1546
Mobile Phase:	10 mM ammonium formate pH 7.0/MeOH (60:40 v/v)
Flow Rate:	1 mL/min
Temperature:	40 °C
Detection:	Quattro Premier XE triple quad MS Positive ion mode ESI Ion source temperature: 120 °C Desolvation temperature: 450 °C
Sample:	Methotrexate and methotrexate-d3 extracted using solid phase extraction



1. Methotrexate
(*m/z* 455 → 308)
(LLOQ 1.0 ng/mL)
(Concentration 100 ng/mL)



2. Methotrexate-d3 (I.S.)
(*m/z* 458 → 311)
(Concentration 50 ng/mL)

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Columns

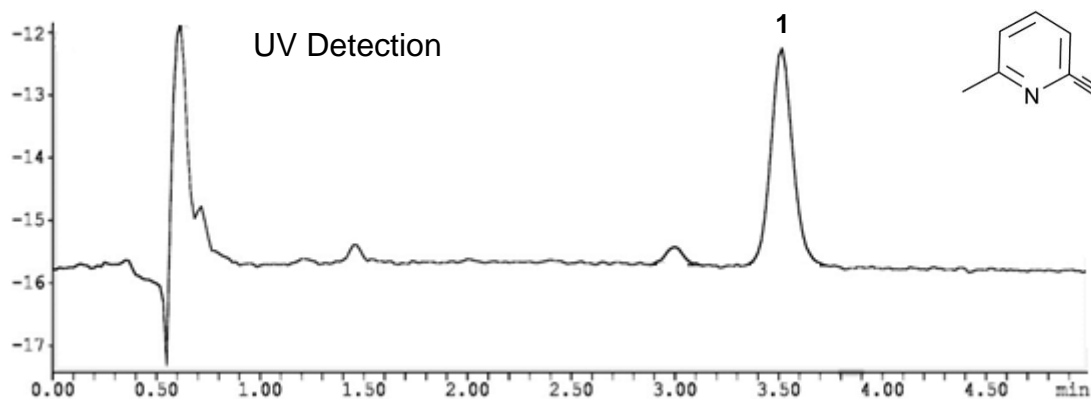
mGluR5 PET Tracer by Radio HPLC Analysis

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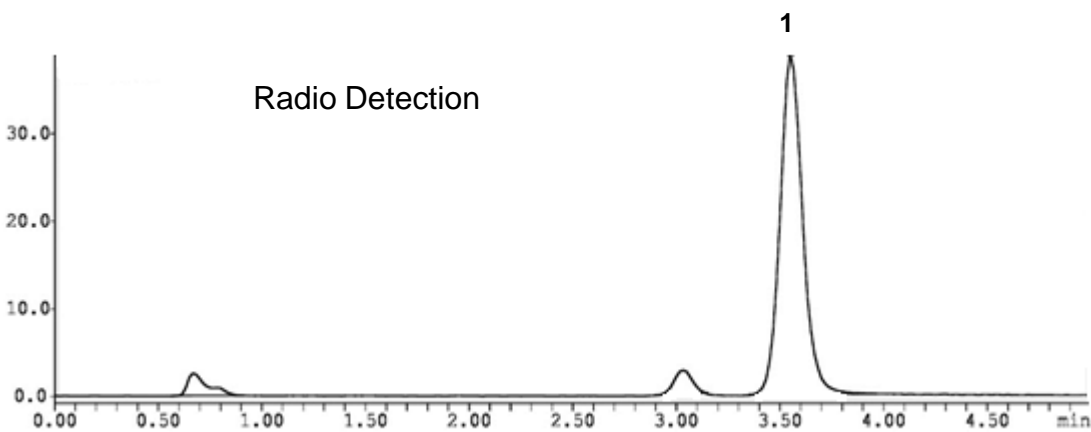
Application #AN2700

Conditions

Column: ACE 3 C18
Dimensions: 50 x 4.6 mm
Part Number: ACE-111-0546
Mobile Phase: 0.1% TFA in H₂O/MeCN (55:45 v/v)
Flow Rate: 1 mL/min
Injection: 20 µL
Detection: UV, 254 nm
Radio detection



1. ¹¹C-ABP688



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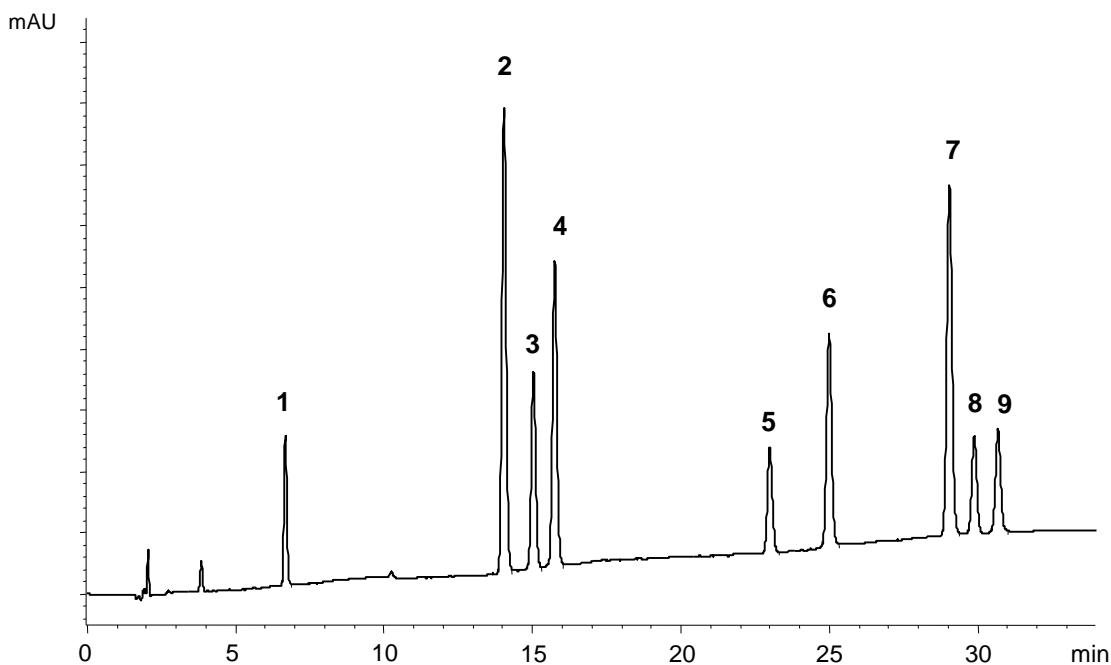
For more information contact your local ACE distributor or visit
www.ace-hplc.com or email: info@ace-hplc.com

Conditions

Column: ACE 3 C18-AR
 Dimensions: 150 x 4.6 mm
 Part Number: ACE-119-1546
 Mobile Phase: A: 0.1% formic acid in H₂O
 B: 0.1% formic acid in MeOH

Time (mins)	%B
0	52
28	74
33	74
38	52
Post time 10 minutes	

Flow Rate: 1 mL/min
 Injection: 5 µL
 Temperature: 40 °C
 Detection: UV, 254 nm



1. Bendroflumethiazide
2. Ketoprofen
3. Naproxen
4. Sulindac
5. Ibuprofen
6. Diclofenac
7. Indomethacin
8. Meclofenamic acid
9. Mefenamic acid

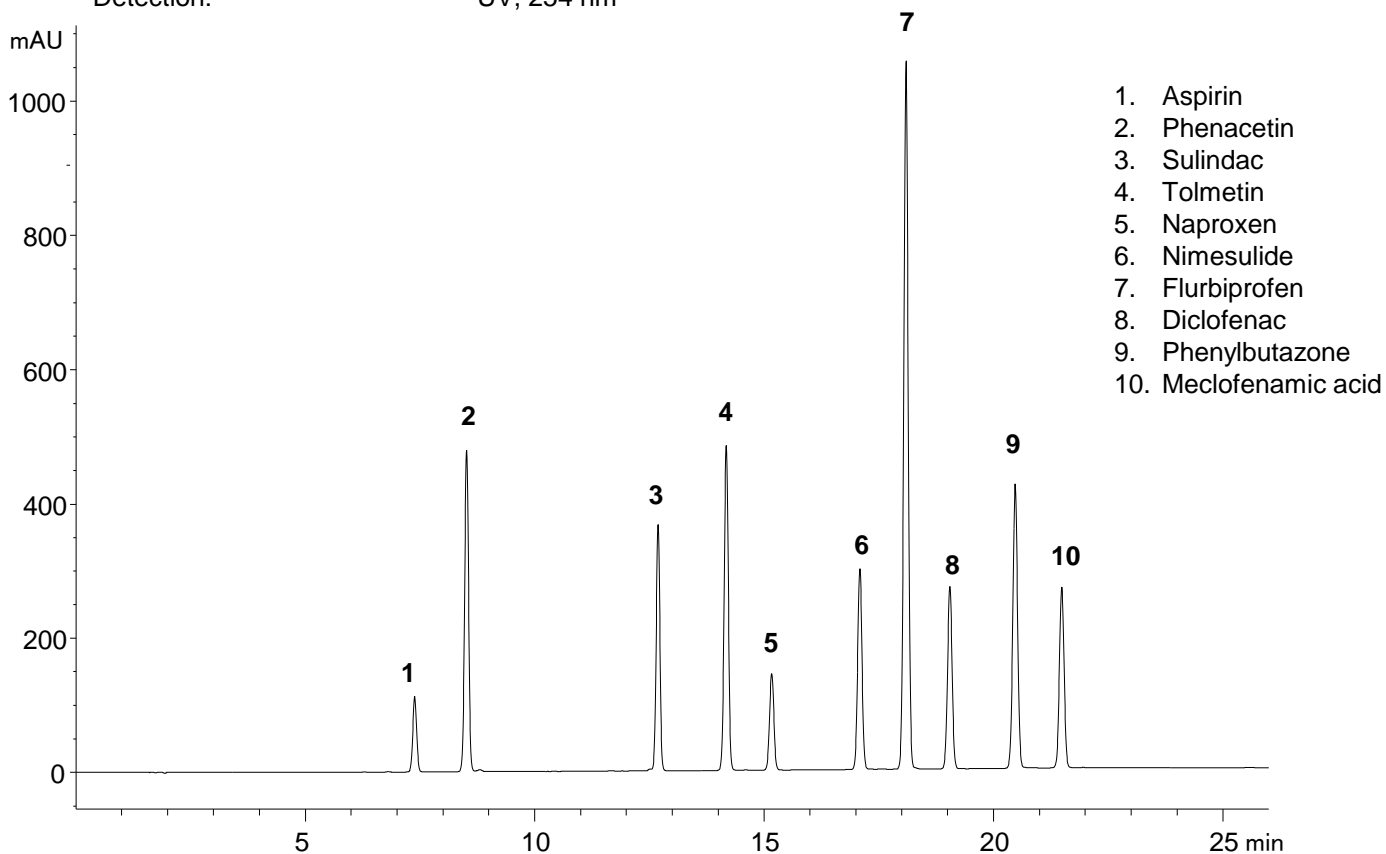


Conditions

Column: ACE 5 SuperC18
 Dimensions: 150 x 4.6 mm
 Part Number: EXL-1211-1546U
 Mobile Phase: A: 0.1% formic acid in H₂O
 B: 0.1% formic acid in MeCN

Time (mins)	%B
0	20
20	70
25	70
36	20

Flow Rate: 1 mL/min
 Injection: 10 µL
 Temperature: 40 °C
 Detection: UV, 254 nm



1. Aspirin
2. Phenacetin
3. Sulindac
4. Tolmetin
5. Naproxen
6. Nimesulide
7. Flurbiprofen
8. Diclofenac
9. Phenylbutazone
10. Meclofenamic acid



Non-Steroidal Anti-Inflammatory Drugs by LC-MS/MS

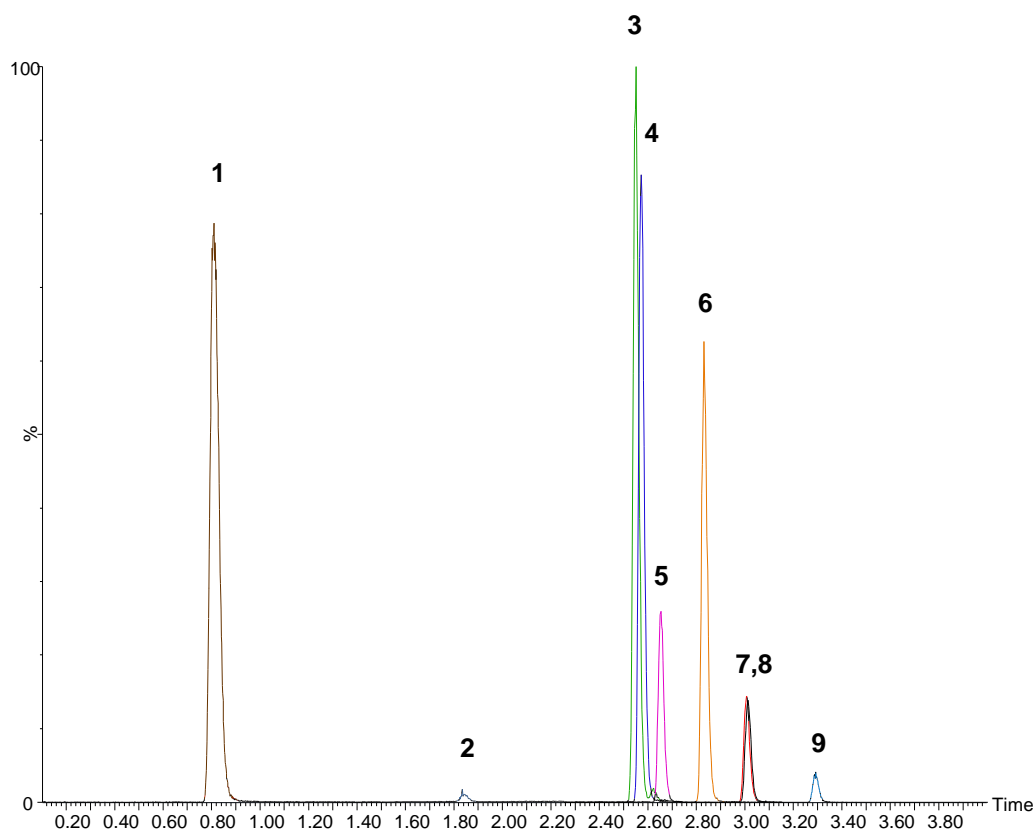
Application #AN2630

Conditions

Column: ACE Excel 2 C18
Dimensions: 50 x 2.1 mm
Part Number: EXL-101-0502U
Mobile Phase: A: 2 mM ammonium acetate, 0.1% formic acid in H₂O
B: 2 mM ammonium acetate, 0.1% formic acid in MeOH

Time (mins)	%B
0.0	15
2.0	70
3.0	90
3.3	15

Flow Rate: 0.4 mL/min
Injection: 10 µL
Temperature: 40 °C
Detection: MS/MS
ESI in positive ion mode
Sample: 10 pg/µL



1. Acetaminophen
(*m/z* 151.7 → 109.7)
2. Salicylic acid
(*m/z* 136.7 → 92.7)
3. Sulindac
(*m/z* 357.0 → 233.1)
4. Ketoprofen
(*m/z* 255.0 → 209.0)
5. Naproxen
(*m/z* 231.0 → 184.9)
6. Phenylbutazone
(*m/z* 309.1 → 119.8)
7. Indomethacin
(*m/z* 357.9 → 138.7)
8. Diclofenac
(*m/z* 295.8 → 213.9)
9. Mefenamic acid
(*m/z* 242.0 → 208.8)

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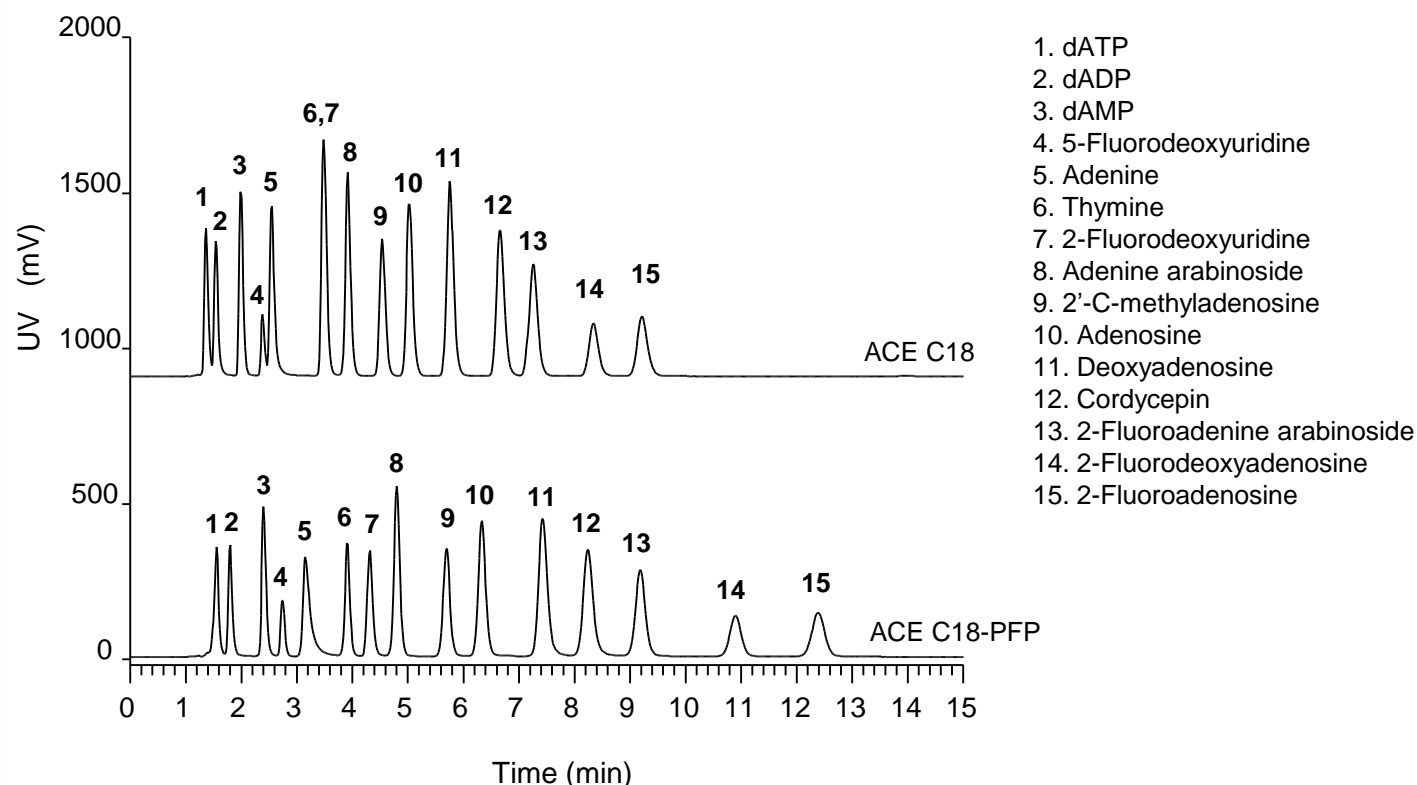


Nucleic Acids / Disease Biomarker Profiling (I)

Application #AN1080

Conditions

Column: ACE 3 C18-PFP
ACE 3 C18
Dimensions: 100 x 4.6 mm
Part Number: ACE-1110-1046, ACE-111-1046
Mobile Phase: 33 mM potassium phosphate pH 6.2 with KOH/MeOH (88:12 v/v)
Flow Rate: 1 mL/min
Temperature: Ambient
Detection: UV, 260 nm



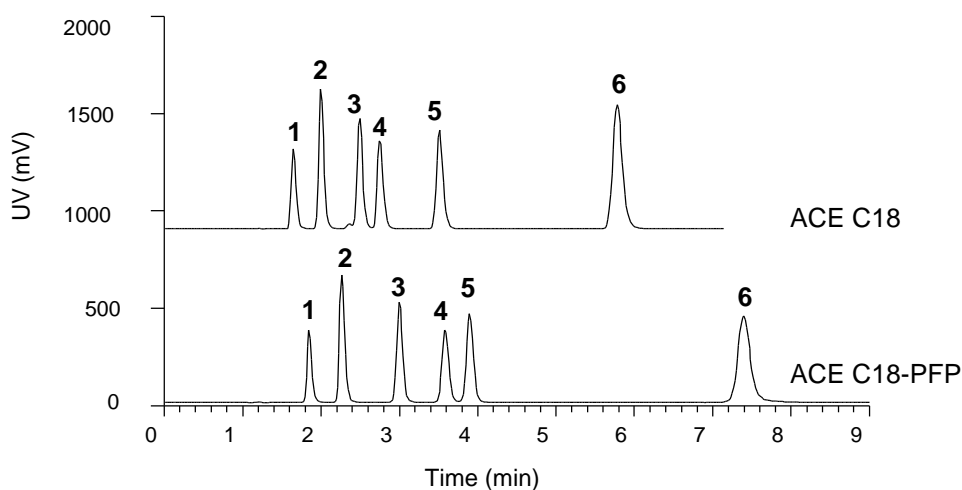
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Conditions

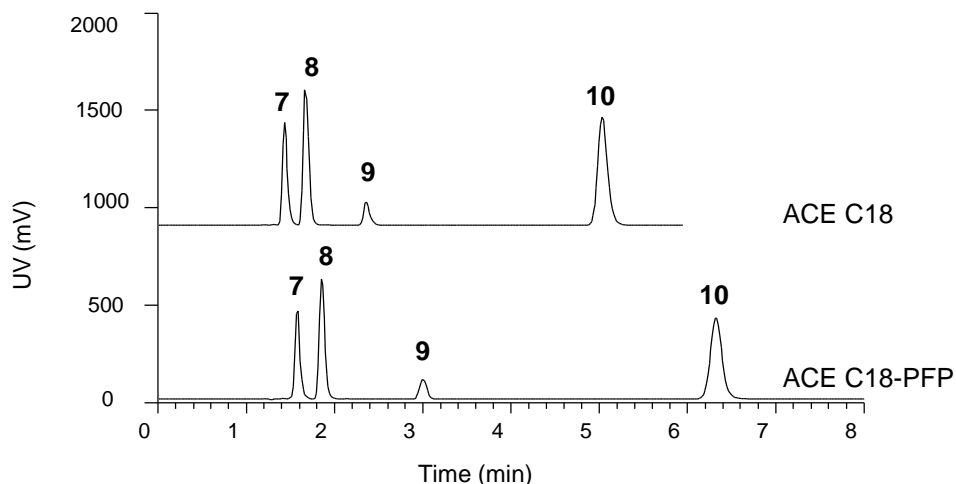
Column: ACE 3 C18-PFP
ACE 3 C18
Dimensions: 100 x 4.6 mm
Part Number: ACE-1110-1046, ACE-111-1046
Mobile Phase: 33 mM potassium phosphate pH 6.2 with KOH/MeOH (88:12 v/v)
Flow Rate: 1 mL/min
Temperature: Ambient
Detection: UV, 260 nm

Deoxyribonucleosides



1. Deoxycytidine
2. Deoxyuridine
3. Deoxyinosine
4. Deoxyguanosine
5. Thymidine
6. Deoxyadenosine
7. Cytidine
8. Uridine
9. Guanosine
10. Adenosine

Ribonucleosides



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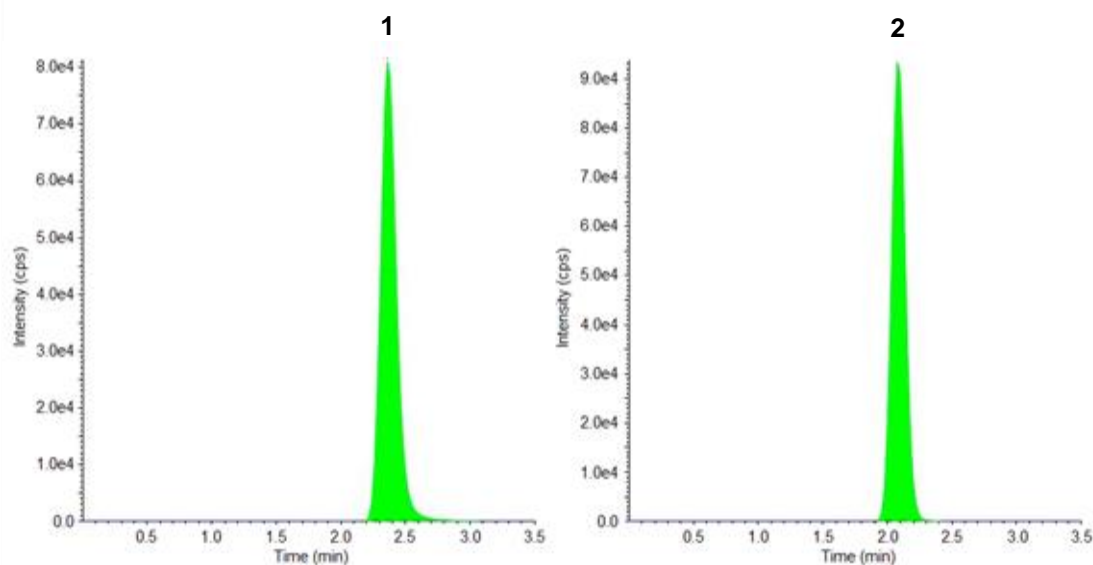


Olanzapine in Human Plasma by LC-MS/MS

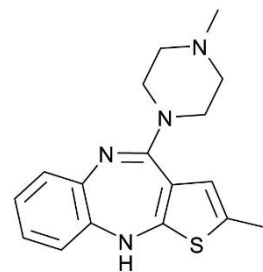
Application #AN2520

Conditions

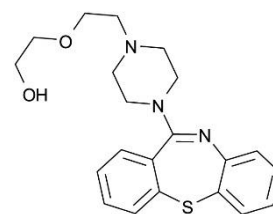
Column:	ACE 5 C18-300
Dimensions:	100 x 4.6 mm
Part Number:	ACE-221-1046
Mobile Phase:	MeCN/0.01% ammonia in 2 mM ammonium formate pH 6.6 (85:15 v/v)
Flow Rate:	0.9 mL/min
Injection:	5 μ L
Detection:	API 4000 triple quad MS Turbo Ion Spray in positive mode Ion Spray voltage: 5500 V Temperature: 550 $^{\circ}$ C



MRM chromatograms of plasma sample after administration of 5 mg dose of olanzapine



1. Olanzapine
(m/z 313.2 \rightarrow 256.2)



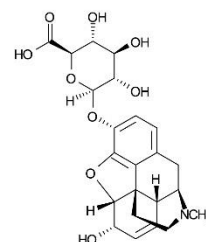
2. Quetiapine (IS)
(m/z 384.2 \rightarrow 253.2)

Conditions

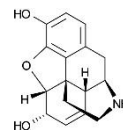
Column: ACE Excel 3 SuperC18
Dimensions: 75 x 2.1 mm
Part Number: EXL-1111-7502U
Mobile Phase: A: 5 mM ammonium hydroxide pH 10.8 in H₂O
B: 5 mM ammonium hydroxide pH 10.8 in MeOH/H₂O (90:10 v/v)

Time (mins)	%B
0	30
5	95

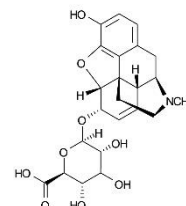
Flow Rate: 0.6 mL/min
Injection: 2 µL
Temperature: 60 °C
Detection: Varian 320 Triple Quadrupole MS
Electrospray voltage: +5 kV
Inlet capillary voltage: 30 V
CID with argon at 1.5 mTorr
Collision cell potential ranges from 5 to 17 V
Drying gas (nitrogen) temperature: 325 °C
Nebulizing gas (nitrogen) pressure: 35 psi
Extended Dynamic Range



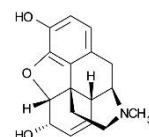
1. Morphine 3-β-D-glucuronide
LOD (est) 100 ppb
(*m/z* 462.0 → 285.9)



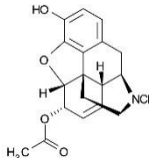
2. Normorphine
LOD (est) 100 ppb
(*m/z* 272.0 → 165.0)



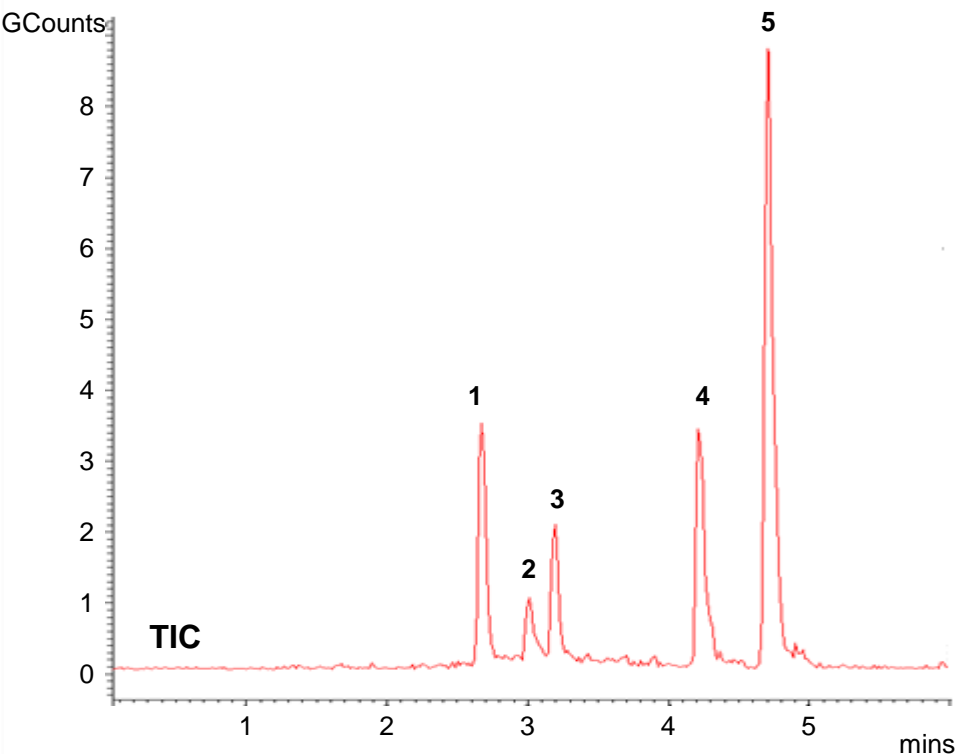
3. Morphine 6-β-D-glucuronide
LOD (est) 100 ppb
(*m/z* 462.0 → 285.9)



4. Morphine
LOD (est) 20 ppb
(*m/z* 286.0 → 200.9)



5. 6-Acetylmorphine
LOD (est) 10 ppb
(*m/z* 328.0 → 164.9)



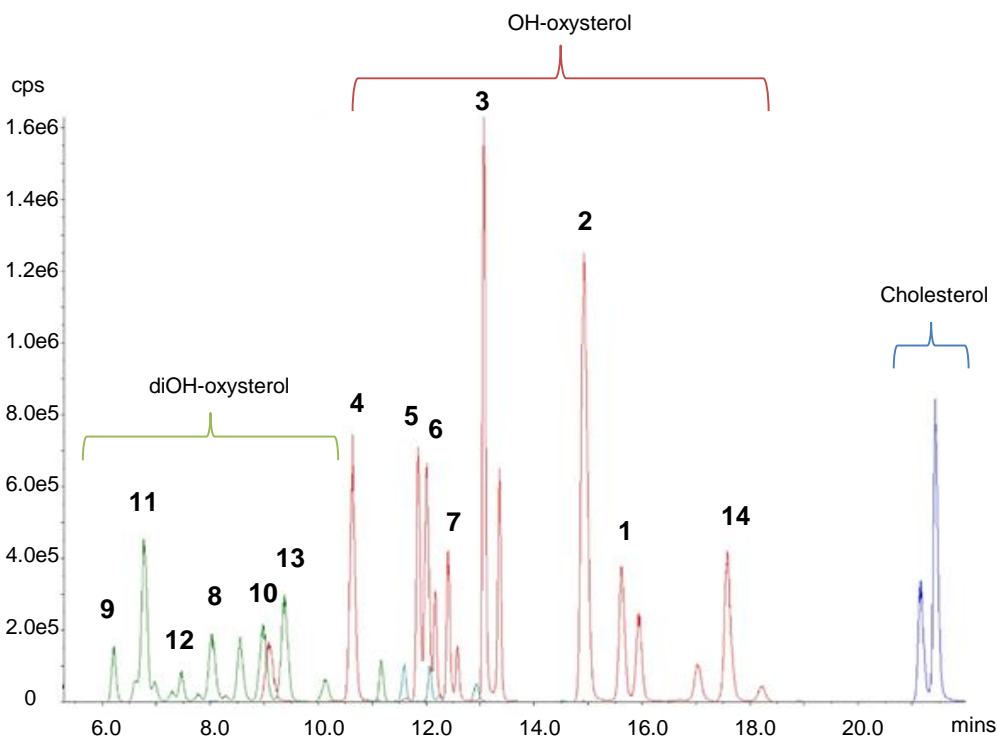
Conditions

Column: ACE 3 C18-AR
Dimensions: 150 x 2.1 mm
Part Number: ACE-119-1502
Mobile Phase: A: 0.1% formic acid in H₂O:MeOH (70:30 v/v)
B: 0.1% formic acid in MeOH

Time (mins)	%B
0.0	20
1.0	20
3.5	60
8.5	60
11.5	80
16.5	80
20.0	90
22.5	90
25.0	20

Flow Rate: 0.3 mL/min
Temperature: 40 °C
Detection: AB SCIEX API 4000 MS
Turbo IonSpray, positive mode MRM
Sample: Derivatised with Girard P reagent

- 7 α -Hydroxycholesterol (*m/z* 534.4 \rightarrow 455.4)
- 7 β -Hydroxycholesterol (*m/z* 534.4 \rightarrow 455.4)
- 22(S)-Hydroxycholesterol (*m/z* 534.4 \rightarrow 455.4)
- 22(R)-Hydroxycholesterol (*m/z* 534.4 \rightarrow 455.3)
- 24(S)-Hydroxycholesterol (*m/z* 534.5 \rightarrow 455.4)
- 25-Hydroxycholesterol (*m/z* 534.4 \rightarrow 455.4)
- 27-Hydroxycholesterol (*m/z* 534.4 \rightarrow 455.4)
- 7 α ,25-Dihydroxycholesterol (*m/z* 550.4 \rightarrow 471.4)
- 7 β ,25-Dihydroxycholesterol (*m/z* 550.4 \rightarrow 471.4)
- 7 α ,27-Dihydroxycholesterol (*m/z* 550.4 \rightarrow 471.4)
- 7 β ,27-Dihydroxycholesterol (*m/z* 550.4 \rightarrow 471.4)
- 3 β ,25-Dihydroxy-5-cholesten-7-one (*m/z* 550.4 \rightarrow 471.4)
- 3 β ,27-Dihydroxy-5-cholesten-7-one (*m/z* 550.4 \rightarrow 471.4)
- 5 α ,6 α -Epoxycholestanol (*m/z* 534.4 \rightarrow 455.4)



Reproduced from supplement (pnas.org/content/suppl/2014/08/01/1322807111) to 'Oxysterols are agonist ligands of ROR γ t and drive Th17 cell differentiation', PNAS, 111 (33), 12163-12168 (2014)
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Paralytic Shellfish Poisoning (PSP) Toxins

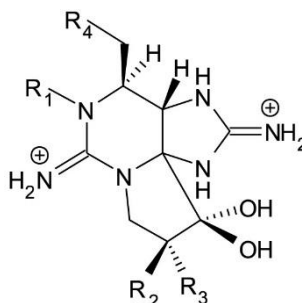
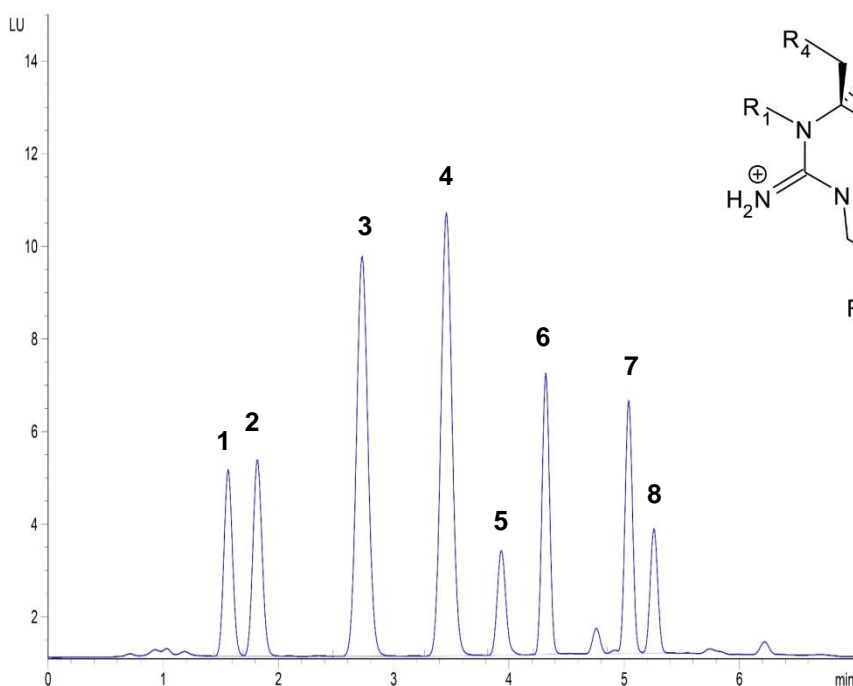
Application #AN3180

Conditions

Column: ACE UltraCore 5 SuperC18
Dimensions: 150 x 4.6 mm
Part Number: CORE-5A-1546U
Mobile Phase: A: 0.1 M ammonium formate in H₂O
B: 0.1 M ammonium formate in H₂O/MeOH (95:5 v/v)

Time (mins)	%B
0.00	0
2.00	0
4.00	80
5.50	80
5.51	0
7.00	0

Flow Rate: 2 mL/min
Injection: 30 µL
Temperature: 20 °C
Detection: Fluorescence λ_{Ex} 340 nm, λ_{Em} 395 nm
Sample: Prechromatographic oxidation with hydrogen peroxide and periodate



1. dcGTX2,3
2. GTX1/4 + dcGTX2,3
3. C1,2
4. dcSTX + dcNEO
5. dcSTX + NEO
6. GTX2/3 + GTX1/4
7. GTX5
8. STX + NEO

PST Variant	R1	R2	R3	R4
STX	H	H	H	H ₂ N-COO
NEO	OH	H	H	H ₂ N-COO
GTX1	OH	H	OSO ₃ ⁻	H ₂ N-COO
GTX2	H	H	OSO ₃ ⁻	H ₂ N-COO
GTX3	H	OSO ₃ ⁻	H	H ₂ N-COO
GTX4	OH	OSO ₃ ⁻	H	H ₂ N-COO
GTX5 (B1)	H	H	H	O ₃ S-NH-COO
C1	H	H	OSO ₃ ⁻	O ₃ S-NH-COO
C2	H	OSO ₃ ⁻	H	O ₃ S-NH-COO
dcSTX	H	H	H	OH
dcNEO	OH	H	H	OH
dcGTX1	OH	H	OSO ₃ ⁻	OH
dcGTX2	H	H	OSO ₃ ⁻	OH
dcGTX3	H	OSO ₃ ⁻	H	OH

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For more information contact your local ACE distributor or visit
www.ace-hplc.com or email: info@ace-hplc.com

Peptides – Selectivity Changes with Bonded Phase and Mobile Phase

Application #AN3430

Conditions

Column: ACE 5 C18-300; ACE 5 C8-300; ACE 5 C4-300; ACE 5 Phenyl-300; ACE 5 CN-300

Dimensions: 250 x 4.6 mm

Part Number: ACE-221-2546, ACE-222-2546, ACE-223-2546, ACE-225-2546, ACE-224-2546

Mobile Phase: A: 0.1% TFA or 0.1% formic acid in H₂O
B: MeCN

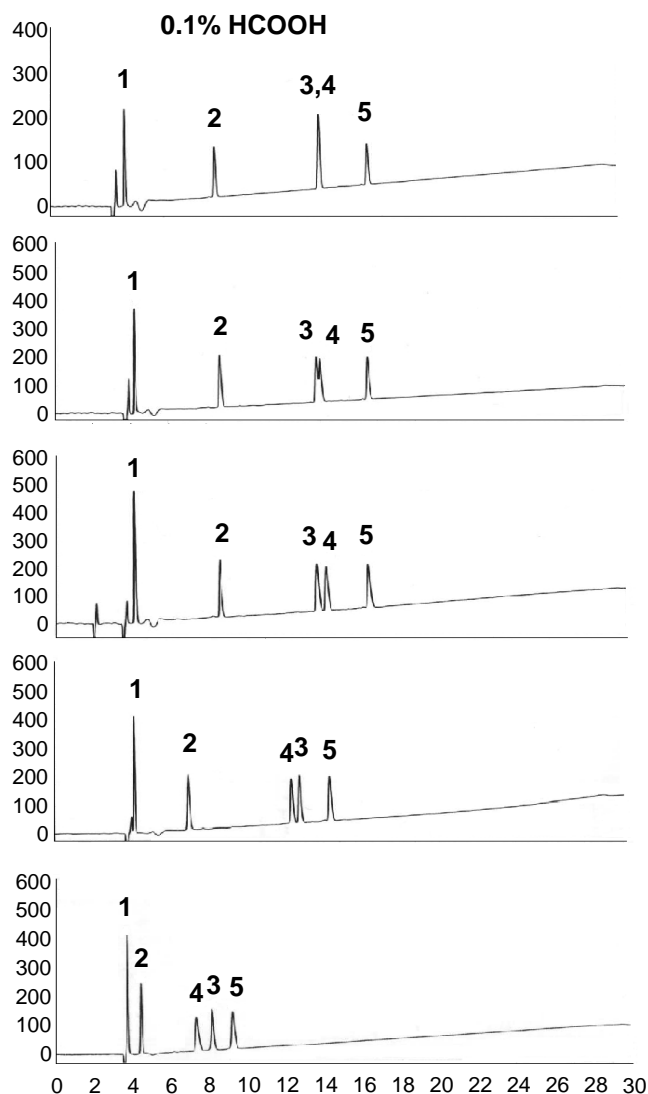
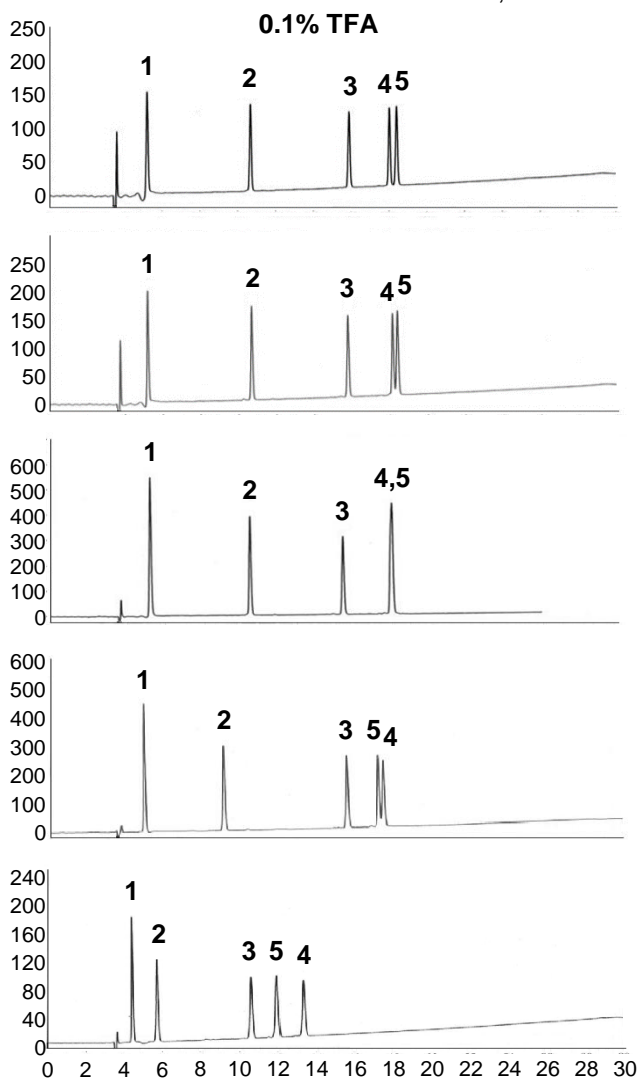
Time (mins)	%B
0	10
25	40

1. Gly-Tyr (MW: 238.34)
2. Val-Tyr-Val (MW: 379.45)
3. Methionine enkephalin (MW: 573.67)
4. Angiotensin II (MW: 1046.18)
5. Leucine enkephalin (MW: 555.62)

Flow Rate: 1 mL/min

Temperature: Ambient

Detection: UV, 220 nm



Phosphatidylethanol Biomarker Analysis by UHPLC-MS/MS

Application #AN3400

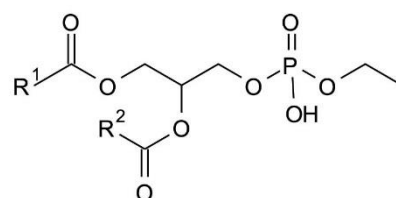
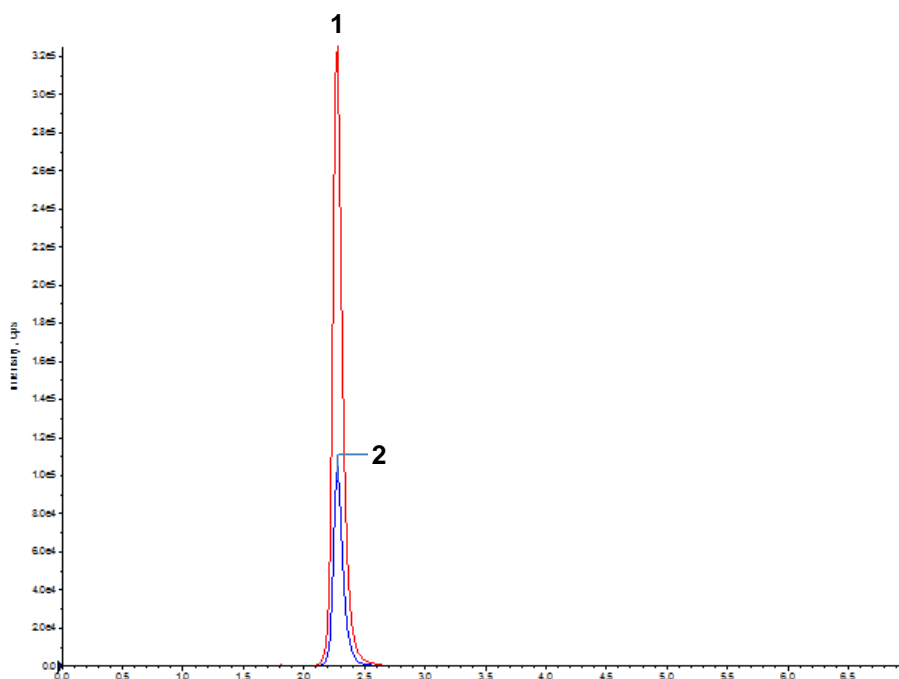
Conditions

Column: ACE 2 C4
Dimensions: 100 x 2.1 mm
Part Number: EXL-103-1002U
Mobile Phase: A: 2 mM ammonium acetate/MeCN (20:80 v/v)
B: IPA

Time (mins)	%B
0.00	10
1.00	10
3.00	60
3.01	100
5.00	100
5.10	10

Flow Rate: 0.4 mL/min
Injection: 5 μ L
Temperature: 40 $^{\circ}$ C
Detection: AB SCIEX triple quad 5500
Turbo IonSpray negative mode ESI
IonSpray Voltage: -4500 V
Temperature: 650 $^{\circ}$ C

Phosphatidylethanol (PEth) measurement in blood is used as a biomarker of chronic alcohol use/abuse.



Phosphatidylethanol

1. R1/R2 = 18:1/18:1
(m/z 701.4 \rightarrow 281.2)

2. R1/R2 = 16:1/16:1
(m/z 701.4 \rightarrow 255.1)

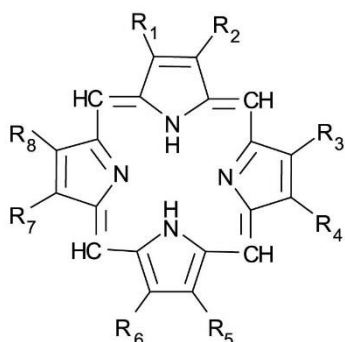


Conditions

Column: ACE 3 C18-PFP
 Dimensions: 75 x 2.1 mm
 Part Number: ACE-1110-7502
 Mobile Phase: A: 0.1% formic acid in H₂O/MeCN (95:5 v/v)
 B: 0.1% formic acid in H₂O/MeCN (5:95 v/v)

Time (mins)	%B
0.0	30
10.0	50
10.2	100
35.0	100

Flow Rate: 0.1 mL/min
 Injection: 5 µL
 Temperature: 25 °C
 Detection: SCIEX API 2000 triple quad MS
 TurbolonSpray interface
 Positive ESI
 Ion source temperature: 200 °C
 Capillary voltage: 5 kV



Where:

A: -CH₂COOH
 E: -CH₂CH₃
 M: -CH₃
 P: -CH₂CH₂COOH
 V: -CH=CH₂

1. Uroporphyrin I
 (R₁:A, R₂:P, R₃:A, R₄:P, R₅:A, R₆:P, R₇:A, R₈:P)
 (m/z 831 → 727, 623, 655)

2. 7-Carboxyporphyrin I
 (R₁:A, R₂:P, R₃:A, R₄:P, R₅:A, R₆:P, R₇:M, R₈:P)
 (m/z 787 → 683, 670, 623)

3. 6-Carboxyporphyrin I
 (R₁:M, R₂:P, R₃:A, R₄:P, R₅:A, R₆:P, R₇:M, R₈:P)
 (m/z 743 → 639, 507, 521)

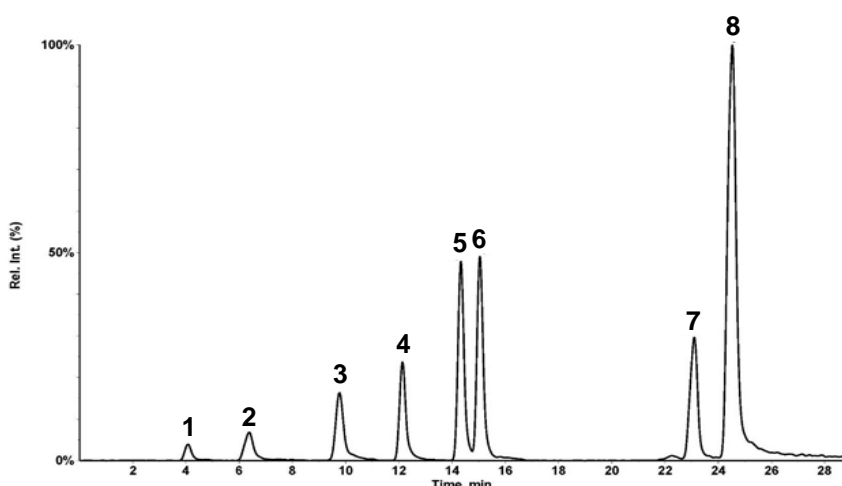
4. 5-Carboxyporphyrin I
 (R₁:M, R₂:P, R₃:M, R₄:P, R₅:A, R₆:P, R₇:M, R₈:P)
 (m/z 699 → 463, 595, 640)

5. Coproporphyrin I
 (R₁:M, R₂:P, R₃:M, R₄:P, R₅:M, R₆:P, R₇:M, R₈:P)
 (m/z 655 → 537, 596, 523)

6. Coproporphyrin III
 (R₁:M, R₂:P, R₃:M, R₄:P, R₅:M, R₆:P, R₇:P, R₈:M)
 (m/z 655 → 537, 596, 523)

7. Mesoporphyrin IX
 (R₁:M, R₂:E, R₃:M, R₄:E, R₅:M, R₆:P, R₇:M, R₈:P)
 (m/z 567 → 449, 479, 508)

8. Protoporphyrin IX
 (R₁:M, R₂:V, R₃:M, R₄:V, R₅:M, R₆:P, R₇:P, R₈:M)
 (m/z 563 → 445, 504, 489)

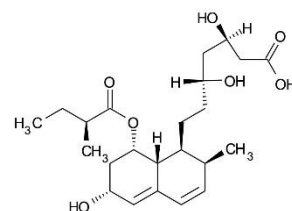
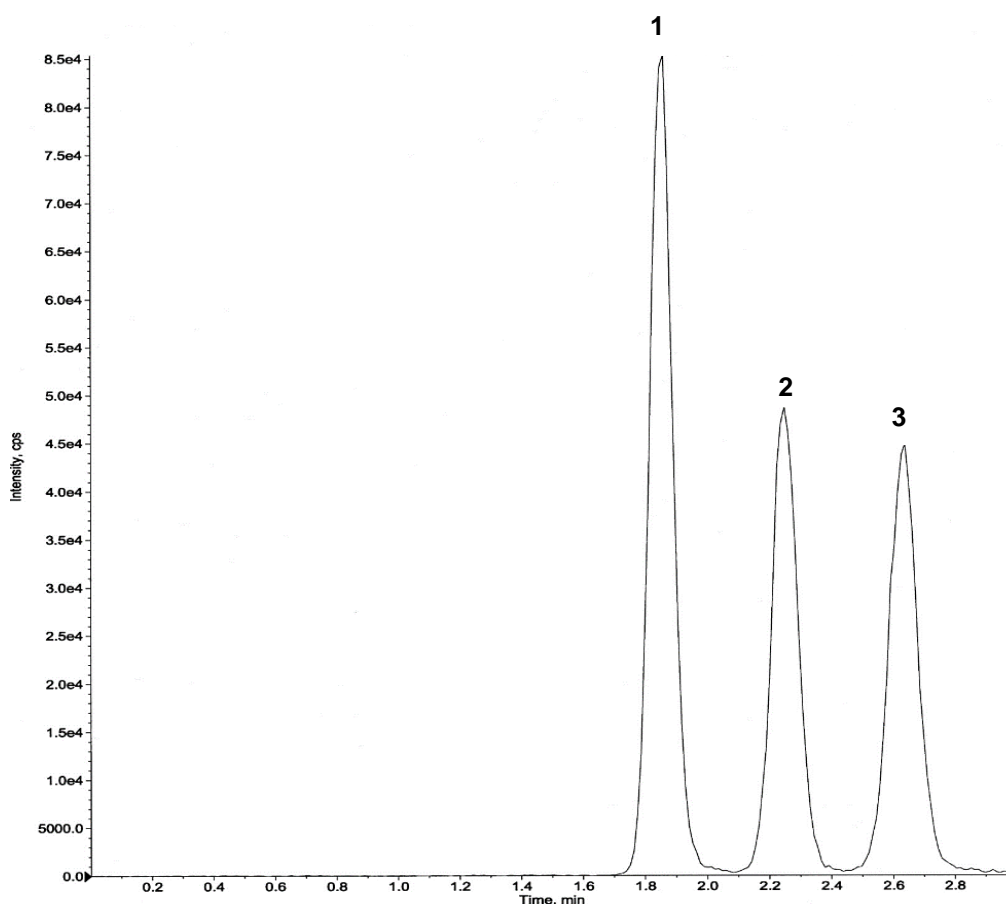


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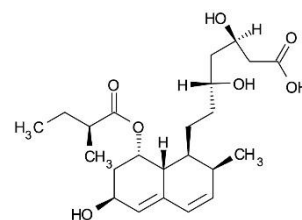
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Conditions

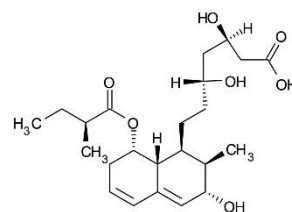
Column: ACE 3 C18
Dimensions: 50 x 3.0 mm
Part Number: ACE-111-0503
Mobile Phase: MeCN/MeOH/THF/H₂O/Acetic Acid (15:20:5:60:0.1 v/v/v/v/v)
Flow Rate: 0.6 mL/min
Injection: 2 µL
Temperature: Ambient
Detection: API 3000 triple quad MS
TurbolonSpray – negative mode
Extracted ion chromatogram of MRM m/z 423.3 → 321.1



1. 6-epi-Pravastatin
(m/z 424)



2. Pravastatin
(m/z 424)



3. 3 α -iso-Pravastatin
(m/z 424)

Prednisolone, Prednisone, Cortisol and Cortisone in Serum by LC-MS/MS

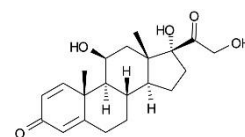
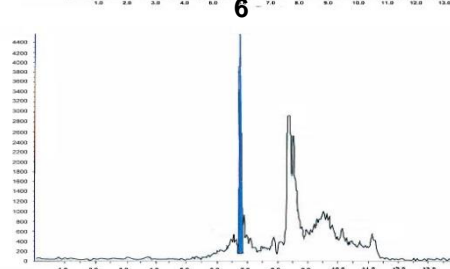
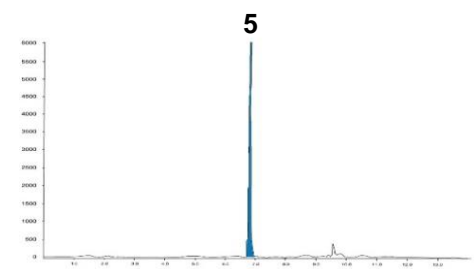
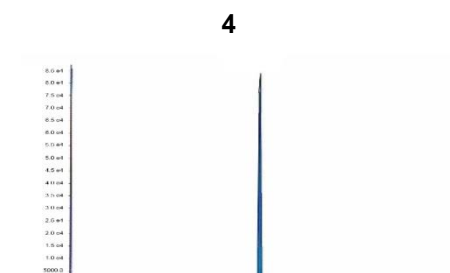
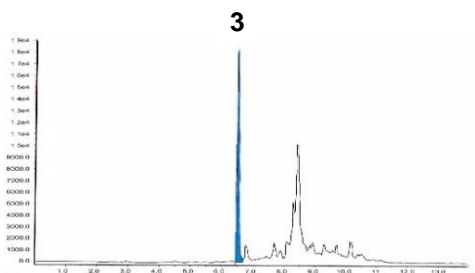
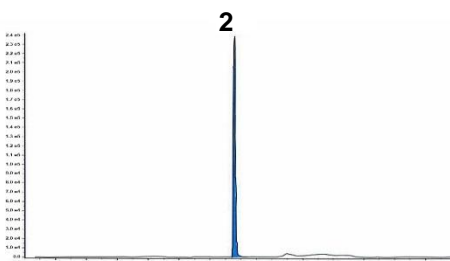
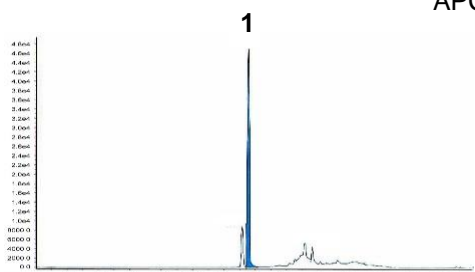
Application #AN2690

Conditions

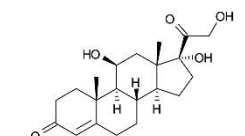
Column: ACE Excel 2 C18
Dimensions: 100 x 2.1 mm
Part Number: EXL-101-1002U
Mobile Phase: A: 4 mM ammonium acetate in H₂O
B: 0.2% (v/v) formic acid in MeOH

Time (mins)	%B
0.00	30
0.25	30
3.90	70
6.00	70
6.01	95
7.00	95
7.01	100

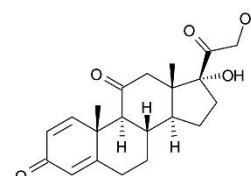
Flow Rate: 0.2 mL/min
Injection: 50 µL
Temperature: 50 °C
Detection: Applied Biosystems 5000 MS/MS
APCI in positive ion mode



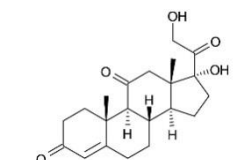
1. Prednisolone
(*m/z* 361.5 → 147.1)



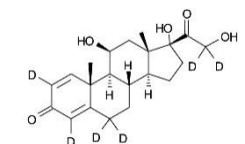
2. Cortisol
(*m/z* 363.5 → 121.3)



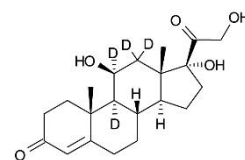
3. Prednisone
(*m/z* 359.4 → 147.1)



4. Cortisone
(*m/z* 361.5 → 163.3)



5. Prednisolone-d6 (IS)
(*m/z* 367.4 → 150.3)



6. Cortisol-d4 (IS)
(*m/z* 367.3 → 331.3)

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Pristinamycin Components in Plasma by LC-MS/MS

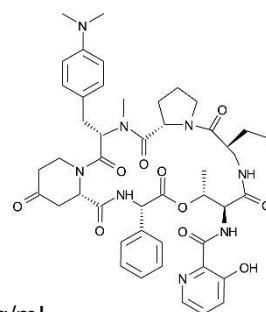
Application #AN1360

Conditions

Column: ACE 3 C18
Dimensions: 30 x 3.0 mm
Part Number: ACE-111-0303
Mobile Phase: A: 1 mM ammonium formate + 0.1% formic acid in MeCN/H₂O (35:65 v/v)
B: MeCN

Time (mins)	%B
0.00	0
0.30	0
0.31	10
1.60	10
1.61	100
2.60	100
2.61	0
4.00	0

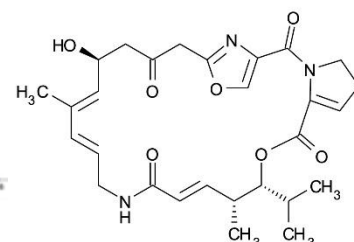
Flow Rate: 1 mL/min
Injection: 10 µL
Temperature: 25 °C
Detection: MDS Sciex API 4000
TurbolonSpray positive mode



Processed study sample containing pristinamycin IA and IIA

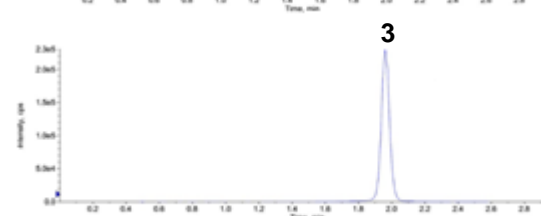
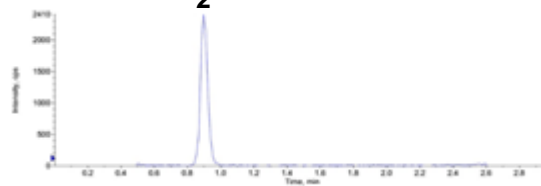
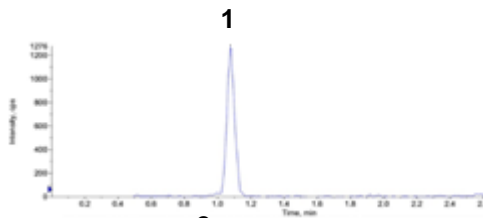
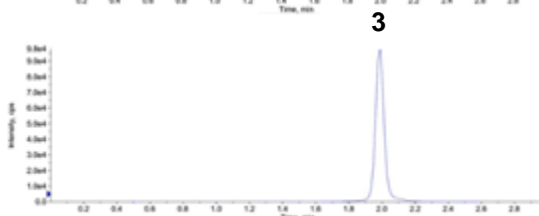
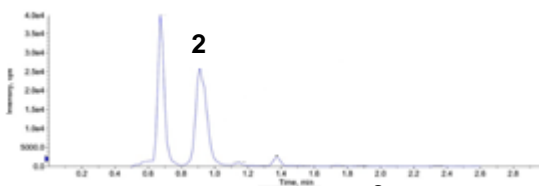
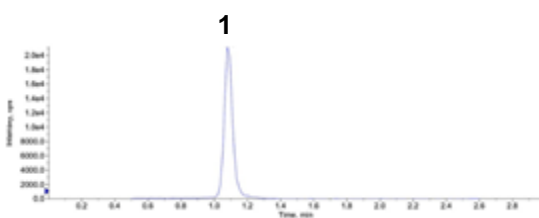
Low calibration standard containing 2.5 ng/mL each of pristinamycin IA and IIA in human NaF/K₂C₂O₄ plasma

1. Pristinamycin IA
(*m/z* 867.5 → 134.2)



2. Pristinamycin IIA
(*m/z* 526.3 → 355.1)

3. Virginiamycin (IS)
(*m/z* 824.6 → 134.0)

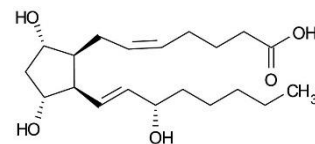
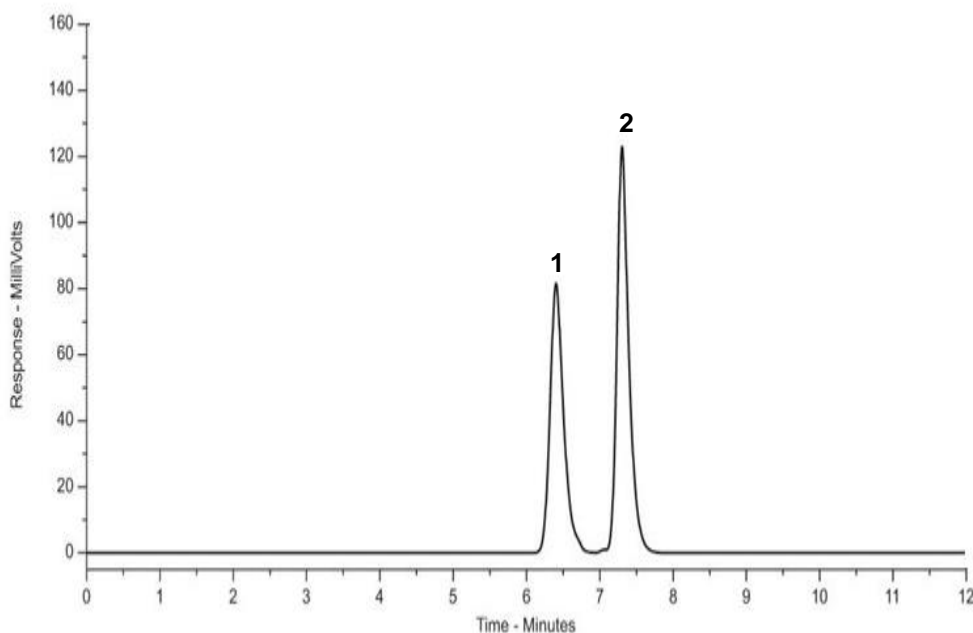


Conditions

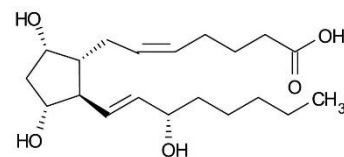
Column: ACE 3 C18
Dimensions: 50 x 2.1 mm
Part Number: ACE-111-0502
Mobile Phase: A: H₂O
B: MeOH
C: MeCN

Time (mins)	%A	%B	%C
0	70	20	10
9	10	60	30
10	0.1	66.6	33.3

Flow Rate: 0.2 mL/min
Injection: 10 µL
Temperature: 40 °C
Detection: ESI (-) MS/MS
MRM 353.3 → 193



1. 8-iso-Prostaglandin F_{2α}



2. Prostaglandin F_{2α}

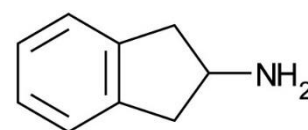
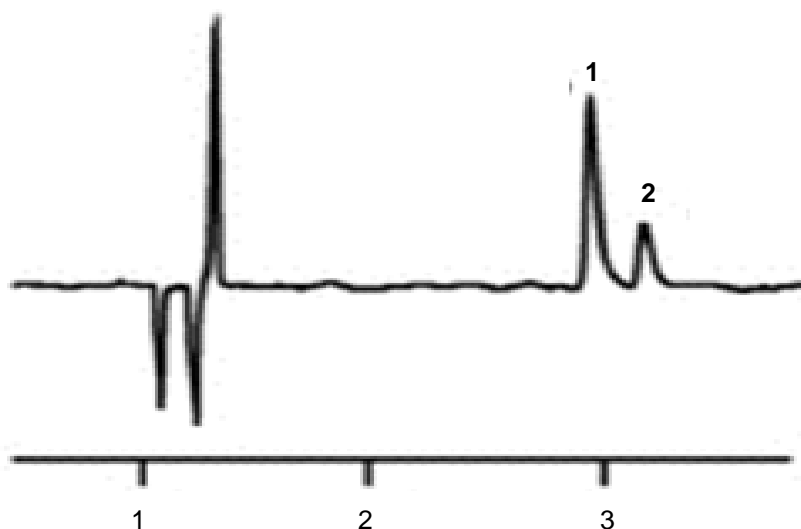
Psychoactive Substances in 'Synthacaine' by LC-UV

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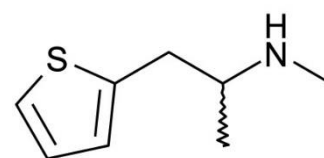
Application #AN3440

Conditions

Column:	ACE 3 C18
Dimensions:	150 x 4.6 mm
Part Number:	ACE-111-1546
Mobile Phase:	10 mM ammonium formate pH 3.5/MeCN (90:10 v/v)
Flow Rate:	1.2 mL/min
Temperature:	22 °C
Detection:	UV, 207 nm (2-Aminoindane) and 233 nm (Methiopropamine)
Sample:	Synthacaine 40 µg/mL



1. 2-Aminoindane
LOD 0.83 µg/mL



2. Methiopropamine
LOD 0.31 µg/mL

Cumba L, Kolliopoulos A, Smith J, Thompson P, Evans P, Sutcliffe O, do Carmo D, Banks C (2015) Forensic electrochemistry: indirect electrochemical sensing of the components of the new psychoactive substance 'Synthacaine'. Analyst 140, 5536. doi:10.1039/c5an00858a

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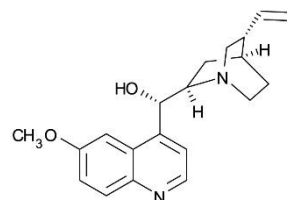
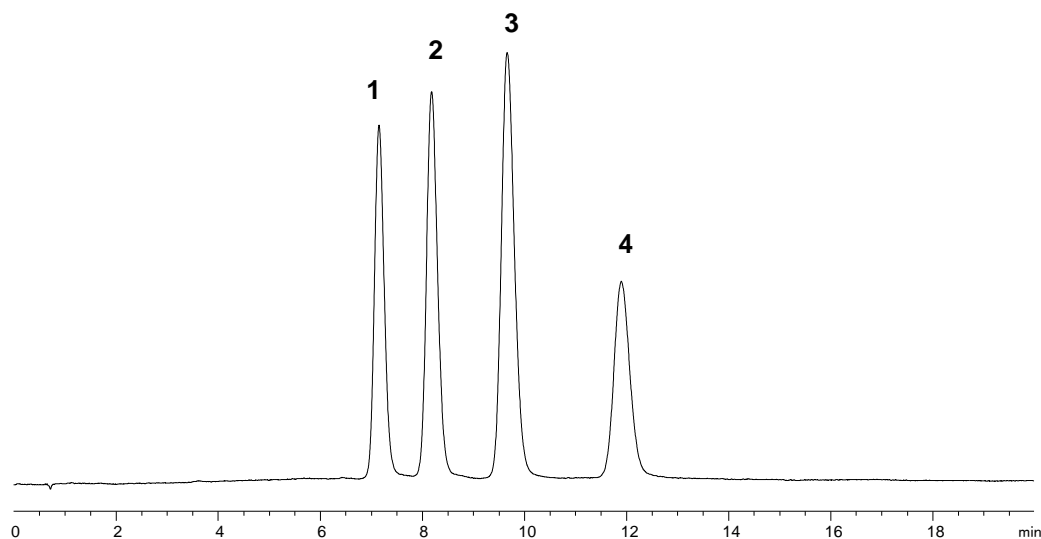
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Columns

Quinidine, Quinine and their Hydroderivatives Separation

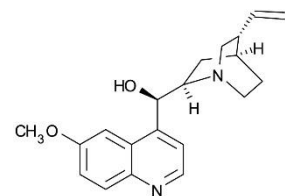
Application #AN1600

Conditions

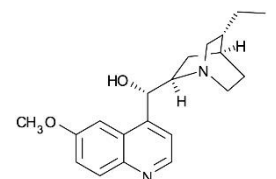
Column:	ACE 3 C18-AR
Dimensions:	50 x 4.6 mm
Part Number:	ACE-119-0546
Mobile Phase:	20 mM ammonium formate pH 3.0 in MeOH/H ₂ O (30:70 v/v)
Flow Rate:	1 mL/min
Injection:	5 µL
Temperature:	30 °C
Detection:	UV, 254 nm



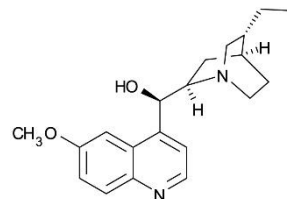
1. Quinidine



2. Quinine



3. Hydroquinidine



4. Hydroquinine

Ranitidine Hydrochloride and Related Impurities

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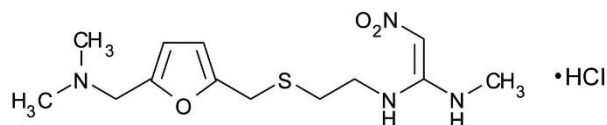
Application #AN3450

Conditions

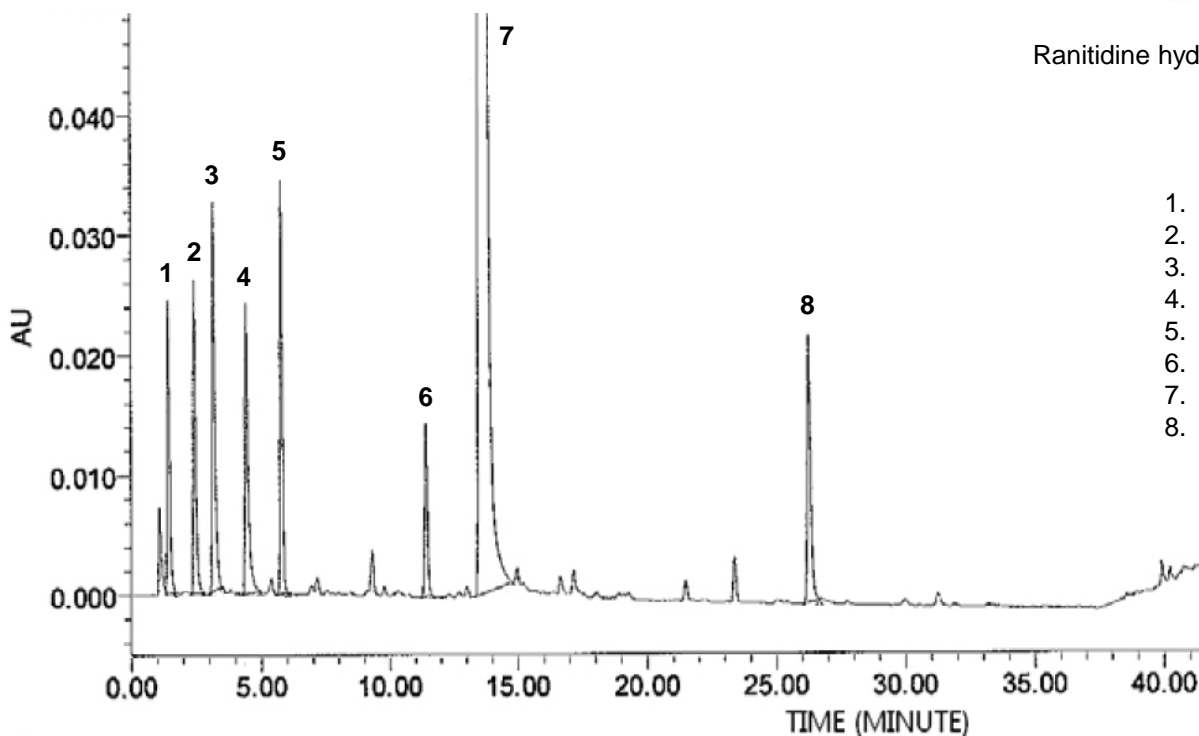
Column: ACE 3 C18
Dimensions: 100 x 4.6 mm
Part Number: ACE-111-1046
Mobile Phase: A: 0.05 M KH₂PO₄ pH 6.5 in H₂O/MeCN (98:2 v/v)
B: H₂O/MeCN (5:95 v/v)

Time (mins)	%B
0	0
10	5
25	15
35	20
40	55
55	0

Flow Rate: 1 mL/min
Injection: 40 µL
Temperature: 40 °C
Detection: UV, 230 nm



Ranitidine hydrochloride



1. Impurity F
2. Impurity E
3. Impurity D
4. Impurity A
5. Impurity C
6. Impurity G
7. Ranitidine
8. Impurity B

Sharma N, Rao S, Kumar N, Reddy P, Reddy A (2011) A Validated Stability-Indicating Liquid-Chromatographic Method for Ranitidine Hydrochloride in Liquid Oral Dosage Form. *Sci Pharm.* 79, 309.
doi:10.3797/scipharm.1101-06

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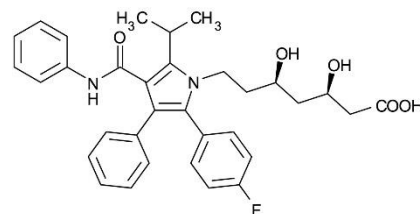
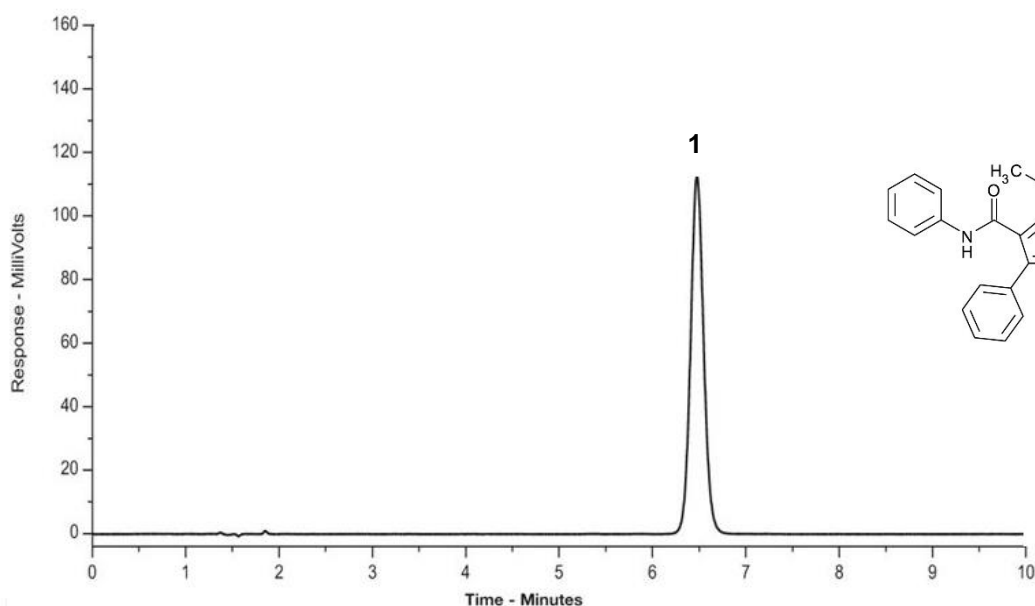


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Conditions

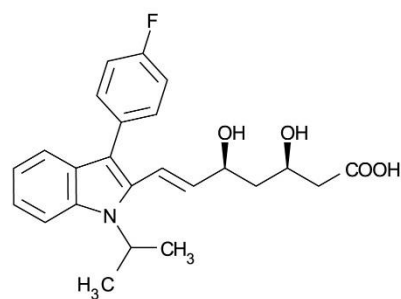
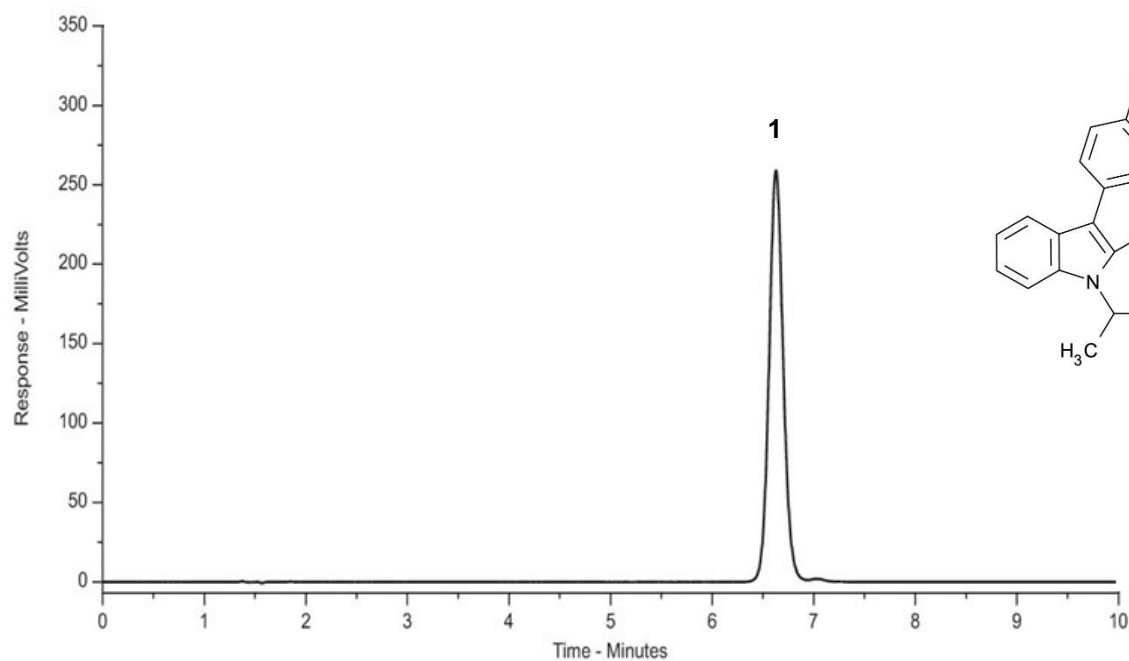
Column:	ACE 5 C18
Dimensions:	150 x 4.6 mm
Part Number:	ACE-121-1546
Mobile Phase:	10 mM ammonium formate pH 3.0/MeCN (47:53 v/v)
Flow Rate:	1 mL/min
Injection:	5 µL
Temperature:	Ambient
Detection:	UV, 254 nm



1. Atorvastatin

Conditions

Column:	ACE 5 C18
Dimensions:	150 x 4.6 mm
Part Number:	ACE-121-1546
Mobile Phase:	10 mM ammonium formate pH 3.0/MeCN (47:53 v/v)
Flow Rate:	1 mL/min
Injection:	5 µL
Temperature:	Ambient
Detection:	UV, 254 nm

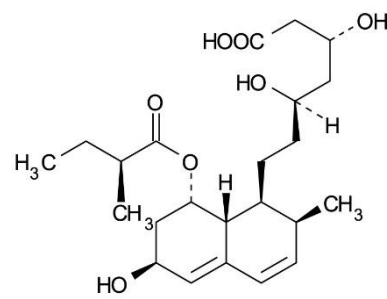
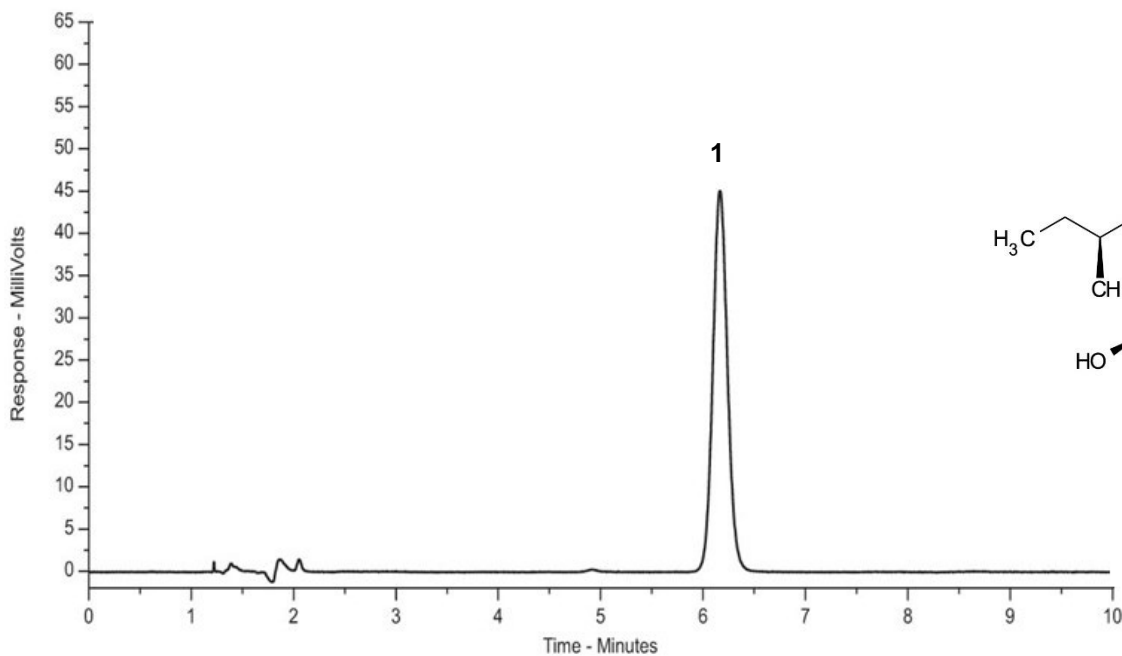


1. Fluvastatin



Conditions

Column:	ACE 5 C18
Dimensions:	150 x 4.6 mm
Part Number:	ACE-121-1546
Mobile Phase:	10 mM ammonium formate pH 3.0/MeCN (68:32 v/v)
Flow Rate:	1 mL/min
Injection:	5 µL
Temperature:	Ambient
Detection:	UV, 254 nm

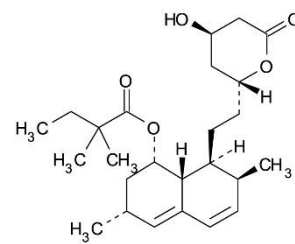
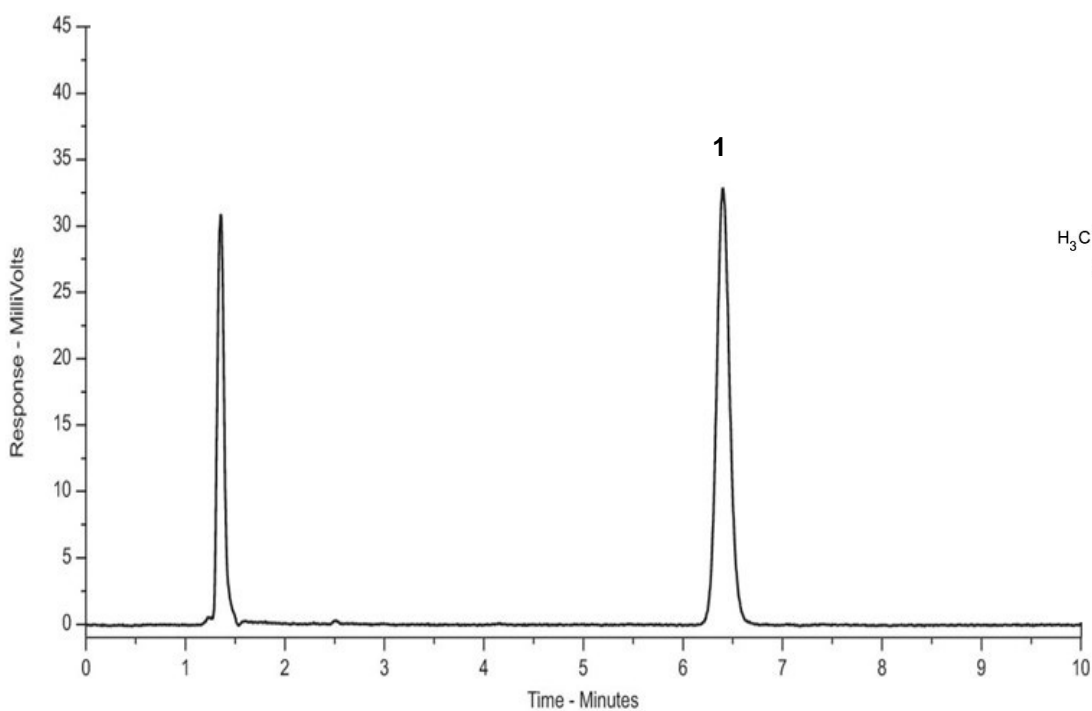


1. Pravastatin



Conditions

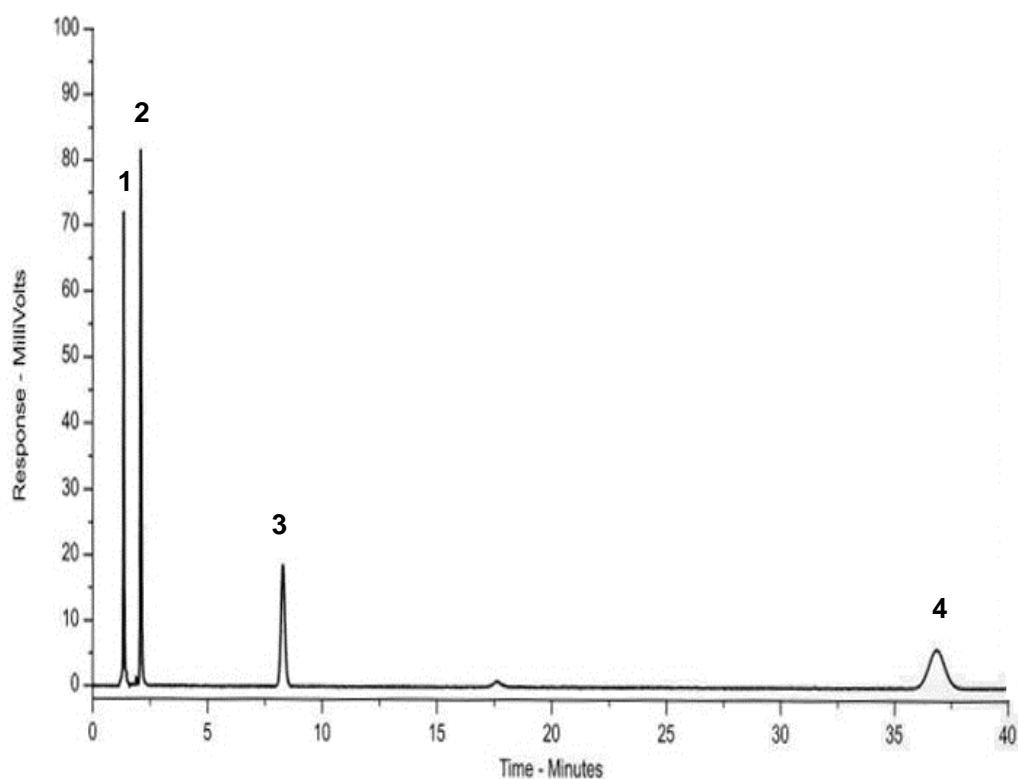
Column:	ACE 5 C18
Dimensions:	150 x 4.6 mm
Part Number:	ACE-121-1546
Mobile Phase:	10 mM ammonium formate pH 3.0/MeCN (25:75 v/v)
Flow Rate:	1 mL/min
Injection:	5 µL
Temperature:	Ambient
Detection:	UV, 254 nm



1. Simvastatin

Conditions

Column: ACE 5 C18
Dimensions: 150 x 4.6 mm
Part Number: ACE-121-1546
Mobile Phase: 10 mM ammonium formate pH 3.0/MeCN (50:50 v/v)
Flow Rate: 1 mL/min
Injection: 5 μ L
Temperature: Ambient
Detection: UV, 254 nm



1. Impurity
2. Pravastatin
3. Atorvastatin
4. Simvastatin

Steroid Hormones (Endogenous) by LC-MS/MS

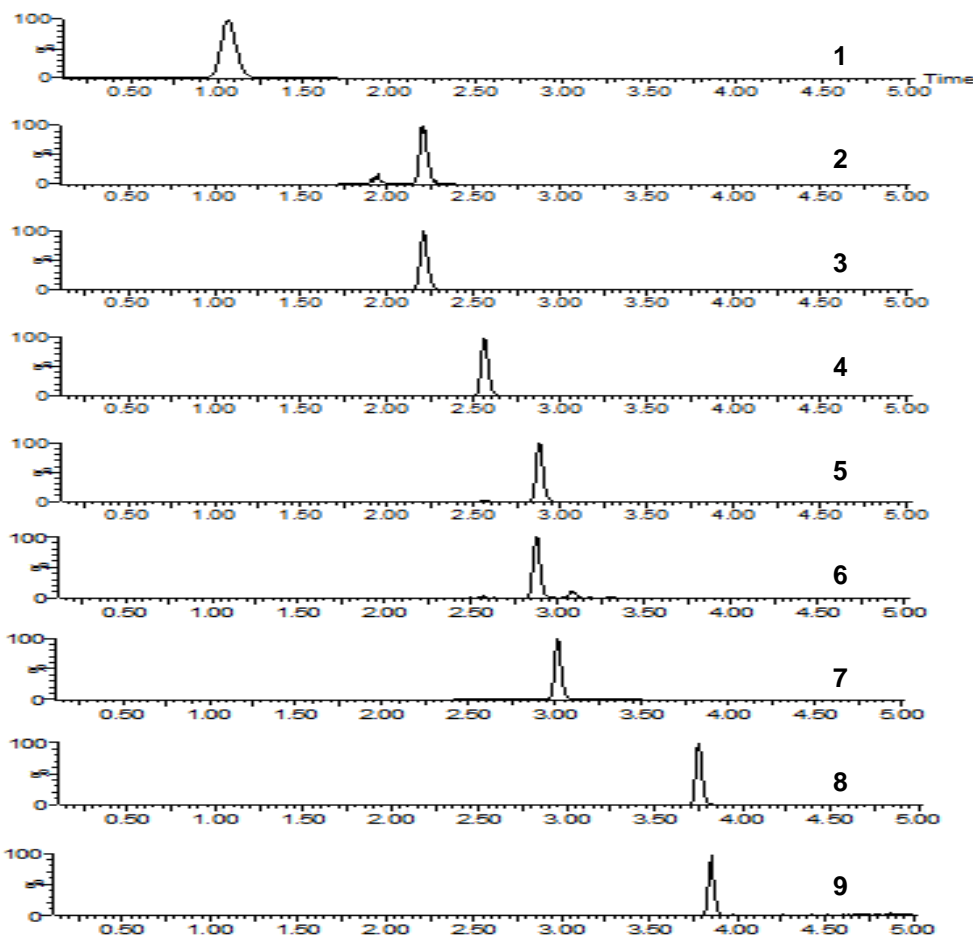
Application #AN2640

Conditions

Column: ACE Excel 2 C18
Dimensions: 50 x 2.1 mm
Part Number: EXL-101-0502U
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeOH

Time (mins)	%B
0.0	50
0.8	50
4.2	81
4.3	100
5.3	100
5.8	50
6.8	50

Flow Rate: 0.4 mL/min
Injection: 10 µL
Temperature: 40 °C
Detection: MS/MS
ESI in positive ion mode



1. Aldosterone
(*m/z* 361.4 → 315.4)
2. 21-Deoxycortisol
(*m/z* 347.4 → 311.4)
3. 11-Deoxycortisol
(*m/z* 347.4 → 97.0)
4. Androstendione
(*m/z* 287.3 → 97.0)
5. Testosterone
(*m/z* 289.4 → 97.0)
6. DHEA
(*m/z* 289.4 → 253.2)
7. 17α-Hydroxyprogesterone
(*m/z* 331.4 → 97.0)
8. Progesterone
(*m/z* 315.4 → 97.0)
9. Androsterone
(*m/z* 291.3 → 255.4)

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Steroid Mixture Separation (I)

Application #AN1060

Conditions

Column: ACE 3 C18
ACE 3 Phenyl
ACE 3 C18-AR

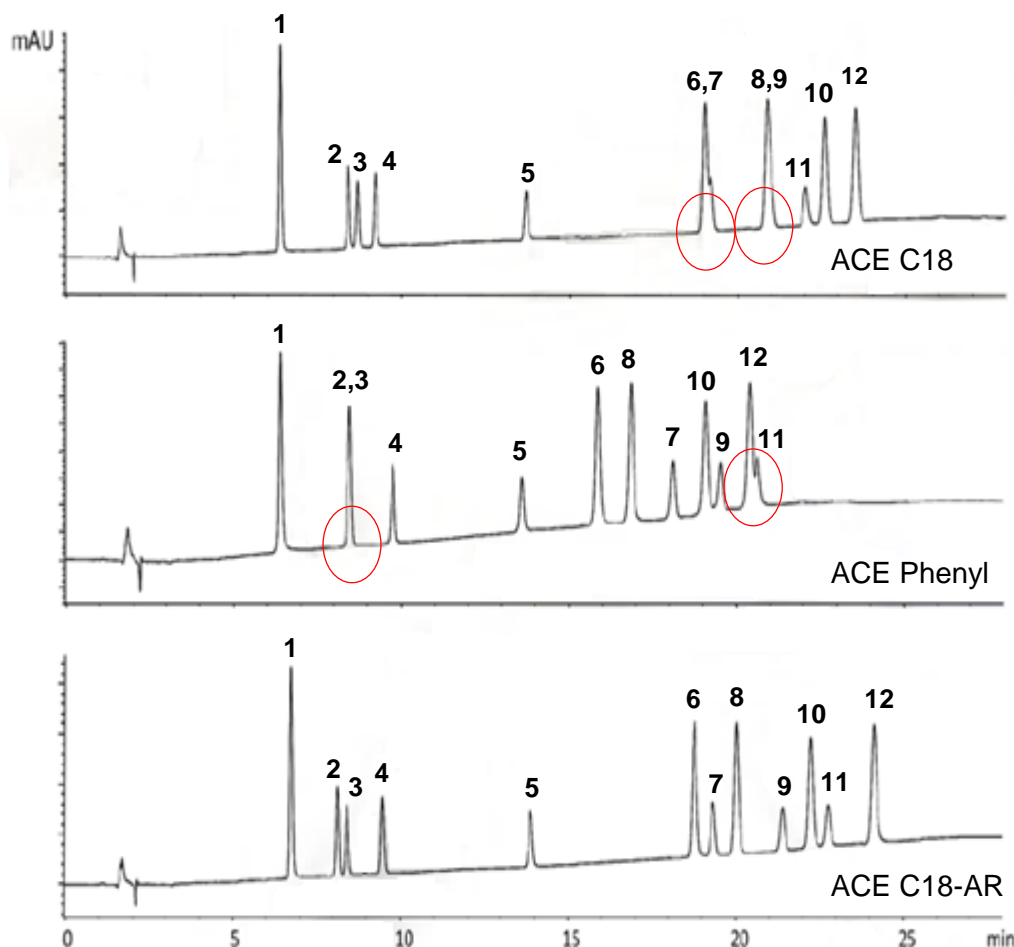
Dimensions: 150 x 4.6 mm

Part Number: ACE-111-1546, ACE-115-1546, ACE-119-1546

Mobile Phase: A: H₂O
B: MeCN

Time (mins)	%B
0	25
24	46
26	6
27	25

Flow Rate: 1 mL/min
Temperature: 20 °C
Detection: UV, 214 nm



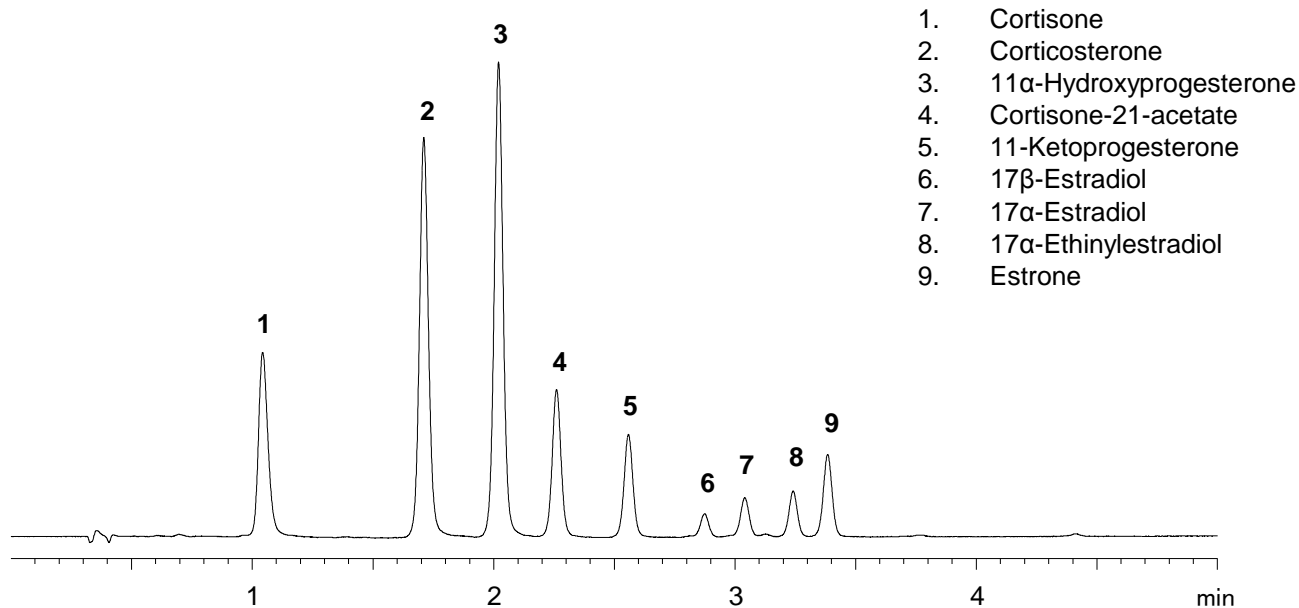
1. Estriol
2. Prednisolone
3. Hydrocortisone
4. Cortisone
5. Corticosterone
6. 17β-Estradiol
7. Cortisone-21-acetate
8. 17α-Estradiol
9. 19-Norethindrone
10. 17α-Ethinylestradiol
11. 21-Hydroxyprogesterone
12. Estrone

Steroid Mixture Separation (II)

Application #AN1550

Conditions

Column: ACE Excel 2 CN-ES
Dimensions: 50 x 2.1 mm
Part Number: EXL-1013-0502U
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeOH
Flow Rate: 0.4 mL/min
Injection: 1 µL
Temperature: 40 °C
Detection: UV, 214 and 260 nm



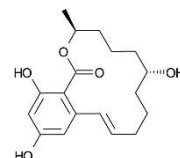
Application #AN1830

Conditions

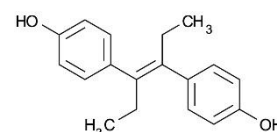
Column: ACE UltraCore 2.5 SuperC18
Dimensions: 100 x 2.1 mm
Part Number: CORE-25A-1002U
Mobile Phase: A: 0.01 mM ammonium fluoride + 0.001% formic acid
B: MeCN

Time (mins)	%B
0.0	25
0.5	25
7.0	35
7.5	35
10.5	60
12.5	90

Flow Rate: 0.5 mL/min
Temperature: 45 °C
Detection: Positive or negative ESI
MRM data

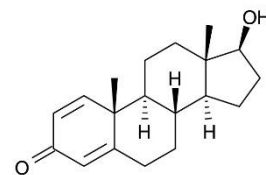


1. α - and β -Zearalenol
(m/z 319.17 \rightarrow 275.12)

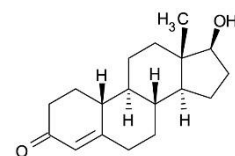


2. Diethylstilbestrol-d8
(m/z 275.23 \rightarrow 245.09)

Also analysed in -ESI:
Talaranol and zeranone-d4
Talaranol and zeranone
Zearalenone
Hexestrol
Diethylstilbestrol
Dienesterol

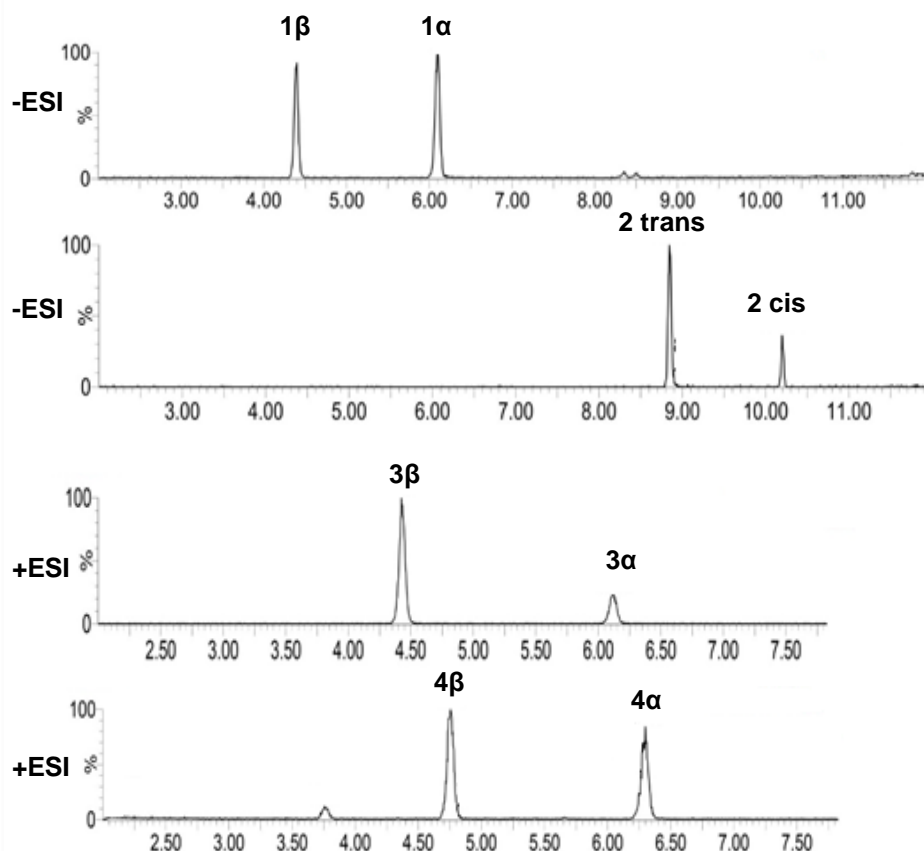


3. α - and β -Boldenone
(m/z 287.17 \rightarrow 121.12)



4. α - and β -Nortestosterone
(m/z 275.23 \rightarrow 109.09)

Also analysed in +ESI:
Hydroxystanozolol
Hydroxystanozolol-d3
Methyltestosterone
Methyltestosterone-d3
 β -Nortestosterone-d3
 β -Trenbolone
 α -Trenbolone



Steroids Separation using Enhanced Polar Selectivity

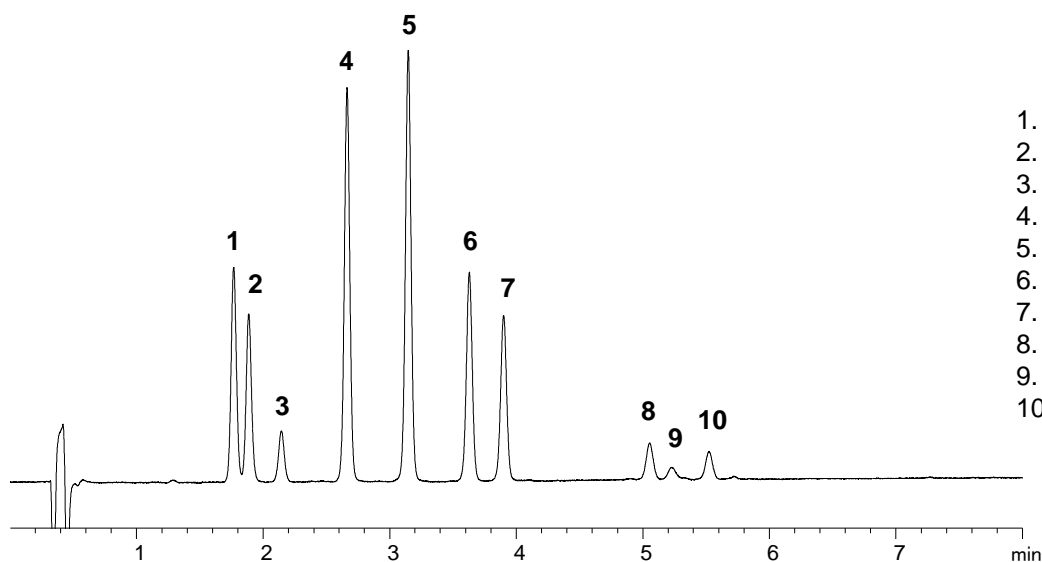
Application #AN2470

Conditions

Column: ACE Excel 3 C18-Amide
Dimensions: 50 x 2.1 mm
Part Number: EXL-1112-0502U
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeCN

Time (mins)	%B
0	25
10	80

Flow Rate: 0.4 mL/min
Temperature: 20 °C
Detection: UV, 260 nm



1. Prednisone
2. Prednisolone
3. Estriol
4. Corticosterone
5. 11 α -Hydroxyprogesterone
6. 11-Ketoprogesterone
7. 21-Hydroxyprogesterone
8. 17 β -Estradiol
9. 17 α -Estradiol
10. 17 α -Ethinylestradiol



Steroids UHPLC-UV Analysis and Comparison

Application #AN1640

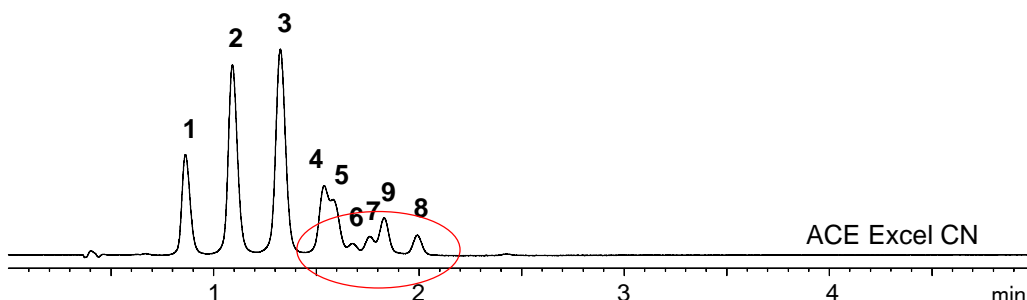
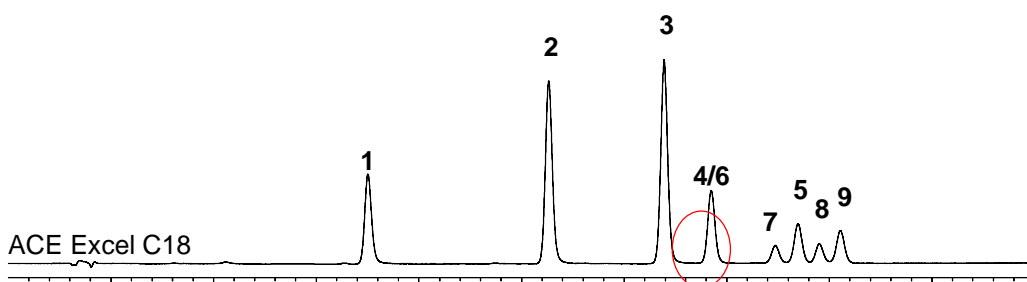
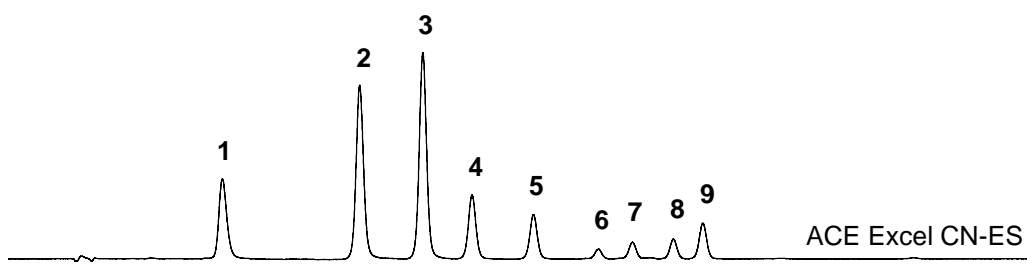
Conditions

Column: ACE Excel 2 CN-ES
ACE Excel 2 C18
ACE Excel 2 CN
Dimensions: 50 x 2.1 mm
Part Number: EXL-1013-0502U, EXL-101-0502U, EXL-104-0502U
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeCN

Time (mins)	%B
0.0	25
10.0	80
10.5	80
11.0	25

Flow Rate: 0.4 mL/min
Temperature: 40 °C
Detection: UV, 260 nm

1. Cortisone
2. Corticosterone
3. 11 α -Hydroxyprogesterone
4. Cortisone-21-acetate
5. 11-Ketoprogesterone
6. 17 β -Estradiol
7. 17 α -Estradiol
8. 17 α -Ethinylestradiol
9. Estrone



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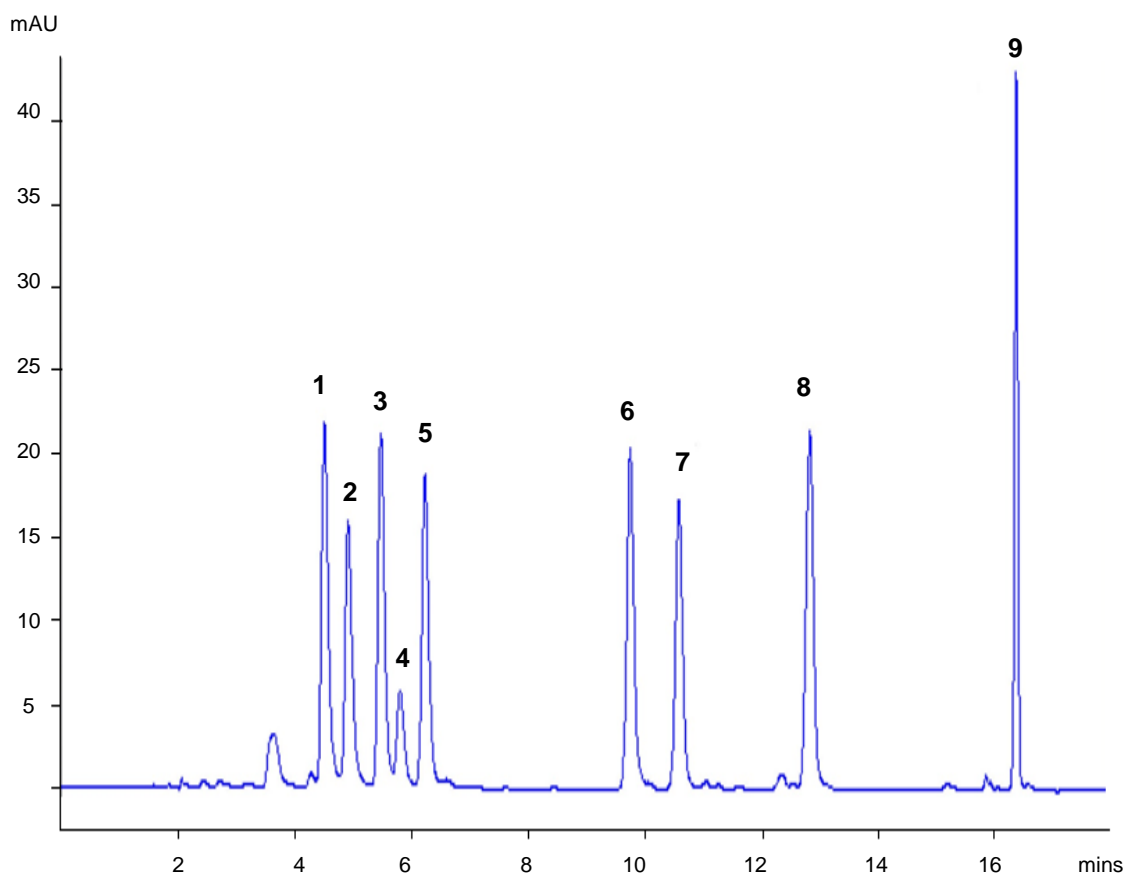
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Conditions

Column: ACE Excel 3 C18-PFP
 Dimensions: 150 x 4.6 mm
 Part Number: EXL-1110-1546U
 Mobile Phase: A: H₂O
 B: MeCN
 C: 10% formic acid

Time (mins)	%A	%B	%C
0	84	15	1
12	74	25	1
14	59	40	1
16	84	15	1
18	84	15	1

Flow Rate: 1 mL/min
 Detection: UV, 268 nm



1. Sulfadiazine
2. Sulfapyridine
3. Sulfamerazine
4. Sulfamoxole
5. Sulfamethazine
6. Sulfamonomethoxine
7. Sulfachloropyridazine
8. Sulfamethoxazole
9. Sulfadimethoxine

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Sumatriptan and Promethazine by LC-MS/MS

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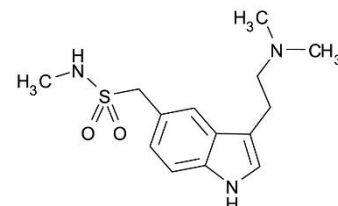
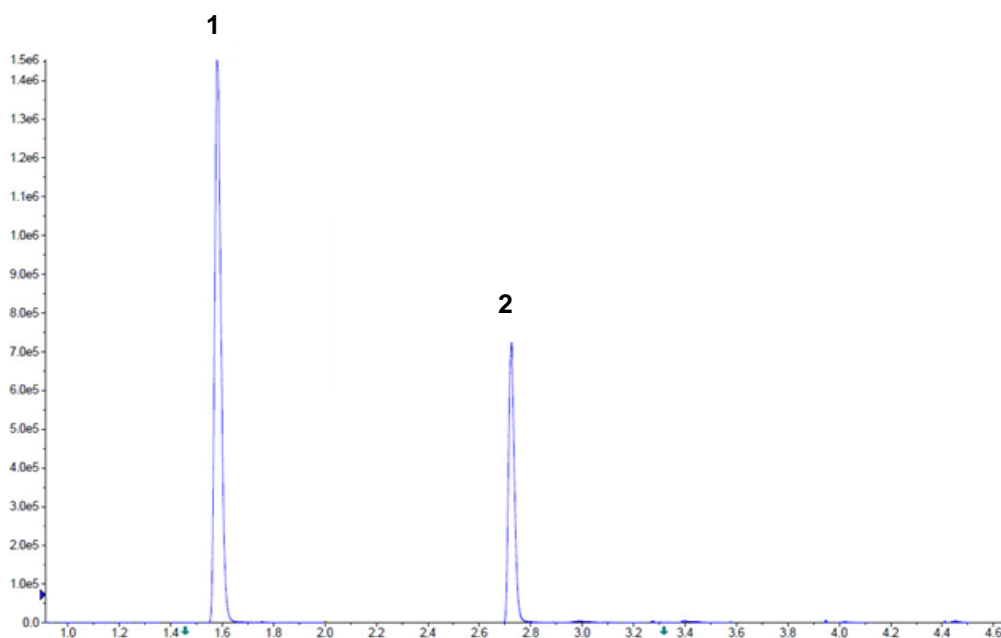
Application #AN2530

Conditions

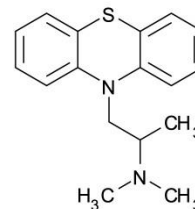
Column: ACE Excel 2 C18-PFP
Dimensions: 100 x 2.1 mm
Part Number: EXL-1010-1002U
Mobile Phase: A: 0.1% formic acid in H₂O
B: 0.1% formic acid in MeOH

Time (min)	%B
0.0	15
0.5	15
2.5	90
3.5	90
5.5	15

Flow Rate: 0.7 mL/min
Temperature: 50 °C
Detection: AB Sciex QTRAP 6500
DuoSpray Ion source (ESI/APCI)
Positive ion MRM mode



1. Sumatriptan
(*m/z* 296 → 58)



2. Promethazine
(*m/z* 286 → 86)

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Columns

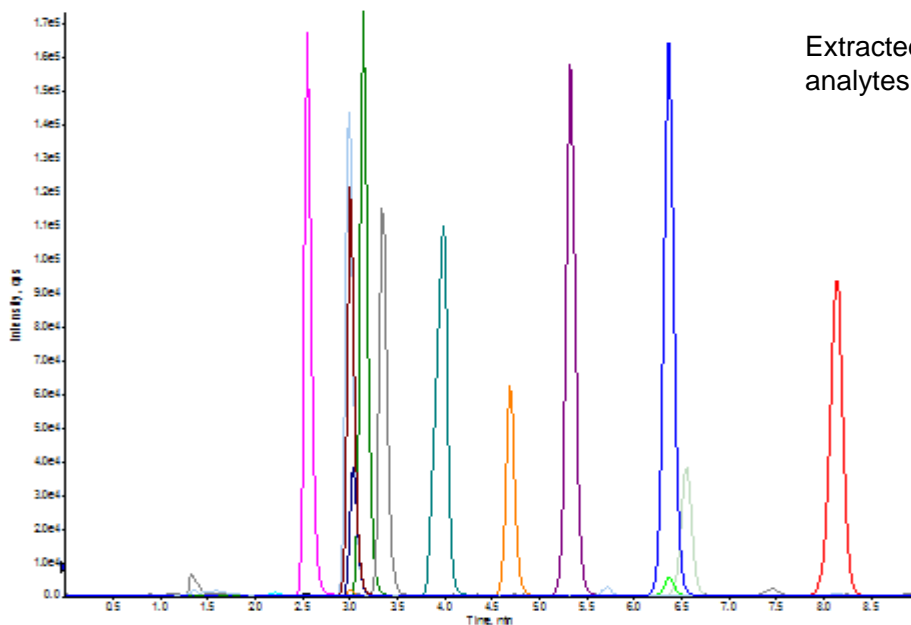
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Synthetic Cannabinoids (SPICE) from Oral Fluid

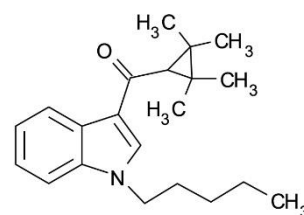
Application #AN1650

Conditions

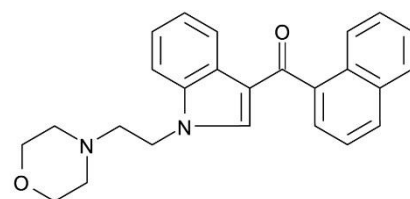
Column: ACE Excel 2 C18-AR
Dimensions: 100 x 2.1 mm
Part Number: EXL-109-1002U
Mobile Phase: 0.1% formic acid in MeOH/H₂O (85:15 v/v)
Flow Rate: 0.3 mL/min
Temperature: Ambient
Detection: Applied Biosystems/MDS Sciex 4000 Q-Trap
Positive mode Turbo Ionspray



Extracted ion chromatogram for SPICE analytes fortified in neat oral fluid at 20 ng/mL



UR-144



JWH-200

Retention Time (minutes)	Analyte	MRM Transition	Decustering Potential (DP)	Collision Energy (CE)	Cell Exit Potential (CXP)
2.55	JWH-250 N-(5-hydroxypentyl)	352>120.9	40	30	16
2.99	JWH-073 N-(3-hydroxybutyl)	344>155	40	30	16
3.00	UR-144 5-Hydroxy-pentyl	328.5>125	30	35	16
3.03	UR-144 Pentanoic Acid	342.5>125	30	35	16
3.14	d5-JWH-018 N-(4-hydroxypentyl)	363.5>155	40	35	16
3.14	JWH-018 N-(4-hydroxypentyl)	358>155	40	30	16
3.34	JWH-018 5-pentanoic acid	372>155	40	30	16
3.98	JWH-200	385>155	40	30	16
4.69	XLR-11	330>125	30	35	16
5.32	JWH-250	336>121	40	30	16
6.36	JWH-073	328>155	40	30	16
6.37	UR-144 5-Chloro-pentyl	346.9>125	30	35	16
6.55	UR-144	312.5>125	30	35	16
8.14	JWH-018	342>155	40	30	16

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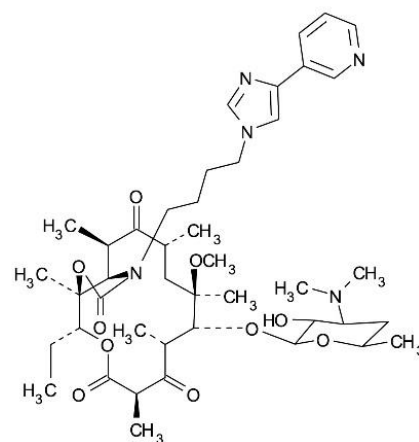
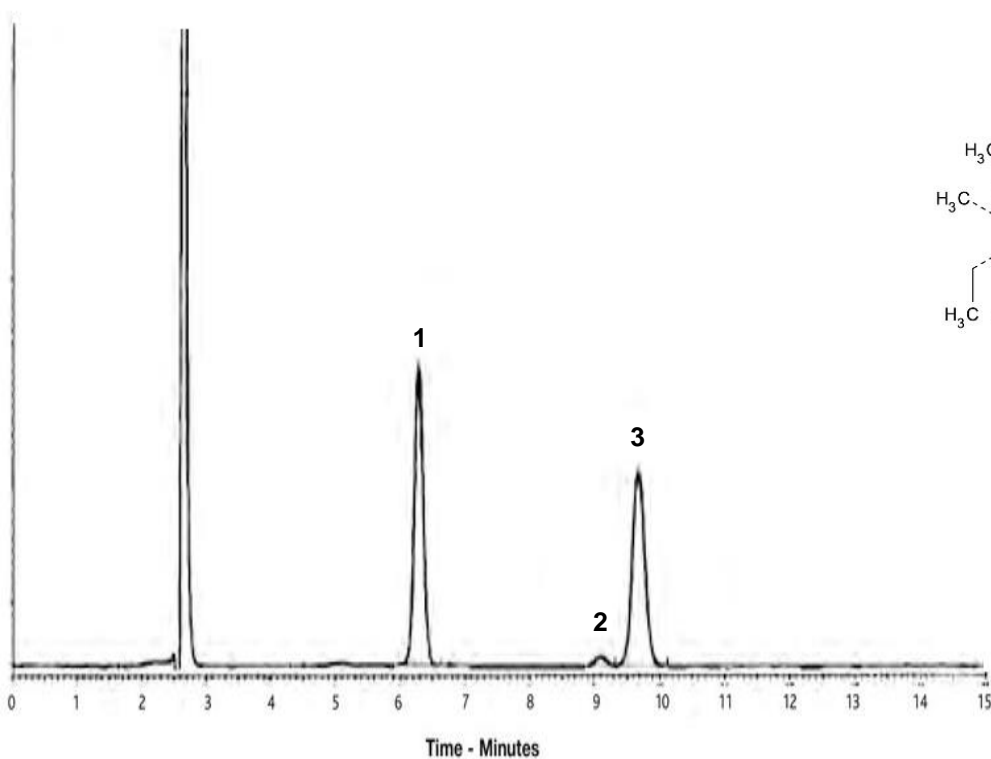
Telithromycin Analysis

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Ultra-inert
UHPLC & HPLC Columns

Application #AN3280

Conditions

Column: ACE 5 C18
Dimensions: 250 x 4.6 mm
Part Number: ACE-121-2546
Mobile Phase: 0.05 M phosphate buffer pH 4.0/MeOH (45:55 v/v)
Flow Rate: 1 mL/min
Injection: 20 µL
Temperature: 50 °C
Detection: UV, 265 nm
Sample: Exposed to 3% H₂O₂ for 1 hour



1. Telithromycin
2. Degradant 1
3. Degradant 2

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For more information contact your local ACE distributor or visit
www.ace-hplc.com or email: info@ace-hplc.com

Terfenadine and Fexofenadine in Rat Plasma

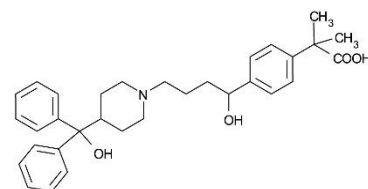
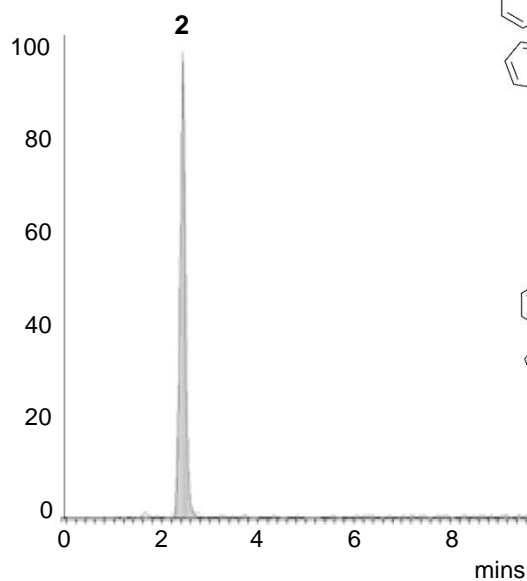
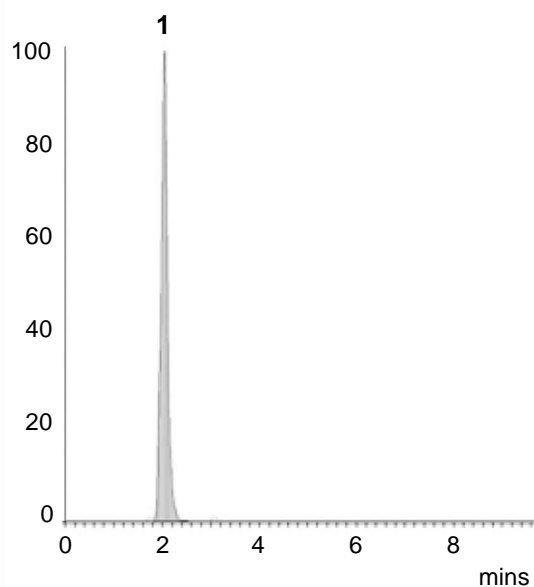
Application #AN3290

Conditions

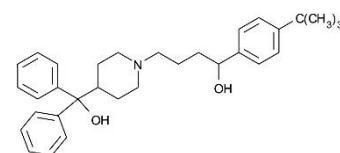
Column: ACE 5 AQ
Dimensions: 50 x 3.0 mm
Part Number: ACE-126-0503
Mobile Phase: A: 0.1% formic acid in H₂O
B: MeOH

Time (mins)	%B
0.0	10
1.5	90
2.0	90
3.0	10

Flow Rate: 1 mL/min
Injection: 10 µL
Temperature: Ambient
Detection: Turbo IonSpray MS/MS
Positive ion mode



1. Fexofenadine
(m/z 502.3 → 466.3)



2. Terfenadine
(m/z 472.3 → 436.3)

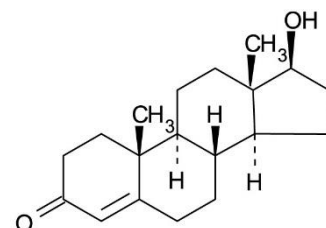
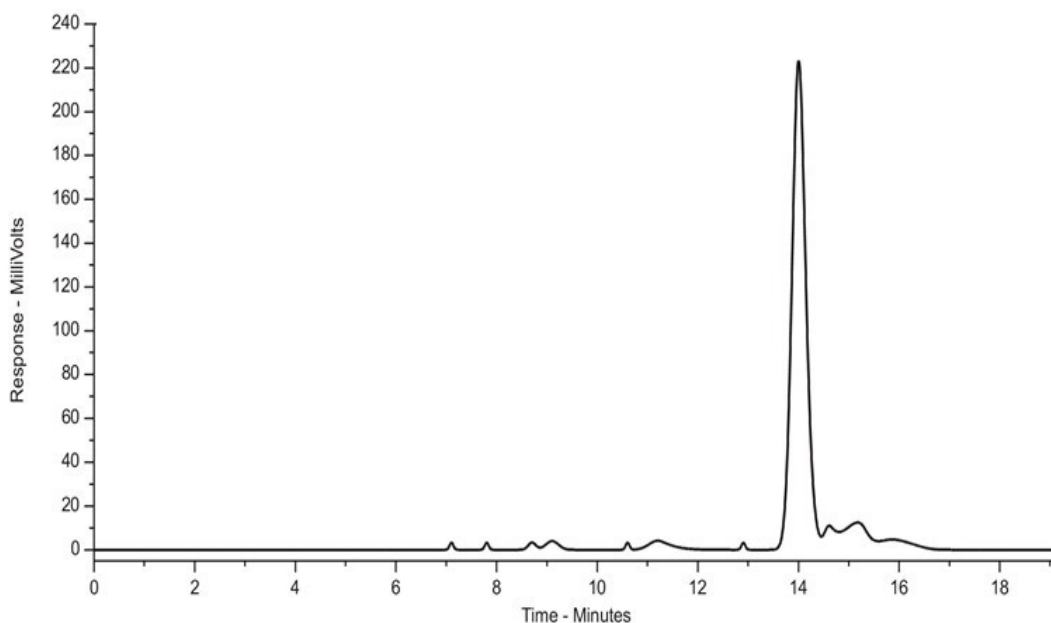


Conditions

Column: ACE 5 C18
Dimensions: 150 x 0.075 mm
Part Number: ACE-121-1500075
Mobile Phase: A: 0.1% formic acid in MeCN/0.1% formic acid in H₂O (10:90 v/v)
B: 0.1% formic acid in MeCN/0.1% formic acid in H₂O (90:10 v/v)

Time (mins)	%B
0	40
5	40
30	95

Flow Rate: 1 µL/min
Temperature: Ambient
Detection: ESI MS/MS
Positive ion mode



1. Testosterone

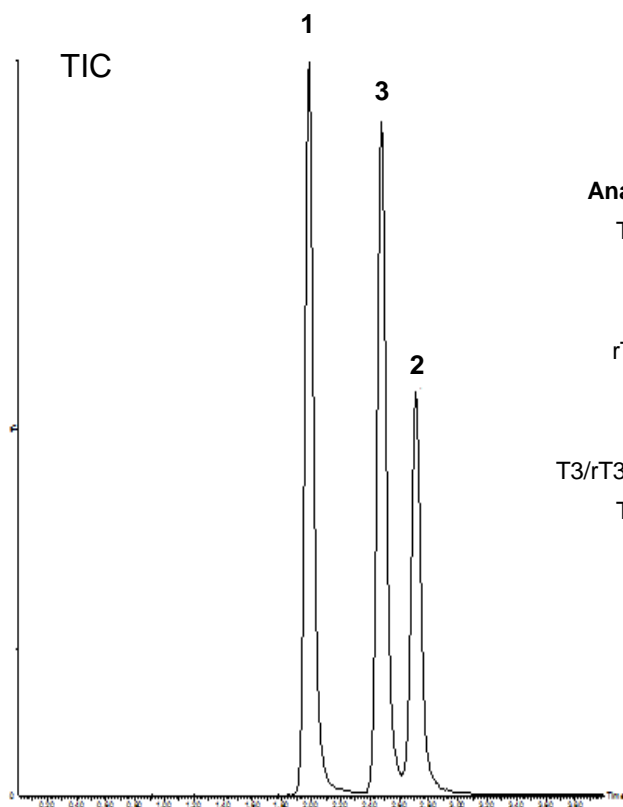


Conditions

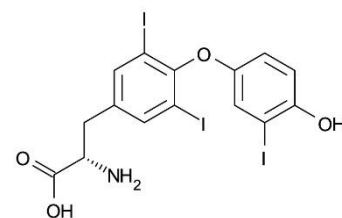
Column: ACE Excel 2 C18-AR
 Dimensions: 100 x 2.1 mm
 Part Number: EXL-109-1002U
 Mobile Phase: A: 2 mM ammonium acetate, 0.1% formic acid in H₂O
 B: 2 mM ammonium acetate, 0.1% formic acid in MeOH

Time (mins)	%B
0.0	60
3.0	77
3.1	60

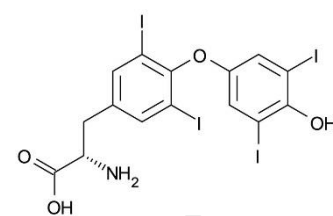
Flow Rate: 0.4 mL/min
 Injection: 10 µL
 Temperature: 40 °C
 Detection: XEVO TQS triple quad MS
 Desolvation temperature: 500 °C
 Ion source temperature: 150 °C
 Positive mode ESI, MRM



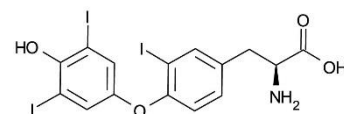
Analyte	Q1 (Da)	Q3 (Da)
T3	651.8	605.8
	(651.8)	(507.8)
	(651.8)	(478.9)
rT3	651.8	605.8
	(651.8)	(507.8)
	(651.8)	(478.9)
T3/rT3-d6 I.S.	657.8	611.8
T4	777.7	731.7
	(777.7)	(351)
	(777.7)	(633.8)



1. T3
(Tri-iodothyronine)



2. T4
(Thyroxine)



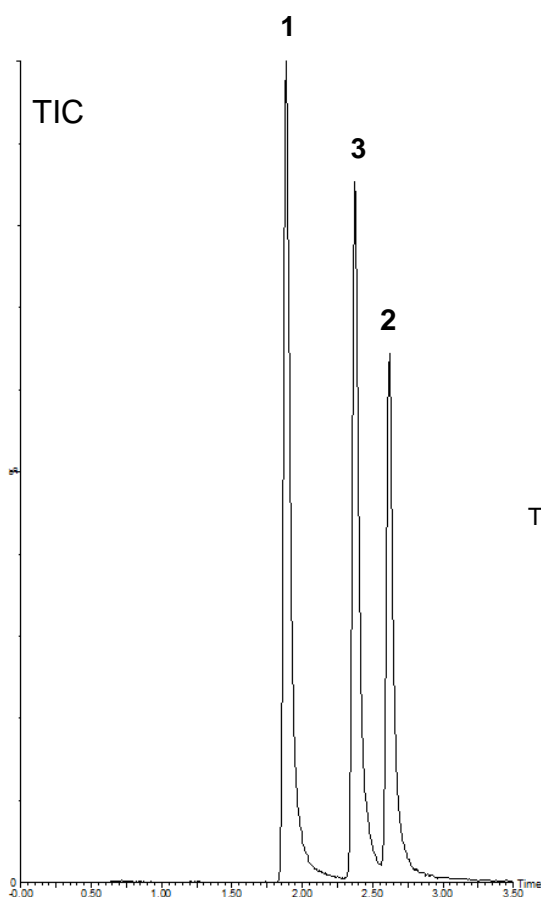
3. rT3
(Reversed tri-iodothyronine)

Conditions

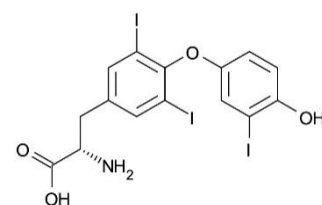
Column: ACE Excel 1.7 C18-AR
 Dimensions: 100 x 2.1 mm
 Part Number: EXL-179-1002U
 Mobile Phase: A: 2 mM ammonium acetate, 0.1% formic acid in H₂O
 B: 2 mM ammonium acetate, 0.1% formic acid in MeOH

Time (mins)	%B
0.0	60
3.0	77
3.1	60

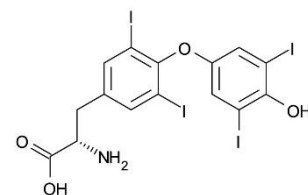
Flow Rate: 0.4 mL/min
 Injection: 10 µL
 Temperature: 40 °C
 Detection: XEVO TQS triple quad MS
 Desolvation temperature: 500 °C
 Ion source temperature: 150 °C
 Positive mode ESI, MRM



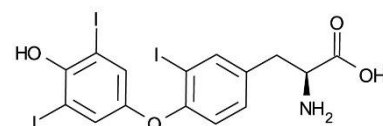
Analyte	Q1 (Da)	Q3 (Da)
T3	651.8	605.8
	(651.8)	(507.8)
	(651.8)	(478.9)
rT3	651.8	605.8
	(651.8)	(507.8)
	(651.8)	(478.9)
T3/rT3-d6 I.S.	657.8	611.8
T4	777.7	731.7
	(777.7)	(351)
	(777.7)	(633.8)



1. T3
(Tri-iodothyronine)



2. T4
(Thyroxine)



3. rT3
(Reversed tri-iodothyronine)

Tocopherol Mixture Separation

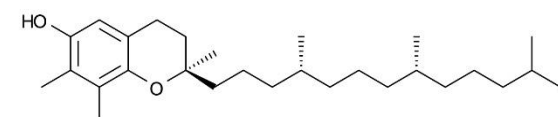
Application #AN3390

Conditions

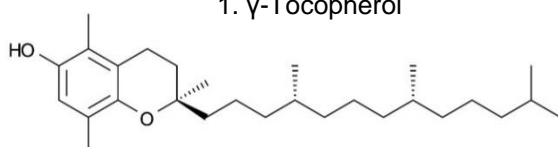
Column: ACE Excel 3 C18-PFP
Dimensions: 150 x 4.6 mm
Part Number: EXL-1110-1546U
Mobile Phase: A: 0.1% H₃PO₄/MeCN (1:3 v/v)
B: MeCN

Time (mins)	%B
0.00	0
0.10	0
0.11	80
8.00	80
8.01	100
12.00	100
12.01	0
14.00	0

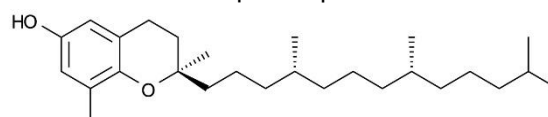
Flow Rate: 1.2 mL/min
Injection: 10 µL
Temperature: 40 °C
Detection: UV, 285 nm



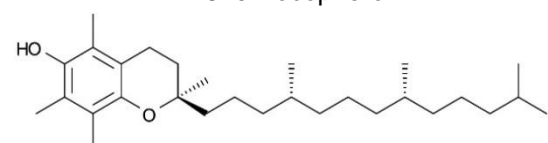
1. γ -Tocopherol



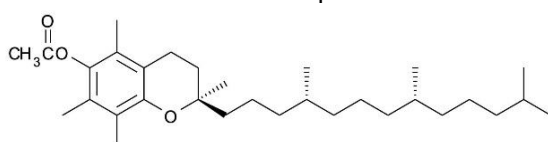
2. β -Tocopherol



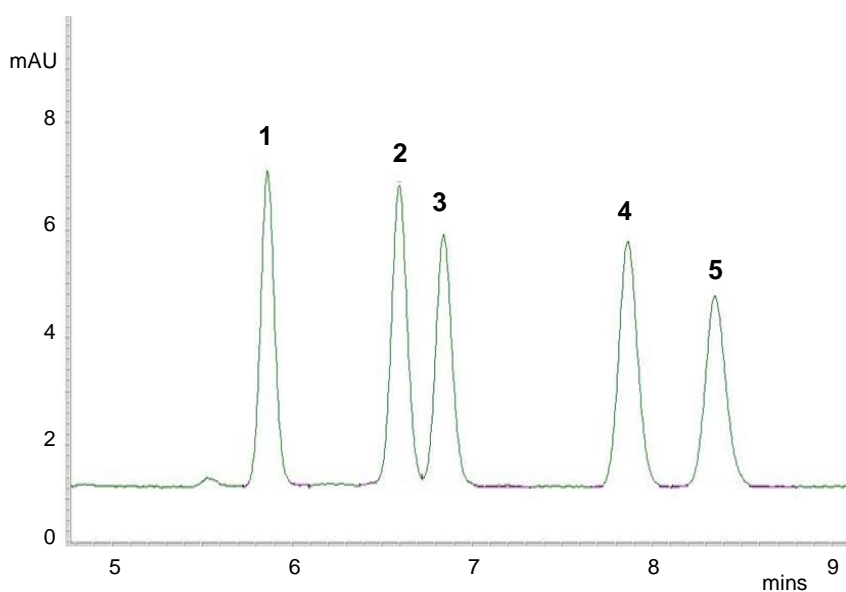
3. δ -Tocopherol



4. α -Tocopherol



5. α -Tocopherol acetate



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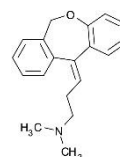
For more information contact your local ACE distributor or visit
www.ace-hplc.com or email: info@ace-hplc.com

Conditions

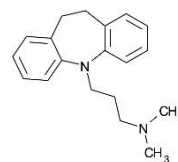
Column: ACE Excel 2 SuperC18
 Dimensions: 100 x 3.0 mm
 Part Number: EXL-1011-1003U
 Mobile Phase: A 20 mM ammonium formate pH 3.0 in H₂O
 B 20 mM ammonium formate pH 3.0 in MeOH/H₂O (9:1 v/v)

Time (mins)	%B
0.0	50
6.0	70
7.5	2
Post time 10 minutes	

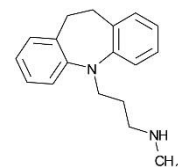
Flow Rate: 1.2 mL/min
 Injection: 2 µL
 Temperature: 40 °C
 Detection: UV, 260 nm



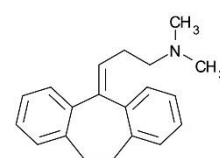
1. Doxepin + isomer



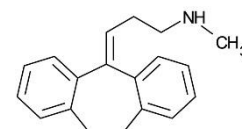
2. Imipramine



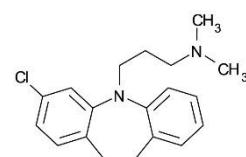
3. Desipramine



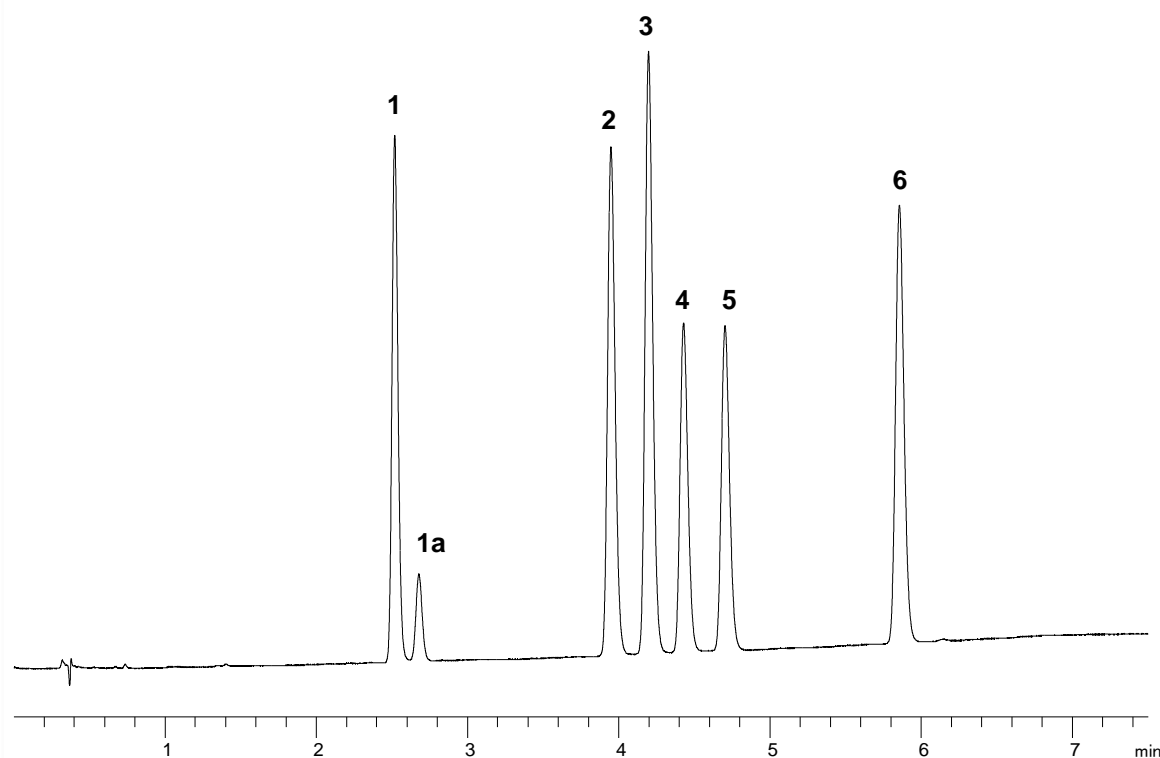
4. Amitriptyline



5. Nortriptyline

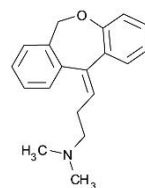
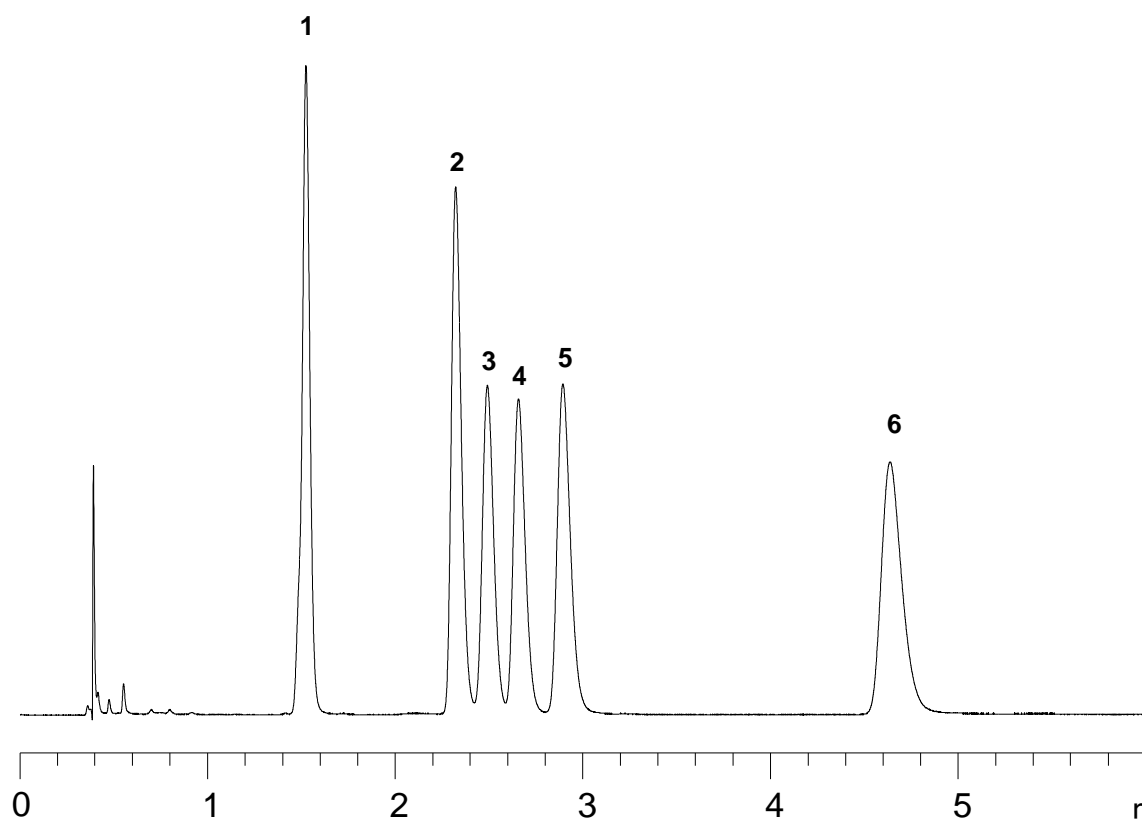


6. Clomipramine

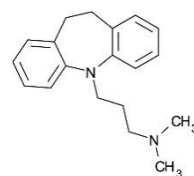


Conditions

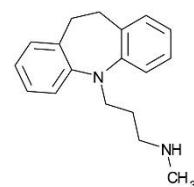
Column:	ACE Excel 2 C18-PFP
Dimensions:	100 x 3.0 mm
Part Number:	EXL-1010-1003U
Mobile Phase:	20 mM ammonium formate pH 3.0 in MeOH/H ₂ O (54:46 v/v)
Flow Rate:	1.2 mL/min
Injection:	2 µL
Temperature:	40 °C
Detection:	UV, 260 nm



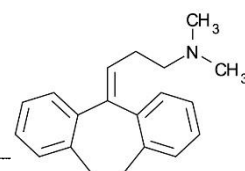
1. Doxepin



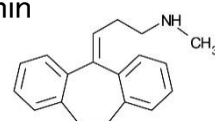
2. Imipramine



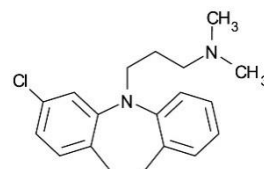
3. Desipramine



4. Amitriptyline



5. Nortriptyline



6. Clomipramine

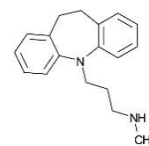
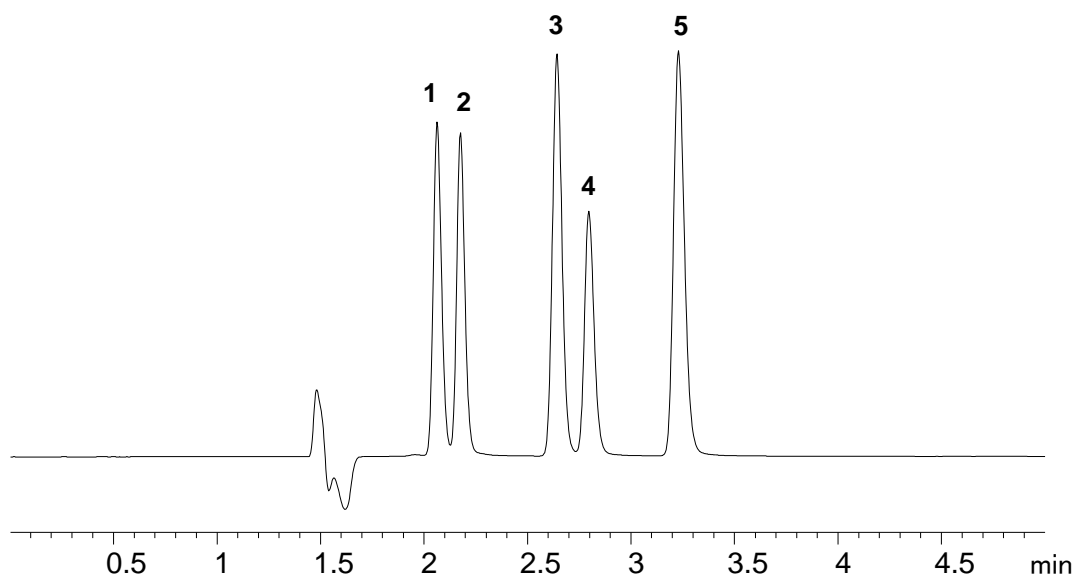
Tricyclic Antidepressants (Isocratic Rapid Analysis)

ACE[®]
Ultra-inert
UHPLC & HPLC Columns

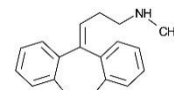
Application #AN1700

Conditions

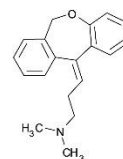
Column: ACE 5 C18
Dimensions: 250 x 4.6 mm
Part Number: ACE-121-2546
Mobile Phase: 20 mM ammonium acetate pH 6.3 MeCN/H₂O (65:35 v/v)
Flow Rate: 1.5 mL/min
Injection: 10 µL
Temperature: 60 °C
Detection: UV, 215 nm



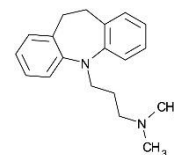
1. Desipramine



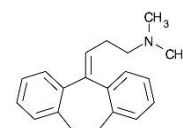
2. Nortriptyline



3. Doxepin



4. Imipramine



5. Amitriptyline



25-Hydroxy Vitamin D2/D3 in Serum by LC-MS/MS

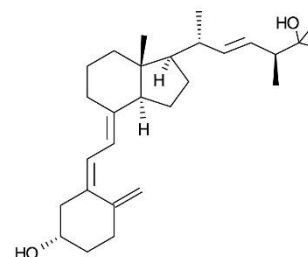
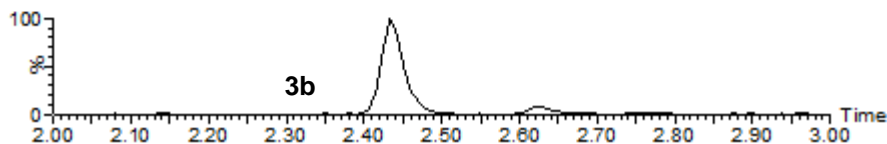
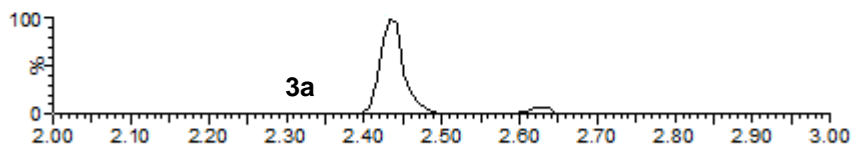
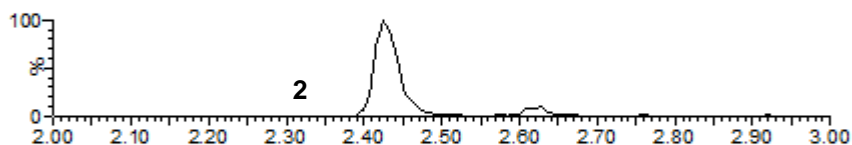
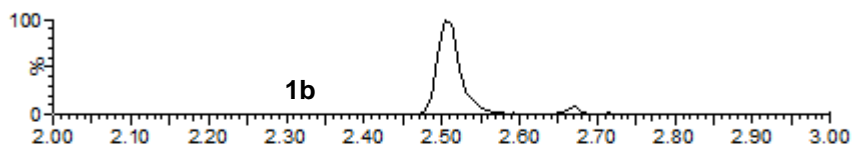
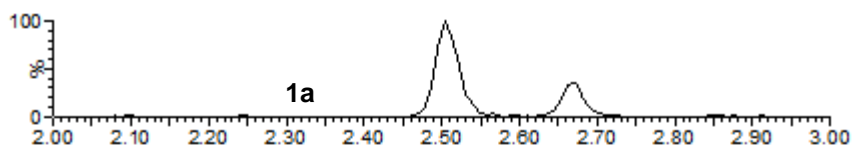
Application #AN2390

Conditions

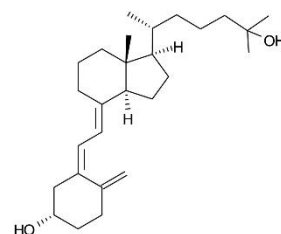
Column: ACE Excel 2 C18-PFP
Dimensions: 100 x 2.1 mm
Part Number: EXL-1010-1002U
Mobile Phase: A: 2 mM ammonium acetate, 0.1% formic acid in H₂O
B: 0.1% formic acid in MeOH

Time (mins)	%B
0.0	75
3.0	100
4.0	100

Flow Rate: 0.4 mL/min
Injection: 15 µL
Temperature: 40 °C
Detection: Quattro Premier XE triple quad MS
MRM positive ESI mode
Desolvation temperature: 450 °C
Ion source temperature: 150 °C



- 1a. 25-OH Vitamin D2
(*m/z* 395.5 → 269.5)
- 1b. 25-OH Vitamin D2
(*m/z* 395.5 → 119.2)
2. d6-25-OH Vitamin D3 (IS)
(*m/z* 389.6 → 263.5)

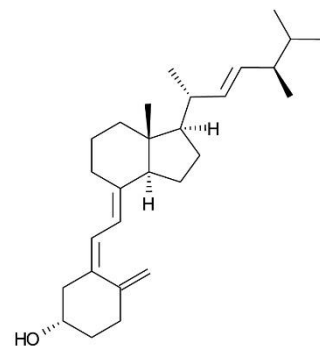
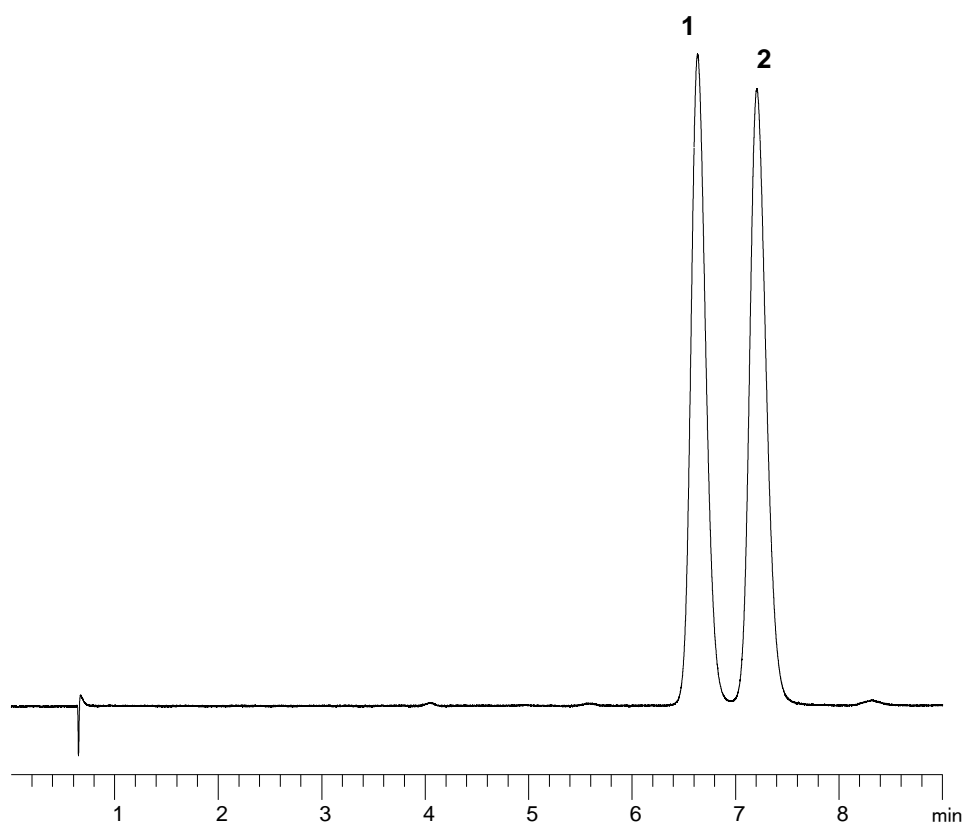


- 3a. 25-OH Vitamin D3
(*m/z* 383.5 → 257.5)
- 3b. 25-OH Vitamin D3
(*m/z* 383.5 → 107.2)

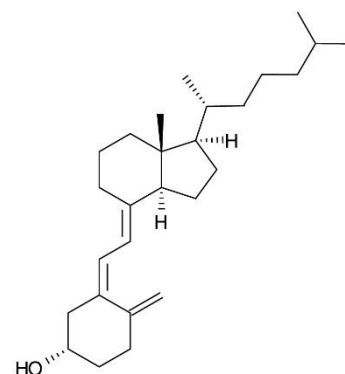


Conditions

Column: ACE Excel 2 C18-Amide
Dimensions: 50 x 3.0 mm
Part Number: EXL-1012-0503U
Mobile Phase: 100% MeCN
Flow Rate: 0.43 mL/min
Injection: 2 µL
Temperature: 20 °C
Detection: UV, 265 nm



1. Ergocalciferol (D2)

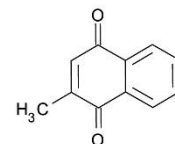


2. Cholecalciferol (D3)

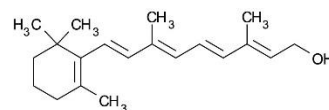
Application #AN2420

Conditions

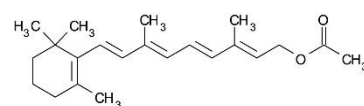
Column: ACE 3 C18-Amide
Dimensions: 150 x 4.6 mm
Part Number: EXL-1112-1546U
Mobile Phase: MeOH/MeCN (90:10 v/v)
Flow Rate: 1 mL/min
Temperature: 20 °C
Detection: UV, 280 nm



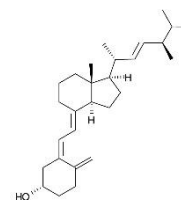
1. Menadione (Vitamin K3)



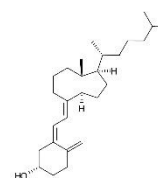
2. Retinol (Vitamin A)



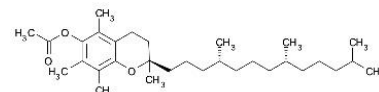
3. Vitamin A acetate



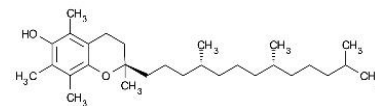
4. Ergocalciferol (Vitamin D2)



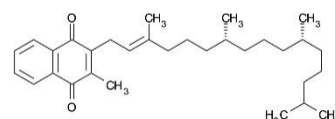
5. Cholecalciferol (Vitamin D3)



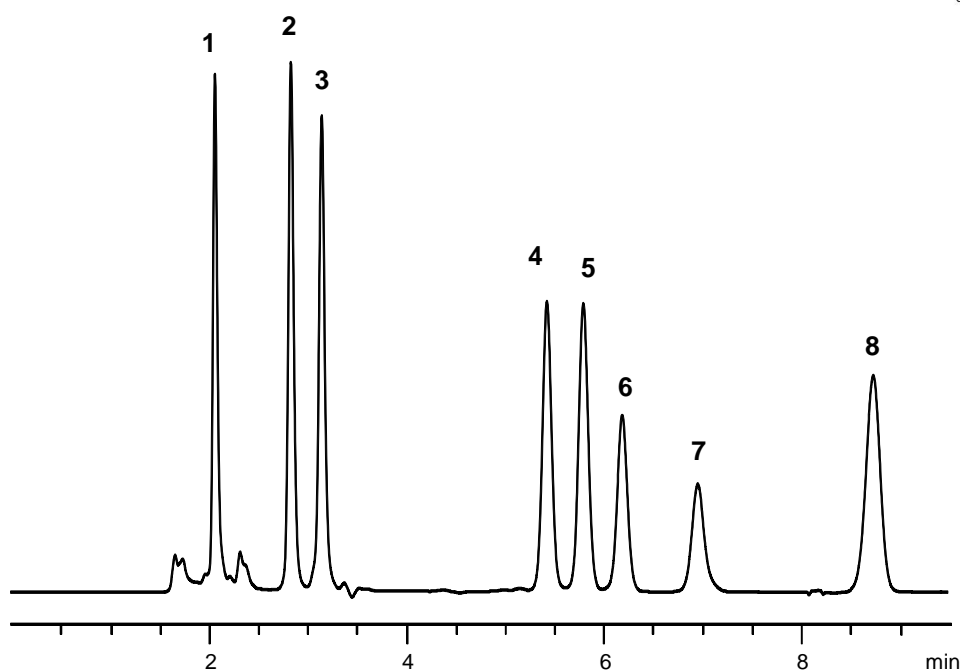
6. Vitamin E acetate



7. α-Tocopherol (Vitamin E)



8. Vitamin K1



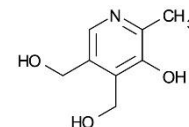
Application #AN1870

Conditions

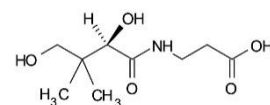
Column: ACE 3 C18-AR
Dimensions: 150 x 4.6 mm
Part Number: ACE-119-1546
Mobile Phase: A: 20 mM potassium phosphate pH 2.83 in H₂O
B: 20 mM potassium phosphate pH 2.83 in MeOH/H₂O (50:50 v/v)

Flow Rate: 1.5 mL/min
Injection: 1 µL
Temperature: 40 °C
Detection: UV, 205 nm

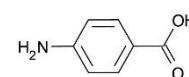
Time (mins)	%B
0	20
15	70



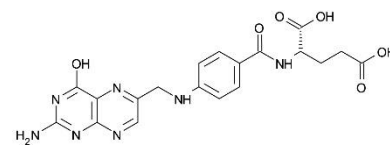
1. Pyridoxine
(Vitamin B6)



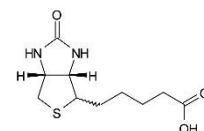
2. Pantothenic acid
(Vitamin B5)



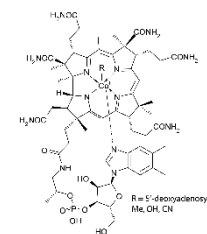
3. p-Aminobenzoic acid



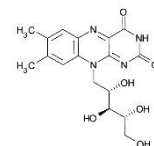
4. Folic acid
(Vitamin B9/ Vitamin M)



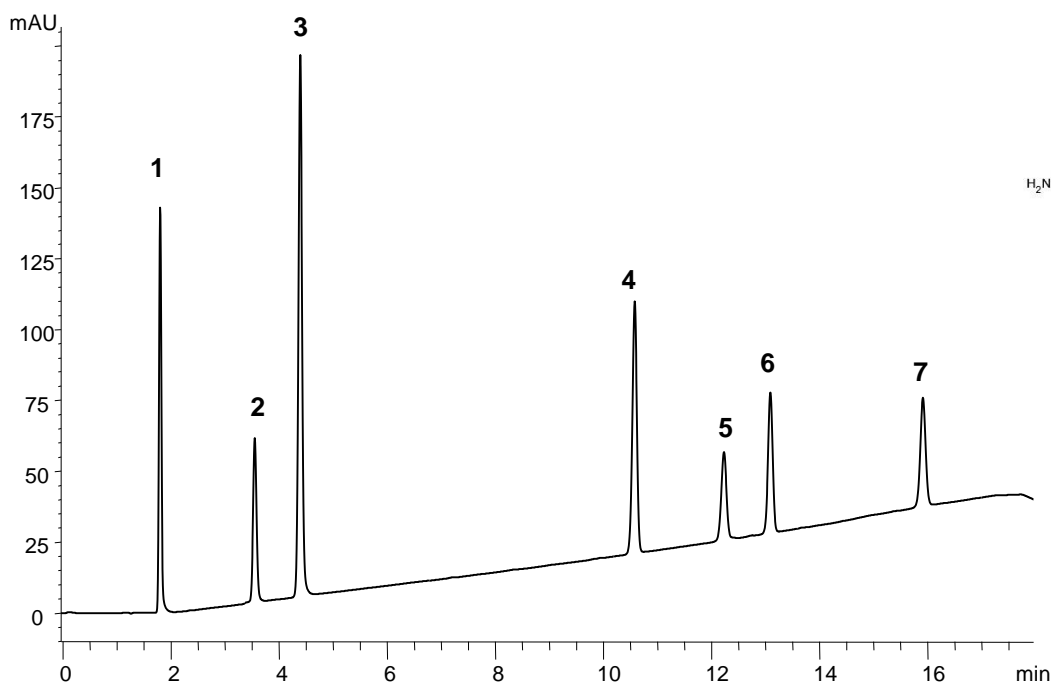
5. D-Biotin
(Vitamin B7/ Vitamin H)



6. Cyanocobalamin
(Vitamin B12)



7. Riboflavin
(Vitamin B2)



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guarantee ✓

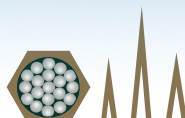
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