

Revision: 0
PHEN-RUO-00145



TOXICOLOGY

GREATEST HITS

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EtS and EtG in Urine

(Omega Remix)

Introducing the musical guest of the year, Luna Omega Polar C18 HPLC. Resolve common urine interferences when testing for Ethyl Sulfate (EtS) and Ethyl Glucuronide (EtG) in a fast method using Luna Omega Polar C18.

LC-MS/MS Conditions

Column: Luna Omega 5µm Polar C18

Dimensions: 50 x 4.6 mm

Part No.: 00B-4754-E0

Mobile Phase: A: 0.1 % Formic Acid

B: 0.1 % Formic Acid in Methanol

Gradient: Time (min) % B

0 2

2 60

2.01 90

3 90

3.01 2

4 2

Flow Rate: 1 mL/min

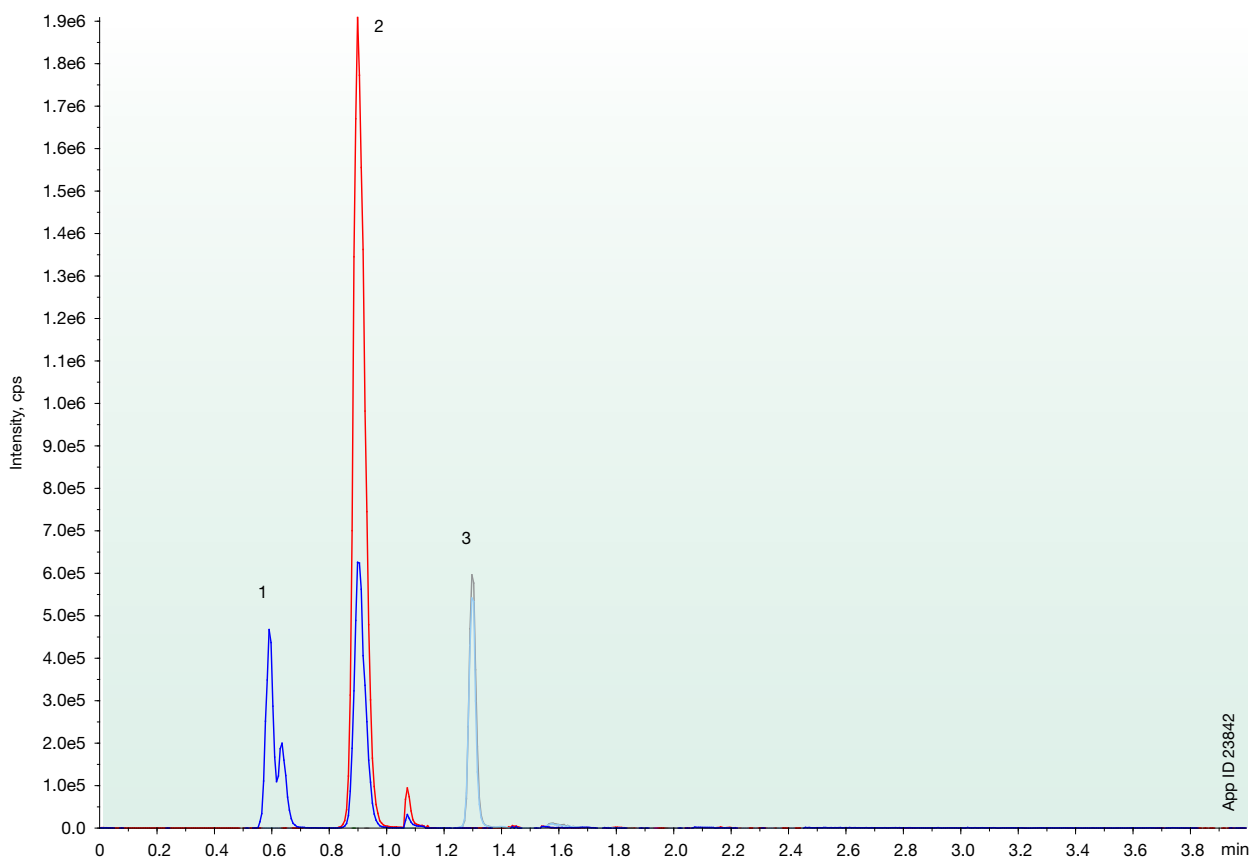
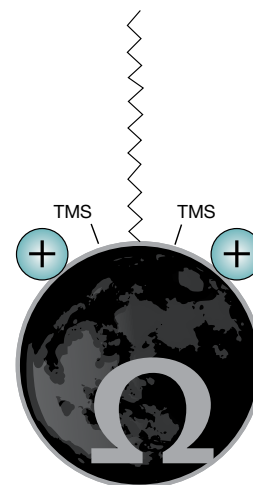
Temperature: 25 °C

Detection: MS/MS (SCIEX 4000 QTRAP®)

Sample: 1. Interference

2. Ethyl Sulfate (EtS)

3. Ethyl Glucuronide (EtG)



View full technical note at
www.phenomenex.com/toxhits



Designer Drugs from Urine

(feat. DJ Benzo)

From the incredible DJ Benzo, comes a separation of diverse designer drugs from urine with identification of isomeric and isobaric pairs for a confident LC-MS/MS analysis. Party on!

MS/MS Conditions

Q1 Mass (Da)	Q3 Mass (Da)	Time (msec)	ID	DP (Volts)	EP (Volts)	CE (Volts)	CXP (Volts)
286.1	121	50	7-Aminoclonazepam (1)	85	10	35	12
286.1	222.2	50	7-Aminoclonazepam (2)	85	10	35	16
309.1	205.1	50	Alprazolam (1)	0	10	55	6
309.1	281.1	50	Alprazolam (2)	85	10	30	10
313	314.2	50	Alprazolam-D5	85	10	10	6
301.1	259.1	50	Clobazam	80	10	35	8
307	265	50	Clobazam-13C6	80	10	25	20
316.2	270.2	50	Clonazepam (1)	75	10	35	20
316.2	214.2	50	Clonazepam (2)	70	10	50	6
354	308	50	Clonazolam (1)	80	10	35	20
354	280	50	Clonazolam (2)	85	10	45	18
309.1	280.1	50	Deschloretizolam (1)	80	10	30	10
309.1	225.1	50	Deschloretizolam (2)	85	10	45	12
285.3	193.2	50	Diazepam (1)	40	10	40	12
285.3	154.2	50	Diazepam (2)	80	10	35	10
290.2	154.2	50	Diazepam-D5	85	10	40	12
319	227	50	Diclazepam (1)	85	10	40	16
319	154	50	Diclazepam (2)	85	10	40	10
295	205	50	Estazolam (1)	50	10	45	14
295	267.1	50	Estazolam (2)	45	10	35	10
343.1	314.1	50	Etizolam (1)	85	10	30	10
343.1	138.2	50	Etizolam (2)	80	10	40	10
327	299	50	Flualprazolam (1)	85	10	30	10
327	223	50	Flualprazolam (2)	40	10	50	14
333	226	50	Flubromazepam (1)	0	10	35	14
333	206	50	Flubromazepam (2)	0	10	50	10
333	184	50	Flubromazepam (3)	40	10	50	12
371	292.1	50	Flubromazolam (1)	85	10	35	10
371	223	50	Flubromazolam (1)	80	10	35	14
338	292	50	Flunitrazolam (1)	45	10	35	10
338	264	50	Flunitrazolam (2)	40	10	45	14
321.3	275.3	50	Lorazepam (1)	0	10	35	14
321.3	229.1	50	Lorazepam (2)	70	10	40	14
287	245	50	N-Desmethyloclobazam	80	10	25	8
271.3	140.3	50	Nordiazepam (1)	0	10	40	10
271.3	164.9	50	Nordiazepam (2)	40	10	35	12
276.3	140.1	50	Nordiazepam-D5	65	10	35	10
287.1	241.1	50	Oxazepam (1)	75	10	30	12
287.1	246.3	50	Oxazepam (2)	75	10	20	10
292.3	246.3	50	Oxazepam-D5	65	10	20	12
351	179	50	Phenazepam	70	10	55	12
301.3	255.2	50	Temazepam (1)	70	10	30	8
301.3	177.1	50	Temazepam (2)	40	10	50	6

Solid Phase Extraction Method

Sample Pre-treatment: Combine 100 μ L spiked urine, 30 μ L IMCS Room Temp buffer, 270 μ L water, and 10 μ L of IMCSzyme[®] RT onto the plate. Incubate for 15 minutes at room temperature.

96-Well Plate: Strata[®]-X Drug B Plus, 30 mg/well

Part No.: 8E-S128-TGB-P

Condition: Not required

Equilibration: Not required

Load: After incubation time is up, switch vacuum manifold on quickly to facilitate flow through the SPE sorbent

Wash 1: 1 mL of 1.0 % Formic acid in Water

Wash 2: 1 mL of Water/Methanol (70:30)

Dry: 10 minutes at high vacuum

Elute: 2x 0.5 mL 5 % Ammonium hydroxide in Methanol/Acetonitrile (50:50)

Dry Down: To dryness at 40 °C under a gentle stream of Nitrogen

Reconstitute: 100 μ L 0.1% Formic acid in Water/0.1% Formic acid in Methanol (85:15)

Analyte Retention Times

Analyte Name	Retention Time (min)
7-Aminoclonazepam	1.47
Alprazolam*	5.15
Alprazolam-D5	5.15
Clobazam*	4.79
Clobazam-13C6	4.79
Clonazepam	4.21
Clonazolam	4.51
Deschloretizolam+	5.66
Diazepam	5.56
Diazepam-D5	5.52
Diclazepam	5.33
Estazolam	5.00
Etizolam	5.57
Flualprazolam	4.83
Flubromazepam	4.49
Flubromazolam	5.01
Flunitrazolam	4.31
Lorazepam	3.93
N-Desmethyloclobazam^	4.03
Nordiazepam	4.71
Nordiazepam-D5	4.67
Oxazepam^	4.21
Oxazepam-D5	4.18
Phenazepam	4.67
Temazepam*	5.08

Legend:

* Isomeric Pair

+ Isobaric Pair

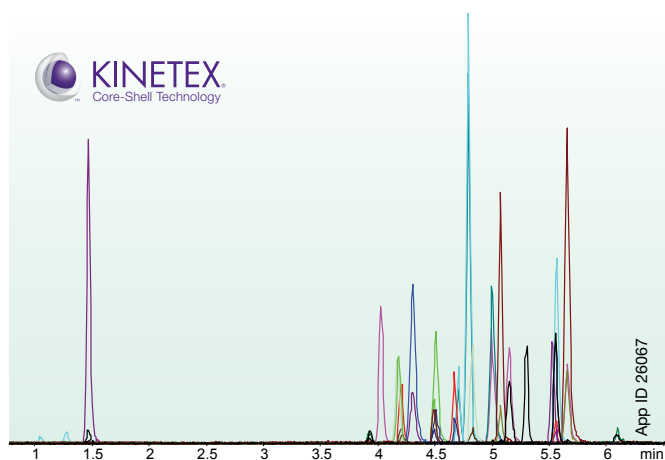
^ Isomeric Pair



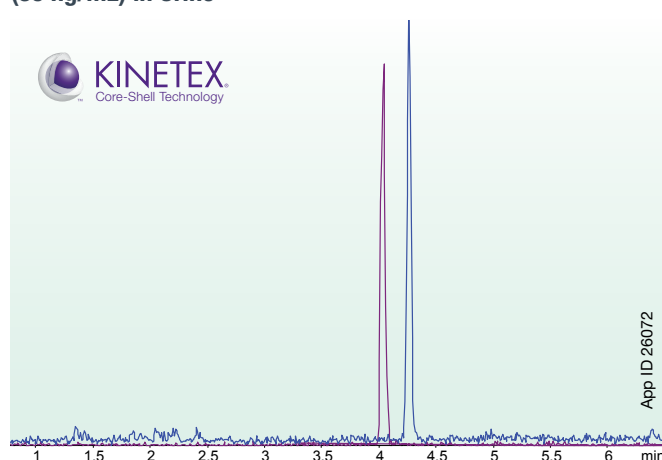
Designer Drugs from Urine

(feat. DJ Benzo) *cont'd*

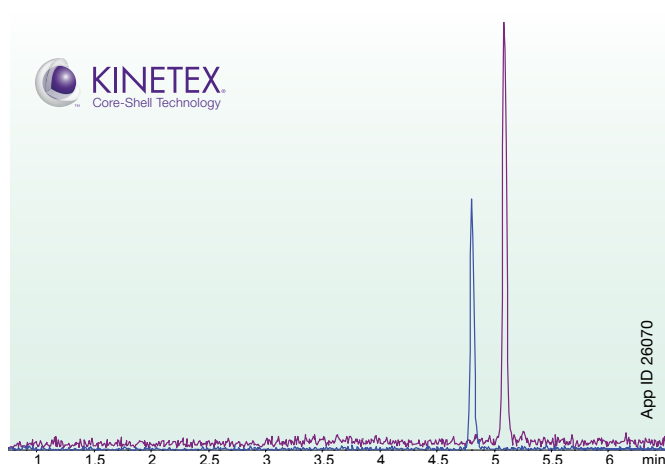
Representative Chromatogram, 400 ng/mL Neat Standard



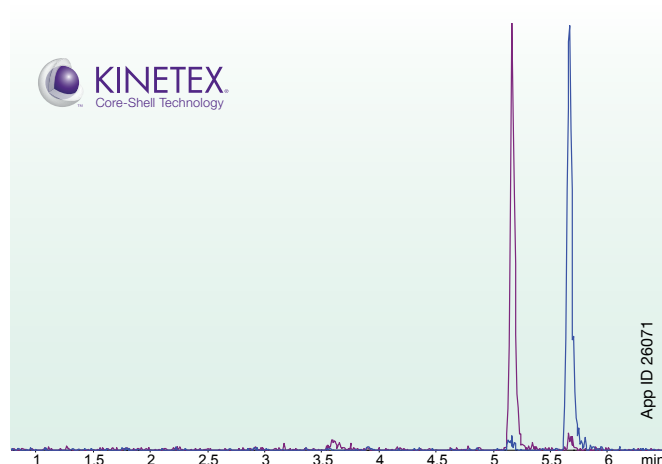
Oxazepam (1,000 ng/mL) and N-desmethyloclobazam (50 ng/mL) in Urine



Clobazam (10 ng/mL) and Temazepam (25 ng/mL) in Urine



Deschloretizolam and Alprazolam in Urine



HPLC Conditions

Column: Kinetex® 2.6 µm Biphenyl
Dimensions: 100 x 3.0 mm
Part No.: [00D-4622-Y0](#)
Mobile Phase: A: 0.1% Formic acid in Water
B: 0.1% Formic acid in Methanol

Gradient: Time (min)	% B
0	60
1	60
2	70
5	95
6	95
6.1	60
8	60

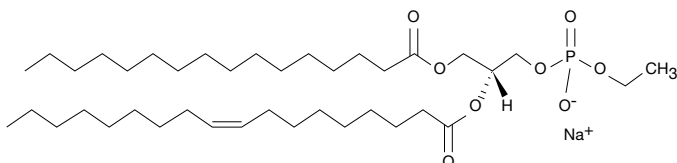
Flow Rate: 0.6 mL/min
Injection Volume: 1 µL
Temperature: 40 °C
System: Agilent® 1260
Detection: MS/MS (SCIEX® Triple Quad™ 4500, ESI+)
Detector: 6500 QTRAP® (SCIEX)
Backpressure: ~160 bar (250 bar at max)

Phosphatidylethanol (PEth)

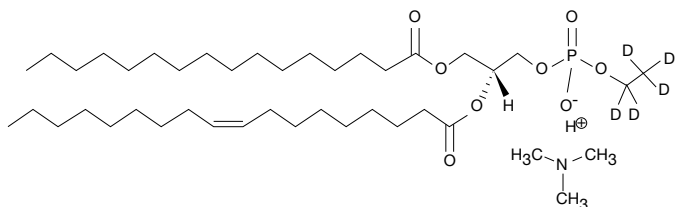
(Tribute to Whole Blood)

For a classic tribute band, nothing less than the best! PEth from whole blood can be a challenge, but a LC-MS/MS assay was developed to include a simple extraction procedure with an internal standard using a reverse phase sub-2 μm Luna Omega Polar C18 column for the separation. The assay has been evaluated and meet $\pm 15\%$ acceptance criteria.

Phosphatidylethanol (PEth) 16:0/18:1



d5-PEth 16:0/18:1 trimethylammonium salt



Mass Transitions

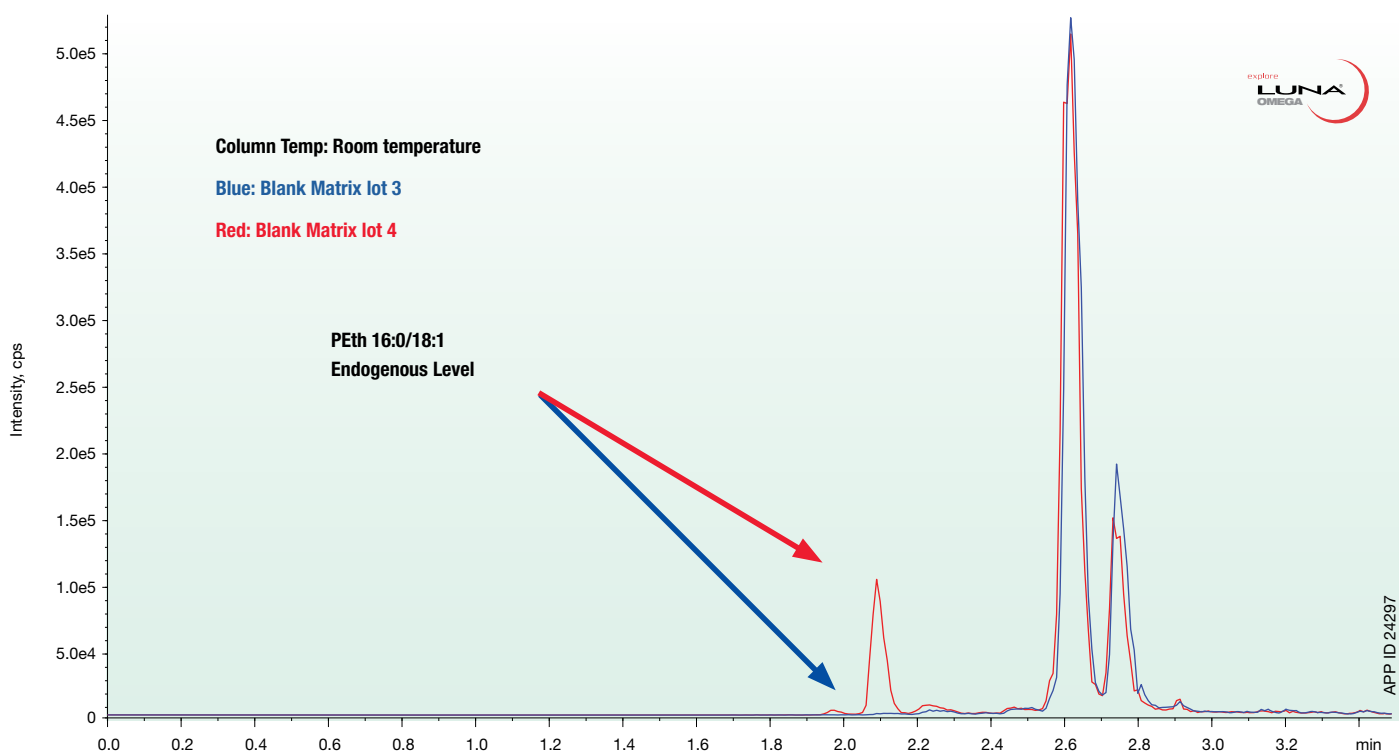
ID	Q1 Mass (Da)	Q3 Mass (Da)	Dwell (msec)
PEth 1	701.5	280.8	100
PEth 2*	701.5	254.9	100
PEth d5 1*	706.5	280.8	100
PEth d5 2	706.5	254.8	100

*Quantitation mass

Accuracy and Precision for 6 lots of blood

Analyte & IS ame	Low QC (60 ng/mL)	Mid QC (540 ng/mL)	High QC (1800 ng/mL)
Lot 1	62.2	560	1750
Lot 2	62.9	558	1500
Lot 3	46.8	591	1520
Lot 4	60.8	560	1700
Lot 5	61.7	627	1770
Lot 6	68.5	611	1780
Mean	60.5	585	1670
S.D.	7.24	29.8	127.1
%CV	11.97	5.11	7.61
%Theoretical	101	108.2	92.8
N	6	6	6

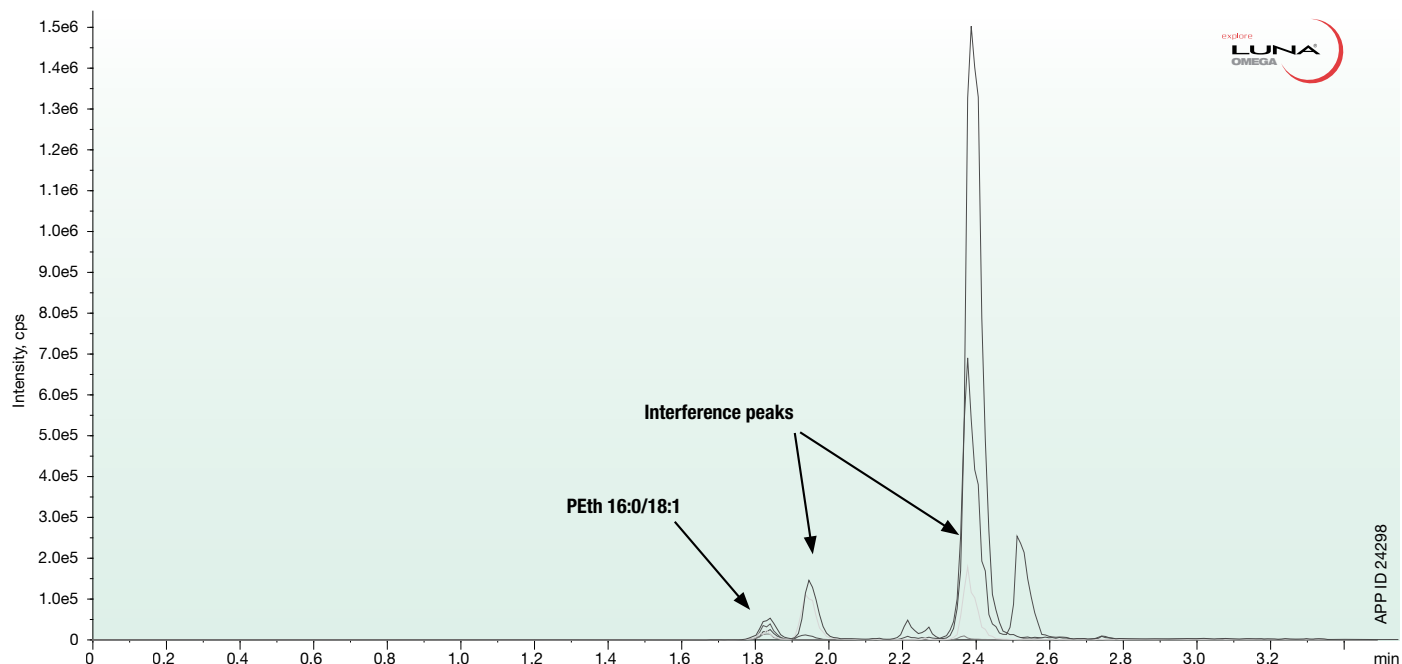
Representative chromatograms of endogenous level of PEth in blank human whole blood.



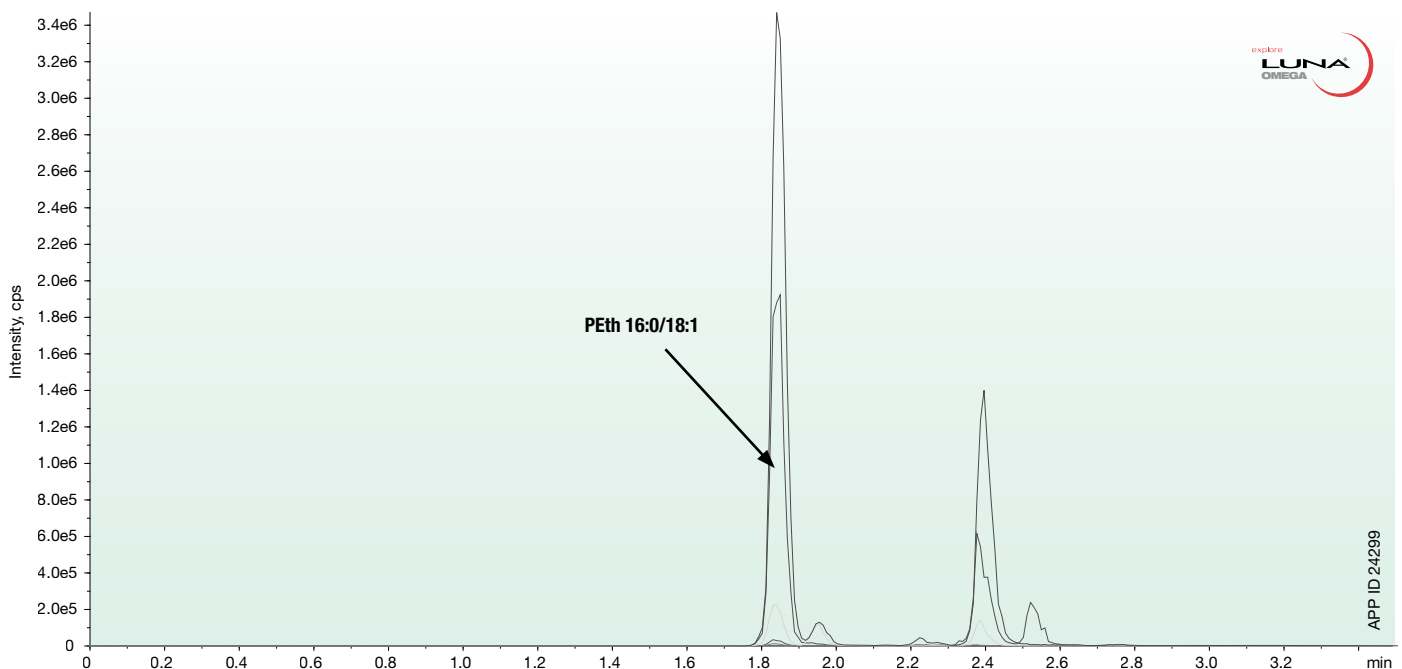
Phosphatidylethanol (PEth)

(Tribute to Whole Blood) *cont'd*

Representative chromatogram of LLOQ at 20 ng/mL in human whole blood at column temp 60 °C.



Representative chromatogram of ULOQ at 2000 ng/mL in human whole blood.



LC Conditions

Column: Luna Omega 1.6 µm Polar C18
Dimensions: 30 x 2.1 mm
Part No.: [00A-4748-AN](#)
Recommended Guard: SecurityGuard™ ULTRA
Part No.: [AJ0-9505](#)
Mobile Phase: A: Water / IPA / Acetonitrile with 5 mM Ammonium formate (30:10:60)
B: Water / IPA / Acetonitrile with 5 mM Ammonium formate (1:79:20)

Gradient:	Time (min)	% B
	0	10
	0.3	10
	0.31	40
	2	100
	2.5	100
	2.51	10
	3.5	10

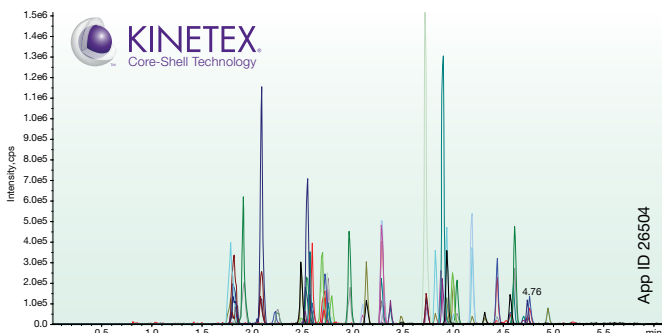
Flow Rate: 0.45 mL/min
Injection Volume: 10 µL
Temperature: 60 °C
Instrument: Agilent® 1260
Detection: MS/MS (SCIEX Triple Quad™ 4500), 4500, ESI, Neg Polarity (700 °C)

Comprehensive Drug Research Panel

from Serum, Whole Blood, and Urine (Remastered Edition)

In this new edition of our comprehensive drug research panel, the remastered analysis focuses on improving the quality of difficult or complex diverse matrices. Clean-up and LC-MS/MS for pain management drugs from serum, whole blood, and urine.

Serum



Sample Pre-treatment: 200 μ L of serum was aliquoted into a tube and 600 μ L of chilled (0 to -20°C) Acetonitrile/Methanol (95:5) was added and vortex/mixed for 5-10 seconds. The tube was centrifuged at 3000 rpm for 10 minutes and the supernatant was collected and 25 μ L of 1% formic acid was added.

Load: Pre-treated sample onto the Phree™
96-Well Plate

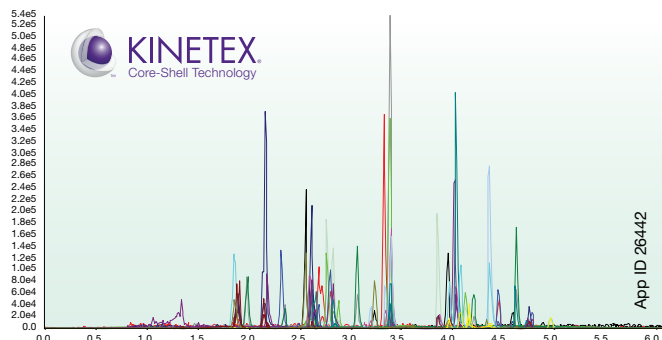
Part No.: 8E-S133-TGB

Vacuum: 4-5 psi to collect supernatant

Dry Down: Sample under a gentle stream of Nitrogen at 40-45°C

Reconstitute: In 200 μ L initial mobile phase

Whole Blood



Sample Pre-treatment: 200 μ L of serum was aliquoted into a tube and 600 μ L of chilled (0 to -20°C) Acetonitrile/Methanol (95:5) and 50 μ L 5% ZnSO₄ (w/v) was added to it. Vortex/mix the tube for 5-10 secs. The tube was centrifuged at 3000 rpm for 10 minutes and the supernatant was collected and 25 μ L of 1% formic acid was added.

Load: Pre-treated sample onto the Phree
96-Well Plate

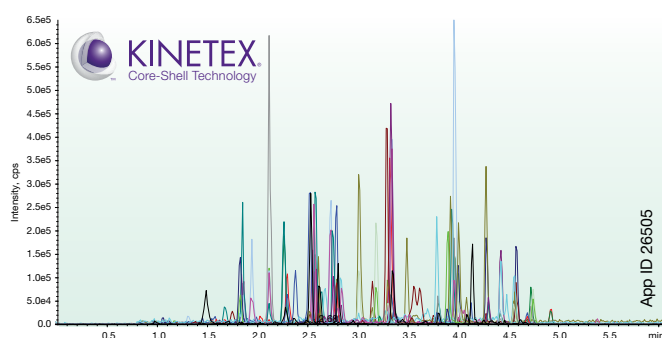
Part No.: 8E-S133-TGB

Vacuum: 4-5 psi to collect supernatant

Dry Down: Sample under a gentle stream of Nitrogen at 40-45°C

Reconstitute: In 200 μ L initial mobile phase

Urine



Sample Pre-treatment: Combine 200 μ L urine sample spiked with 40 μ L internal standard (500 ng/mL), 60 μ L hydrolysis buffer, 20 μ L of IMCSzyme® RT enzyme (Part No.: 04-RTB-030), on the Strata®-X-Drug B Plus 30 mg plate (Part No.: 8E-S128-TGB-P). Incubate at room temperature for 15 minutes.

Load: Add 200 μ L 0.1 % Formic acid in Water to the plate

Wash 1: 1 mL of 0.1 % Formic acid in Water

Wash 2: 1 mL of Water/Methanol (70:30)

Dry: 5 minutes at high vacuum (15-20" Hg)

Elute: 2x 0.5 mL Ethyl acetate/Isopropanol/Ammonium hydroxide (7:2:1)

Dry Down: Under gentle stream of Nitrogen at 40-45 °C

Reconstitute: 200 μ L initial mobile phase

LC Conditions

Column: Kinetex 2.6 μ m Biphenyl
Dimensions: 50 x 3.0 mm
Part No.: [00B-4422-Y0](#)
Mobile Phase: A: 0.1 % Formic acid in Water
B: 0.1 % Formic acid in Methanol

Gradient:	Time (min)	% B
	0	15
	3.5	95
	5	95
	5.01	15
	7	15

Flow Rate: 0.5 mL/min
Injection Volume: 5 μ L
Temperature: Ambient
Detection: SCIEX 4500™ MS/MS (ESI+)



Comprehensive Drug Research Panel

from Serum, Whole Blood, and Urine (Remastered Edition) *cont'd*

Peak No.	Analyte Name	RT (min)	Q1	Q3	Serum Phospholipid Removal		Whole Blood Phospholipid Removal		Urine SPE	
					% Rec.	% CV (N=4)	% Rec.	% CV (N=4)	% Rec.	% CV (N=4)
1	Alprazolam	4.8	309.1	281.1	107	5.6	108	5.5	74	6.7
2	Amphetamine	2.3	136.1	91.1	81	8.8	107	4.9	84	11.3
3	Benzoylcegonine	3.3	290.1	168.1	91	13.8	102	3.1	77	7.1
4	Codeine	2.6	300.2	152.1	91	15.2	76	13.9	86	5.4
5	Diazepam	4.9	285	193.2	91	12	98	5.7	73	11.9
6	MDMA	2.9	194.1	105.1	95	12.4	104	13.7	81	12.2
7	Methamphetamine	2.6	150.1	91	85	15	103	2.8	81	8.5
8	Norbuprenorphine	3.6	414.3	83.2	93	13.4	85	12.4	92	11.4
9	Oxazepam	4.4	287	241	100	5.1	106	7.8	74	4
10	Oxymorphone	2	302.1	227	73	4.8	81	8.9	99	11.1
11	PCP	4	244.3	91	95	10.3	111	3.3	91	4.4
12	Propoxyphene	4	340.3	266.3	100	10.6	89	12	97	11
13	Sufentanil	4.1	387.2	238.1	90	3.2	114	3.1	81	12.8
14	6MAM	2.57	328.1	165.1	80	13.5	83	3.3	91	14.6
15	Buprenorphine	3.9	468.3	55.2	97	10.6	113	10.5	71	12
16	Carisoprodol	3.9	261.1	176.2	98	11	86	5.3	80	14.5
17	Clonazepam	4.4	316.1	270.1	96	6.5	99	5.7	81	8
18	EDDP	4.2	278.2	234.2	88	4.8	82	11.6	80	12.8
19	Fentanyl	3.9	337.3	105.1	105	11.6	112	1.6	94	10.1
20	Flunitrazepam	4.7	314.1	268.2	97	3.3	83	9.1	81	7.6
21	Flurazepam	4	388.2	315.2	104	3.8	109	3.9	87	13
22	Hydrocodone	2.8	300.2	199	94	14.2	104	11.3	89	3.9
23	Hydromorphone	2.1	286.1	185.1	82	12.6	103	8.7	91	8.6
24	Lorazepam	4.3	321	275	109	12.3	86	15.3	79	9.3
25	MDA	2.7	180.1	133	93	8.8	90	4.4	94	7
26	MDEA	3	208.2	163	91	15.3	106	13.8	84	9.6
27	Meperidine	3.4	248.2	220.2	95	7.2	108	2.5	89	4.6
28	Methadone	4.4	310	265	99	7.1	105	3.1	99	6.9
29	Midazolam	4.1	326.1	291.1	93	8.6	108	5.5	76	13.4
30	Morphine	1.9	286.1	152.1	94	5.4	88	5.2	87	9.8
31	Naloxone	2.56	328.2	212	104	8.5	88	8.2	86	7.6
32	Naltrexone	2.8	342.2	267.1	92	10.5	84	15	98	3.7
33	Nordiazepam	4.64	271	140	98	8.9	105	1.6	82	5.5
34	Norfentanyl	3.2	233.2	84.1	94	11.2	97	4.3	87	5.7
35	Normeperidine	3.4	234.1	160.1	86	13.1	106	4.9	94	13.7
36	Norpropoxyphene	4.1	308.2	100.1	97	4.4	98	11.7	112	10.9
37	Oxycodone	2.8	316.1	241.2	110	7.6	86	8.2	87	11.4
38	Temazepam	4.7	301.1	255.1	89	5.8	110	3.1	76	12
39	Tramadol	3.2	264.1	58.1	89	13.9	104	9	95	8.7
% Recovery range for 39 analytes					73-110%		76-114%		71-99%	

High recoveries and low variation across different samples and clean-up solutions!

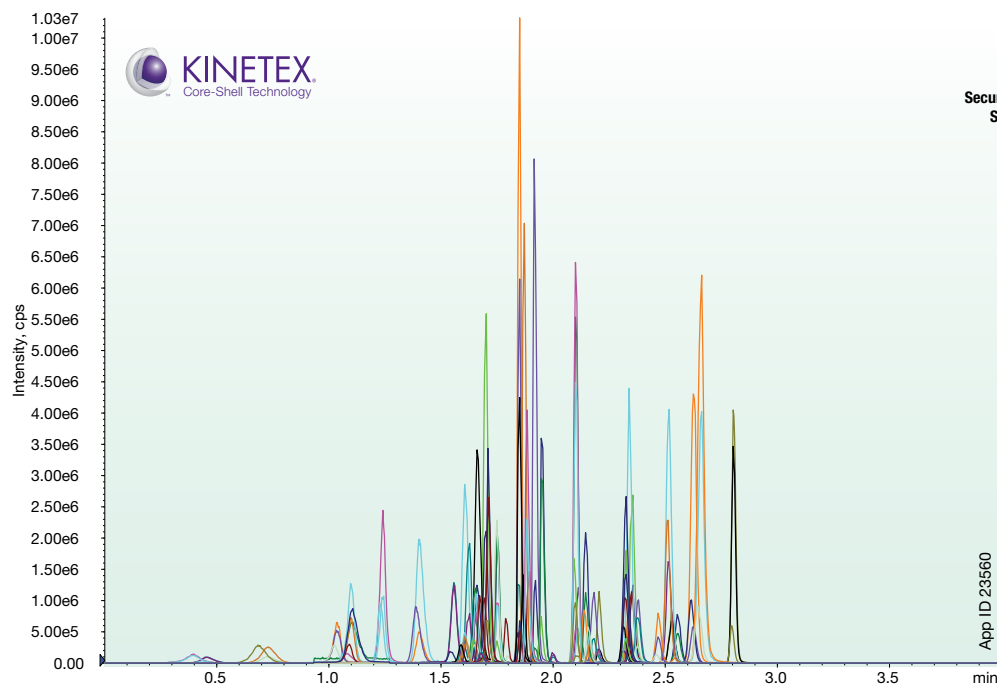


Comprehensive Drug Research Panel

(Extended Version)

In this award winning hit, separate different classes of drug compounds in less than 8 minutes using both ESI+ and ESI- modes, while still maintaining resolutions of all critical pairs including isobaric/isomeric compounds in a comprehensive drug research panel.

ESI+ panel



Column: Kinetex 2.6 μ m Biphenyl
Dimensions: 30 x 2.1 mm
Part No.: 00A-4622-AN
SecurityGuard™ ULTRA Cartridge: AJ0-9209
SecurityGuard ULTRA Holder: AJ0-9000
Mobile Phase: A: 10 mM Ammonium Formate in Water (pH unadjusted)
 B: 1.0 % Formic Acid in Methanol
Gradient:

Time (min)	% B
0	5
1.2	30
1.3	55
2.3	70
2.4	95
2.7	95
2.72	5
4	5

Flow Rate: 1.0 mL/min
Temperature: 30 °C
Injection Volume: 15 μ L
Detector: MS/MS (SCIEX 6500 QTRAP®)

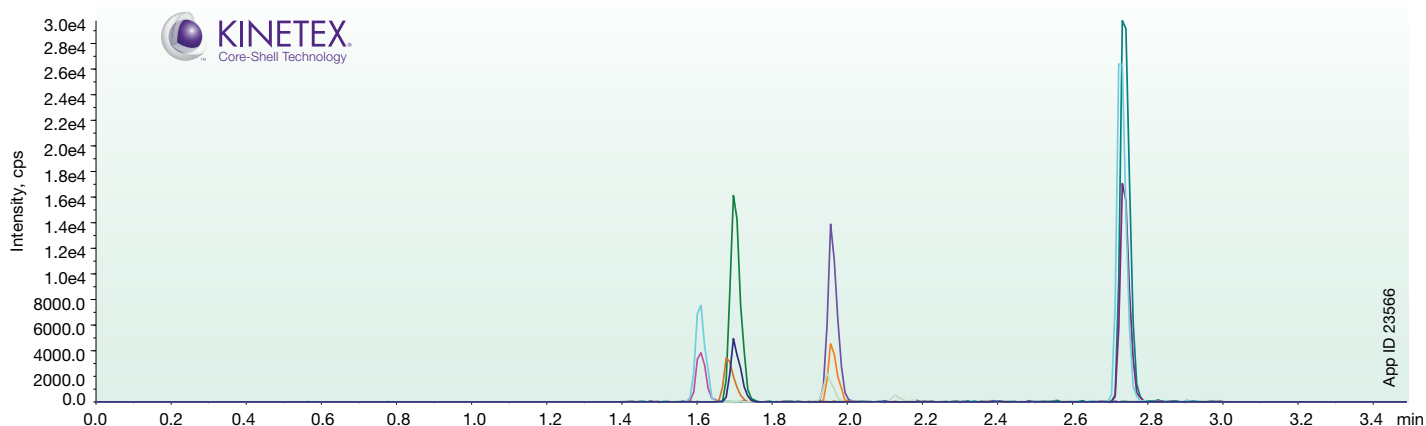
Analyte	Retention Time (min)	Analyte	Retention Time (min)	Analyte	Retention Time (min)	Analyte	Retention Time (min)
6-MAM	1.7	Diazepam	2.8	Methadone	2.5	O-Desmethyltramadol	1.6
7-Aminoclonazepam	2.0	EDDP	2.3	Methamphetamine	1.4	Oxycodone	1.7
α -Hydroxyalprazolam	2.5	Fentanyl	2.1	Methylphenidate	1.9	Oxymorphone	1.1
Alprazolam	2.7	Fluoxetine	2.2	Morphine	1.0	Paroxetine	2.3
Amitriptyline	2.4	Gabapentin	0.7	Naloxone	1.6	PCP	2.2
Amphetamine	1.1	Hydrocodone	1.7	Norbuprenorphine	2.0	Pregabalin	0.4
Benzoylcegonine	1.8	Hydromorphone	1.2	Nordiazepam	2.5	Sertraline	2.5
Buprenorphine	2.2	Imipramine	2.3	Norfentanyl	1.8	Tapentadol	1.8
Carisoprodol	2.1	Lorazepam	2.3	Norhydrocodone	1.6	Temazepam	2.6
Citalopram	2.1	MDMA	1.6	Noroxycodone	1.5	Tramadol	1.9
Codeine	1.6	Meperidine	1.9	Normorphine	0.4	Zolpidem	2.1
Cotinine	1.7	Meprobamate	1.9	Nortriptyline	2.3	Zolpidem-4-carboxylic Acid	1.9



Comprehensive Drug Research Panel

(Extended Version) *cont'd*

ESI- panel



Column: Kinetex 2.6 μ m Biphenyl
Dimensions: 30 x 2.1 mm
Part No.: [00A-4622-AN](#)
SecurityGuard™ ULTRA Cartridge: [AJ0-9209](#)
SecurityGuard ULTRA Holder: [AJ0-9000](#)
Mobile Phase: A: 10 mM Ammonium Formate in Water (pH unadjusted)
B: 0.1 % Formic Acid in Methanol
Gradient:

Time (min)	% B
0	10
0.2	10
2.5	90
2.9	90
3	10
3.5	10

Flow Rate: 1.0 mL/min
Temperature: 40 °C
Injection Volume: 15 μ L
Detector: MS/MS (SCIEX® 6500 QTRAP®)

Analyte	Retention Time (min)
Butalbital	1.7
Phenobarbital	1.6
Secobarbital	2.0
THC-COOH	2.7

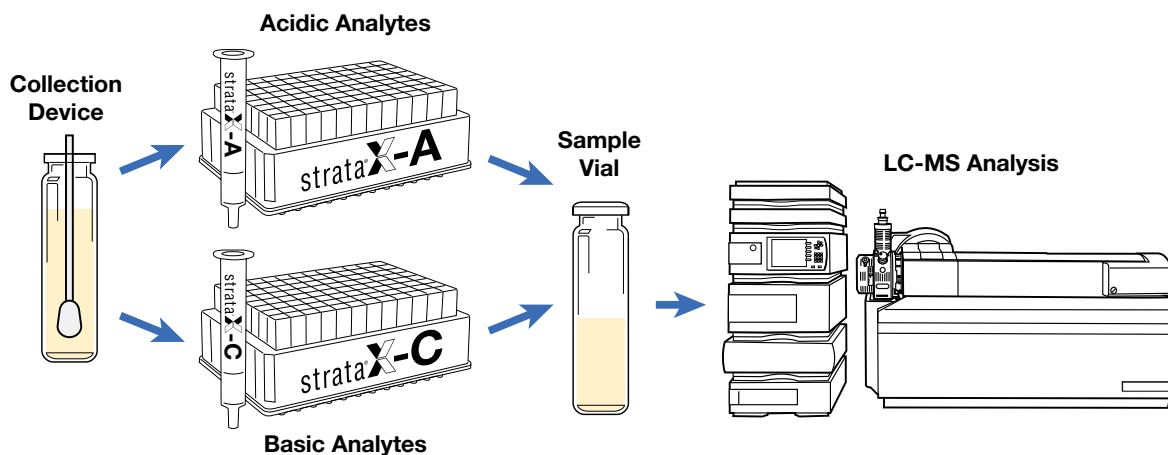
Need help with a method?
Chat now with our LIVE technical experts

www.phenomenex.com/Chat

Oral Fluid Sample Prep

(Clean Version)

A super clean version of the hottest anthem appropriate for listeners around the world. Learn how to reduce the negative effects of oral fluid device buffer solutions, while maintaining a reproducible and consistent recovery of analytes, using a two cartridge Solid Phase Extraction (SPE) clean-up solution.



SPE Method

Step	Basic analyte extraction	Acidic analyte extraction
Product Name:	Strata®-X-C, 30 mg in 3 mL cartridge	Strata-X-A, 30 mg in 3 mL cartridge
Part Number:	8B-S029-TBJ	8B-S123-TBJ
Condition:	1 mL 100% Methanol	1 mL 100% Methanol
Equilibrate:	1 mL DI Water	1 mL DI Water
Load:	Combine 0.5 mL of pre-treated sample with 1 mL 1% Formic acid, mix/vortex 5-10 sec and load on Strata-X-C.	Combine 0.5 mL of pre-treated sample with 1 mL 1% Ammonium hydroxide, mix/vortex 5-10 sec and load on Strata-X-A.
Weak Wash:	1 mL DI Water	1 mL DI Water
Strong Wash:	1 mL Acetone/Water (50:50)	1 mL Acetone/Water (50:50)
Dry down:	3-4 minutes at maximum vacuum (15" Hg or higher)	3-4 minutes at maximum vacuum (15" Hg or higher)
Elute:	2 x 500 µL Methanol/Acetonitrile/Ammonium hydroxide (5:5:2)	2 x 500 µL Methanol/Acetonitrile/Formic acid (50:50:5)
Dry down:	Evaporate to dryness under gentle Nitrogen @ 45-50 °C	Evaporate to dryness under gentle Nitrogen @ 45-50 °C
Reconstitute:	With 125 µL initial Mobile Phase	With 125 µL initial Mobile Phase
Combine into a single sample vial		

*If not testing for THC-COOH, lorazepam and other select barbiturates, use Strata-X-C only.



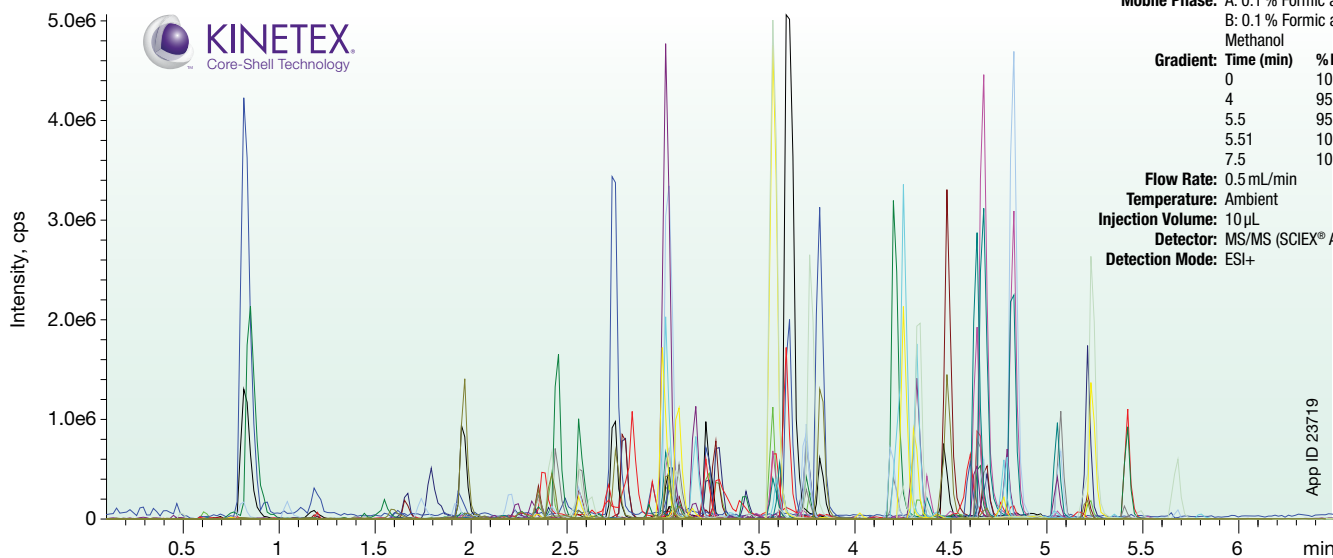
View analyte recovery information
www.phenomenex.com/toxhits

Oral Fluid Sample Prep

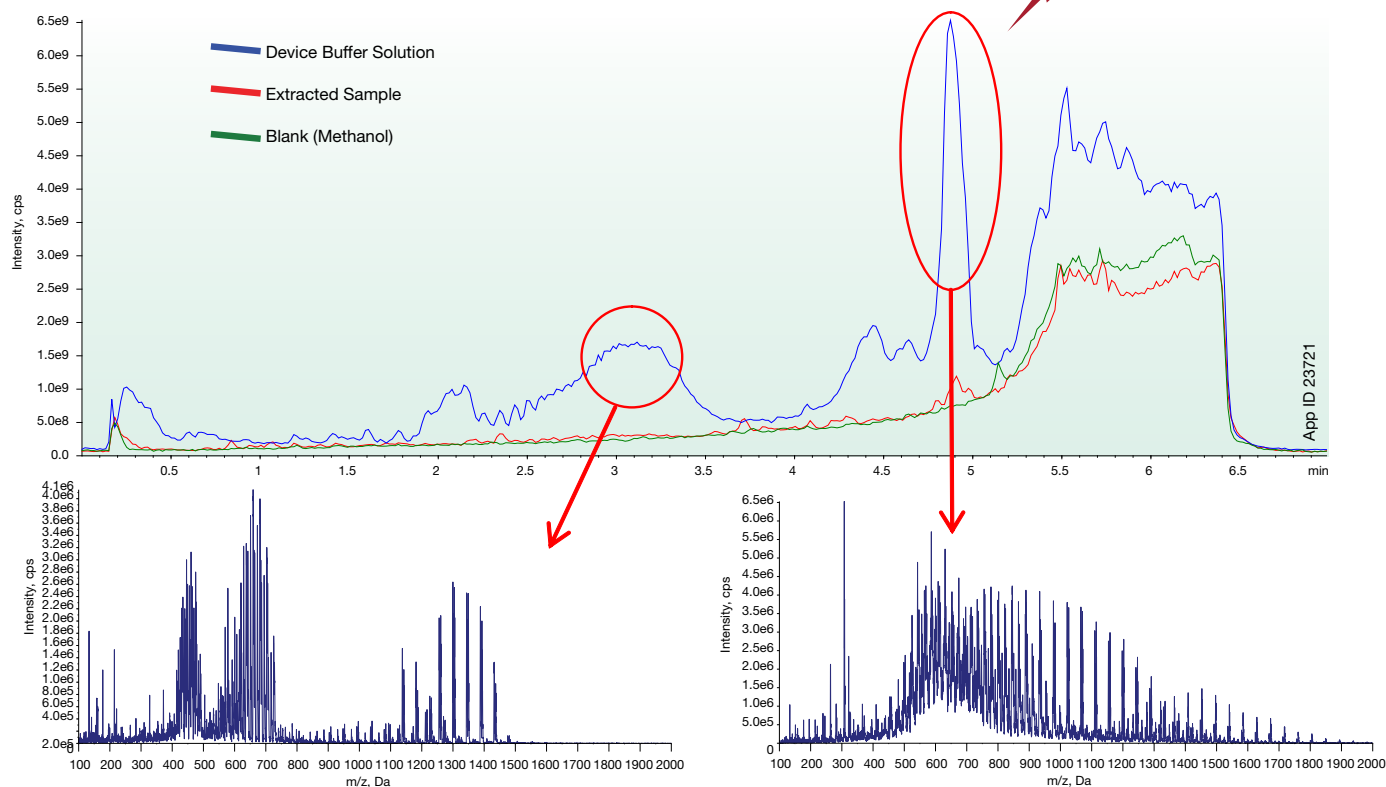
(Clean Version) *cont'd*

Representative LC-MS Chromatogram of Comprehensive Drug Research Panel

Positive ESI Panel



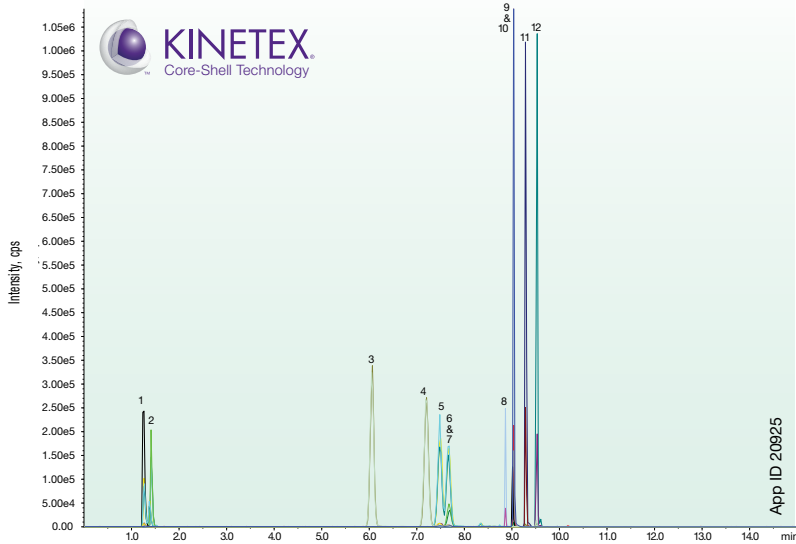
Q1 Scan of Quantisal® Buffer Solution



Synthetic Cannabinoids in Urine

(Spicy Club Mix)

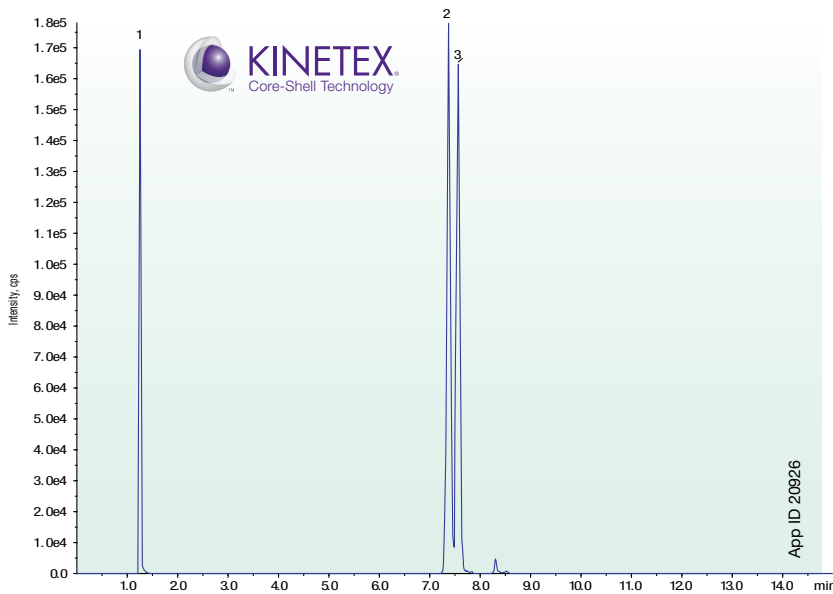
Playing in the hottest clubs around the globe, this application provides a reliable and reproducible analytical method for synthetic cannabinoid separation that is suitable for use down to levels as low as 1 ng/mL with a Kinetex C18 LC column.



Column: Kinetex 2.6 μ m C18
Dimensions: 150 x 3.0 mm
Part No.: [00F-4462-Y0](#)
SecurityGuard™ ULTRA Cartridge: [AJ0-8775](#)
SecurityGuard ULTRA Holder: [AJ0-9000](#)
Mobile Phase: A: 10 mM Ammonium formate
 B: Acetonitrile
Gradient:

Time (min)	% B
0	45
7	50
7.01	95
10	95

Flow Rate: 0.6 mL/min
Inj. Volume: 10 μ L
Temperature: Ambient
Detection: MS/MS (SCIEX® API 4000™)
Sample: 1 mL of human urine spiked with analytes at 50 ng/mL
 1. JWH073-butanoic acid metabolite
 2. JWH018-pentanoic acid metabolite
 3. JWH073-4-hydroxybutyl metabolite
 4. JWH073-3-hydroxybutyl metabolite
 5. JWH018-5-hydroxypentyl metabolite
 6. JWH018-4-hydroxypentyl metabolite
 7. AM2201-4-hydroxypentyl metabolite
 8. AM694
 9. AM2201
 10. [D5-AM2201](#)
 11. JWH073
 12. JWH018



Column: Kinetex 2.6 μ m C18
Dimensions: 150 x 3.0 mm
Part No.: [00F-4462-Y0](#)
SecurityGuard ULTRA Cartridge: [AJ0-8775](#)
SecurityGuard ULTRA Holder: [AJ0-9000](#)
Mobile Phase: A: 10 mM Ammonium formate
 B: Acetonitrile
Gradient:

Time (min)	% B
0	45
7	50
7.01	95
10	95

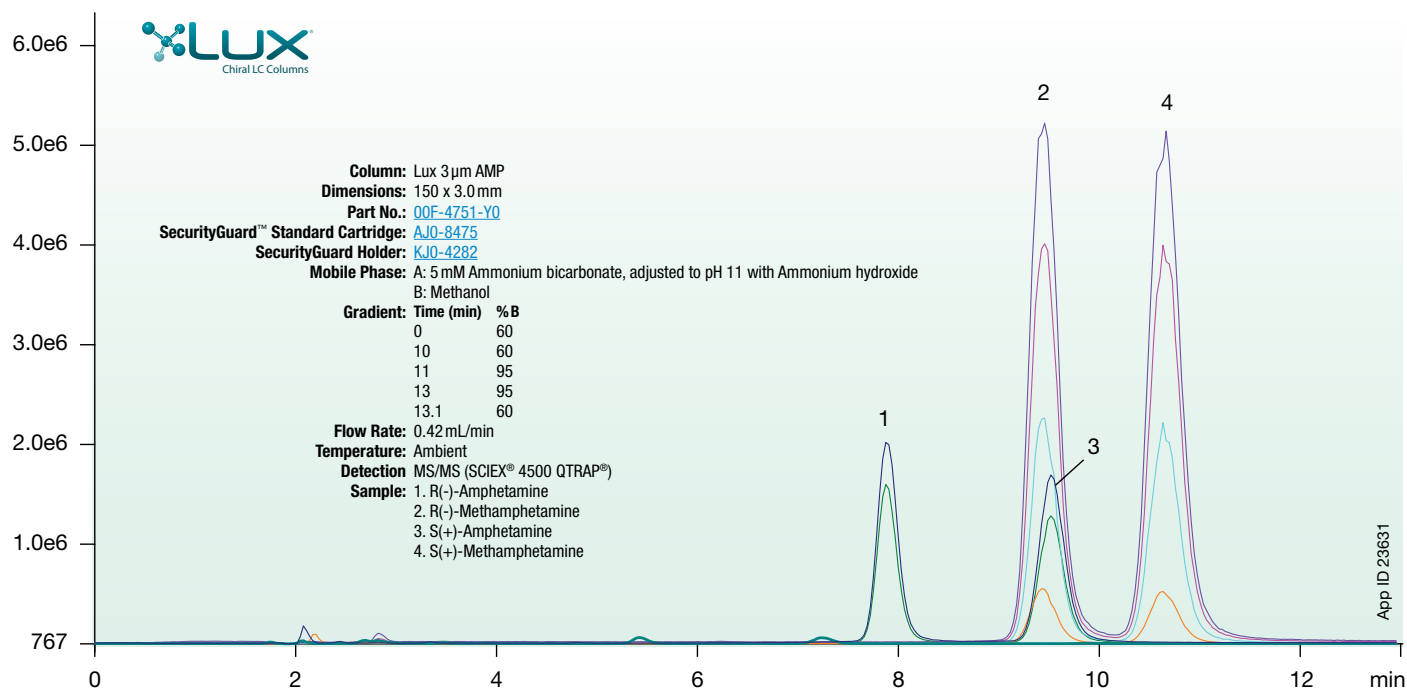
Flow Rate: 0.6 mL/min
Inj. Volume: 10 μ L
Temperature: Ambient
Detection: MS/MS (SCIEX API 4000)
Sample: 1 mL of urine spiked with analytes at 50 ng/mL
 1. JWH073-butanoic acid metabolite
 2. JWH018-5-hydroxypentyl metabolite
 3. JWH018-4-hydroxypentyl metabolite

View SPE Protocol at
www.phenomenex.com/toxhits

Chiral Amphetamines

(feat. DJ Lux AMP)

Along with the famous DJ Lux AMP, this club banger has taken the world by storm by providing a method for the difficult to separate chiral molecules, such as amphetamines and methamphetamines, without the need for derivatization.



Questions about these top toxicology hits?

Chat with a LIVE technical expert now!

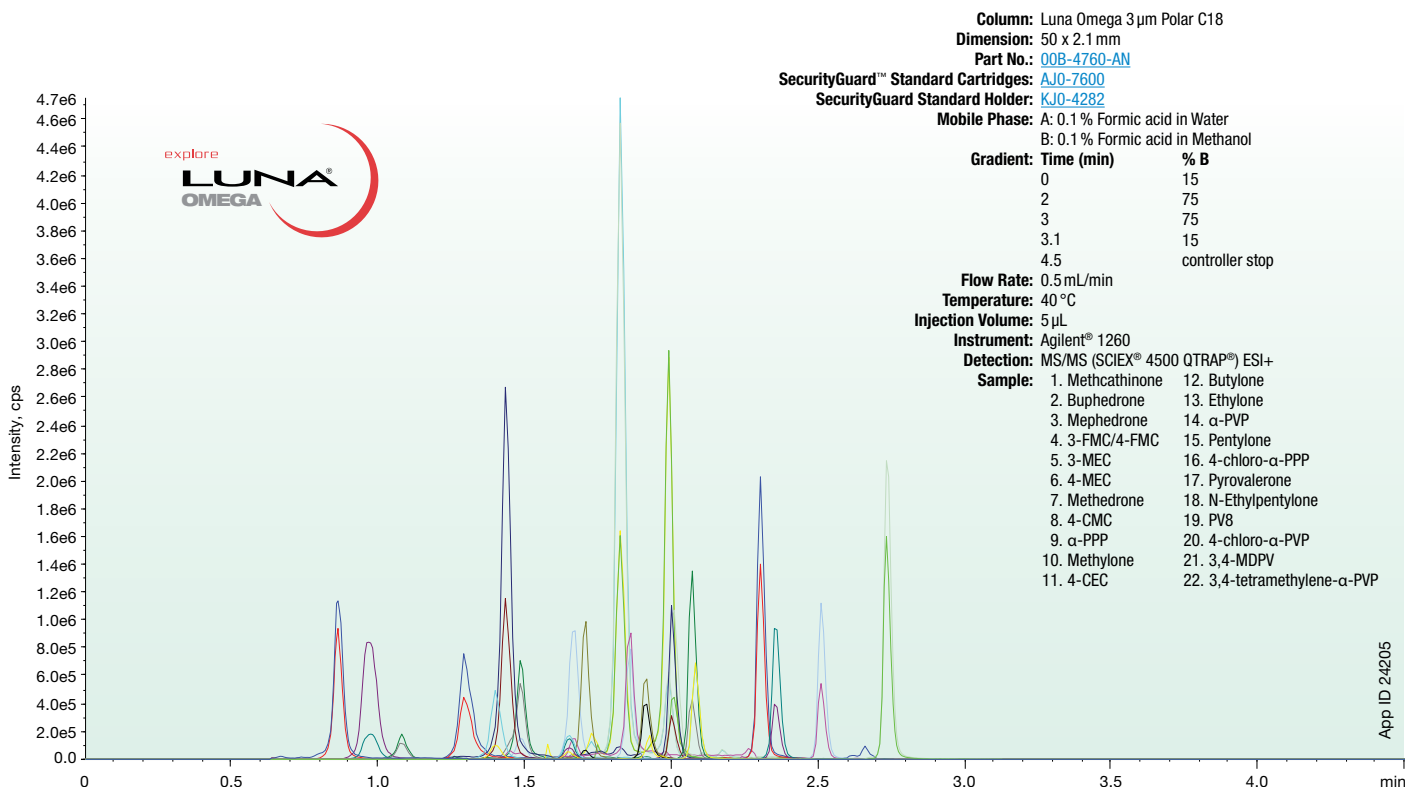
www.phenomenex.com/Chat

Synthetic Cathinones in Urine

(Spa Mix)

Chill out with the relaxed spa version of this application. Calmly separate synthetic cathinones (bath salts) using both a fully porous Luna Omega Polar C18 LC column for an expanded bath salts panel with great resolution and a core-shell Kinetex® C18 LC column for a simple separation of 5 common synthetic cathinones.

Extracted Ion Chromatogram of Bath Salts in Urine



Luna Omega C18 (1.6 µm, 3 µm, 5 µm)

Exciting Reproducibility Through New Manufacturing Process

Fully Scalable Selectivity UHPLC to HPLC to PREP

The USP L1 Column to Start Methods With

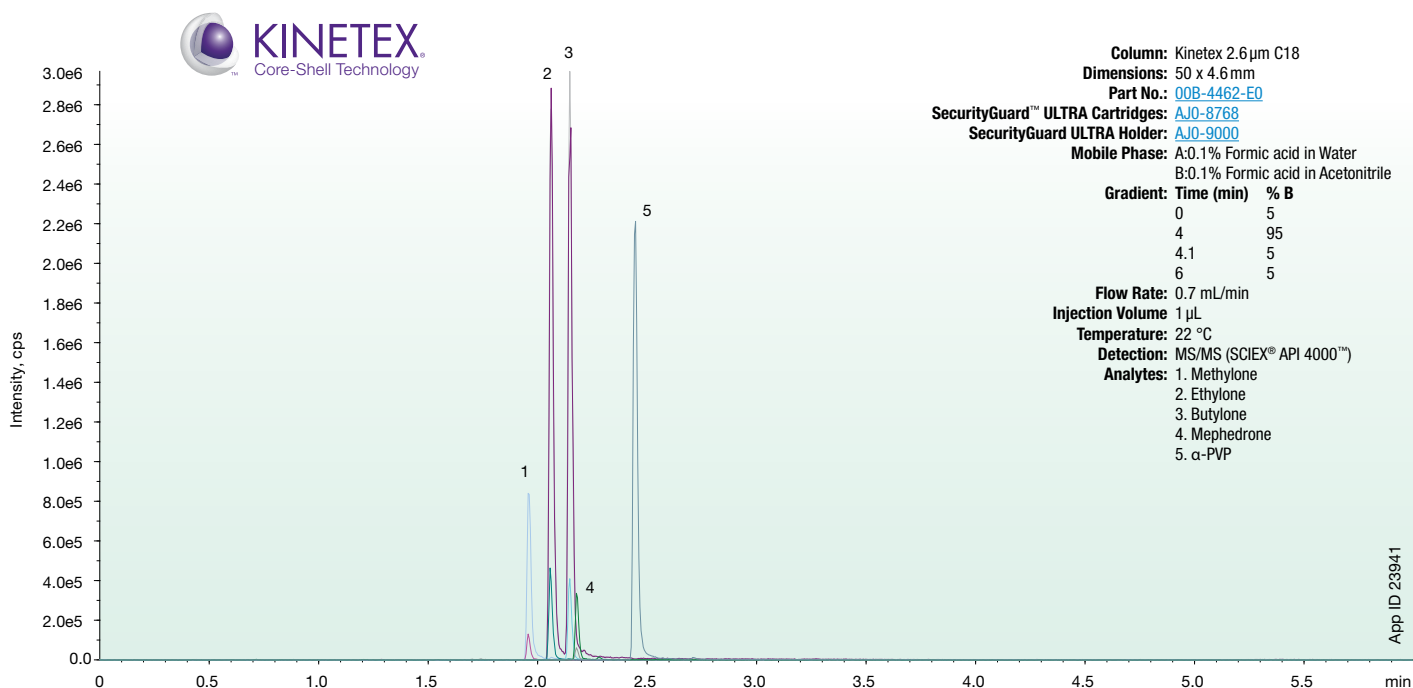
High Durability and Mechanical Strength

www.phenomenex.com/lunaomega

Synthetic Cathinones in Urine

(Spa Mix) *cont'd*

Extracted Ion Chromatogram of Bath Salts in Urine



Upgrade your sample prep with **Strata®-X Drug B Plus**

In-well hydrolysis solution to save time and resources.

No conditioning or equilibration required.

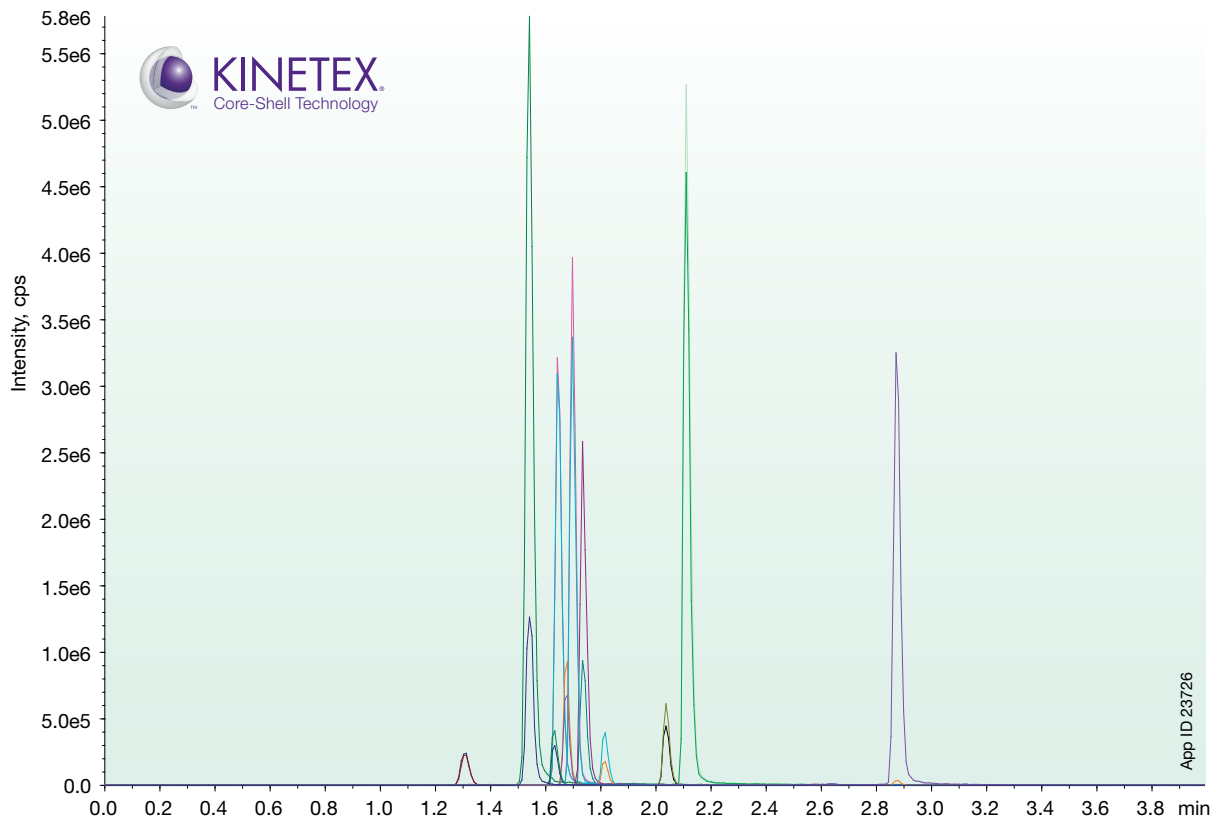
QC tested on drugs of abuse.

www.phenomenex.com/toxhits

SAMHSA 5

(Bonus Track)

Listeners requested a bonus track that gives a quick and easy method for separation of common drugs across the Substance Abuse and Mental Health Services Administration (SAMHSA) 5 categories: amphetamines, cocaine, marijuana, opiates, and PCP.



Column: Kinetex 5 μ m Biphenyl
Dimensions: 50 x 3.0 mm
Part No.: [00B-4627-Y0](#)
SecurityGuard™ ULTRA Cartridges: [AJ0-9208](#)
SecurityGuard ULTRA Holder: [AJ0-9000](#)
Mobile Phase: A: 0.1 % Formic Acid in Water
B: 0.1 % Formic Acid in Methanol
Gradient:

Time (min)	% B
0	5
1.5	98
2.5	98
2.51	5
4	5

Flow Rate: 0.6 mL/min
Injection Volume: 10 μ L
Temperature: Ambient
Detection: MS/MS (SCIEX® 4500 QTRAP®)

Analyte	Retention Time (min)
Amphetamine	1.49
Methamphetamine	1.58
MDA	1.61
MDMA	1.66
MDEA	1.73
PCP	1.98
Morphine	1.22
Benzococgonine	1.92
Codeine	1.56
6-MAM	1.62
THC-COOH	2.65

Urine Sample Prep Medley

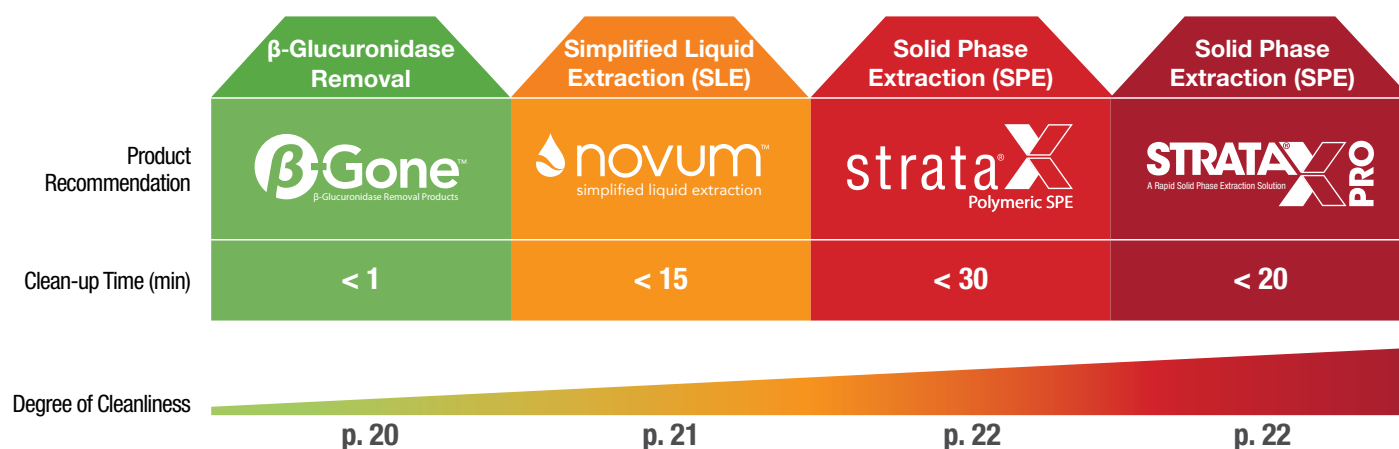
(Feat. β - Glucuronidase Removal, SLE, and SPE)

These are recommendations for urine pre-treatment protocols independent of specific analytes or quality of the matrix. To learn about what method works best for your specific needs, chat with a live technical expert at www.phenomenex.com/chat

Urine Pre-treatment

Acid Hydrolysis	Enzymatic Hydrolysis
<ol style="list-style-type: none"> To 2 mL urine sample, add 500 μL concentrated hydrochloric acid. Heat at 90 °C for 2 hours. Add 2 mL of 200mM Sodium acetate buffer (pH 4.0). Add 1 mL of 6 N Potassium hydroxide (KOH). Vortex. Centrifuge for 5-6 minutes at 5,000-5,500 rpm (20-22 °C). Verify pH of sample is between 4.0 – 6.0. Load pre-treated sample directly onto Sample Preparation sorbent 	<ol style="list-style-type: none"> Dilute 500 μL urine with 100 μL buffer* and 20 μL of 100,000 units/mL β-glucuronidase in a 96-well collection plate. Vortex for 5-6 seconds. Incubate in a water bath at 62 °C for 30 minutes. If performing SPE, transfer sample to a 96-well collection plate or autosampler vial, seal and centrifuge for 10 minutes at 2,000 rpm. Load supernatant onto Strata-X-Drug B sorbent. If performing rapid removal of β-glucuronidase, dilute 200 μL urine hydrolysate with 133 μL of 0.1 % formic acid in methanol and load onto β-Gone™.
<p>*Buffer prepared by adding 800 mL deionized water and 111 mL glacial acetic acid to a 1 L volumetric flask, adjust final volume to the line with a 50 % KOH solution and mix by inversion.</p>	

Select the Appropriate Sample Prep Technique



Urine Sample Prep Medley

(Feat. β - Glucuronidase Removal, SLE, and SPE) *cont'd*

β - Gone β - Glucuronidase Removal

In under 1 minute, eliminate β -Glucuronidase from your urine sample with only 2 steps.

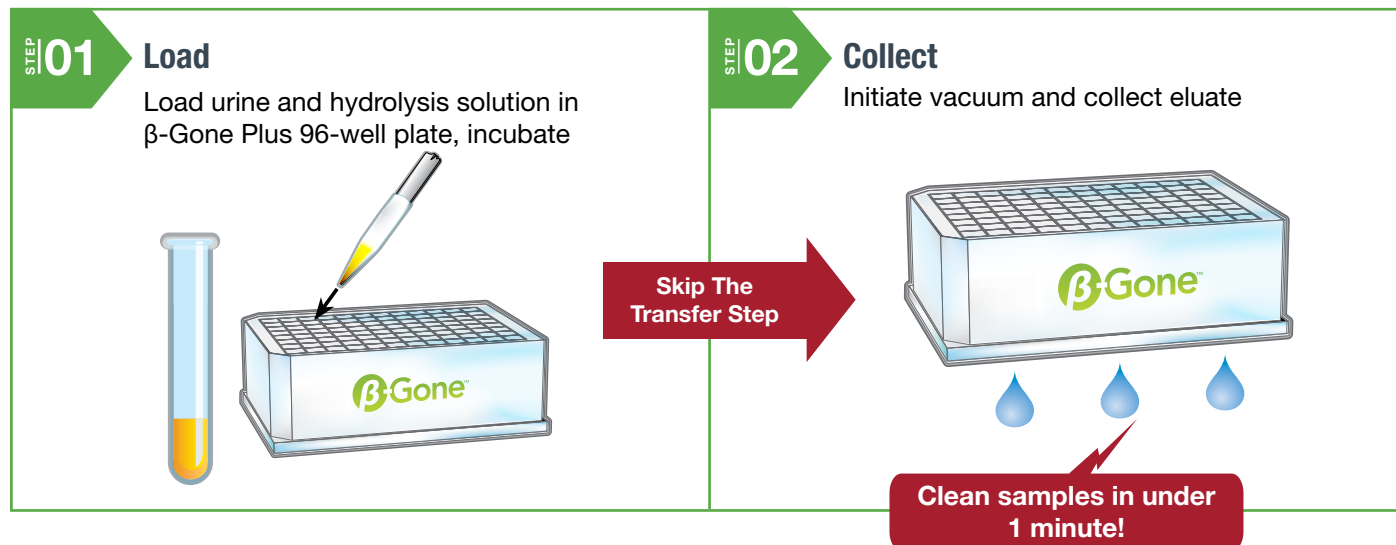
- Increase HPLC/UHPLC column lifetime
- Reduce mass spec maintenance
- Maintain the selectivity of your HPLC/UHPLC column
- Now available in Plus format for in-well hydrolysis for additional time savings!



β - Gone Protocol

Pre-treatment: Perform enzymatic hydrolysis according to vendors instructions.

1. Dilute 200 μ L of Urine Hydrolysate with 133 μ L of Formic Acid in Methanol.
2. Load dilute sample onto plate/tube. Apply 2-5 psi vacuum and collect eluent.



β -Gone β -Glucuronidase Removal Products

β -Gone		
Part No.	Description	Unit
8B-S139-TAK	1 mL Tubes, Recombinant Enzyme	100/Box
8B-S322-DAK	1 mL Tubes, Non-Recombinant Enzyme	100/Box
8E-S139-TGA	96-Well Plate, Recombinant Enzyme	1/Box
8E-S322-DGA	96-Well Plate, Non-Recombinant Enzyme	1/Box
8E-S323-TGA	96-Well Plate Plus 30 mg/well, Recombinant/Non-recombinant Enzyme	1/Box
8E-S323-UGA	96-Well Plate Plus 60 mg/well, Recombinant/Non-recombinant Enzyme	1/Box
8N-S323-TUK	2 mL Centrifuge Tubes, Recombinant and Non-Recombinant Enzyme	100/Box

Learn more at:
[www.phenomenex.com/
betagone](http://www.phenomenex.com/betagone)

Urine Sample Prep Medley

(Feat. β - Glucuronidase Removal, SLE, and SPE) *cont'd*

Novum Simplified Liquid Extraction (SLE)

Simplify your Liquid-Liquid Extraction (LLE) and improve your results.

- Remove unwanted interferences, such as proteins and phospholipids from biological samples
- Rapid, automatable procedure
- Provide consistent, accurate results from lot-to-lot



An Easy, Automatable Procedure

Pre-treatment: Dilute samples at least 1:1 (v/v) with aqueous buffer.

1. Place the Novum SLE product on a suitable vacuum or positive pressure manifold and load the sample onto the sorbent. Apply 5" Hg vacuum for 10 seconds to initiate loading. Once the sample is completely soaked into the sorbent, wait 5 minutes.
2. Apply a preferred elution solvent and allow it to completely elute from the sorbent via gravity. Apply 5" Hg vacuum for up to 60 seconds to finish the extraction.

STEP 01 Load
Your Sample in Aqueous Solvent

STEP 02 Collect
Your Target Analytes in Water Immiscible Solvent

Novum SLE 96-Well Plates

Novum SLE 96-Well Plates		
Part No.	Description	Unit
8E-S138-FGA	Novum SLE MINI 96-Well Plate	1/pk
8E-S138-5GA	Novum SLE MAX 96-Well Plate	1/pk
8E-S539-FGA	Novum PRO SLE MINI, 96-Well Plate	1/pk
8E-S539-5GA	Novum PRO SLE MAX, 96-Well Plate	1/pk

SLE

Novum SLE Tubes Tubes		
Part No.	Description	Unit
8B-S138-FAK	Novum SLE 1 cc tubes	100/Box
8B-S138-5BJ	Novum SLE 3 cc tubes	50/Box
8B-S138-JCH	Novum SLE 6 cc tubes	30/Box
8B-S138-KDG	Novum SLE 12 cc tubes	20/Box

Learn more at:
www.phenomenex.com/novum

Urine Sample Prep Medley

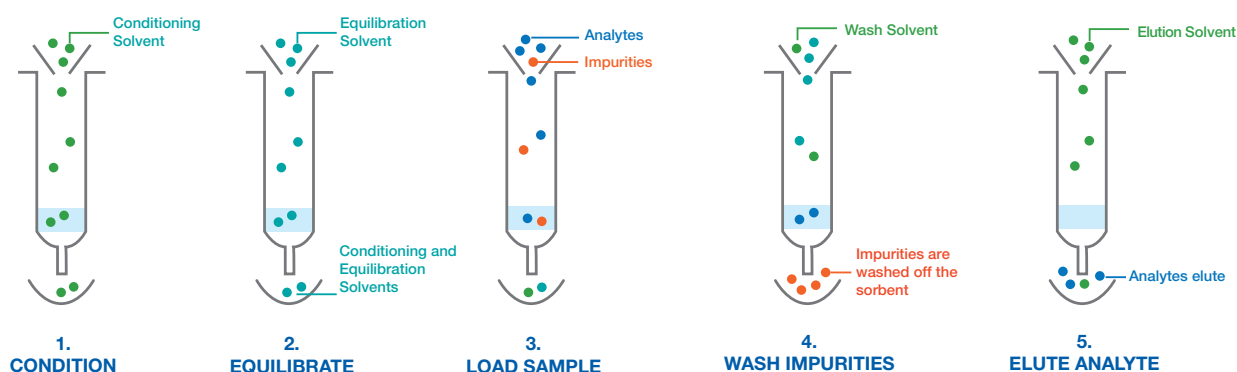
(Feat. β - Glucuronidase Removal, SLE, and SPE) *cont'd*

Strata-X Solid Phase Extraction (SpE)

A very targeted form of sample preparation that allows you to isolate your analyte of interest while removing any interfering compounds that may be present in your sample.



- Targeted analyte extraction for cleaner analysis
- Concentration of samples for better chromatographic results
- Reproducible and automatable
- Specialized sorbent designed and QC tested for drugs of abuse analysis with no conditioning or equilibration steps required (Strata-X-Drug B and Strata-X Drug N)



Strata-X-Drug B Plus for In-Well Urine Hydrolysis

Perform your enzyme hydrolysis in a 96-well SPE plate!

After incubation is completed, simply apply 5 Hg to pull hydrolysis solution through the well and continue SPE protocol.



- Save time and eliminate transfer step
- Consolidate methods; 3 methods is all you'll need to extract 6 different drug classes
- Time and solvent savings; no conditioning required

Redefine Your Solid Phase Extraction with Strata-X PRO!

- Polymeric sorbent with matrix removal technology provides unparalleled reproducibility
- Easily process more samples in half the time
- Reduce protocol time by at least 40% with 3-step and 2-step SPE
- Experience cutting edge performance first-hand
- High recoveries without conditioning or equilibration

Strata-X PRO SPE

Part Number	Sorbent Mass	Unit
Tube		
8B-S536-AAK	10 mg	1 mL (100/box)
8B-S536-TAK	30 mg	1 mL (100/box)
8B-S536-TBJ	30 mg	3 mL (50/box)
8B-S536-UBJ	60 mg	3 mL (50/box)
8B-S536-FBJ	200 mg	3 mL (50/box)
8B-S536-ECH	100 mg	6 mL (30/box)
8B-S536-FCH	200 mg	6 mL (30/box)
8B-S536-HCH	500 mg	6 mL (30/box)
96-Well Plate		
8E-S536-AGA	10 mg/well	ea
8E-S536-TGA	30 mg/well	ea
8E-S536-UGA	60 mg/well	ea
96-Well Microelution Plate		
8M-S536-4GA	2 mg/well	ea

Tab-less tubes available. Contact Phenomenex for details

Additional formats available, contact your local Phenomenex office for more information.



Album Ordering Information

Strata-X and Presston

Strata-X Polymer-Based SPE Sorbents

96-Well Plates (2/Box)			
Phase	10 mg	30 mg	60 mg
Strata-X-AW	8E-S038-AGB	8E-S038-TGB	8E-S038-UGB
Strata-X-A	8E-S123-AGB	8E-S123-TGB	8E-S123-UGB
Strata-X	8E-S100-AGB	8E-S100-TGB	8E-S100-UGB
Strata-X-C	8E-S029-AGB	8E-S029-TGB	8E-S029-UGB
Strata-X-CW	8E-S035-AGB	8E-S035-TGB	8E-S035-UGB
Strata-XL-AW	—	8E-S051-TGB	—
Strata-XL-A	—	8E-S053-TGB	—
Strata-XL	—	8E-S043-TGB	—
Strata-XL-C	—	8E-S044-TGB	—
Strata-XL-CW	—	8E-S052-TGB	—
Strata-X-Drug B	8E-S128-AGB	8E-S128-TGB	8E-S128-UGB
Strata-X Drug N	8E-S129-AGB	8E-S129-TGB	—

Strata-X Microelution SPE Plates

96-Well Plates (ea)	
Phase	2 mg
Strata-AW	8M-S038-4GA
Strata-A	8M-S123-4GA
Strata-X	8M-S100-4GA
Strata-X-C	8M-S029-4GA
Strata-X-CW	8M-S035-4GA

Strata-X Polymer-Based SPE Sorbents

Tubes	1 mL (100/box)		3 mL (50/box)			6 mL (30/box)		
	30 mg	60 mg	60 mg	200 mg	500 mg	100 mg	200 mg	500 mg
Strata-X	8B-S100-TAK	8B-S100-UAK	8B-S100-UBJ	8B-S100-FBJ	8B-S100-HBJ	8B-S100-ECH	8B-S100-FCH	8B-S100-HCH
Strata-X-C	8B-S029-TAK	—	8B-S029-UBJ	8B-S029-FBJ	8B-S029-HBJ	8B-S029-ECH	8B-S029-FCH	8B-S029-HCH
Strata-X-CW	8B-S035-TAK	—	8B-S035-UBJ	8B-S035-FBJ	8B-S035-HBJ	8B-S035-ECH	8B-S035-FCH	8B-S035-HCH
Strata-X-A	8B-S123-TAK	—	8B-S123-UBJ	8B-S123-FBJ	8B-S123-HBJ	8B-S123-ECH	8B-S123-FCH	8B-S123-HCH
Strata-X-AW	8B-S038-TAK	—	8B-S038-UBJ	8B-S038-FBJ	8B-S038-HBJ	8B-S038-ECH	8B-S038-FCH	8B-S038-HCH
Strata-XL	8B-S043-TAK	—	8B-S043-UBJ	8B-S043-FBJ	8B-S043-HBJ	8B-S043-ECH	8B-S043-FCH	8B-S043-HCH
Strata-XL-C	8B-S044-TAK	—	8B-S044-UBJ	8B-S044-FBJ	8B-S044-HBJ	8B-S044-ECH	8B-S044-FCH	8B-S044-HCH
Strata-XL-CW	8B-S052-TAK	—	8B-S052-UBJ	8B-S052-FBJ	8B-S052-HBJ	8B-S052-ECH	8B-S052-FCH	8B-S052-HCH
Strata-XL-A	8B-S053-TAK	—	8B-S053-UBJ	8B-S053-FBJ	8B-S053-HBJ	8B-S053-ECH	8B-S053-FCH	8B-S053-HCH
Strata-XL-AW	8B-S051-TAK	—	8B-S051-UBJ	8B-S051-FBJ	8B-S051-HBJ	8B-S051-ECH	8B-S051-FCH	8B-S051-HCH
Strata-X-Drug B	8B-S128-TAK	—	8B-S128-UBJ	—	—	—	—	—
Strata-X Drug N	8B-S129-TAK	—	8B-S129-UBJ	—	—	8B-S129-ECH	—	—

Presston 1000 Positive Pressure Manifold

Presston	
Part No.	Description
AH1-7033	Presston 1000 Positive Pressure Manifold, 96-Well Plate



Ensure Reliability

With a full warranty, Presston 1000 promises that it will be in good working condition otherwise we will replace the defective item.

Phenomenex warrants the Presston 1000 Positive Pressure Manifold against defects in materials and workmanship under normal installation, use, and maintenance for a period of 12 months following delivery.

Please visit www.phenomenex.com/presstonwarranty for complete warranty information.

Album Ordering Information

Kinetex



Kinetex

3.5 µm Minibore and Analytical Columns (mm)					SecurityGuard™ ULTRA Cartridges [‡]		
Phases	50 x 2.1	150 x 2.1	100 x 4.6	150 x 4.6	250 x 4.6	3/pk	3/pk
XB-C18	—	—	00D-4744-E0	00F-4744-E0	—	—	AJ0-8768
PAH	00B-4764-AN	00F-4764-AN	00D-4764-E0	00F-4764-E0	00G-4764-E0	AJ0-9535	AJ0-9533

for 2.1 mm ID

for 4.6 mm ID

5 µm Minibore Columns (mm)				SecurityGuard™ ULTRA Cartridges [‡]	
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	00A-4633-AN	00B-4633-AN	00D-4633-AN	00F-4633-AN	AJ0-9298
F5	—	00B-4724-AN	00D-4724-AN	00F-4724-AN	AJ0-9322
Biphenyl	00A-4627-AN	00B-4627-AN	00D-4627-AN	—	AJ0-9209
XB-C18	00A-4605-AN	00B-4605-AN	00D-4605-AN	—	AJ0-8782
C18	00A-4601-AN	00B-4601-AN	00D-4601-AN	00F-4601-AN	AJ0-8782
C8	—	00B-4608-AN	00D-4608-AN	—	AJ0-8784
Phenyl-Hexyl	—	00B-4603-AN	—	—	AJ0-8788
HILIC	—	00B-4606-AN	—	—	AJ0-8786

for 2.1 mm ID

5 µm MidBore™ Columns (mm)				SecurityGuard ULTRA Cartridges [‡]	
Phases	30 x 3.0	50 x 3.0	100 x 3.0	150 x 3.0	3/pk
EVO C18	00A-4633-Y0	00B-4633-Y0	00D-4633-Y0	00F-4633-Y0	AJ0-9297
F5	—	—	00D-4724-Y0	00F-4724-Y0	AJ0-9321
Biphenyl	—	00B-4627-Y0	00D-4627-Y0	00F-4627-Y0	AJ0-9208
XB-C18	—	00B-4605-Y0	00D-4605-Y0	00F-4605-Y0	AJ0-8775
C18	00A-4601-Y0	00B-4601-Y0	00D-4601-Y0	00F-4601-Y0	AJ0-8775
C8	—	00B-4608-Y0	00D-4608-Y0	—	AJ0-8777
Phenyl-Hexyl	—	00B-4603-Y0	00D-4603-Y0	—	AJ0-8781

for 3.0 mm ID

5 µm Analytical Columns (mm)				SecurityGuard ULTRA Cartridges [‡]	
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
EVO C18	00B-4633-E0	00D-4633-E0	00F-4633-E0	00G-4633-E0	AJ0-9296
F5	00B-4724-E0	00D-4724-E0	00F-4724-E0	00G-4724-E0	AJ0-9320
Biphenyl	00B-4627-E0	00D-4627-E0	00F-4627-E0	00G-4627-E0	AJ0-9207
XB-C18	00B-4605-E0	00D-4605-E0	00F-4605-E0	00G-4605-E0	AJ0-8768
C18	00B-4601-E0	00D-4601-E0	00F-4601-E0	00G-4601-E0	AJ0-8768
C8	00B-4608-E0	00D-4608-E0	00F-4608-E0	00G-4608-E0	AJ0-8770
Phenyl-Hexyl	00B-4603-E0	00D-4603-E0	00F-4603-E0	00G-4603-E0	AJ0-8774
HILIC	—	—	00F-4606-E0	00G-4606-E0	AJ0-8772

for 4.6 mm ID

2.6 µm Micro LC Columns (mm)						
Phases	30 x 0.3	50 x 0.3	100 x 0.3	150 x 0.3	50 x 0.5	150 x 0.5
Biphenyl	—	00B-4622-AC	—	00F-4622-AC	00B-4622-AF	—
C18	00A-4462-AC	00B-4462-AC	—	00F-4462-AC	00B-4462-AF	—
EVO C18	—	00B-4725-AC	—	00F-4725-AC	00B-4725-AF	—
F5	—	00B-4723-AC	00D-4723-AC	00F-4723-AC	00B-4723-AF	—
XB-C18	00A-4496-AC	00B-4496-AC	00D-4496-AC	00F-4496-AC	00B-4496-AF	00F-4496-AF

2.6 µm Minibore Columns (mm)						SecurityGuard ULTRA Cartridges [‡]
Phases	30 x 2.1	50 x 2.1	75 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	00A-4725-AN	00B-4725-AN	—	00D-4725-AN	00F-4725-AN	AJ0-9298
PS C18	00A-4780-AN	00B-4780-AN	—	00D-4780-AN	00F-4780-AN	AJ0-8951
Polar C18	00A-4759-AN	00B-4759-AN	—	00D-4759-AN	00F-4759-AN	AJ0-9532
F5	00A-4723-AN	00B-4723-AN	—	00D-4723-AN	00F-4723-AN	AJ0-9322
Biphenyl	00A-4622-AN	00B-4622-AN	—	00D-4622-AN	00F-4622-AN	AJ0-9209
XB-C18	00A-4496-AN	00B-4496-AN	00C-4496-AN	00D-4496-AN	00F-4496-AN	AJ0-8782
C18	00A-4462-AN	00B-4462-AN	00C-4462-AN	00D-4462-AN	00F-4462-AN	AJ0-8782
C8	00A-4497-AN	00B-4497-AN	00C-4497-AN	00D-4497-AN	00F-4497-AN	AJ0-8784
HILIC	00A-4461-AN	00B-4461-AN	00C-4461-AN	00D-4461-AN	00F-4461-AN	AJ0-8786
Phenyl-Hexyl	00A-4495-AN	00B-4495-AN	00C-4495-AN	00D-4495-AN	00F-4495-AN	AJ0-8788

for 2.1 mm ID

[‡] SecurityGuard ULTRA Cartridges require holder, Part No.: [AJ0-9000](#)



Album Ordering Information

Kinetex (cont'd)



2.6 µm MidBore™ Columns (mm)				SecurityGuard ULTRA Cartridges†		
Phases	30 x 3.0	50 x 3.0	75 x 3.0	100 x 3.0	150 x 3.0	3/pk
EVO C18	00A-4725-YO	00B-4725-YO	—	00D-4725-YO	00F-4725-YO	AJ0-9297
PS C18	00B-4780-YO	00D-4780-YO	—	00D-4780-YO	00F-4780-YO	AJ0-8950
Polar C18	—	00B-4759-YO	—	00D-4759-YO	00F-4759-YO	AJ0-9531
F5	—	00B-4723-YO	—	00D-4723-YO	00F-4723-YO	AJ0-9321
Biphenyl	—	00B-4622-YO	—	00D-4622-YO	00F-4622-YO	AJ0-9208
XB-C18	00A-4496-YO	00B-4496-YO	00C-4496-YO	00D-4496-YO	00F-4496-YO	AJ0-8775
C18	00A-4462-YO	00B-4462-YO	00C-4462-YO	00D-4462-YO	00F-4462-YO	AJ0-8775
C8	00A-4497-YO	00B-4497-YO	00C-4497-YO	00D-4497-YO	00F-4497-YO	AJ0-8777
HILIC	00A-4461-YO	—	—	00D-4461-YO	00F-4461-YO	AJ0-8779
Phenyl-Hexyl	—	00B-4495-YO	—	00D-4495-YO	00F-4495-YO	AJ0-8781

for 3.0 mm ID

2.6 µm Analytical Columns (mm)				SecurityGuard ULTRA Cartridges†			
Phases	30 x 4.6	50 x 4.6	75 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
EVO C18	00A-4725-E0	00B-4725-E0	—	00D-4725-E0	00F-4725-E0	00G-4725-E0	AJ0-9296
PS C18	—	00B-4780-E0	—	00D-4780-E0	00F-4780-E0	00G-4780-E0	AJ0-8949
Polar C18	00A-4759-E0	00B-4759-E0	—	00D-4759-E0	00F-4759-E0	—	AJ0-9532
F5	00A-4723-E0	00B-4723-E0	—	00D-4723-E0	00F-4723-E0	—	AJ0-9320
Biphenyl	—	00B-4622-E0	—	00D-4622-E0	00F-4622-E0	—	AJ0-9207
XB-C18	—	00B-4496-E0	00C-4496-E0	00D-4496-E0	00F-4496-E0	—	AJ0-8768
C18	00A-4462-E0	00B-4462-E0	00C-4462-E0	00D-4462-E0	00F-4462-E0	—	AJ0-8768
C8	—	00B-4497-E0	00C-4497-E0	00D-4497-E0	00F-4497-E0	—	AJ0-8770
HILIC	—	00B-4461-E0	00C-4461-E0	00D-4461-E0	00F-4461-E0	—	AJ0-8772
Phenyl-Hexyl	—	00B-4495-E0	00C-4495-E0	00D-4495-E0	00F-4495-E0	—	AJ0-8774

for 4.6 mm ID

1.7 µm Minibore Columns (mm)				SecurityGuard™ ULTRA Cartridges†	
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	—	00B-4726-AN	00D-4726-AN	00F-4726-AN	AJ0-9298
F5	—	00B-4722-AN	00D-4722-AN	00F-4722-AN	AJ0-9322
Biphenyl	00A-4628-AN	00B-4628-AN	00D-4628-AN	00F-4628-AN	AJ0-9209
XB-C18	00A-4498-AN	00B-4498-AN	00D-4498-AN	00F-4498-AN	AJ0-8782
C18	00A-4475-AN	00B-4475-AN	00D-4475-AN	00F-4475-AN	AJ0-8782
C8	00A-4499-AN	00B-4499-AN	00D-4499-AN	00F-4499-AN	AJ0-8784
HILIC	00A-4474-AN	00B-4474-AN	00D-4474-AN	—	AJ0-8786
Phenyl-Hexyl	—	00B-4500-AN	00D-4500-AN	00F-4500-AN	AJ0-8788

for 2.1 mm ID

1.7 µm MidBore Columns (mm)		SecurityGuard ULTRA Cartridges†		
Phases	30 x 3.0	50 x 3.0	100 x 3.0	3/pk
XB-C18	00A-4498-YO	00B-4498-YO	00D-4498-YO	AJ0-8775
C18	—	00B-4475-YO	00D-4475-YO	AJ0-8775
C8	00A-4499-YO	00B-4499-YO	00D-4499-YO	AJ0-8777
Phenyl	—	—	00D-4500-YO	AJ0-8781
HILIC	—	00B-4474-YO	—	AJ0-8779

for 3.0 mm ID

1.7 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
EVO C18	00B-4726-A0	00D-4726-A0	00F-4726-A0
Biphenyl	00B-4628-A0	00D-4628-A0	—

† SecurityGuard ULTRA Cartridges require holder, Part No.: [AJ0-9000](#)

Album Ordering Information

Lux and Luna Omega

Lux



3 µm Analytical Columns		SecurityGuard Cartridges*		
Phase	150 x 3.0	150 x 4.6	10/pk	10/pk
AMP	00F-4751-Y0	00F-4751-E0	AJ0-8475	AJ0-8476
		For ID:	for ID: 2.0-3.0 mm	for ID: 3.2-8.0 mm

* SecurityGuard Analytical cartridges require holder, Part No.: [KJ0-4282](#)

Luna Omega



1.6 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
Polar C18	00B-4748-A0	00D-4748-A0	00F-4748-A0
PS C18	—	00D-4752-A0	—
C18	00B-4742-A0	00D-4742-A0	00F-4742-A0

1.6 µm Minibore Columns (mm)		SecurityGuard™ ULTRA Cartridges†			
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
Polar C18	00A-4748-AN	00B-4748-AN	00D-4748-AN	00F-4748-AN	AJ0-9505
PS C18	00A-4752-AN	00B-4752-AN	00D-4752-AN	00F-4752-AN	AJ0-9508
C18	00A-4742-AN	00B-4742-AN	00D-4742-AN	00F-4742-AN	AJ0-9502

for 2.1 mm ID

3 µm Micro LC Columns (mm)						Trap Column	
Phases	50 x 0.30	100 x 0.30	150 x 0.30	50 x 0.50	100 x 0.50	150 x 0.50	20 x 0.30
Polar C18	00B-4760-AC	00D-4760-AC	00F-4760-AC	00B-4760-AF	00D-4760-AF	00F-4760-AF	—
PS C18	00B-4758-AC	00D-4758-AC	00F-4758-AC	00B-4758-AF	00D-4758-AF	00F-4758-AF	05M-4758-AC

3 µm Minibore Columns (mm)		SecurityGuard Cartridges (mm)			
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	4 x 2.0* /10 pk
Polar C18	00A-4760-AN	00B-4760-AN	00D-4760-AN	00F-4760-AN	AJ0-7600
PS C18	00A-4758-AN	00B-4758-AN	00D-4758-AN	00F-4758-AN	AJ0-7605
C18	—	00B-4784-AN	00D-4784-AN	00F-4784-AN	AJ0-7611
SUGAR	—	00B-4775-AN	00D-4775-AN	00F-4775-AN	AJ0-4496

for ID: 2.0-3.0 mm

3 µm MidBore™ Columns (mm)		SecurityGuard Cartridges (mm)		
Phases	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0* /10 pk
Polar C18	00B-4760-Y0	00D-4760-Y0	00F-4760-Y0	AJ0-7600
PS C18	00B-4758-Y0	00D-4758-Y0	00F-4758-Y0	AJ0-7605
C18	00B-4784-Y0	00D-4784-Y0	00F-4784-Y0	AJ0-7611
SUGAR	—	—	00F-4775-Y0	AJ0-4496

for ID: 2.0-3.0 mm

† SecurityGuard ULTRA Cartridges require holder, Part No.: [AJ0-9000](#)

* SecurityGuard Analytical Cartridges require holder, Part No.: [KJ0-4282](#)

Album ordering information

Luna Omega

2.6 µm Minibore Columns (mm)						SecurityGuard ULTRA Cartridges [†]
Phases	30 x 2.1	50 x 2.1	75 x 2.1	100 x 2.1	150 x 2.1	3/pk
EVO C18	00A-4725-AN	00B-4725-AN	—	00D-4725-AN	00F-4725-AN	AJ0-9298
PS C18	00A-4780-AN	00B-4780-AN	—	00D-4780-AN	00F-4780-AN	AJ0-8951
Polar C18	00A-4759-AN	00B-4759-AN	—	00D-4759-AN	00F-4759-AN	AJ0-9532
F5	00A-4723-AN	00B-4723-AN	—	00D-4723-AN	00F-4723-AN	AJ0-9322
Biphenyl	00A-4622-AN	00B-4622-AN	—	00D-4622-AN	00F-4622-AN	AJ0-9209
XB-C18	00A-4496-AN	00B-4496-AN	00C-4496-AN	00D-4496-AN	00F-4496-AN	AJ0-8782
C18	00A-4462-AN	00B-4462-AN	00C-4462-AN	00D-4462-AN	00F-4462-AN	AJ0-8782
C8	00A-4497-AN	00B-4497-AN	00C-4497-AN	00D-4497-AN	00F-4497-AN	AJ0-8784
HILIC	00A-4461-AN	00B-4461-AN	00C-4461-AN	00D-4461-AN	00F-4461-AN	AJ0-8786
Phenyl-Hexyl	00A-4495-AN	00B-4495-AN	00C-4495-AN	00D-4495-AN	00F-4495-AN	AJ0-8788

for 2.1 mm ID

2.6 µm MidBore Columns (mm)						SecurityGuard ULTRA Cartridges [†]
Phases	30 x 3.0	50 x 3.0	75 x 3.0	100 x 3.0	150 x 3.0	3/pk
EVO C18	—	00B-4725-Y0	—	00D-4725-Y0	00F-4725-Y0	AJ0-9297
PS C18	00A-4780-Y0	00B-4780-Y0	—	00D-4780-Y0	00F-4780-Y0	AJ0-8950
Polar C18	—	00B-4759-Y0	—	00D-4759-Y0	00F-4759-Y0	AJ0-9531
F5	—	00B-4723-Y0	—	00D-4723-Y0	00F-4723-Y0	AJ0-9321
Biphenyl	—	00B-4622-Y0	—	00D-4622-Y0	00F-4622-Y0	AJ0-9208
XB-C18	00A-4496-Y0	00B-4496-Y0	00C-4496-Y0	00D-4496-Y0	00F-4496-Y0	AJ0-8775
C18	00A-4462-Y0	00B-4462-Y0	00C-4462-Y0	00D-4462-Y0	00F-4462-Y0	AJ0-8775
C8	00A-4497-Y0	00B-4497-Y0	00C-4497-Y0	00D-4497-Y0	00F-4497-Y0	AJ0-8777
HILIC	00A-4461-Y0	—	—	—	00F-4461-Y0	AJ0-8779
Phenyl-Hexyl	—	00B-4495-Y0	—	00D-4495-Y0	00F-4495-Y0	AJ0-8781

for 3.0 mm ID

3 µm Analytical Columns (mm)						SecurityGuard Cartridges (mm)
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0* /10 pk	
Polar C18	00B-4760-E0	00D-4760-E0	00F-4760-E0	00G-4760-E0	AJ0-7601	
PS C18	00B-4758-E0	00D-4758-E0	00F-4758-E0	00G-4758-E0	AJ0-7606	
C18	00B-4784-E0	00D-4784-E0	00F-4784-E0	00G-4784-E0	AJ0-7612	
SUGAR	—	00D-4775-E0	00F-4775-E0	00G-4775-E0	AJ0-4495	

for ID: 3.2-8.0 mm

5 µm Minibore and MidBore™ Columns (mm)							SecurityGuard Cartridges (mm)
Phases	50 x 2.1	100 x 2.1	150 x 2.1	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0* /10 pk
Polar C18	00B-4754-AN	00D-4754-AN	00F-4754-AN	00B-4754-Y0	00D-4754-Y0	00F-4754-Y0	AJ0-7600
PS C18	00B-4753-AN	00D-4753-AN	00F-4753-AN	00B-4753-Y0	00D-4753-Y0	00F-4753-Y0	AJ0-7605

for ID: 2.0 - 3.0 mm

5 µm Analytical Columns (mm)						SecurityGuard Cartridges (mm)
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0* /10 pk	
Polar C18	00B-4754-E0	00D-4754-E0	00F-4754-E0	00G-4754-E0	AJ0-7601	
PS C18	00B-4753-E0	00D-4753-E0	00F-4753-E0	00G-4753-E0	AJ0-7606	
C18	00B-4785-E0	00D-4785-E0	00F-4785-E0	00G-4785-E0	AJ0-7612	

for ID: 3.2-8.0 mm

5 µm Semi-Preparative Columns (mm)			SecurityGuard Cartridges (mm)
Phases	250 x 10	10 x 10** /3 pk	
Polar C18	00G-4754-N0	AJ0-9519	
PS C18	00G-4753-N0	AJ0-9520	

for ID: 9-16 mm

5 µm Axia™ Packed Preparative Columns (mm)						SecurityGuard Cartridges (mm)
Phases	50 x 21.2	100 x 21.2	150 x 21.2	250 x 21.2	15 x 21.2** /ea	
Polar C18	00B-4754-P0-AX	00D-4754-P0-AX	00F-4754-P0-AX	00G-4754-P0-AX	AJ0-7603	
PS C18	00B-4753-P0-AX	00D-4753-P0-AX	00F-4753-P0-AX	00G-4753-P0-AX	AJ0-7608	
C18	—	—	—	00G-4785-P0-AX	—	

for ID: 18-29 mm

5 µm Axia™ Packed Preparative Columns (mm) (cont'd)						SecurityGuard Cartridges (mm)
Phases	100 x 30	150 x 30	250 x 30	250 x 50	15 x 30.0* /ea	
Polar C18	00D-4754-U0-AX	00F-4754-U0-AX	00G-4754-U0-AX	00G-4754-V0-AX	AJ0-7604	
PS C18	00D-4753-U0-AX	00F-4753-U0-AX	00G-4753-U0-AX	00G-4753-V0-AX	AJ0-7609	

for ID: 30-49 mm

[†] SecurityGuard ULTRA Cartridges require holder, Part No.: [AJ0-9000](#)

* SecurityGuard Analytical Cartridges require holder, Part No.: [KJ0-4282](#)

***SemiPREP SecurityGuard Cartridges require holder, Part No.: [AJ0-9281](#)

**PREP SecurityGuard Cartridges require holder, Part No.: [AJ0-8223](#)

◆PREP SecurityGuard Cartridges require holder, Part No.: [AJ0-8277](#)

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Novum is patent pending.

Security Guard is patented by Phenomenex. U.S. Patent No. 6,162,362

CAUTION: this patent only applies to the analytical-sized guard cartridge holder and does not apply to SemiPrep, PREP or ULTRA holders, or to any cartridges.

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