

# APPLICATION

## Extraction and LC/MS/MS Analysis of Antipsychotics from Human Plasma Using Strata®-X-C Microelution 96-Well Solid Phase Extraction (SPE) Plates and a Kinetex® 2.6 µm Biphenyl HPLC Column

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### Overview

This application note describes an ultra-sensitive extraction method to isolate seven antipsychotics from plasma using Strata-X-C microelution 96-well SPE plates followed by LC/MS/MS analysis using a Kinetex 2.6 µm Biphenyl HPLC column. By using the microelution SPE format, we were able to skip the dry down step saving at least 30 minutes without negatively impacting the sensitivity of our analysis. The seven antipsychotics were separated by LC/MS/MS in under 5 minutes and were accurately quantified at 25 ng/mL.

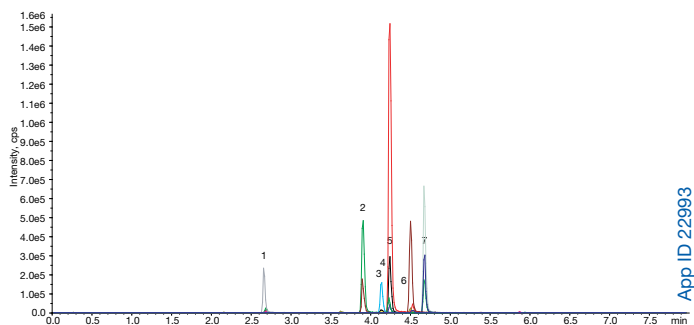
### Analytes

1. Olazepine
2. Norclozapine
3. Clozapine
4. 9-OH-Risperidone
5. Risperidone
6. Norquetiapine
7. Quetiapine

### Extraction Procedure

**Microelution 96-Well** Strata-X-C Microelution 96-Well Plate, 2 mg/well  
**Plate:**  
**Part No.:** 8M-S029-4GA  
**Condition:** 200 µL Methanol  
**Equilibrate:** 200 µL Water  
**Load:** 400 µL diluted plasma (200 µL plasma diluted 1:1 with 4 % Phosphoric acid in water)  
**Wash 1:** 200 µL 2 % Formic acid in water  
**Wash 2:** 200 µL Methanol  
**Elute:** 2x 25 µL 5 % Ammonium hydroxide in acetonitrile/methanol (60:40)  
**Injection:** 2 µL

### Representative Chromatogram of Antipsychotics Extracted from Plasma



**Column:** Kinetex 2.6 µm Biphenyl  
**Dimensions:** 50 x 2.1 mm  
**Part No.:** 00B-4622-AN  
**Mobile Phase:** A: 0.1 % Formic acid in Water  
 B: 0.1 % Formic acid in Methanol  
**Gradient:** Time (min) % B  
 0.00 5  
 5.00 95  
 5.50 95  
 5.51 5  
 8.00 5  
**Flow Rate:** 500 µL/min  
**Temperature:** Ambient  
**Detection:** MS/MS, Triple Quad™ 4500 (SCIEX), ESI+

### Ordering Information Strata-X-C Solid Phase Extraction (SPE)

Format	Sorbent Mass	Part Number	Unit
<b>Microelution 96-Well Plate</b>			
	2 mg	8M-S029-4GA	1 Plate/Box
<b>96-Well Plate</b>			
	10 mg	8E-S029-AGB	2 Plates/Box
	30 mg	8E-S029-TGB	2 Plates/Box
	60 mg	8E-S029-UGB	2 Plates/Box
<b>Tube</b>			
	30 mg	8B-S029-TAK*	1 mL(100/box)
	30 mg	8B-S029-TBJ	3 mL (50/box)
	60 mg	8B-S029-UBJ*	3 mL (50/box)
	100 mg	8B-S029-EBJ	3 mL (50/box)
	100 mg	8B-S029-ECH	6 mL (30/box)
	200 mg	8B-S029-FBJ	3 mL (50/box)
	200 mg	8B-S029-FCH	6 mL (30/box)
	500 mg	8B-S029-HBJ	3 mL (50/box)
	500 mg	8B-S029-HCH	6 mL (30/box)

\*Tablets tubes available

Ordering Information (cont'd)

### Absolute Recovery of Antipsychotics Extracted from Plasma at 25 ng/mL

Antipsychotics	RT (min)	% Absolute Recovery	% CV (N=4)
Olazepine	2.70	99	6.9
Norclozapine	3.90	91	7.0
Clozapine	4.16	94	4.0
9-OH-Risperidone	4.28	88	6.6
Risperidone	4.55	99	6.0
Norquetiapine	4.57	70	5.5
Quetiapine	4.73	90	2.7



# APPLICATION

## Ordering Information (cont'd)

### Kinetex® Core-Shell HPLC/UHPLC Columns

Phase	5 µm Minibore Columns (mm)			SecurityGuard™ ULTRA Cartridges†
	50 x 2.1	100 x 2.1	3/pk	
Biphenyl	00B-4627-AN	00D-4627-AN	AJ0-9209	for 2.1 mm ID

Phase	5 µm MidBore™ Columns (mm)			SecurityGuard ULTRA Cartridges†
	50 x 3.0	100 x 3.0	3/pk	
Biphenyl	00B-4627-Y0	00D-4627-Y0	AJ0-9208	for 3.0 mm ID

Phase	5 µm Analytical Columns (mm)				SecurityGuard ULTRA Cartridges†
	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
Biphenyl	00B-4627-E0	00D-4627-E0	00F-4627-E0	00G-4627-E0	AJ0-9207 for 4.6 mm ID

Phase	2.6 µm Minibore Columns (mm)				SecurityGuard ULTRA Cartridges†
	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
Biphenyl	00A-4622-AN	00B-4622-AN	00D-4622-AN	00F-4622-AN	AJ0-9209 for 2.1 mm ID

Phase	2.6 µm MidBore Columns (mm)			SecurityGuard ULTRA Cartridges†
	50 x 3.0	100 x 3.0	150 x 3.0	3/pk
Biphenyl	00B-4622-Y0	00D-4622-Y0	00F-4622-Y0	AJ0-9208 for 3.0 mm ID

Phase	2.6 µm Analytical Columns (mm)				SecurityGuard ULTRA Cartridges†
	50 x 4.6	100 x 4.6	150 x 4.6	3/pk	
Biphenyl	00B-4622-E0	00D-4622-E0	00F-4622-E0	AJ0-9207	for 4.6 mm ID

Phase	1.7 µm Minibore Columns (mm)				SecurityGuard ULTRA Cartridges†
	50 x 2.1	100 x 2.1	150 x 2.1	3/pk	
Biphenyl	00B-4628-AN	00D-4628-AN	00F-4628-AN	AJ0-9209	for 2.1 mm ID

† SecurityGuard ULTRA Cartridges require holder, Part No.: AJ0-9000

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