

Multiclass Drug Panel on Raptor™ Biphenyl by LC-MS/MS

Peaks	tr (min)	Conc. (ng/mL)	Precursor Ion	Product Ion	Product Ion	Peaks	tr (min)	Conc. (ng/mL)	Precursor Ion	Product Ion	Product Ion
1. <i>trans</i> -3-Hydroxycotinine	1.32	25	193.1	80.0	134.0	82. Norcocaine	5.11	25	290.1	168.0	136.1
2. Norcotinine	1.33	25	163.1	80.1	118.1	83. Phenobarbital*	5.11	500	230.9	187.8	85.0
3. Nicotine	1.40	25	163.2	130.1	117.1	84. Buprenorphine glucuronide	5.12	25	644.3	468.2	55.1
4. BZP	1.47	25	177.2	91.1	65.1	85. MDPV	5.15	25	276.2	135.1	126.1
5. Anabasine	1.53	25	163.2	120.1	80.1	86. Venlafaxine	5.15	25	278.4	260.4	121.2
6. Noroxymorphone	1.78	25	288.1	270.1	212.9	87. Milnacipran	5.24	25	247.2	100.1	129.1
7. Lisdexamfetamine	1.79	25	264.2	84.1	91.0	88. Pentazocine	5.29	25	286.2	218.1	69.2
8. Phenelzine sulfate	1.90	25	137.2	105.1	77.1	89. Mirtazapine	5.31	25	266.1	195.1	72.1
9. Acetaminophen	1.93	100	152.2	93.0	65.0	90. Butalbital*	5.31	500	223.0	180.0	84.9
10. Pregabalin	2.21	25	160.2	142.1	55.0	91. Norbuprenorphine	5.35	50	414.3	152.2	165.2
11. Cotinine	2.27	25	177.2	80.0	98.1	92. LSD	5.39	25	324.3	223.1	208.0
12. Morphine	2.27	25	286.2	152.1	165.0	93. Butorphanol	5.43	25	328.3	310.3	131.2
13. (+)-Ephedrine	2.37	25	166.2	148.1	115.0	94. Fosphenytoin	5.43	25	363.1	265.9	207.8
14. Oxymorphone	2.38	25	302.1	227.2	198.2	95. Topiramate	5.44	25	340.2	264.2	223.9
15. Hydromorphone	2.61	25	286.2	184.9	156.9	96. Coccaethylene	5.48	25	318.2	196.1	82.0
16. Amphetamine	2.63	25	136.2	91.0	65.1	97. Clozapine	5.48	25	328.2	271.1	193.1
17. DMAA	2.65	25	116.1	57.1	99.2	98. 9-Hydroxyrisperidone	5.51	25	427.3	207.1	110.2
18. Gabapentin	2.71	25	172.2	154.0	137.1	99. Acetyl fentanyl	5.58	25	323.3	188.0	105.0
19. Methylephedrine	2.83	25	180.2	162.0	115.1	100. Didemethyl citalopram HCl	5.73	25	297.1	261.9	109.1
20. Levetiracetam	2.84	25	171.1	125.9	69.2	101. 7-Aminoflunitrazepam	5.75	25	284.1	135.0	227.1
21. Desmethyloanzapine	2.94	25	299.1	256.1	198.0	102. Amobarbital*	5.75	500	225.0	182.0	84.8
22. Norcodeine	2.96	25	286.1	151.9	115.0	103. Zolpidem	5.76	25	308.2	235.2	218.9
23. Olanzapine	3.12	25	313.2	256.1	198.1	104. N-Desmethyloitalopram	5.77	25	311.1	262.1	109.1
24. Methamphetamine	3.13	25	150.3	91.1	119.0	105. Isocorbaxozid	5.77	25	232.0	91.1	65.2
25. MDA	3.18	25	180.1	163.1	105.2	106. Pentobarbital*	5.79	500	225.0	182.0	84.9
26. (-)-Naloxone	3.27	25	328.3	310.1	212.3	107. Escitalopram	5.80	25	325.3	109.1	261.9
27. Phentermine	3.29	25	150.2	91.1	133.1	108. Citalopram	5.80	25	325.2	109.1	262.0
28. Noroxycodone	3.32	25	302.1	227.0	197.9	109. Diphenhydramine	5.80	25	256.1	167.0	152.1
29. Methlyone	3.36	25	208.1	160.1	132.1	110. Desmethylohexepin	5.88	25	266.1	107.1	115.0
30. O-Desmethyl- <i>cis</i> -tramadol	3.37	25	250.1	58.0	42.0	111. Ezogabine	5.91	25	304.0	230.1	109.1
31. (-)-Dihydrocodeine	3.38	25	302.2	199.0	128.2	112. Doxepin	5.96	25	280.1	107.2	77.1
32. Norhydrocodone	3.43	25	286.1	199.0	128.2	113. Haloperidol	5.96	25	377.2	123.0	95.1
33. Codeine	3.43	25	300.2	152.0	165.1	114. Fluvoxamine	5.97	25	319.3	71.1	257.8
34. 6-Acetylmorphine	3.47	25	328.2	165.0	211.0	115. Trazodone	5.99	25	372.3	176.1	148.0
35. MDMA	3.60	25	194.2	163.0	135.1	116. Norflouxetine	6.01	25	296.3	134.3	104.9
36. Desomorphine	3.61	25	272.1	152.1	165.0	117. Fentanyl	6.02	25	337.3	188.0	105.1
37. Oxycodone	3.64	25	316.2	298.0	169.0	118. Oxcarbazepine	6.02	25	253.1	180.0	208.1
38. Naltrexone	3.71	25	342.2	324.0	267.0	119. Risperidone	6.03	25	411.2	191.0	110.1
39. Levamisole	3.75	25	205.1	178.0	91.1	120. Buprenorphine	6.04	50	468.3	55.1	414.2
40. Hydrocodone	3.76	25	300.1	199.0	128.0	121. Fluoxetine	6.05	25	310.1	148.0	115.1
41. Diethylpropion	3.80	25	206.2	105.1	100.1	122. Secobarbital*	6.08	500	237.0	193.9	84.8
42. Mephedrone	3.80	25	178.2	145.0	160.1	123. Phenytoin	6.12	25	253.0	103.9	181.7
43. 2-Oxo-3-hydroxy-LSD	3.82	25	356.3	237.0	222.0	124. Carisoprodol	6.13	25	261.1	176.0	62.0
44. o-Desmethylvenlafaxine	3.84	25	264.1	58.1	107.0	125. Flurazepam	6.14	25	388.2	315.2	183.0
45. 6-β-Naltrexol	3.91	25	344.3	326.1	308.1	126. Chlordiazepoxide	6.14	25	300.1	282.0	227.0
46. Tapentadol-β-D-glucuronide	3.95	25	398.3	222.1	107.0	127. Dextromethorphan	6.16	25	272.2	215.1	170.9
47. 7-Aminonitrazepam	3.95	25	252.2	121.1	94.2	128. PCP	6.18	25	244.2	86.1	159.1
48. MDEA	4.00	25	208.1	163.0	105.2	129. Tenoxicam	6.18	25	338.1	121.0	95.0
49. m-Hydroxybenzoylcgonine	4.02	25	306.1	168.1	121.0	130. Buspirone	6.20	25	386.3	122.1	95.0
50. Lamotrigine	4.09	25	256.0	211.1	145.0	131. Quetiapine	6.28	25	384.2	253.0	221.2
51. Ritalinic acid	4.11	25	220.1	84.1	56.2	132. Norpropoxyphene	6.29	25	326.4	252.0	91.1
52. N-Desmethyloapentadol	4.16	25	208.1	121.2	107.1	133. Propoxyphene	6.30	25	340.3	265.9	58.1
53. Norbuprenorphine glucuronide	4.18	25	590.5	414.3	165.0	134. Asenapine	6.35	25	286.2	165.1	229.1
54. Zonisamide	4.23	25	212.9	132.1	77.1	135. Ziprasidone	6.40	25	413.2	194.1	130.0
55. mCPP	4.26	25	197.1	154.0	118.1	136. Protriptyline	6.42	25	264.1	191.1	165.2
56. Norketamine	4.28	25	224.1	125.0	89.1	137. Promazine	6.42	25	285.1	58.0	86.0
57. Nalbuphine	4.33	25	358.2	340.1	115.0	138. Midazolam	6.43	25	326.2	291.1	248.9
58. Norfentanyl	4.33	25	233.1	84.1	55.0	139. Desipramine	6.43	25	267.1	72.1	193.1
59. (+/-)-Hydroxybupropion	4.35	25	256.0	130.2	166.0	140. Amoxapine	6.44	25	314.2	271.0	193.1
60. Tapentadol	4.37	25	222.1	107.1	121.0	141. Sufentanil	6.48	25	387.2	238.1	111.1
61. Lacosamide	4.47	25	251.5	91.1	108.1	142. Imipramine	6.51	25	281.1	86.2	58.1
62. Dextropropion	4.50	25	258.2	157.0	201.2	143. Paroxetine	6.51	25	330.2	192.2	70.1
63. Levorphanol	4.50	25	258.2	156.8	199.2	144. Loxapine	6.52	25	328.1	271.1	193.0
64. 7-Hydroxyquetiapine	4.51	25	400.3	269.0	208.0	145. Maprotiline	6.52	25	278.1	250.2	191.0
65. Molindone	4.51	25	277.2	100.1	70.2	146. Duloxetine	6.52	25	298.1	154.1	188.2
66. Tramadol	4.52	25	264.2	58.0	77.1	147. Metaxalone	6.52	25	222.1	161.1	77.1
67. Zolpidem phenyl-4- carboxylic acid	4.60	25	338.2	265.1	219.0	148. Carbamazepine	6.55	10	237.1	194.1	165.0
68. Felbamate	4.62	25	239.1	117.1	177.8	149. Cyclobenzaprine	6.56	25	276.2	215.0	189.0
69. N-Desmethyl- <i>cis</i> -tramadol	4.65	25	250.2	44.0	232.1	150. EDDP	6.57	25	278.2	234.3	249.2
70. Ketamine	4.66	25	238.1	125.1	89.1	151. Nortriptyline	6.58	25	264.1	91.1	115.2
71. Benzoylcgonine	4.67	25	290.1	168.1	77.1	152. Mitrugyline	6.59	25	399.3	174.2	159.0
72. Methylphenidate	4.68	25	234.1	84.1	56.1	153. Eslicarbazepine	6.60	25	297.2	194.0	237.1
73. Normeperidine	4.76	25	234.1	160.2	91.0	154. Amitriptyline	6.65	25	278.1	91.1	202.1
74. Meprobamate	4.79	25	219.1	158.2	97.0	155. α-Hydroxymidazolam	6.70	25	342.2	324.1	202.9
75. Meperidine	4.80	25	248.1	220.1	174.1	156. Trimipramine	6.75	25	295.2	100.2	58.2
76. Bupropion	4.81	25	240.0	184.1	130.2	157. N-Desmethylflunitrazepam	6.80	25	300.1	254.1	198.1
77. Heroin	4.85	25	370.4	328.2	164.9	158. Lorazepam	6.82	25	321.1	275.0	229.0
78. Cocaine	5.01	25	304.2	182.0	77.1	159. Mesoridazine	6.83	25	387.2	126.1	98.2
79. 7-Aminoclonazepam	5.02	25	286.1	121.2	250.1	160. Tiagabine	6.89	25	376.2	246.8	111.1
80. Zopiclone	5.04	25	389.2	245.0	217.2	161. Ketorolac	6.90	25	256.1	104.9	77.0
81. N-Desmethyloirtazapine	5.10	25	252.1	195.1	209.2	162. Chlorpromazine	6.91	25	320.1	58.1	86.1

Peaks	tr (min)	Conc. (ng/mL)	Precursor Ion	Product Ion	Product Ion	Peaks	tr (min)	Conc. (ng/mL)	Precursor Ion	Product Ion	Product Ion
163. Loxoprofen*	6.93	200	245.0	83.2	80.9	198. Thiothixene	7.50	25	444.2	221.2	235.0
164. Clomipramine	6.95	25	315.3	86.0	58.0	199. Flunitrazepam	7.55	25	314.2	267.9	239.1
165. Oxazepam	6.96	25	287.1	241.2	268.8	200. Meloxicam	7.55	25	352.1	115.0	141.0
166. Methadone	6.98	25	310.2	264.9	105.1	201. Triazolam	7.58	25	343.1	307.9	315.0
167. Sertraline	6.98	25	306.2	158.9	275.1	202. Estazolam	7.58	25	295.1	266.9	205.1
168. Dehydro aripiprazole	7.01	25	446.2	285.0	98.1	203. Celecoxib	7.60	25	382.2	362.0	300.1
169. Clonazepam	7.01	25	316.1	270.0	214.1	204. Parecoxib	7.60	25	371.2	234.0	165.1
170. Nitrazepam	7.01	25	282.1	235.9	180.1	205. Temazepam	7.61	25	301.1	255.1	282.9
171. Lornoxicam	7.02	100	373.1	121.1	95.0	206. Sulindac	7.70	25	357.2	233.1	248.0
172. 25I-NBOMe	7.05	25	428.1	121.2	91.1	207. Alprazolam	7.72	25	309.1	280.9	204.9
173. Salsalate*	7.05	100	256.8	136.8	92.9	208. Flufenamic acid*	7.75	50	279.9	236.1	176.2
174. Desalkylflurazepam	7.09	25	289.0	140.1	104.0	209. Thioridazine	7.76	25	371.2	126.1	98.1
175. Tolmetin	7.10	25	258.1	119.1	91.0	210. Diclofenac*	7.78	100	293.9	249.8	-
176. α-Hydroxytriazolam	7.12	25	359.1	330.9	175.9	211. Nabumetone	7.80	25	229.1	171.1	128.1
177. Fluphenazine	7.16	25	438.3	171.1	143.2	212. Oxaprozin	7.87	25	294.1	103.0	234.2
178. 2-Hydroxyethylflurazepam	7.16	25	333.1	211.1	109.0	213. HU-211	8.03	25	387.3	155.9	128.1
179. Ketoprofen*	7.17	100	253.0	209.0	-	214. JWH-200	8.04	25	385.3	155.0	127.1
180. Naproxen*	7.17	200	229.0	168.9	184.9	215. Diazepam	8.04	25	285.1	192.9	153.9
181. EMDP	7.19	25	264.2	235.2	220.3	216. Mefenamic acid	8.04	25	242.1	224.1	-
182. Aripiprazole	7.20	25	448.2	285.0	176.1	217. Tolfenamic acid*	8.17	50	259.9	215.8	-
183. Perphenazine	7.22	25	404.2	171.1	143.2	218. Meclofenamic acid*	8.18	200	293.9	257.8	177.7
184. Etoricoxib	7.24	25	359.2	280.0	279.2	219. (+/-)-CP 47,497*	8.27	200	317.1	245.1	159.0
185. Methaqualone	7.24	25	251.1	91.1	132.2	220. Indomethacin*	8.29	50	356.0	311.8	296.9
186. α-Hydroxyalprazolam	7.25	25	325.1	297.0	216.2	221. Perampanel	8.32	25	350.2	219.1	247.1
187. Trifluoperazine	7.28	25	408.2	141.2	113.1	222. (+/-)-CP 47,497 C8 homologue*	8.42	200	331.1	259.0	159.1
188. Piroxicam	7.34	25	332.1	95.2	78.1	223. 11-Nor-9-carboxy-delta-9-THC*	8.44	25	343.0	298.9	244.8
189. Ibuprofen*	7.34	200	205.0	160.9	-	224. Prazepam	8.51	25	325.2	271.0	139.9
190. Prochlorperazine	7.36	25	374.1	141.0	113.1	225. XLR-11	8.60	25	330.3	125.2	144.0
191. Etodolac*	7.36	50	286.0	241.9	212.0	226. Δ9-THC	8.76	25	315.2	193.0	123.2
192. Nordiazepam	7.37	25	271.0	139.9	208.0	227. UR-144	8.78	25	312.3	125.1	214.1
193. Phenazepam	7.39	25	349.1	206.2	179.0	228. JWH-250	8.96	25	336.3	120.9	91.1
194. Fenoprofen*	7.40	200	240.9	92.8	-	229. THCA-A*	9.12	25	357.1	312.9	245.0
195. Zaleplon	7.43	25	306.1	264.0	236.0	230. JWH-073	9.21	25	328.2	155.0	127.1
196. Clobazam	7.43	25	301.0	259.1	224.0	231. JWH-018	9.35	25	342.3	127.1	155.1
197. Flurbiprofen*	7.48	200	243.0	199.0	196.8						

* Analyzed using negative polarity.

Column Raptor™ Biphenyl (cat.# 9309A12)
Dimensions: 100 mm x 2.1 mm ID
Particle Size: 2.7 µm
Guard Column: Raptor™ Biphenyl EXP® guard column cartridge 5 mm, 2.1 mm ID, 2.7 µm (cat.# 9309A0252)
Temp.: 30 °C

Sample Water
Diluent: 5 µL
Inj. Vol.: 5 µL

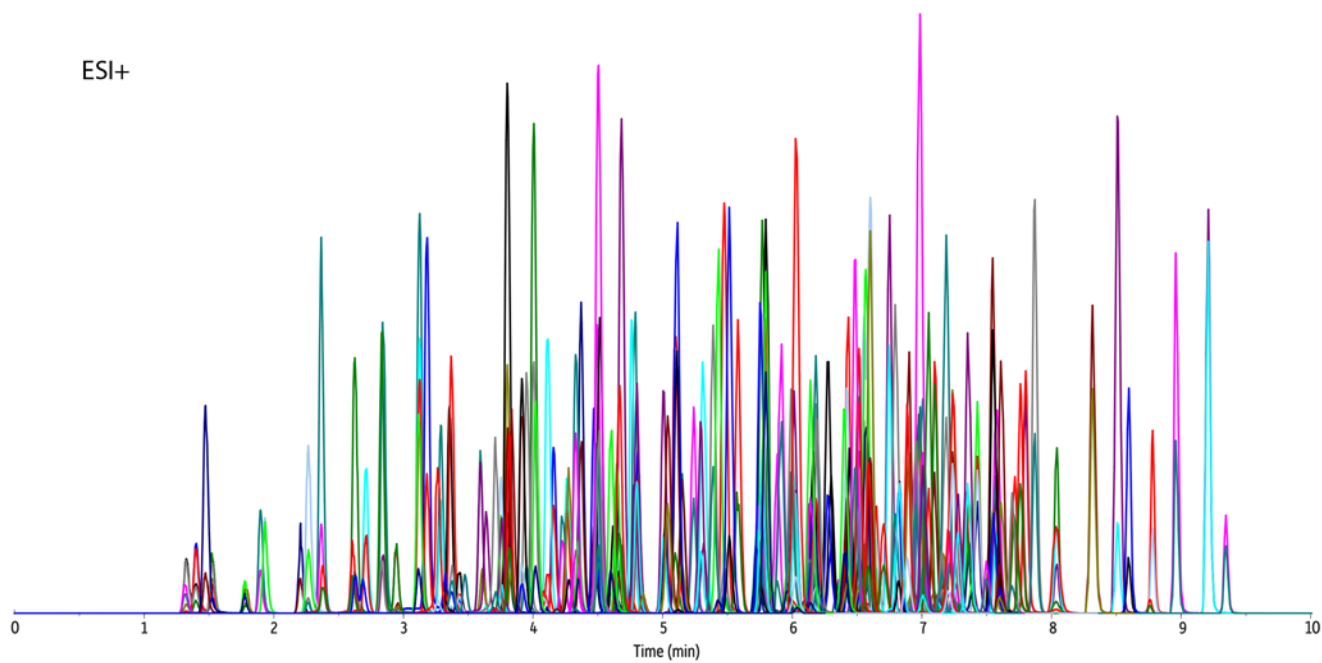
Mobile Phase
A: Water + 0.1% formic acid + 2 mM ammonium formate
B: Methanol + 0.1% formic acid + 2 mM ammonium formate

Time (min)	Flow (mL/min)	%A	%B
0.00	0.6	95	5
9.00	0.6	0	100
10.00	0.6	0	100
10.01	0.6	95	5
12.00	0.6	95	5

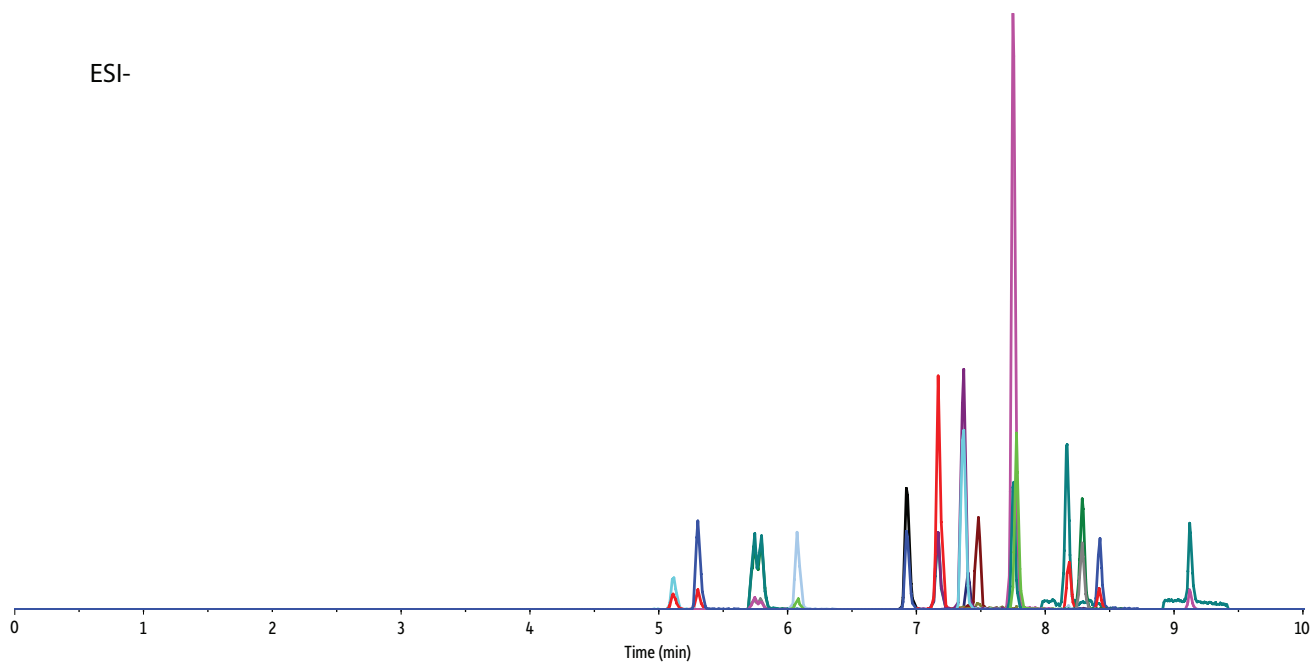
Detector MS/MS
Ion Mode: ESI+/ESI-
Mode: Scheduled MRM
Instrument UHPLC

- Notes**
1. Positive and negative polarity data were collected simultaneously from a single injection.
 2. Ibuprofen, fosphenytoin, and topiramate degrade quickly in solution.
 3. Levorphanol and dextrorphan are enantiomers and are not resolved.
 4. Escitalopram is a pure enantiomer and citalopram is a racemic mixture of both enantiomers. These compounds are not resolved.
 5. DMAA consists of 4 stereoisomers, 2 of which are partially resolved.
 6. Doxepin and desmethyldoxepin consist of a mixture of *cis/trans* isomers. The isomers are fully resolved and the retention time identifies the main isomer component.
 7. Lornoxicam, meloxicam, etodolac, oxaprozin, indomethacin, and mefenamic acid can be detected by positive or negative polarity. The polarity chosen in this chromatogram provides optimal response.

ESI+



ESI-



LC_CF0621