Product No: JSM-CL-5000

JASEM

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Therapeutic Drug Monitoring in Serum/Plasma LC-MS/MS Analysis Kit

Jasem therapeutic drug monitoring (TDM) method introduces a procedure for detecting drugs of abuse such as benzodiazepines, antidepressants, atypical antipsychotics, over-the-counter cold medicines as well as routinely used prescription drugs by follow up patients, in serum samples by LC/MS-MS. Jasem-TDM method facilitate the confirmatory of drugs implementing straightforward sample preparation (just protein precipitation) protocol. The list of analytes could be enlarged on customer request. LC-MS/MS is currently the best technique available for the correct quantification of therapeutic drug monitoring (TDM). According to customer needs, Jasem clinical toxicology kit is suitable to extend the drug list with new compounds.

Highlights of the Analysis Kit

- Simple and rapid sample preparation without SPE or evaporation
- Quantitative determination of 116 drugs in a single injection
- Simultaneous analysis of different drug groups-total run time is 12 min.
- Long lifetime HPLC column
- Method allows to extend the drug list

Parameters

6-Acetylmorphine
7-Aminoclonazepam
Alprazolam
Amisulpride
Amitriptyline
Amlodipine
Amphetamine
Atenolol
Atropine
Benzoylecgonine
Biperiden
Bromazepam
Buprenorphine
Carbamazepine
Chlordiazepoxide
Chlorpheniramine
Chlorpromazine
Citalopram
Clobazam
Clomipramine
Clonazepam
Clozapine
Cocaethylene
Cocaine
Codeine
Desipramine
Desmethylclomipramine
Desmethylolanzapine
Dextromethorphan
Diazepam
Diclofenac
Digoxin
Dihydrocodeine
Diltiazem
Diphenhydramine
Doxepin
Doxylamine
EDDP
Ethylmorphine
Etodolac
Famotidine
Fentanyl
Fluconazole
Flunitrazepam
Fluoxetine
Flurazepam
Fluvoxamine
Gabapentin
Glibenclamide
Haloperidol
Hydroxyzine
Imipramine
Ketamine
Lansoprazole
Levetiracetam
Lidocaine
Loperamide
Lorazepam
MBDB
MDA
MDEA
MDMA
Medazepam
Memantine
Metformin
Methadone
Methamphetamine
Methylecgonine
Metoclopramide
Metoprolol
Metronidazole
Mianserin
Midazolam
Mirtazepine
Moclobemide
Morphine
Naproxen
N-desmethylclozapine
Nifedipine
Nitrazepam
Norbuprenorphine
Nordiazepam
Nortriptyline
Olanzapine
Opipramol
Ornidazole
Oxazepam
Oxcarbazepine
Oxycodone
Paliperidone
Pantoprazole
Paracetamol
Paroxetine
Pentobarbital
Pentoxifylline
Pethidine
Pheniramine
Phenobarbital
Phenytoin
Prilocaine
Propafenone
Propranolol
Propyphenazone
Pseudoephedrine + Ephedrine
Quetiapine
Ranitidine
Risperidone
Sertraline
THC delta9-Tetrahydrocannabinol
THC-COOH
THC-OH 11-OH-tetrahydrocannabinol
Thiopental
Thioridazine
Tramadol
Trimipramine
Venlafaxine

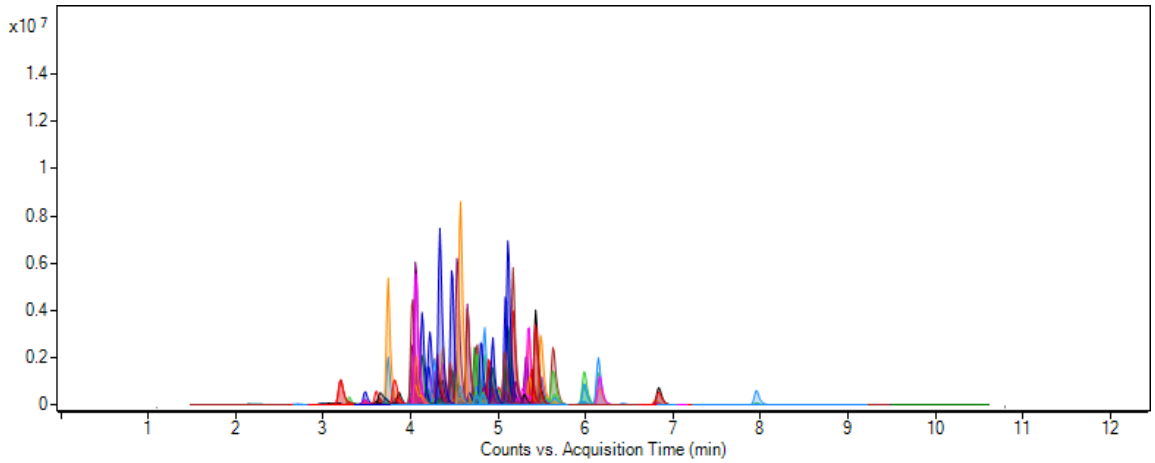
Sample Type

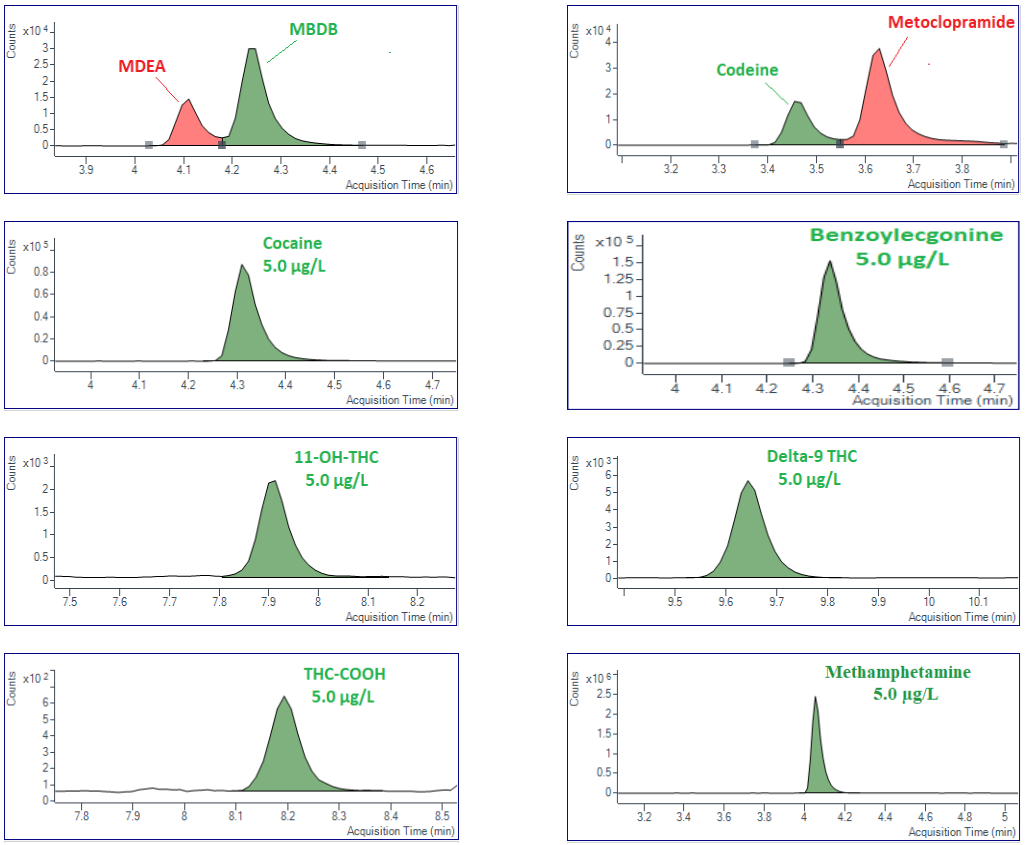
Serum/Plasma

Sample Preparation

1	Pipette 100 µl serum or plasma sample into a microcentrifuge tube
2	Add 900 µl of Reagent-1 and vortex for 15 sec. Then, centrifuge at 10000-12000 rpm for 5 min.
3	Decant the clear supernatant into HPLC vial

Example Chromatogram





Example ion chromatogram for TDM analytes

Method Performance

All results were obtained using Agilent 6465 TQ (Ultivo) instrument

Analytes		LOQ (µg/L)	Linearity (µg/L)	Recovery (%)	Repeatability (%CV)
1	6-Acetylmorphine	0.33	0.33 – 100.0	99	5.56
2	7-Aminoclonazepam	0.34	0.34 – 100.0	109	5.74
3	Alprazolam	0.29	0.29 – 100.0	104	5.48
4	Amisulpride	0.30	0.3 – 100.0	96	5.26
5	Amitriptyline	0.44	0.44 – 100.0	100	5.31
6	Amlodipine	0.70	0.7 – 100.0	99	6.76
7	Amphetamine	0.36	0.36 – 100.0	107	7.79
8	Atenolol	0.28	0.28 – 100.0	98	4.88
9	Atropine	0.29	0.29 – 100.0	101	5.65
10	Benzoylecgonine	0.36	0.36 – 100.0	103	5.15
11	Biperiden	0.33	0.33 – 100.0	104	5.83
12	Bromazepam	0.46	0.46 – 100.0	104	5.85
13	Buprenorphine	4.02	4.02 – 100.0	109	6.46
14	Carbamazepine	0.40	0.4 – 100.0	102	5.45
15	Chlordiazepoxide	0.50	0.5 – 100.0	102	5.57
16	Chlorpheniramine	0.34	0.34 – 100.0	101	5.47
17	Chlorpromazine	0.32	0.32 – 100.0	103	5.60
18	Citalopram + Escitalopram	0.40	0.4 – 100.0	105	5.69
19	Clobazam (Urbadan)	0.35	0.35 – 100.0	103	5.80
20	Clomipramine	0.44	0.44 – 100.0	102	5.92
21	Clonazepam	0.79	0.79 – 100.0	106	6.02
22	Clozapine	0.32	0.32 – 100.0	105	5.76
23	Cocaethylene	0.38	0.38 – 100.0	97	5.25
24	Cocaine	0.63	0.63 – 100.0	104	5.63
25	Codeine	0.53	0.53 – 100.0	99	5.16
26	Desipramine	0.64	0.64 – 100.0	100	6.88
27	Desmethylclomipramine	0.32	0.32 – 100.0	106	5.86
28	Desmethylolanzapine	0.06	0.06 – 100.0	112	1.67
29	Dextromethorphan	0.29	0.29 – 100.0	104	5.50
30	Diazepam	0.31	0.31 – 100.0	103	5.60
31	Diclofenac	0.32	0.32 – 100.0	94	5.46
32	Digoxin	6.40	6.4 – 100.0	91	4.58
33	Dihydrocodeine	0.28	0.28 – 100.0	98	5.31
34	Diltiazem	0.44	0.44 – 100.0	101	5.64
35	Diphenhydramine	0.36	0.36 – 100.0	102	5.56
36	Doxepin	0.48	0.48 – 100.0	105	5.92
37	Doxylamine	0.21	0.21 – 100.0	98	6.23

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Analytes		LOQ (µg/L)	Linearity (µg/L)	Recovery (%)	Repeatability (%CV)
38	EDDP	0.56	0.56 – 100.0	99	5.83
39	Ephedrine + Pseudoephedrine	0.43	0.43 – 100.0	96	6.42
40	Ethylmorphine	0.40	0.4 – 100.0	96	6.02
41	Etodolac	0.18	0.18 – 100.0	93	4.93
42	Famotidine	0.51	0.51 – 100.0	103	5.47
43	Fentanyl	0.32	0.32 – 100.0	100	5.48
44	Fluconazole	0.55	0.55 – 100.0	100	6.64
45	Flunitrazepam	0.48	0.48 – 100.0	101	5.47
46	Fluoxetine	0.30	0.3 – 100.0	100	6.25
47	Flurazepam	0.50	0.5 – 100.0	108	6.22
48	Fluvoxamine	0.37	0.37 – 100.0	101	5.61
49	Gabapentin	0.52	0.52 – 100.0	103	6.32
50	Glibenclamide	0.30	0.3 – 100.0	103	5.25
51	Haloperidol	0.29	0.29 – 100.0	105	5.36
52	Hydroxyzine	0.41	0.41 – 100.0	101	5.72
53	Imipramine	0.50	0.5 – 100.0	100	5.72
54	Ketamine	0.44	0.44 – 100.0	99	5.78
55	Lansoprazole	0.40	0.4 – 100.0	52	8.60
56	Levetiracetam	0.39	0.39 – 100.0	99	5.33
57	Lidocaine (Diocaine)	0.30	0.3 – 100.0	99	5.61
58	Loperamide	0.38	0.38 – 100.0	102	5.87
59	Lorazepam	1.30	1.3 – 100.0	104	6.33
60	MBDB	0.34	0.34 – 100.0	104	6.32
61	MDA	0.32	0.32 – 100.0	102	5.54
62	MDEA	0.28	0.28 – 100.0	98	5.26
63	MDMA	0.29	0.29 – 100.0	100	5.52
64	Medazepam	0.50	0.5 – 100.0	103	6.09
65	Memantine	0.32	0.32 – 100.0	102	5.54
66	Metformin	0.61	0.61 – 100.0	96	2.87
67	Methadone	0.33	0.33 – 100.0	102	5.74
68	Methamphetamine	0.39	0.39 – 100.0	102	5.53
69	Methylecgonine	0.34	0.34 – 100.0	98	2.79
70	Metoclopramide	0.31	0.31 – 100.0	98	5.24
71	Metoprolol	0.37	0.37 – 100.0	100	5.30
72	Metronidazole	0.43	0.43 – 100.0	102	5.07
73	Mianserin	0.29	0.29 – 100.0	102	5.64
74	Midazolam	0.48	0.48 – 100.0	102	5.83

Method Performance

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Analytes		LOQ (µg/L)	Linearity (µg/L)	Recovery (%)	Repeatability (%CV)
75	Mirtazepine	0.34	0.34 – 100.0	103	5.80
76	Moclobemide	0.33	0.33 – 100.0	104	5.75
77	Morphine	0.24	0.24 – 100.0	99	5.16
78	Naproxen	0.67	0.67 – 100.0	99	5.69
79	N-desmethylclozapine	0.29	0.29 – 100.0	100	6.13
80	Nifedipine	0.65	0.65 – 100.0	94	4.92
81	Nitrazepam	0.32	0.32 – 100.0	104	5.64
82	Norbuprenorphine	0.40	0.4 – 100.0	102	5.39
83	Nordiazepam	0.24	0.24 – 100.0	102	5.08
84	Nortriptyline	0.34	0.34 – 100.0	100	5.34
85	Olanzapine	0.27	0.27 – 100.0	93	5.36
86	Opipramol	0.33	0.33 – 100.0	102	5.66
87	Ornidazole	0.49	0.49 – 100.0	101	5.96
88	Oxazepam	1.10	1.1 – 100.0	108	4.77
89	Oxcarbazepine	0.50	0.5 – 100.0	94	4.78
90	Oxycodone	0.50	0.5 – 100.0	99	4.94
91	Paliperidone	0.29	0.29 – 100.0	102	5.64
92	Paracetamol	0.90	0.9 – 100.0	99	5.85
93	Paroxetine	0.77	0.77 – 100.0	105	6.14
94	Pentoxifylline	0.52	0.52 – 100.0	103	5.83
95	Pethidine	0.28	0.28 – 100.0	103	5.77
96	Pheniramine	0.48	0.48 – 100.0	100	5.87
97	Phenytoin	5.60	5.6 – 100.0	113	5.21
98	Prilocaine	1.26	1.26 – 100.0	116	6.03
99	Propafenone	0.48	0.48 – 100.0	105	5.58
100	Propranolol	0.51	0.51 – 100.0	100	5.45
101	Propyphenazone	0.36	0.36 – 100.0	102	5.39
102	Quetiapine	0.31	0.31 – 100.0	101	5.97
103	Ranitidine	0.28	0.28 – 100.0	97	3.85
104	Risperidone	0.28	0.28 – 100.0	98	5.17
105	Sertraline	0.37	0.37 – 100.0	103	5.33
106	Delta-9- THC	0.32	0.32 – 100.0	106	5.43
107	THC-COOH	1.99	1.99 – 100.0	96	5.49
108	THC-OH	1.07	1.07 – 100.0	95	5.21
109	Thiopental	1.54	1.54 – 100.0	94	7.25
110	Thioridazine	0.30	0.3 – 100.0	100	5.47
111	Tramadol	0.32	0.32 – 100.0	105	5.60

Method Performance

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Analytes		LOQ (µg/L)	Linearity (µg/L)	Recovery (%)	Repeatability (%CV)
112	Trimipramine	0.29	0.29 – 100.0	102	5.66
113	Venlafaxine	0.36	0.36 – 100.0	102	5.93
114	Pentobarbital	80.96	80.96 – 100.0	89	15.84
115	Phenobarbital	9.42	9.42 – 100.0	80	21.80
116	Pantoprazole	2.16	2.16 – 100.0	90	10.35

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