

3. Instructions for use.

MATERIAL REQUIRED BUT NOT PROVIDED

1. Urine collection container.
2. Timer or clock.

STORAGE AND STABILITY

The DOA Test should be stored at 2 to 30°C and will be effective until the expiration date stated on the package. The product is humidity-sensitive and should be used immediately after being open. Any improperly sealed product should be discarded.

PRECAUTIONS

1. For in vitro diagnostic and forensic use only.
2. Do not use the product beyond the expiration date.
3. Handle all specimens as potentially infectious.
4. Humidity sensitive product. Do not open foil pouch until it is ready to be tested.
5. Use a new urine specimen cup for each sample to avoid cross contamination.

SPECIMEN COLLECTION AND PREPARATION





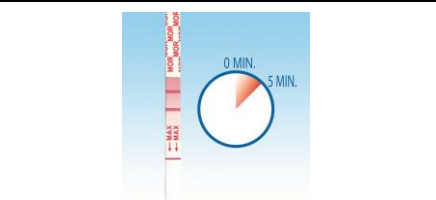

Fresh urine does not require any special handling or pretreatment. Specimen should be collected in a clean, dry, plastic or glass container. If the assay is not performed immediately, urine specimen may be refrigerated at 2-8 °C or frozen up to 7 days. Specimens should be brought to room temperature before testing. Urine specimens exhibiting a large amount of precipitate or turbidity should be centrifuged or allowed to settle before testing. Avoid contact with skin by wearing gloves and proper laboratory attire.

QUALITY CONTROL

Good Laboratory practice recommends the daily use of control materials to validate the reliability of device. Control materials should be assayed as clinical specimen and challenging to the assay cutoff concentration, e.g., 50% above and below cutoff concentration. If control values do not fall within established range, assay results are invalid. Control materials, which are not provided with this test kit, are commercially available.

The DOA Test provides a built-in process control with a different antigen/antibody reaction at the control region (C). This control line should always appear regardless the presence of drug or metabolite. If the control line does not appear, the test device should be discarded and the obtained result is invalid. The presence of this control band in the control region serve as 1) verification that sufficient volume is added, 2) that proper flow is obtained.

PROCEDURE




1	
Bring all materials and specimens to room temperature.	
2	
Remove the DOA test from sealed foil pouch.	
3 (For DOA Test Cassette Only)	
Place the DOA Test Cassette on a flat surface and label the device with patient ID.	
4	
Place the sample pad end into the urine specimen. Take care to hold each pad in the urine without touching the plastic container.	Place the transfer pipette in the specimen and depress the bulb to withdraw a sample.
	
5	
Hold the device in the urine sample until a reddish color appears in the test area (approximately 20 seconds)*. Remove the strip from the urine sample.	Hold the pipette in a vertical position over the sample well of the test cassette and deliver 2-3 drops (80-120 µl) of sample into each of the sample wells.
	
6	
Read the results at 5 minutes after adding the sample.	
	

Caution: Results after 10 minutes may not be accurate.

INTERPRETATION OF RESULTS

Negative:
Colored bands show on both test line zone (T) and control line zone (C). This is an indication of negative result for the test. The negative result does not indicate the absence of drug in the specimen; it only indicates the level of tested drug in the specimen is less than cut-off level.
Positive:
One colored band form. One colored band appears in control line zone. No colored band is found in test line zone (T). This is an indication the level of tested drug in the specimen is above the cut-off level.
Invalid:
If there is no colored band in control line zone (C), the test result is invalid. Retest the sample with a new device.

Note: A borderline(+/-) in test line zone should be considered negative result.

<p>Caution: THC test strip and Amphetamine test cassette displayed below are selected as representatives of all 18 available drug tests currently provided by Matrix Diagnostics</p> 		
NEGATIVE	POSITIVE	INVALID
NEGATIVE	POSITIVE	INVALID

GHB	0		<p>GHB (µg/mL)</p> <p>Use the color chart on the product pouch to interpret GHB levels at the three indicated semi-quantitative GHB concentrations. The 0 µg/ml level indicates that no significant GHB is present, the 10 µg/ml level and the 50 µg/ml level indicates a presumptive positive.</p>
	10		
	50		

LIMITATION OF PROCEDURE

The assay is designed for use with human urine only. A positive result with the test indicates only the presence of a drug/metabolite and does not indicate or measure intoxication. There is a possibility that technical or procedural error as well other substances in certain foods and medicines may interfere with the test and cause false results. Please refer to "SPECIFICITY" section for lists of substances that will produce either positive results, or that do not interfere with test performance. If a drug/metabolite is found present in the urine specimen, the assay does not indicate frequency of drug use or distinguish between drug of abuse and certain foods and medicines.

EXPECTED RESULTS

The DOA Test is a qualitative assay. It identifies the selected drug in human urine at its cut-off concentration or higher. The concentration of the drug cannot be determined by this assay. The test is intended to distinguish negative result from presumptive positive result. All positive results must be confirmed using an alternate method, preferably GC/MS.

PERFORMANCE CHARACTERISTICS

A. Accuracy

The accuracy of the DOA Test was evaluated in each individual strip and in comparison to GC/MS method at the following concentration: d-amphetamine 300/500/1000ng/ml (AMP), Secobarbital 200/300 ng/ml (BAR), Oxazepam, 100/200/300 ng/ml (BZO), Buprenorphine-3-β-d-glucuronide 5/10ng/ml (BUP), Benzoylcegonine 100/200/300ng/ml (COC), EDDP 100/300ng/ml (EDDP), Ketamine 300/500/1000ng/ml (KET), methadone 300 ng/ml (MTD), MDMA 300/500/1000ng/ml (MDMA), (+)methamphetamine 300/500/1000 ng/ml (MET), morphine 100/200/300 ng/ml (OPI), morphine 1000/2000 ng/ml (OPI II), oxycodone 100/300ng/ml (OXY), phenacyclidine 25 ng/ml (PCP),11-nor-Δ9-THC-9-COOH 25/50/150/200/300/500ng/ml (THC),Norpropoxyphene 300ng/ml(PPX),Tramadol 200/300 ng/ml (TML), Nortriptyline 300/1000 ng/ml (TCA), 6-Acetylmorphine 10 ng/ml (6-MAM), Zolpidem Phenyl-4-carboxylicacid 25/50 ng/ml(ZOL), Zopiclone 50ng/ml(ZOP), Hydromorphone 250ng/ml (HMO), Methphenidate 150ng/ml(MPD), Lysergic acid diethylamide 20/50 ng/ml (LSD), Pregabalin 500/1000 ng/ml (PGB), 3,4-Methylenedioxypropylvalerone 500/1000 ng/ml (MDPV), Methcathinone 100/500 ng/ml (MCAT), Mephedrone 500 ng/ml (MEP), Ethyl Glucuronide 500/1000 ng/m(ETG), Gabapentin 2000 ng/ml (GAB), Carfentanil 500 ng/ml (CFYL),AB-PINACA 25 ng/ml (K2-AB), Caffeine 8000 ng/ml (CAF), Gamma-hydroxybutyricacid10µg/ml(GHB), JHW-018 , JWH-073 30/50 ng/ml(K2), Fentanyl 10 ng/m(FYL), Cotinine 200ng/ml(COT), Methaqualone 300 ng/ml(MQL), K4 Synthetic Cannabinoids 25ng/ml(K4), α-PVP 500ng/ml(α-PVP) and MDPHP 500 ng/ml.

1. **Amphetamine** The accuracy of the amphetamine test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 300/500/1000 ng/ml. Three hundred and forty five (345) urine specimens were evaluated in this study. The results are summarised and presented below:
AMP300 Positive % agreement:95.8, Negative % agreement: 100 AMP500 Positive % agreement:95.9, Negative % agreement: 100
AMP1000 Positive % agreement:96.1, Negative % agreement: 100

2. **Barbiturate** The accuracy of the barbiturate test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 200/300 ng/ml of secobarbital. One hundred and thirteen (113) urine specimens were evaluated in this study. The results are summarised as below:
BAR200 Positive % agreement: 97.8, Negative % agreement: 98.1 BAR200 Positive % agreement: 97.8, Negative % agreement: 98.1

3. **Benzodiazepine** The accuracy of the benzodiazepine test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 100/200/300 ng/ml of oxazepam. Three hundred and forty four (344) urine specimens were evaluated in this study. The results are summarised as below:
BZO100 Positive % agreement: 95.9, Negative % agreement: 98 BZO200 Positive % agreement: 97.4, Negative % agreement: 98.2
BZO300 Positive % agreement: 95.3, Negative % agreement: 92.9

4. **Buprenorphine** The accuracy of the buprenorphine test was evaluated in comparison to GC/MS at a cut-off of 5/10 ng/ml of buprenorphine-3-β-d-glucuronide. One hundred and one (101) urine specimens were evaluated in this study. The results are summarised as below:
BUP5 Positive % agreement: 100, Negative % agreement: 100 BUP10 Positive % agreement: 100, Negative % agreement: 100

5. **Cocaine** The accuracy of the cocaine test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 100/200/300 ng/ml of benzoylcegonine. Three hundred and forty four (344) urine specimens were evaluated in this study. The results are summarised as below:
COC100 Positive % agreement: 98.2, Negative % agreement: 98.1 COC200 Positive % agreement: 95.7, Negative % agreement: 98.1
COC300 Positive % agreement: 98.2, Negative % agreement: 98.1

6. **EDDP** The accuracy of the methadone metabolite (EDDP) test was evaluated in comparison to GC/MS method at a cut-off of 100 ng/mL EDDP. Ninety nine (99) specimens were evaluated in this study. The results are summarised as below:
EDDP100 Positive % agreement: 95.8, Negative % agreement: 100 EDDP300 Positive % agreement: 98.6, Negative % agreement: 100

7. **Ketamine** The accuracy of the ketamine test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 300/500/1000 ng/ml of ketamine. Three hundred and forty four (344) urine specimens were evaluated in this study. The results are summarised as below:
KET300 Positive % agreement: 98, Negative % agreement: 98.6 KET500 Positive % agreement: 98, Negative % agreement: 98.6
KET1000 Positive % agreement: 98, Negative % agreement: 98.6

8. **MDMA** The accuracy of the MDMA test was evaluated in comparison to GC/MS at a cut-off of 300/500/1000 ng/ml of (+)methylenedioxyamphetamine. Eighty (80) urine specimens with GC/MS confirmed MDMA concentration were evaluated in this study. The results are summarised and presented below:
MDMA300 Positive % agreement: 96, Negative % agreement: 95 MDMA500 Positive % agreement: 98.5, Negative % agreement: 98.2
MDMA1000 Positive % agreement: 100, Negative % agreement: 100

9. **Methadone** The accuracy of the methadone test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 300 ng/ml of methadone. Three hundred and forty four (344) urine specimens were evaluated in this study. The results are summarised as below:
Positive % agreement: 100, Negative % agreement: 100

10. **Methamphetamine** The accuracy of the methamphetamine test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 300/500/1000 ng/ml of (+)methamphetamine. Three hundred and forty four (344) urine specimens were evaluated in this study. The results are summarised as below:
MDMA300 Positive % agreement: 96.8, Negative % agreement: 100 MDMA500 Positive % agreement: 96.9, Negative % agreement: 100
MDMA1000 Positive % agreement: 96.8, Negative % agreement: 100

11. **Opiate** The accuracy of the opiate test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 100/200/300 ng/ml of morphine. Three hundred and forty four (344) urine specimens were evaluated in this study. The results are summarised as below:
OPI100 Positive % agreement:96.1, Negative % agreement: 100 OPI200 Positive % agreement:96.1, Negative % agreement: 100
OPI300 Positive % agreement:96.8, Negative % agreement: 97.9

12. **Opiate II** The accuracy of the opiate II test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 1000/2000 ng/ml of morphine. One hundred and eight (108) urine specimens were evaluated in this study. The results are summarised as below:
OPI1000 Positive % agreement: 97.6, Negative % agreement: 98.4 OPI2000 Positive % agreement: 94, Negative % agreement: 100

13. **Oxycodone** The accuracy of the oxycodone test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 100/300 ng/ml of oxycodone. One hundred and forty four (140) urine specimens were evaluated in this study. The results are summarised as below:
OXY100 Positive % agreement: 98, Negative % agreement: 97 OXY300 Positive % agreement: 96.1, Negative % agreement: 100

14. **Phencyclidine** The accuracy of the PCP test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 25 ng/ml of phenacyclidine. Eighty (80) urine specimens were evaluated in this study. The results are summarised as below:
PCP25 Positive % agreement: 97.8, Negative % agreement:100

15. **Propoxyphene** The accuracy of the propoxyphene test was evaluated in comparison to GC/MS method at a cut-off of 300 ng/ml of nor-propoxyphene. Ninety one (91) propoxyphene positive specimens with GC/MS confirmed nor-Propoxyphene concentration and forty (40) were evaluated in this study. The results are summarised as below:
PPX300 Positive % agreement: 97.8, Negative % agreement:100

16. **THC** The accuracy of the THC test was evaluated in comparison to GC/MS method and commercial kits at a cut-off of 25/50/150/200/300/500 ng/ml of 11-nor-Δ9-THC-9-COOH. Three hundred and forty four (344) urine specimens were evaluated in this study. The results are summarised as below:
THC25 Positive % agreement: 96.8, Negative % agreement: 100 THC50 Positive % agreement: 96.8, Negative % agreement: 98.3
THC150 Positive % agreement: 98.4, Negative % agreement: 98.3 THC200 Positive % agreement: 96.1, Negative % agreement: 100
THC300 Positive % agreement: 100, Negative % agreement: 99 THC500 Positive % agreement: 98.2, Negative % agreement: 99

17. **Tramadol** The accuracy of the tramadol test was evaluated in comparison to GC/MS at a cut-off of 100/300 ng/ml of tramadol Eighty one (81) urine specimens with GC/MS confirmed tramadol concentration were evaluated in this study. The results are summarised and presented below:
TRA100 Positive % agreement: 95, Negative % agreement: 98 TRA300 Positive % agreement: 95, Negative % agreement: 98

18. **TCA** The accuracy of the TCA test was evaluated in comparison to GC/MS at a cut-off of 300/1000 ng/ml of Nortriptyline. One hundred (100) urine specimens with GC/MS confirmed Nortriptyline concentration were evaluated in this study. The results are summarised and presented below:
TCA300 Positive % agreement: 92.1, Negative % agreement: 100 TCA1000 Positive % agreement: 92.1, Negative % agreement: 100

19. **6-MAM** The accuracy of the 6-MAM test was evaluated in comparison to GC/MS at a cut-off of 10 ng/ml of 6-Acetylmorphine. One hundred and twenty one (121) urine specimens with GC/MS confirmed 6-Acetylmorphine concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 97, Negative % agreement: 100

20. **ZOL** The accuracy of the ZOL test was evaluated in comparison to GC/MS at a cut-off of 25/50 ng/ml of Zolpidem Phenyl-4-carboxylic acid. Ninety six (96) urine specimens with GC/MS confirmed Zolpidem Phenyl-4-carboxylic acid concentration were evaluated in this study. The results are summarised and presented below:
ZOL25 Positive % agreement: 96.3, Negative % agreement: 99 ZOL50 Positive % agreement: 96.3, Negative % agreement: 99

21. **LSD** The accuracy of the LSD test was evaluated in comparison to GC/MS at a cut-off of 20/50 ng/ml of Lysergic acid diethylamide. Ninety five (95) urine specimens with GC/MS confirmed Lysergic acid diethylamide concentration were evaluated in this study. The results are summarised and presented below:
LSD20 Positive % agreement: 100, Negative % agreement: 100 LSD50 Positive % agreement: 100, Negative % agreement: 100

22. **PGB** The accuracy of the PGB test was evaluated in comparison to GC/MS at a cut-off of 500/1000 ng/ml of Pregabalin. One hundred and thirty two (132) urine specimens with GC/MS confirmed Pregabalin concentration were evaluated in this study. The results are summarised and presented below:
PGB500 Positive % agreement: 96, Negative % agreement: 98 PGB1000 Positive % agreement: 96, Negative % agreement: 98

23. **MDPV** The accuracy of the MDPV test was evaluated in comparison to GC/MS at a cut-off of 500/100 ng/ml of 3,4-Methylenedioxypropylvalerone. One hundred and six (106) urine specimens with GC/MS confirmed 3,4-Methylenedioxypropylvalerone concentration were evaluated in this study. The results are summarised and presented below:
MDPV500 Positive % agreement: 99, Negative % agreement: 100 MDPV1000 Positive % agreement: 99, Negative % agreement: 100

24. **MCAT** The accuracy of the MCAT test was evaluated in comparison to GC/MS at a cut-off of 500 ng/ml of Methcathinone. Eighty eight (88) urine specimens with GC/MS confirmed Methcathinone concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 100, Negative % agreement: 97

25. **MEP** The accuracy of the MEP test was evaluated in comparison to GC/MS at a cut-off of 500 ng/ml of Mephedrone. Two hundred and three (203) urine specimens with GC/MS confirmed Mephedrone concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 97, Negative % agreement: 99

26. **GAB** The accuracy of the GAB test was evaluated in comparison to GC/MS at a cut-off of 2000 ng/ml of Gabapentin. One hundred and fifty nine (159) urine specimens with GC/MS confirmed Gabapentin concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 97, Negative % agreement: 100

27. **CFYL** The accuracy of the CFYL test was evaluated in comparison to GC/MS at a cut-off of 500 ng/ml of Carfentanil. One hundred and seventy eight (178) urine specimens with GC/MS confirmed Carfentanil concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 98, Negative % agreement: 100

28. **K2-AB** The accuracy of the K2-AB test was evaluated in comparison to GC/MS at a cut-off of 25 ng/ml of AB-PINACA. Two hundred and twenty five (225) urine specimens with GC/MS confirmed AB-PINACA concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 99, Negative % agreement: 98

29. **CAF** The accuracy of the CAF test was evaluated in comparison to GC/MS at a cut-off of 8000 ng/ml of Caffeine. One hundred and ninety four (194) urine specimens with GC/MS confirmed Caffeine concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 95, Negative % agreement: 100

30. **ETG** The accuracy of the ETG test was evaluated in comparison to GC/MS at a cut-off of 500/1000 ng/ml of Ethyl-β-D-glucuronide. One hundred and eighty (180) urine specimens with GC/MS confirmed Ethyl-β-D-glucuronide concentration were evaluated in this study. The results are summarised and presented below:
ETG500 Positive % agreement: 97, Negative % agreement: 100 ETG1000 Positive % agreement: 97, Negative % agreement: 100

31. **K2** The accuracy of the K2 test was evaluated in comparison to GC/MS at a cut-off of 30/50 ng/ml of JWH-018-5 pentanoic. One hundred and fifty-five (155) urine specimens with GC/MS confirmed JWH-018-5 pentanoic concentration were evaluated in this study. The results are summarised and presented below:
K2 30 Positive % agreement: 98.9, Negative % agreement: 100 K2 50 Positive % agreement: 98.9, Negative % agreement: 100

32. **COT** The accuracy of the COT test was evaluated in comparison to GC/MS at a cut-off of 200/300/600/1000 ng/ml of (-)-Cotinine. One hundred and sixty (160) urine specimens with GC/MS confirmed (-)-Cotinine concentration were evaluated in this study. The results are summarised and presented below:
COT200 Positive % agreement: 97.7, Negative % agreement: 97.9 COT300 Positive % agreement: 97.9, Negative % agreement: 100
COT600 Positive % agreement: 96.5, Negative % agreement: 98 COT1000 Positive % agreement: 99, Negative % agreement: 100

33. **FYL** The accuracy of the FYL test was evaluated in comparison to GC/MS at a cut-off of 10/20 ng/ml of Fentanyl. One hundred and seventy-five (175) urine specimens with GC/MS confirmed Fentanyl concentration were evaluated in this study. The results are summarised and presented below:
FYL10 Positive % agreement: 96.8, Negative % agreement: 100 FYL20 Positive % agreement: 94.4, Negative % agreement: 100

34. **MQL** The accuracy of the MQL test was evaluated in comparison to GC/MS at a cut-off of 300 ng/ml of Methaqualone. Two hundred and five (205) urine specimens with GC/MS confirmed Methaqualone concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 100, Negative % agreement: 98

35. **MPD** The accuracy of the MPD test was evaluated in comparison to GC/MS at a cut-off of 150 ng/ml of Methlyphenidate. Eighty (275) urine specimens with GC/MS confirmed MPD concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 98, Negative % agreement:98.4

36. **HMO** The accuracy of the Hydromorphone test was evaluated in comparison to GC/MS at a cut-off of 250 ng/ml of Hydromorphone. Eighty (120) urine specimens with GC/MS confirmed HMO concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 100, Negative % agreement: 100

37. **ZOP** The accuracy of the Zopiclone test was evaluated in comparison to GC/MS at a cut-off of 300 ng/ml of Zopiclone. Eighty (80) urine specimens with GC/MS confirmed ZOP concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 99.9, Negative % agreement: 99.9

38. **K4** The accuracy of the MDMA test was evaluated in comparison to GC/MS at a cut-off of 500 ng/ml of (+)methylenedioxyamphetamine. Eighty (80) urine specimens with GC/MS confirmed MDMA concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 96, Negative % agreement: 95

39. **α-PVP** The accuracy of the α -PVP test was evaluated in comparison to GC/MS at a cut-off of 500 ng/ml of α -PVP. Eighty (80) urine specimens with GC/MS confirmed α -PVP concentration were evaluated in this study. The results are summarised and presented below:
Positive % agreement: 96.3, Negative % agreement: 100

40. **MDPHP** The accuracy of MDPHP test was evaluated in comparison to GC/MS at a cut off of 500 ng/ml of MDPHP.Specimens were evaluated in this study.The results are summarisedand presented below:
Positive % agreement:100,Negative % agreement:100

B. Sensitivity

The cut-off concentrations (sensitivity level) of the various DOA Tests are determined to be: AMP 300/500/1000 ng/ml, BAR, 200/300 ng/ml, BZO 100/200/300 ng/ml, BUP 5/10 ng/ml, COC 100/200/300 ng/ml, EDDP 100/300 ng/ml, KET 300/500/1000 ng/ml, MTD 300 ng/ml, MET 300/500/1000 ng/ml, MDMA 300/ 500/1000 ng/ml, OPI 100/200/300 ng/ml, OPI II 1000/2000 ng/ml, OXY 100/300 ng/ml, PCP 25 ng/ml , PPX 300 ng/ml, THC25/ 50/150/200/300/500 ng/ml, TML 100/300 ng/ml, TCA 300/1000 ng/ml, 6-MAM 10 ng/ml, ZOL 25/50 ng/ml, ZOP 50 ng/ml, HMO 250 ng/ml MPD 150 ng/ml, LSD 20/50 ng/ml, PGB 500/1000 ng/ml, MDPV 500/1000 ng/ml, MCAT 100/500 ng/ml, MEP 500 ng/ml, GAB 2000 ng/ml, CFYL 500 ng/ml, K2-AB 25 ng/ml, CAF 8000 ng/ml, ETG 500/1000 ng/ml, K2 30/50 ng/ml, COT 200/300/600/1000 ng/ml, FYL 10/20 ng/ml, MQL 300 ng/ml, K4 25 ng/ml, α-PVP 500, GHB 10µg/ml and MDPHP 500 ng/ml.

C. Precision

The precision of the DOA Test was determined by conducting the test with spiked controls and interpreted the results by three individuals to verify the random error of visual interpretation. The results of 40 samples each of 50% above and 50% below cut-off specimens are 100% agreed by three observers. The test results were found to have no significant differences between these three observers.

D. Specificity

The specificity for the DOA Test was tested by adding various drugs, drug metabolites, and other compounds that are likely to be present in urine. All compounds were prepared in drug-free normal human urine.

1. Interference testing

Performance of the DOA Tests at cut-off level is not affected when pH and Specific Gravity ranges of urine specimen are at 4.5 to 9.0 and 1.005 to 1.035.

The following substances were tested and confirmed did not interfere with each of the DOA Tests at the listed concentrations.

Glucose	2000 mg/dl
Human albumin	2000 mg/dl
Human hemoglobin	10 mg/dl
Urea	4000 mg/dl
Uric acid	10 mg/dl

2. Specificity

The following table lists compounds that are detected by the selected drug of the DOA Tests which produced positive results when tested at levels equal or greater than the concentrations listed below:

	Compound	Concentration (ng/ml)	Cross reactivity
Amphetamine 1000	d-Amphetamine	1000	100.0%
	l-Amphetamine	>100,000	<1%
	d-methamphetamine	>100,000	<1%
	l-methamphetamine	>100,000	<1%
	3,4-Methylenedioxyamphetamine	1250	80.0%

	3,4-Methylenedioxy-methamphetamine	>100,000	<1%
	3,4-Methylenedioxyethylamphetamine	>100,000	<1%
	Paramethoxyamphetamine	625	160.0%
	Phentermine	1250	80.0%
	Tyramine	>100,000	<1%
Amphetamine 500	d-Amphetamine	500	100.0%
	l-Amphetamine	50000	1.0%
	3,4-Methylenedioxyamphetamine	625	80.0%
	Phentermine	1250	40.0%
	Paramethoxyamphetamine	625	80.0%
	Tyramine	>100,000	<0.5%
Amphetamine 300	d-Amphetamine	300	100.0%
	l-Amphetamine	50,000	0.6%
	Mephentermine hemisulfate salt	>100,000	<0.3%
	3,4-Methylenedioxyamphetamine (MDA)	625	48.0%
	Phentermine	625	48.0%
	Paramethoxyamphetamine (PMA)	625	48.0%
	Paramethoxymethamphetamine (PMMA)	>100,000	<0.3%
	Tyramine	>100,000	<0.3%
Barbiturates 300	Secobarbital	300	100.0%
	Allobarbital	1,250	24.0%
	Alphenal	625	48.0%
	Amobarbital	625	48.0%
	Aprobarbital	188	159.6%
	Butabarbital	94	319.1%
	Butalbital	2,500	12.0%
	Butethal	200	150.0%
	Cyclopentobarbital	400	75.0%
	Pentobarbital	1,000	30.0%
	Phenobarbital	300	100.0%
Barbiturates 200	Secobarbital	200	100.0%
	Allobarbital	820	24.4%
	Alphenal	500	40.0%
	Amobarbital	500	40.0%
	Aprobarbital	130	153.8%
	Butabarbital	70	285.7%
	Butalbital	1,800	11.1%
	Butethal	150	133.3%
	Cyclopentobarbital	300	66.7%
	Pentobarbital	730	27.4%
	Phenobarbital	200	100.0%
Benzodiazepines 300	Oxazepam	300	100.0%
	Alprazolam	125	240.0%
	Bromazepam	625	48.0%
	Chlordiazepoxide	2500	12.0%
	Clobazam	63	476.2%
	Clonazepam	2500	12.0%
	Clorazepate	3330	9.0%
	Desalkflurazepam	250	120.0%

	Diazepam	250	120.0%
	Estazolam	5000	6.0%
	Fentanyl	>100,000	<0.3%
	Flunitrazepam	375	80.0%
	Flurazepam	>100,000	<0.3%
	Lorazepam	1250	24.0%
	Lormetazepam	1250	24.0%
	Medazepam	>100,000	<0.3%
	Midazolam	>100,000	<0.3%
	Nitrazepam	25000	1.2%
	Norchlordiazepoxide	250	120.0%
	Nordiazepam	500	60.0%
	Prazepam	>100,000	<0.3%
	Temazepam	63	476.2%
	Triazolam	5000	6.0%
Benzodiazepines 200	Oxazepam	200	100.0%
	Alprazolam	83	241.0%
	Bromazepam	417	48.0%
	Chlordiazepoxide	1,667	12.0%
	Clobazam	42	476.2%
	Clonazepam	1,667	12.0%
	Clorazepate	2,220	9.0%
	Desalkflurazepam	167	119.8%
	Diazepam	167	119.8%
	Estazolam	3,333	6.0%
	Fentanyl	>100,000	<0.2%
	Flunitrazepam	250	80.0%
	Flurazepam	>100,000	<0.2%
	Lorazepam	833	24.0%
	Lormetazepam	833	24.0%
	Medazepam	>100,000	<0.2%
	Midazolam	>100,000	<0.2%
	Nitrazepam	16,667	1.2%
	Norchlordiazepoxide	167	119.8%
	Nordiazepam	333	60.1%
	Prazepam	>100,000	<0.2%
	Temazepam	42	476.2%
	Triazolam	3,333	6.0%
Benzodiazepines 100	Oxazepam	100	100.0%
	Alprazolam	42	238.1%
	Bromazepam	208	48.1%
	Chlordiazepoxide	833	12.0%
	Clobazam	21	476.2%
	Clonazepam	833	12.0%
	Clorazepate	1,110	9.0%
	Desalkflurazepam	83	120.5%
	Diazepam	83	120.5%
	Estazolam	1,667	6.0%
	Fentanyl	>100,000	<0.1%
	Flunitrazepam	125	80.0%

	Flurazepam	>100,000	<0.1%
	Lorazepam	417	24.0%
	Lormetazepam	417	24.0%
	Medazepam	>100,000	<0.1%
	Midazolam	>100,000	<0.1%
	Nitrazepam	8,333	1.2%
	Norchlordiazepoxide	83	120.5%
	Nordiazepam	167	59.9%
	Prazepam	>100,000	<0.1%
	Temazepam	21	476.2%
	Triazolam	1,667	6.0%
Buprenorphine 10	Buprenorphine	10	100.0%
	Buprenorphine-3-β-D-Glucuronide	10	100.0%
	Norbuprenorphine	50	20.0%
	Norbuprenorphine-3-β-D-Glucuronide	100	10.0%
Buprenorphine 5	Buprenorphine	5	100.0%
	Buprenorphine-3-β-D-Glucuronide	5	100.0%
	Norbuprenorphine	25	20.0%
	Norbuprenorphine-3-β-D-Glucuronide	50	10.0%
Cocaine 300	Benzoylcegonine	300	100.0%
	Cocaine	1,000	30.0%
	Ecgonine	100,000	0.3%
	Ecgonine Methyl Ester	>100,000	<0.3%
Cocaine 200	Benzoylcegonine	200	100.0%
	Cocaine	125	160.0%
	Ecgonine	5,000	4.0%
	Ecgonine Methyl Ester	>100,000	<0.5%
Cocaine 100	Benzoylcegonine	100	200.0%
EDDP 100	EDDP	100	100.0%
	Meperidine	>100,000	<0.1%
	Methadone	>100,000	<0.1%
	Norfentanyl	>100,000	<0.1%
	Phencyclidine	>100,000	<0.1%
	Promazine	50,000	0.2%
	Promethazine	25,000	0.4%
	Prothipendyl	50,000	0.2%
	Prozine	12,500	0.8%
EDDP 300	EDDP	300	100.0%
	Meperidine	>100,000	<0.3%
	Methadone	>100,000	<0.3%
	Norfentanyl	>100,000	<0.3%
	Phencyclidine	>100,000	<0.3%
	Promazine	80,000	0.4%
	Promethazine	75,000	0.4%
	Prothipendyl	80,000	0.4%
	Prozine	37,500	0.8%
Ketamine 300	Ketamine	300	100.0%
	Norketamine	300	100.0%
	Dextromethorphan	>100,000	<0.3%

	Dextrophan tartrate	>100,000	<0.3%
	EDDP	>100,000	<0.3%
	Meperidine	10,000	3.0%
	Mephentermine hemisulfate salt	50,000	0.6%
	3,4-Methylenedioxyethylamphetamine	25,000	1.2%
	Nordoxepin hydrochloride	25,000	1.2%
	Phencyclidine	4,000	7.5%
	Promazine	6,000	5.0%
	Promethazine	25,000	1.2%
Ketamine 500	Ketamine	500	100.0%
	Norketamine	500	100.0%
	Dextromethorphan	250	200.0%
	Dextrophan tartrate	250	200.0%
	D-Norpropoxyphene	15,000	3.3%
	Meperidine	6,250	8.0%
	Mephentermine hemisulfate salt	7,500	6.7%
	D-Methamphetamine	6,125	8.2%
	3,4-Methylenedioxyethylamphetamine (MDEA)	12,500	4.0%
	Nordoxepin hydrochloride	12,500	4.0%
	Phencyclidine	2,500	20.0%
	Promazine	4,000	12.5%
	Promethazine	12,500	4.0%
Ketamine 1000	Ketamine	1,000	100.0%
	Norketamine	1,000	100.0%
	Dextromethorphan	>100,000	<1.0%
	Dextrophan tartrate	>100,000	<1.0%
	D-Norpropoxyphene	31,250	3.2%
	EDDP	>100,000	<1.0%
	Meperidine	12,500	8.0%
	Mephentermine hemisulfate salt	50,000	2.0%
	Methadone	12,500	8.0%
	D-Methamphetamine	12,500	8.0%
	3,4-Methylenedioxyethylamphetamine	25,000	4.0%
	Nordoxepin hydrochloride	25,000	4.0%
	Phencyclidine	5,000	20.0%
	Promazine	8,000	12.5%
	Promethazine	25,000	4.0%
Methadone 300	Methadone	300	100.0%
	(-)-alpha-methadol	2,000	15.0%
Methamphetamine 300	d-Methamphetamine	300	100.0%
	Chloroquine	7,500	4.0%
	Fenfluramine	12,500	2.4%
	l-Methamphetamine	10,000	3.0%
	Mephentermine hemisulfate salt	31,250	1.0%
	MDEA	50,000	0.6%
	MDMA	313	95.8%

	PMMA	625	48.0%
	(-)-Ephedrine	2,000	15.0%
Methamphetamine 500	d-Methamphetamine	500	100.0%
	Chloroquine	12,500	4.0%
	Fenfluramine	12,500	4.0%
	l-Methamphetamine	3,125	16.0%
	Mephentermine hemisulfate salt	25,000	2.0%
	MDEA	12,500	4.0%
	MDMA	1,875	26.7%
	PMMA	625	80.0%
	(-)-Ephedrine	2,000	25.0%
Methamphetamine 1000	d-Methamphetamine	1,000	100.0%
	Chloroquine	25,000	4.0%
	Fenfluramine	12,500	8.0%
	l-Methamphetamine	10,000	10.0%
	Mephentermine hemisulfate salt	31,250	3.2%
	3,4-Methylenedioxyethylamphetamine	50,000	2.0%
	3,4-Methylenedioxy-methamphetamine	313	319.5%
	Paramethoxyamphetamine	625	160.0%
	(-)-Ephedrine	4,000	25.0%
	MDMA 1000	3,4-Methylenedioxy-methamphetamine	1,000
d-Amphetamine		>100,000	<1.0%
l-Amphetamine		>100,000	<1.0%
d-methamphetamine		>100,000	<1.0%
l-methamphetamine		>100,000	<1.0%
3,4-Methylenedioxyamphetamine		3,000	33.3%
3,4-Methylenedioxyethylamphetamine		500	200.0%
Paramethoxyamphetamine		50,000	2.0%
Paramethoxymethamphetamine		>100,000	<1.0%
MDMA 500		Methylenedioxyamphetamine (MDMA)	500
	3,4-Methylenedioxyamphetamine (MDA)	5,000	10.0%
	3,4-Methylenedioxyethylamphetamine (MDEA)	300	166.7%
	d-methamphetamine	>50000	<1.0%
	d-amphetamine	>50000	<1.0%
	l-amphetamine	>50000	<1.0%
	l-methamphetamine	>50000	<1.0%
	MDMA 300	3,4-Methylenedioxy-methamphetamine (MDMA)	300
3,4-Methylenedioxyamphetamine (MDA)		2,000	15.0%
3,4-Methylenedioxyethylamphetamine		130	230.8%
Paramethoxyamphetamine(PMA)		30,000	1.0%
Paramethoxymethamphetamine(PMMA)		6,000	5.0%
Morphine 300	Morphine	300	100.0%
	Acetylcodeine	150	200.0%
	Buprenorphine	> 10000	<3.0%
	Codeine	250	120.0%
	Diacetyl Morphin	250	120.0%
	Dihydrocodeine	586	51.2%

	Ethylmorphine	200	150.0%
	Hydrocodone	12,500	2.4%
	Hydromorphone	12,500	2.4%
	6-Monoacetylmorphine	250	120.0%
	Morphine-3-glucuronid	2,500	12.0%
	Nalorphine	25,000	1.2%
	Thebaine	25,000	1.2%
	Morphine 200	Morphine	200
Acetylcodeine		100	200.0%
Buprenorphine		2,000	10.0%
Codeine		170	117.6%
Diacetyl Morphin		168	119.0%
Dihydrocodeine		395	50.6%
Ethylmorphine		135	148.1%
Hydrocodone		8,350	2.4%
Hydromorphone		8,350	2.4%
6-Monoacetylmorphine		170	117.6%
Morphine-3-glucuronid		1,670	12.0%
Nalorphine		16,666	1.2%
Thebaine	16,666	1.2%	
Morphine 100	Morphine	100	100.0%
	Codeine	100	100.0%
	Diacetylmorphine (Heroin)	100	100.0%
	Ethylmorphine	100	100.0%
	Hydromorphone	500	20.0%
	Hydrocodone	500	20.0%
	6-Monoacetylmorphine	100	100.0%
	Morphine-3-β-d-glucuronide	2,000	5.0%
	Oxycodone	20,000	0.5%
	Oxymorphone	20,000	0.5%
	Promethazine	>100,000	<0.1%
	Rifampicine	8,400	1.2%
Thebaine	8,400	1.2%	
Trimipramine	20,000	0.5%	
Opiates 2000	Morphine	2,000	100.0%
	Acetylcodeine	1,563	128.0%
	Buprenorphine	25,000	8.0%
	Codeine	2,000	100.0%
	Diacetylmorphine (Heroin)	5,000	40.0%
	Dihydrocodeine	1,563	128.0%
	Ethylmorphine	250	800.0%
	Hydromorphone	25,000	8.0%
	Hydrocodone	50,000	4.0%
	Merperidine	>100,000	<2.0%
	6-Monoacetylmorphine (6-MAM)	4,000	50.0%
	Morphine-3-β-d-glucuronide	12,500	16.0%
Nalorphine Hydrochloride	>100,000	<2.0%	
Oxycodone	>100,000	<2.0%	
Oxymorphone	>100,000	<2.0%	
Rifampicine	>100,000	<2.0%	

Opiates 1000	Thebaine	50,000	4.0%	
	Morphine	1,000	100.0%	
	Acetylcodeine	1,000	100.0%	
	Buprenorphine	>10000	<10.0%	
	Codeine	1,000	100.0%	
	Diacetylmorphine (Heroin)	3,000	33.3%	
	Dihydrocodeine	1,000	100.0%	
	Ethylmorphine	200	500.0%	
	Hydromorphone	25,000	4.0%	
	Hydrocodone	50,000	2.0%	
	Merperidine	>100,000	<10.0%	
	6-Monoacetylmorphine (6-MAM)	3,000	33.3%	
	Morphine-3-β-d-glucuronide	10,000	10.0%	
	Nalorphine Hydrochloride	>100,000	<10.0%	
	Oxycodone 300	Oxycodone	300	100.0%
Hydrocodone		75,000	0.4%	
Hydromorphone		>100,000	<0.3%	
Naloxone		>100,000	<0.3%	
Oxymorphone		750	40.0%	
Oxycodone 100		Oxycodone	100	100.0%
		Hydrocodone	6,250	1.6%
		Hydromorphone	50,000	0.2%
		Naloxone	50,000	0.2%
		Oxymorphone	250	40.0%
	Phencyclidine 25	Phencyclidine	25	100.0%
Hydrocodone		>100,000	<0.025%	
Hydromorphone		>100,000	<0.025%	
4-hydroxyphencyclidine		75	33.3%	
THC 200	11-nor-Δ9-THC-9-COOH	200	100.0%	
	THC 150	11-nor-Δ9-THC-9-COOH	150	100.0%
11-nor-Δ8-THC-9-COOH		90	166.7%	
Δ8-Tetrahydrocannabinol		45,000	0.3%	
Δ9-Tetrahydrocannabinol		45,000	0.3%	
Cannabinol		60,000	0.3%	
THC 50	11-nor-Δ9-THC-9-COOH	50	100.0%	
	11-nor-Δ8-THC-9-COOH	50	100.0%	
	11-hydroxy-Δ9-Tetrahydrocannabinol	50	100.0%	
	Δ8-Tetrahydrocannabinol	15,000	0.3%	
	Δ9-Tetrahydrocannabinol	15,000	0.3%	
	Cannabinol	20,000	0.3%	
THC 25	Cannabidiol	>100,000	<0.05%	
	11-nor-Δ9-THC-9-COOH	25	100.0%	
	11-nor-Δ8-THC-9-COOH	15	166.7%	
	Δ8-Tetrahydrocannabinol	7,500	0.3%	
	Δ9-Tetrahydrocannabinol	7,500	0.3%	
Cannabinol	10,000	0.3%		

THC 300	11-nor-Δ9-THC-9-COOH	300	100.0%
THC 500	11-nor-Δ9-THC-9-COOH	500	100.0%
	11-nor-Δ8-THC-9-COOH	500	100.0%
	Δ8-Tetrahydrocannabinol	>50,000	<1.0%
	Δ9-Tetrahydrocannabinol	>50,000	<1.0%
	Cannabinol	>100,000	<0.5%
Propoxyphene 300	D-Propoxyphene	300	100.0%
	D-Norpropoxyphene	5,000	6.0%
Tramadol 300	Tramadol	300	100.0%
Tramadol 100	Tramadol	100	100.0%
	(+/-)Chlorpheniramine	50,000	0.2%
	Dimenhydrinate	50,000	0.2%
	Diphenhydramine	50,000	0.2%
	Phencyclidine	50,000	0.2%
	(+)-Chlorpheniramine	>100,000	<0.1%
	Tricyclic Antidepressants 1000	Nortriptyline HCl	1,000
Amiripryline		1,500	66.7%
Clomipramine		>100,000	<1%
Cyclobenzaprine		12,500	8.0%
Desipramine		188	531.9%
Doxepin		2,000	50.0%
Imipramine		2,500	40.0%
Maprotiline		750	133.3%
Nordoxepin		500	200.0%
Opipramol		1,563	64.0%
Promazine		1,000	100.0%
Promethazine		6,250	16.0%
Prothipendyl		25,000	4.0%
Protryptiline	6,250	16.0%	
Prozine	1,250	80.0%	
Trimipramine	>100,000	<1%	
Tricyclic Antidepressants 300	Nortriptyline	300	100.0%
6-MAM 10	6-Monoacetylmorphine	10	100.0%
	Acetylcodeine	>10,000	<0.1%
	Buprenorphine	>10,000	<0.1%
	Codeine	>10,000	<0.1%
	Diacetylmorphine	1,000	1.0%
	Dihydrocodeine	>10,000	<0.1%
	Ethylmorphine	>10,000	<0.1%
	Hydrocodone	>10,000	<0.1%
	Hydromorphone	5,000	0.2%
	Morphine	10,000	0.1%
Morphine-3-glucuronide	>10,000	<0.1%	
Zolpidem 50	Nalorphine	5,000	0.2%
	Thebaine	>20,000	<0.05%
	Zolpidem Phenyl-4-carboxylic	50	100.0%
Zolpidem 25	Zolpidem	>10,000	<0.5%
	Zolpidem Phenyl-4-carboxylic	25	200.0%

	Zolpidem	>10,000	<0.25%	
Zopiclone 50	N-Desmethylozopiclone	50	100.0%	
	Zopiclone-N-oxide	50	100.0%	
	Zopiclone	300	16.7%	
Hydromorphone 250	Hydromorphone	250	100.0%	
	Acetylcodeine	4,000	6.3%	
	Buprenorphine	> 10,000	<2.5%	
	Codeine	3,000	8.3%	
	Diacetyl Morphin	3,000	8.3%	
	Dihydrocodeine	4,000	6.3%	
	Ethylmorphine	4,000	6.3%	
	Hydrocodone	300	83.3%	
	Morphine	2,500	10.0%	
	6-Monoacetylmorphine	3,000	8.3%	
	Morphine-3-glucuronid	2,500	10.0%	
	Nalorphine	12,500	2.0%	
	Thebaine	>20000	<1.25%	
	Methadone	> 100000	<0.25%	
	Oxazepam	> 100000	<0.25%	
	Oxycodone	100,000	0.3%	
	EDDP	> 100000	<0.25%	
	Methylphenidate 150	Methylphenidate	150	100.0%
		Ritalinic acid	5000	3.0%
	LSD 50	Lysergic acid diethylamide	50	100.0%
LSD 20	Lysergic acid diethylamide	20	100.0%	
Pregabalin500	Pregabalin	500	100.0%	
	Gabapentin	>20,000	<2.5%	
Pregabalin 1000	Pregabalin	1,000	100.0%	
	Gabapentin	> 20,000	<5.0%	
MDPV 500	MDPV	500	100.0%	
MDPV1000	MDPV	1,000	100.0%	
MCAT 500	Methcathinone	500	100.0%	
	Mephedrone	500	100.0%	
	3-methylmethcathinone	500	100.0%	
	4-methylethcathinone	550	90.9%	
	Cathinone	> 100,000	<0.5%	
	MDPV	> 10,000	<5.0%	
MCAT 100	Methcathinone	100	100.0%	
	3-MMC (3-methylmethcathinone)	100	100.0%	
	4-MMC (Mephedrone)	100	100.0%	
	4-MEC (4-methylethcathinone)	120	83.3%	
	Cathinone	>100,000	<0.1%	
	MDPV	>10,000	<1.0%	
Mephedrone 500	Mephedrone	500	100.0%	
	Methcathinone	500	100.0%	
ETG 500	Ethyl Glucuronide	500	100.0%	
	Ethanol	>100,000	<0.5%	
	D-Glucuronic Acid	>100,000	<0.5%	

	Morphine-3-b-D-glucuronide	>100,000	<0.5%
ETG 1000	Ethyl Glucuronide	1000	100.0%
Gabapentin 2000	Gabapentin	2000	100.0%
	Pregbalin	>100,000	<2.0%
CarFentanyl 500	CarFentanyl	500	100.0%
	Fentanyl	100	500.0%
K2-AB 25	AB- PINACA	25	100.0%
	AB-PINACA 5-Pentanoic	25	100.0%
	AB-PINACA 5-hydroxypentyl	25	100.0%
	AB- FUBINACA	40	62.5%
	AB-PINACA 4-hydroxypentyl	>10,000	<0.25%
	UR-144 5-Pentanoic	5,000	0.5%
	UR-144	>10,000	<0.25%
	UR-144 5-hydroxypentyl	>10,000	<0.25%
	UR-144 4-hydroxypentyl	>10,000	<0.25%
	APINACA	>10,000	<0.25%
	APINACA 5-hydroxypentyl	>10,000	<0.25%
	ADB-PINACA N-(5-hydroxypentyl)	50	50.0%
	ADB-PINACA Pentanoic Acid	25	100.0%
	5-fluoro AB-PINACA N-(4-hydroxypentyl)	50	50.0%
Caffeine 8000	Caffeine	8,000	100.0%
	Theophylline	100,000	8.0%
K2 50	JWH-018-5-Pentanoic acid	50	100.0%
	JWH-073-4-Butanoic acid	50	100.0%
K2 30	JWH-018-5-Pentanoic acid metabolite	30	100.0%
	JWH-073-4-Butanoic acid	30	100.0%
Fentanyl 10	Fentanyl and Fentanyl metabolite	10	100.0%
	Fentanyl	100	10.0%
	Norfentanyl	>10,000	<0.1%
Fentanyl 20	Fentanyl and Fentanyl metabolite	20	100.0%
	Fentanyl	200	10.0%
	Norfentanyl	>10,000	<0.2%
Cotinine 600	(-)-Cotinine	600	100.0%
Cotinine 300	(-)-Cotinine	300	100.0%
	(-)-Nicotine	9,375	3.2%
Cotinine 200	(-)-Cotinine	200	100.0%
	(-)-Nicotine	6,250	3.2%
Methaqualone 300	Methaqualone	300	100.0%
	Amitriptyline	50,000	0.6%
	Carbamazepine	20,000	1.5%
	Nortriptyline	50,000	0.6%
	Phenytoin	40,000	0.8%
	Theophylline	40,000	0.8%
K4 25	UR-144 5-Pentanoic acid metabolite	25	100.0%
	UR-144 4-hydroxypentyl	50	50.0%
	UR-144 5-hydroxypentyl	50	50.0%
	UR-144	> 10,000	<0.25%
	XLR-11	> 10,000	<0.25%

	AB- PINACA	>10,000	<0.25%
	AB-PINACA 5-Pentanoic	>10,000	<0.25%
	AB-PINACA 5-hydroxypentyl	>10,000	<0.25%
	AB- FUBINACA	>10,000	<0.25%
	AB-PINACA 4-hydroxypentyl	>10,000	<0.25%
	APINACA	>10,000	<0.25%
	APINACA 5-hydroxypentyl	>10,000	<0.25%
	ADB-PINACA N-(5-hydroxypentyl)	>10,000	<0.25%
	ADB-PINACA Pentanoic Acid	>10,000	<0.25%
α-PVP 500	α-PVP	500	100.0%
	MDPV	40	1250.0%
	PVP	>100,000	<0.5%

The following compounds show no cross-reactivity at concentration up to 100 ug/mL unless specified in the table above.

REFERENCES

- Urine testing for drugs of abuse, NIDA Research Monograph 73 (1986)
- Steven B. Karch, Drugs of abuse hand book, CRC Press, 1st. Ed, (1998)
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