



Synthetic Cannabinoids-1

(HEIA™) For the detection of JWH-018, JWH-073, AM-2201 & their major metabolites

Assay Specifications

Methodology: Homogeneous Enzyme Immunoassay

Cutoff: 10 ng/mL

Calibrator: JWH-018 N-pentanoic acid

Sensitivity: 100%
Specificity: 87.5%
Accuracy: 96.9%

LC-MS/MS Confirmation

HEIA (10 ng/mL)	LC-MS/MS Confirmation	
	Positive	Negative
Positive	48	2*
Negative	0	14

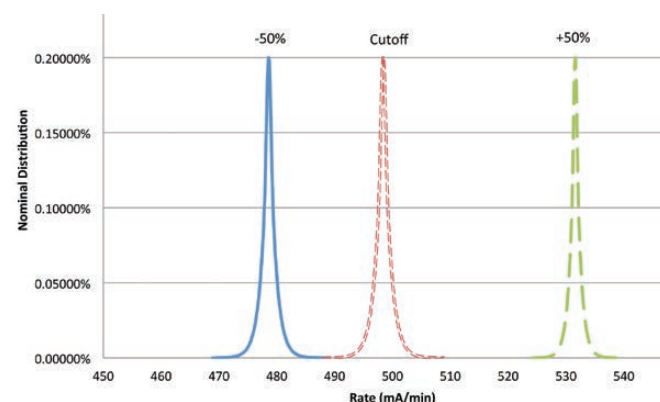
*2 discrepant specimens that screened negative were borderline negative at 10 ng/mL cutoff.

Cross-Reactivity

N/D = Cross-Reactivity < 0.05%

Analyte	Analyte Concentration (ng/mL)	JWH-018 N-pentanoic acid Equivalent (ng/mL)	Cross-Reactivity (%)
JWH-018 N-pentanoic acid	10	10	100
JWH-018 N-(5-hydroxypentyl)	15	10	67
JWH-018 4-hydroxyindole	135	10	7.4
JWH-018 5-hydroxyindole	40	10	25
AM-2201 N-(4-hydroxypentyl)	12	10	83
AM-2201 6-hydroxyindole	20	10	50
JWH-073 N-(4-hydroxybutyl)	65	10	15
JWH-073 6-hydroxyindole	16	10	63
JWH-073 N-butanoic acid	20	10	50
JWH-018	20	10	50
AM-2201	15	10	67
JWH-073	15	10	67
JWH-019	40	10	25
JWH-022	15	10	67
JWH-200	12	10	83
JWH-007	42	10	24
JWH-122	100	10	10
JWH-015	25	10	40
JWH-398	300	10	3.3
3-(1-naphthoyl)-1H-indole	18	10	56

Overlap: JWH-018 N-pentanoic acid (10 ng/mL Cutoff)



Qualitative Precision at 10 ng/mL

Interday Precision (n=40)

Concentration (ng/mL)	Rate (ΔmAU/min)	CV%
5	482.2	0.9
10	508.3	0.9
15	543.3	1.0

ORDER - Synthetic Cannabinoids-1 (HEIA)

Catalog #	Description
344 -0025 / -0060W / -0100 / -0500	25 mL / 60 mL Wedge / 100 mL / 500 mL Kit
10005	10 ng/mL Calibrator
3003	5 and 15 ng/mL Controls
Neg-10-1	10 mL Negative Urine Control

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Synthetic Cannabinoids

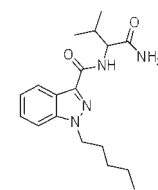
Homogeneous Enzyme Immunoassay (HEIA™)

IMMUNALYSIS

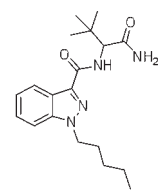
K2-3

K2-2

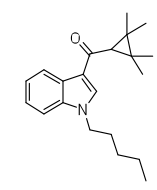
K2-1



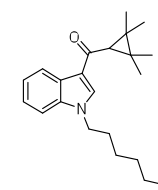
AB-PINACA



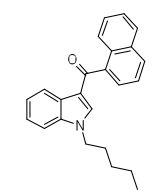
ADB-PINACA



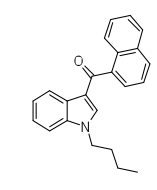
UR-144



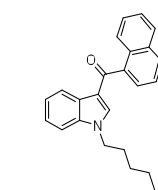
XLR11



JWH-018



JWH-073



AM-2201

Immunalysis now offers three distinct Synthetic Cannabinoid Homogeneous Enzyme Immunoassays (HEIA™) for the detection of Synthetic Cannabinoids in urine. Our assays, geared towards the detection of **JWH-018, JWH-073, AM-2201, UR-144, XLR11** and their metabolites, are now complemented by a **NEW** assay targeted at the next generation, **AB-PINACA and ADB-PINACA** compounds found in the current Spice or K2 products. Together, these assays detect Schedule I controlled substances and provide the most comprehensive screening tool for your automated chemistry analyzer.



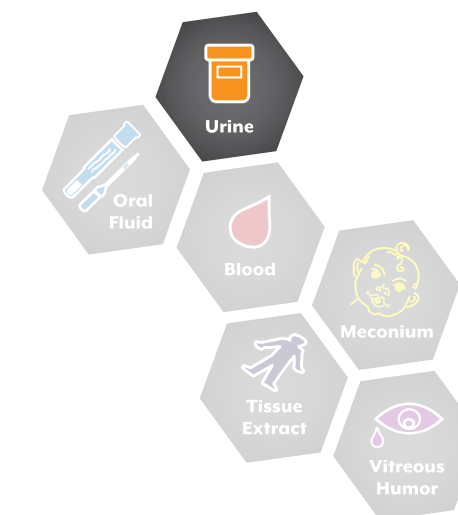
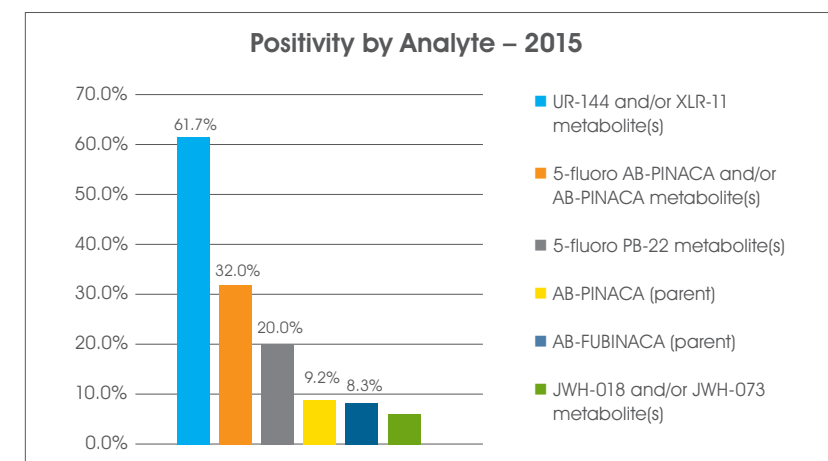
Low Cutoff:
10 ng/mL

Prevalence: Over the past few years, synthetic cannabinoids have emerged as the most frequently detected group of designer drugs with an overall positive rate averaging 10% in 400,000 urine samples tested from the US criminal justice population.¹

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1. Rana, S., Uralets, V. & Ross, W. (2013, Sept). *Emerging Designer Drugs—To Regulate or Not To Regulate?* Presented at the annual meeting of The International Association of Forensic Toxicologists, Madeira, Portugal.

2. data provided by Redwood Toxicology Laboratory (2015).



Synthetic Cannabinoids-3

NEW!

(HEIA™) For the detection of AB-PINACA, ADB-PINACA & their major metabolites

Assay Specifications

Methodology: Homogeneous Enzyme Immunoassay

Cutoff: 10 ng/mL

Calibrator: AB-PINACA pentanoic acid

Sensitivity: 100%
Specificity: 100%
Accuracy: 100%

LC-MS/MS Confirmation

		Positive	Negative
HEIA (10 ng/mL)	Positive	40	0
	Negative	0	40

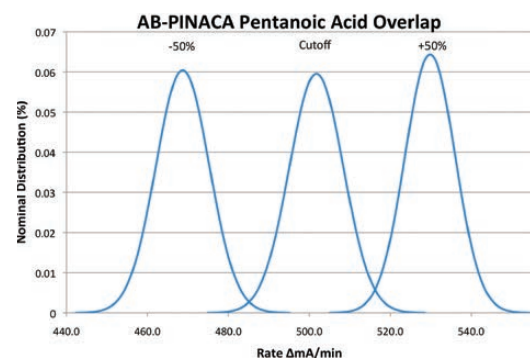
Cross-Reactivity

N/D = Cross-Reactivity < 0.05%

Analyte	Analyte Concentration (ng/mL)	AB-PINACA pentanoic acid Equivalent (ng/mL)	Cross-Reactivity (%)
AB-PINACA pentanoic acid	10	10	100
AB-PINACA	10	10	100
AB-PINACA N-(4-hydroxypentyl)	8	10	125
AB-PINACA N-(5-hydroxypentyl)	10	10	100
5-fluoro AB-PINACA	8	10	125
5-fluoro ABICA	20	10	50
5-fluoro ADBICA	12	10	83
5-fluoro AB PINACA N-(4-hydroxypentyl)	15	10	67
5-fluoro ADB-PINACA	9	10	111
5-chloro AB-PINACA	15	10	67
ADB-PINACA	15	10	67
ADB-PINACA pentanoic acid	7	10	143
ADB-PINACA N-(4-hydroxypentyl)	8	10	125
ADB-PINACA N-(5-hydroxypentyl)	6	10	167
AB-FUBINACA	10	10	100
ADB-FUBINACA	10	10	100
ADBICA	20	10	50
ADBICA N-pentanoic acid	15	10	67
ADBICA N-(4-hydroxypentyl)	15	10	67
ADBICA N-(5-hydroxypentyl)	12	10	83
AB-CHMINACA	15	10	67

Aliquots of a synthetic urine matrix were spiked with the following compounds at a concentration of 100,000 ng/mL. All of these compounds produced negative results: AM2201 6-hydroxyindole, AM2201 N-(4-hydroxypentyl), AM 2201, JWH 007, JWH 015, JWH 019, JWH 022, JWH 073, JWH 081, JWH 122, JWH 398, JWH 018 4-hydroxyindole, JWH 018 5-hydroxyindole, JWH 073 N-butanoic acid, JWH 073 6-hydroxyindole, JWH 073 N-(4-hydroxybutyl), 3-(1-naphthyl)1H-indole, BB-22, BB-22 3-carboxyindole, PB-22, PB-22 N-(5-hydroxypentyl), PB-22 pentanoic acid, UR-144-N-heptyl, JWH 250 5-hydroxyindole, RCS-4-2 methoxy isomer, JWH 250 N0(5-carboxypentyl), AM-2232, AM-2233

Overlap: AB-PINACA pentanoic acid (10 ng/mL Cutoff)



Initial data, final data available upon commercial release.

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Qualitative Precision at 10 ng/mL

Interday Precision (n=80)

Concentration (ng/mL)	Rate (ΔmA/min)	CV%
5	469	1.4
10	502	1.3
15	530	1.2

ORDER - Synthetic Cannabinoids-3 (HEIA)

Catalog #	Description
350 -0025 / -0060W / -0100 / -0500	25 mL / 60 mL Wedge / 100 mL / 500 mL Kit
10030	10 ng/mL Calibrator
3012	5 and 15 ng/mL Controls
Neg-10-1	10 mL Negative Urine Control



Synthetic Cannabinoids-2

(HEIA™) For the detection of UR-144 and XLR11 & their major metabolites

Assay Specifications

Methodology: Homogeneous Enzyme Immunoassay

Cutoff: 10 ng/mL

Calibrator: UR-144 N-pentanoic acid

Sensitivity: 96%
Specificity: 100%
Accuracy: 98%

LC-MS/MS Confirmation

		Positive	Negative
HEIA (10 ng/mL)	Positive	24	0
	Negative	1*	40

*Result was qualitative on the LC-MS/MS; numerical value unavailable.

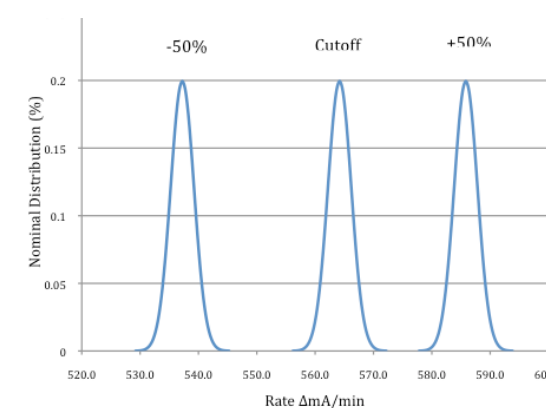
Cross-Reactivity

N/D = Cross-Reactivity < 0.05%

Analyte	Analyte Concentration (ng/mL)	UR-144 N-pentanoic acid Equivalent (ng/mL)	Cross-Reactivity (%)
UR-144 N-pentanoic acid	10	10	100
UR-144	20	10	50
UR-144 N-heptyl	40	10	25
UR-144 N-(5-bromopentyl)	25	10	40
UR-144 N-(5-chloropentyl)	20	10	50
UR-144 N-(5-hydroxypentyl) metabolite	20	10	50
UR-144 N-(5-hydroxypentyl)-β-D-glucuronide	30	10	33
A-796260	30	10	33
A-834735	20	10	50
AB-005	30	10	33
AM-2233	10,000	10	0.10
JWH-018 N-(5-hydroxypentyl) metabolite	3,000	10	0.30
JWH-250 N-(5-hydroxypentyl) metabolite	20,000	10	0.05
RCS-4-2 methoxy isomer	10,000	10	0.10
XLR-11	20	10	50
XLR-11 N-(4-hydroxypentyl) metabolite	70	10	14
XLR-11 N-(4-pentyl)	20	10	50
Cannabipiperidiethanone	50,000	10	ND
JWH-250 N-(4-hydroxypentyl) metabolite	50,000	10	ND
JWH-250 N-(5-carboxypentyl) metabolite	50,000	10	ND

Aliquots of a synthetic urine matrix were spiked with the following compounds at a concentration of 100,000 ng/mL. All of these compounds produced negative results: AM-2201, AM-2201 N-(4-hydroxypentyl) metabolite, AM-2201 6-hydroxyindole metabolite, AM-2232, BB-22, BB-22 3-Carboxyindole, JWH-007, JWH-018, JWH-018 N-pentanoic acid, JWH-018 N-(5-hydroxypentyl)-β-D-glucuronide, JWH-018 4-hydroxyindole, JWH-018 5-hydroxyindole, JWH-019, JWH-022, JWH-073, JWH-073 N-butanoic acid, JWH-073 6-hydroxyindole metabolite, JWH-081, JWH-122, JWH-201, JWH-210, JWH-250, JWH-250 5-hydroxyindole metabolite, PB-22, PB-22 N-pentanoic acid, PB-22 N-(5-hydroxypentyl) metabolite, 1-Naphthoyl indole, 3-(1-naphthoyl)-1H-indole.

Overlap: UR-144 N-pentanoic acid (10 ng/mL Cutoff)



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Qualitative Precision at 10 ng/mL

Interday Precision (n=80)

Concentration (ng/mL)	Rate (ΔmA/min)	CV%
0	508.5	1.0
5	537.2	0.9
10	564.2	0.9
15	585.8	0.8

ORDER - Synthetic Cannabinoids-2 (HEIA)

Catalog #	Description
346 -0025 / -0060W / -0100 / -0500	25 mL / 60 mL Wedge / 100 mL / 500 mL Kit
C346-5-1	10 ng/mL Calibrator
C346-5-2	5 and 15 ng/mL Controls
Neg-10-1	10 mL Negative Urine Control