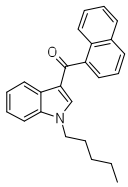
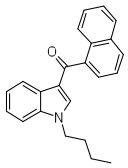
Synthetic Cannabinoids

Homogeneous Enzyme Immunoassay (HEIA™)

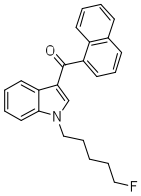
IMMUNALYSIS



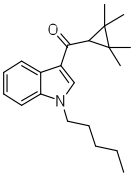
JWH-018



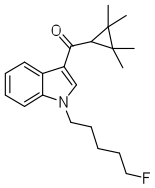
JWH-073



AM-2201



UR-144



XLR11

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

Schedule I Controlled Substances: JWH-018, JWH-007, JWH-019, JWH-022, JWH-073, JWH-081, JWH-122, JWH-200, JWH-203, JWH-210, JWH-250, JWH-398, CP-47,497, CP-47,497 C8, HU-210, HU-211, AKB48, AB-005, A-834735, AM-2201, AM-2232, AM-2233, AM-694, RCS-4 (SR-19), RCS-4-2, RCS-8 (SR-18), UR-144, XLR11

Liquid, Ready to Use

Rapid, Cost-Effective Screening Solution

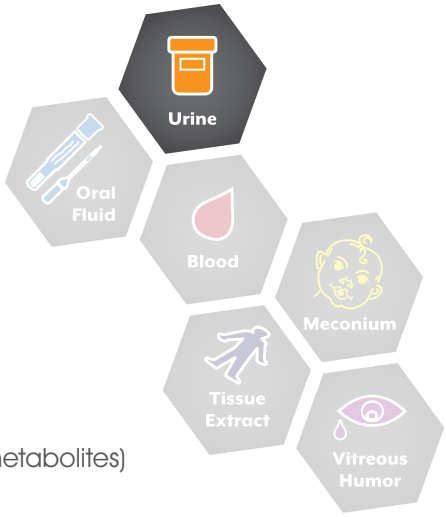
Applications for Most Major Clinical Chemistry Analyzers

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.

The compounds detected rapidly evolve as current synthetic cannabinoids are banned and new ones introduced.

Before being banned in March 2011, JWH-018 accounted for 87% of positives, and JWH-073 represented 11%.

Shortly after, AM-2201 was detected in 99% of the positives. After its ban in 2012, AM-2201 now accounts for 12% of positives while newer compounds (and their metabolites) like XLR11 represent 54% of positives and UR-144, 16%.[1]



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www.immunalysis.com

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.

ISO 13485:2003 CERTIFIED

Synthetic Cannabinoids-1 (HEIA™)

For the detection of JWH-018, JWH-073, AM-2201 & their major metabolites

Assay Specifications

Methodology: Homogeneous Enzyme Immunoassay

Cutoff: 20 ng/mL

Calibrator: JWH-018 N-pentanoic acid

Sensitivity: 94%
Specificity: 100%
Accuracy: 97%

		LC-MS/MS Confirmation	
		Positive	Negative
HEIA (20 ng/mL)	Positive	62	0
	Negative	4*	51

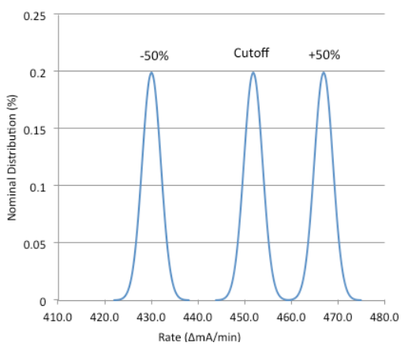
*2 of the 4 discrepant specimens that screened negative contained JWH-250 and RCS-4.
2 of the 4 discrepant specimens that screened negative were borderline negative at 20 ng/mL cutoff.

Cross-Reactivity

N/D = Cross-Reactivity < 0.05%

Analyte	Analyte Concentration (ng/mL)	JWH-018 N-pentanoic acid Equivalents (ng/mL)	Cross-Reactivity (%)
JWH-018 N-pentanoic acid	20	20	100
JWH-018 N-(5-hydroxypentyl)	14	20	143
JWH-018 4-hydroxyindole	50	20	40
JWH-018 5-hydroxyindole	45	20	44
AM-2201 N-(4-hydroxypentyl)	18	20	111
AM-2201 6-hydroxyindole	15	20	133
JWH-073 N-(4-hydroxybutyl)	18	20	111
JWH-073 6-hydroxyindole	18	20	111
JWH-073 N-butanoic acid	18	20	111
JWH-018	30	20	67
AM-2201	20	20	100
JWH-073	20	20	100
JWH-019	20	20	100
JWH-022	18	20	111
JWH-200	18	20	111
JWH-007	30	20	67
JWH-122	80	20	25
JWH-015	30	20	67
JWH-398	60	20	33
3-(1-naphthoyl)-1*H*-indole	30	20	67

Overlap: JWH-018 N-pentanoic acid (20 ng/mL Cutoff)



Qualitative Precision at 20 ng/mL

Interday Precision (n=40)

Concentration (ng/mL)	Rate (ΔmA/min)	CV%
10	430.0	0.5
20	451.9	0.6
30	466.9	0.5

ORDER - Synthetic Cannabinoids-1 (HEIA)

Catalog #	Description
344-0025 / -0100 / -0500	25 mL / 100 mL / 500 mL Kit
C344-10-1	20 ng/mL Calibrator
C344-10-2	10 and 30 ng/mL Controls

For Forensic Use Only

Synthetic Cannabinoids-2 (HEIA™) NEW!

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.

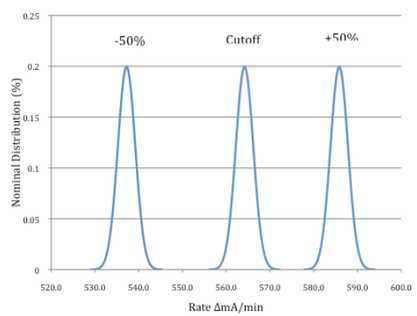
Cross-Reactivity

N/D = Cross-Reactivity < 0.05%

Analyte	Analyte Concentration (ng/mL)	UR-144 N-pentanoic acid Equivalents (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-pentenyl)	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)-1*H*-indole.

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



Initial data, final data available upon commercial release.

For Forensic Use Only

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 / -0100 / -0500	25 mL / 100 mL / 500 mL Kit
C346-5-1	10 ng/mL Calibrator
C346-5-2	5 and 15 ng/mL Controls

We *are* Toxicology.

IMMUNALYSIS

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