

RANDOX
TOXICOLOGY



Toxicology Solutions

Advancing the Future of Toxicology

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Introduction

Pioneering solutions for accurate drug detection

Randox Toxicology aim to minimise laboratory workflow constraints whilst maximising the scope of quality drug detection. We are the primary manufacturer of Biochip Array Technology, ELISAs, reagents, quality control and automated systems for forensic, clinical and workplace toxicology.

Our Team

Built on a foundation of continuous innovation, our research and development team continue to advance the future of toxicology through pioneering technology and novel tests. Our global technical and engineering support work closely with our business development team to guarantee a rapid response to your needs no matter where your laboratory is in the world.

With the ability to raise antibodies and develop assays at our UK Headquarters, Randox Toxicology can produce the optimum target compounds with excellent specificity. For over 35 years Randox has continued to place assurance and accreditation at the core of the manufacturing process, ensuring a sustained high standard.

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Biochip Array Technology

Biochip Array Technology

Moving away from traditional single analyte assays, Biochip Array Technology (BAT) boasts cutting-edge multiplex testing capabilities providing rapid and accurate drug detection from a single sample. Based on ELISA principles, the Biochip is a solid state device with discrete test regions onto which antibodies, specific to different drug compounds, are immobilised and stabilised. Competitive chemiluminescent immunoassays are then employed, offering a highly sensitive screen.

Designed to work across a wide variety of matrices, this revolutionary multi-analyte testing platform allows toxicologists to achieve a complete immunoassay profile from the initial screening phase. Offering the most advanced screening technology on the market, Randox Toxicology has transformed the landscape of drugs of abuse (DoA) testing. Our 21 drugs of abuse Biochip panels form part of our unrivalled toxicology test menu capable of detecting over 500 drugs and drug metabolites.

Benefits



Simultaneous detection

Multiplex testing facilitates simultaneous screening of various drugs and drug metabolites from a single sample.



Extensive test menu

21 Biochip panels offering the world's largest toxicology test menu, screening >500 drug analytes.



Accurate testing

Biochip Array Technology has a proven high standard of accurate test results with CVs typically <10%.



Optimum efficiency

Multiplex testing delivers a more cost effective and efficient solution compared to any existing method.



Small sample volume

As little as 6µl of sample produces a complete immunoassay profile, leaving more for confirmatory testing.



Multiple matrices

Including whole blood, post mortem blood, urine, oral fluid, hair, meconium, vitreous humor and tissue.

Testing Process

BAT is an immunoassay testing platform for the simultaneous multi-analyte testing of a panel of related tests. The technology works by combining a panel of up to 44 related tests on a single Biochip with a single set of reagents, controls and calibrators. Competitive chemiluminescent immunoassays are employed for the Biochip arrays. A light signal generated from each of the test regions on the Biochip is simultaneously detected using digital imaging technology and compared to that from a calibration curve.



Example: DoA ULTRA / DUID Array

Discrete Test Regions (DTR) on each Biochip for individual analytes

- | | | |
|----------------------------------|---|------------------------------------|
| 1 Reference spot | 9 Methamphetamine | 17 Amphetamine |
| 2 Meprobamate | 10 Correction spot | 18 Tramadol |
| 3 Dextromethorphan | 11 Zolpidem | 19 Cannabinoids (THC) |
| 4 Oxycodone II | 12 Benzoylecgonine (Cocaine Metabolite) | 20 Tricyclic Antidepressants (TCA) |
| 5 Oxycodone I | 13 Phencyclidine (PCP) | 21 Generic Opioids |
| 6 Benzodiazepines II (Lorazepam) | 14 Opiate | 22 Ketamine |
| 7 Benzodiazepines I (Oxazepam) | 15 Methadone | 23 Correction spot |
| 8 Barbiturates | 16 Fentanyl | 24 Buprenorphine |

Customisable Test Menu

Due to the expert design of BAT, Randox Toxicology has the ability to provide customised assays, manufactured to suit individual laboratory testing needs. With the facility to select up to a maximum of 44 various tests of interest, we truly have the solution for any laboratory.

For forensic use only

Analgesics

Acetaminophen	Methadone
Benzoylcegonine (Cocaine Metabolite)	Naloxone
Buprenorphine / Norbuprenorphine	Naltrexone
EDDP	Opiates
Fentanyl / Norfentanyl	Oxycodone
Hydrocodone	Phencyclidine (PCP)
Hydromorphone	Propoxyphene
Generic Opioids	Salicylate
Ketamine	6-MAM
Meperidine	-

Prescription Drugs

Baclofen	Modafinil
Bumetanide	Olanzapine
Carbamazepine	Oxcarbazepine
Clonidine	Paroxetine
Clozapine	Phenobarbital
Diphenhydramine	Phenytoin
Doxylamine	Pipradrol
Escitalopram	Pregabalin
Fluoxetine	Primidone
Fluvoxamine	Propofol
Gabapentin	Quetiapine
Gentamicin	Sertraline
Haloperidol	Tapentadol
Ibuprofen	Theophylline
Lamotrigine	Trazodone
Levetiracetam	Tricyclic Antidepressants (TCA)
Loperamide	Tripelennamine
Methocarbamol	Topiramate
Methotrexate	Valproic Acid
Mirtazapine	Venlafaxine / O-desmethylvenlafaxine

New Psychoactive Substances

SF-AMB	MAB-CHMINACA
SF-APP-PICA (PX2)	MDMB-CHMICA
SF-APP-PINACA	MDMD-CHMZCA
AB-001	Methoxetamine
AB-005 (STS-135)	Methoxydiphenidine (2-MeO-Diphenidine, MXP)
AB-CHMINACA & Metabolites	Mitragynine
AB-FUBINACA	MN-18 / SF-MN-24
AB-FUPPYCA	MT-45 (Specific)
AB-PINACA	MT-45 Metabolites
Acrylfentanyl	NBOMe
ADBICA	Ocfentanil
AH-7921	O-desmethyltramadol (Specific)
APP-CHMINACA (PX3)	PB-22
APP-FUBINACA	Phenylpiperazines
Bath Salts I (Mephedrone / Methcathinone)	Remifentanil / Carfentanil (Generic)
Bath Salts II (α -PVP / MDPV)	Rimonabant (STR141716A)
Benzylpiperazines	Salvinorin
Clonazepam	Sufentanil / Norsufentanil / Alfentanil (Generic)
Cumyl-PINACA	Tilidine / Nortilidine
DOx Series	U-47700
Etizolam & Metabolites	U-50488
Furanylfentanyl	URB's (Generic)
JWH-018 / AM-2201	W-18 / W-15 and W-19
JWH-250 / RCS-8	-

Sedative Hypnotics

Barbiturates	Meprobamate / Carisoprodol
Benzodiazepines	Zaleplon
Chloral Hydrate Metabolite	Zolpidem
Dextromethorphan	Zopiclone
Flunitrazepam / (7-NH2) Flunitrazepam	-

Stimulants

Amphetamine	MDMA
Atropine	Mescaline
Benzhexol	Methamphetamine
Bupropion	Methaqualone
Cannabinoids (THC)	Methylphenidate
Diethylpropion	Phenmetrazine / Fluorophenmetrazine
DMAA	Ritalinic Acid
Ethyl Glucuronide (EtG)	Scopolamine
LSD	Sildenafil (Viagra)
Mazindol	Tadalafil

Matrices

Randox Toxicology Biochip analysers and drugs of abuse arrays are suitable for testing a variety of sample types. The nature of the prefabricated Biochip surface, secured inside a Biochip carrier, forms ideal conditions for the reaction process to take place. As the drug of abuse testing market evolves, studies have highlighted the benefits of screening in a number of matrices in order to gain a comprehensive understanding of a patient sample profile. Consolidation of multiple matrices onto one system, offers an efficient and flexible testing solution.



Whole Blood

- Matrix dedicated kit for whole blood ensures optimum performance
- Simple specimen preparation with no additional steps
- Cut off can be selected, avoids re-calibration/use of different calibrators



Post-mortem Blood

- Small specimen volume requirements
- Simple specimen preparation with no additional steps
- No SPE columns or solvents needed



Urine

- No sample preparation
- Proven reduction in false results
- DoA I for urine is FDA approved



Oral Fluid

- Matrix dedicated kit for oral fluid ensures optimal assay performance
- Compatible for use with multiple oral fluid collection devices
- Applications for point of collection testing



Tissue*

- Biochips offer accuracy and precision in a wide range of tissue homogenates
- Invaluable for drug screening programs
- Separation of drugs with same parent type ensures fewer false results



Meconium*

- Considered the best method for detecting drug exposure in pregnancy
- Separation of drugs with same parent type ensures fewer false results
- Multiplex testing facilitates simultaneous screening of various drugs and drug metabolites from a single meconium sample



Hair*

- Can be used to determine drug abuse history over a period of months
- Monitoring abstinence is possible over a length of time
- Sample collection is relatively easy and non-invasive



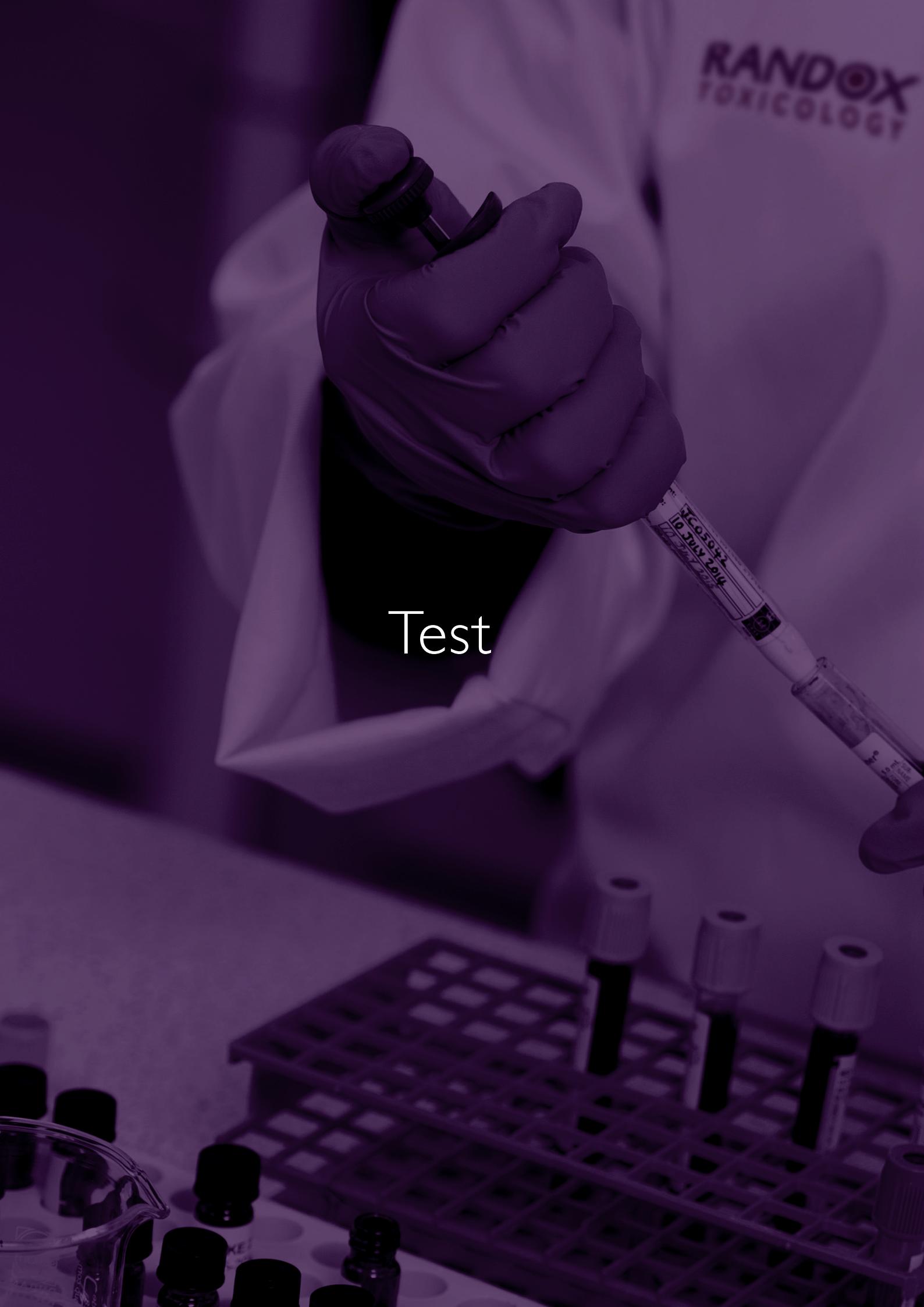
Vitreous Humor*

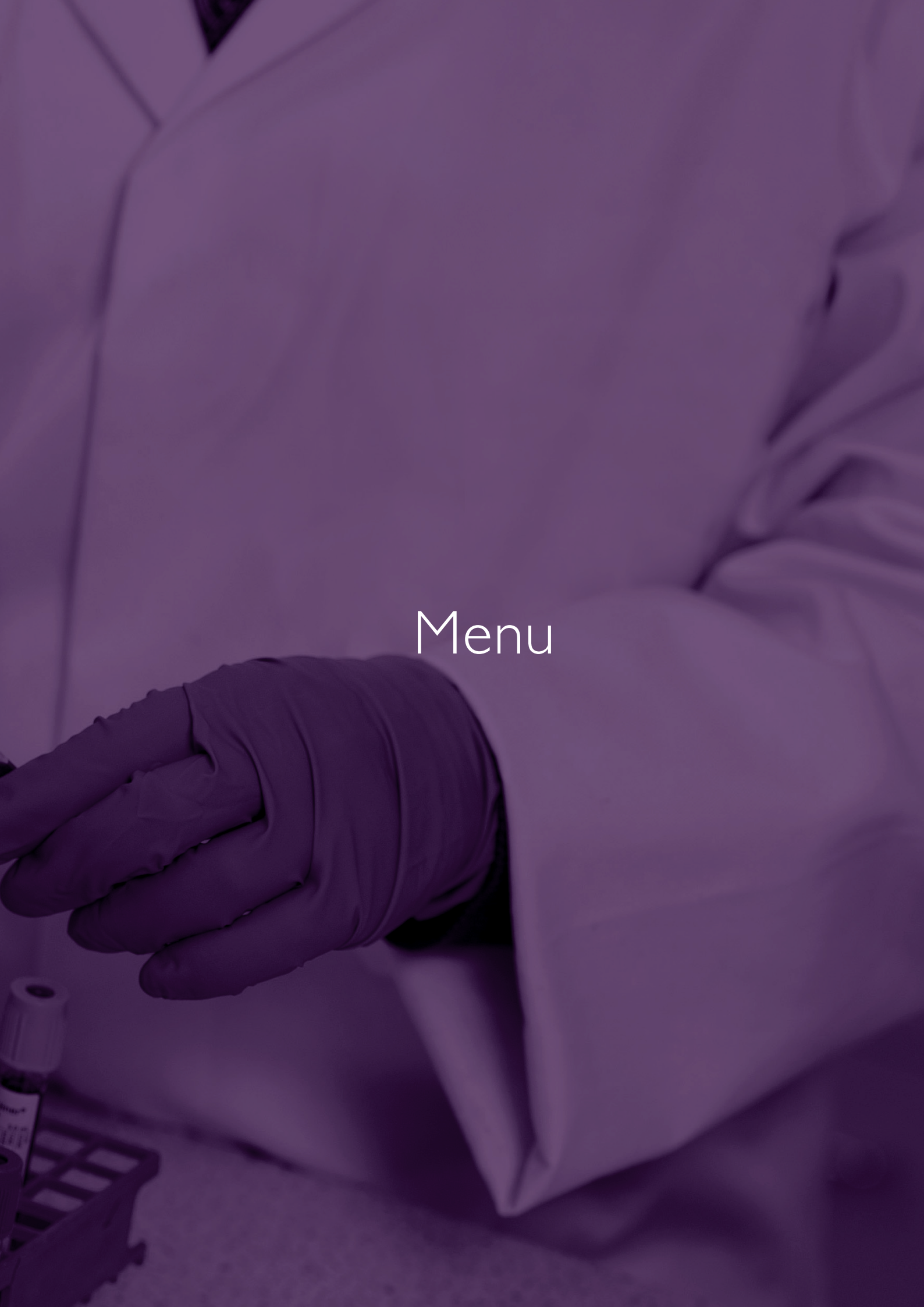
- Multiplex is advantageous due to limited sample volume
- Increased stability of certain drugs with this matrix
- Facilitates testing when other matrices are unavailable

*Test menu validated only for blood, urine and oral fluid but all other matrices are applicable.

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Test



A person wearing a white lab coat and purple nitrile gloves is working in a laboratory. The person's hands are visible, holding a small vial. In the bottom left corner, there is a rack containing several vials. The background is a plain, light-colored wall.

Menu

Test Menu

For Forensic Use Only (Unless Specified)

DoA I

FDA Approved

Amphetamine
Barbiturates
Benzodiazepines I (Oxazepam)
Benzodiazepines II (Lorazepam)
Benzoyllecgonine (Cocaine Metabolite)
Cannabinoids (THC)
Creatinine (Urine only)
Methadone
Methamphetamine
Opiate
Phencyclidine (PCP)

DoA I+

Amphetamine
Barbiturates
Benzodiazepines I (Oxazepam)
Benzodiazepines II (Lorazepam)
Buprenorphine
Benzoyllecgonine (Cocaine Metabolite)
Cannabinoids (THC)
Creatinine (Urine only)
Methadone
Methamphetamine
MDMA
Opiate
Phencyclidine (PCP)
Tricyclic Antidepressants (TCA)

DoA II

Buprenorphine
Creatinine (Urine only)
Fentanyl
Generic Opioids
Ketamine
LSD
MDMA
Methaqualone
Oxycodone I
Oxycodone II
Propoxyphene

DoA III

Chloral Hydrate Metabolite
Ethyl Glucuronide (EtG)
Fentanyl
Flunitrazepam
Ketamine Metabolite
Meperidine
Meprobamate
Zaleplon
Zolpidem
Zopiclone

Cross reactivity can be found in Index (p60)
Test menu validated only for blood, urine and oral fluid but all other matrices are applicable.

DoA IV

Acetaminophen
Dextromethorphan
Escitalopram
Ethyl Glucuronide (EtG)
Fluoxetine
Haloperidol
Ibuprofen
Methylphenidate / Ritalinic Acid
Salicylate
Sertraline
Tramadol
Trazodone
Tricyclic Antidepressants (TCA)

DoA ULTRA / DUID

Amphetamine
Barbiturates
Benzodiazepines I (Oxazepam)
Benzodiazepines II (Lorazepam)
Benzoyllecgonine (Cocaine Metabolite)
Buprenorphine
Cannabinoids (THC)
Dextromethorphan
Fentanyl
Generic Opioids
Meprobamate
Methadone
Methamphetamine
Opiate
Oxycodone I
Oxycodone II
Phencyclidine (PCP)
Tramadol
Tricyclic Antidepressants (TCA)
Zolpidem

DoA Evolution

Amphetamine
Barbiturates
Benzodiazepines I (Oxazepam)
Benzodiazepines II (Lorazepam)
Benzoyllecgonine (Cocaine Metabolite)
Buprenorphine
Cannabinoids (THC)
Dextromethorphan
Fentanyl
Norketamine
Meprobamate
Methadone
Methamphetamine
Opiate
Oxycodone I
Oxycodone II
Phencyclidine (PCP)
Tramadol
Tricyclic Antidepressants (TCA)
Zolpidem

DoA MultiSTAT

Whole Blood only

α-PVP (Flakka)

Amphetamine

Barbiturates

Benzodiazepines

Benzoylecgonine (Cocaine Metabolite)

Buprenorphine

Cannabinoids (THC)

Ethyl Glucuronide (EtG)

Fentanyl

Methadone

Methamphetamine

Opiate

Oxycodone

Phencyclidine (PCP)

Pregabalin

Propoxyphene

Synthetic Cannabinoids (AB-CHMINACA)

Synthetic Cannabinoids (AB-PINACA)

Tramadol

Tricyclic Antidepressants (TCA)

6-MAM

DoA MultiSTAT

Urine only

α-PVP (Flakka)

Amphetamine

Barbiturates

Benzodiazepines I (Oxazepam)

Benzodiazepines II (Lorazepam)

Benzoylecgonine (Cocaine Metabolite)

Buprenorphine

Cannabinoids (THC)

Creatinine

Ethyl Glucuronide (EtG)

Fentanyl

Methadone

Methamphetamine

Opiate

Oxycodone

Synthetic Cannabinoids (JWH-018)

Synthetic Cannabinoids (UR-144/XLR-11)

Synthetic Cannabinoids (AB-PINACA)

Tramadol

Tricyclic Antidepressants (TCA)

6-MAM

DoA MultiSTAT

Oral Fluid only

 α -PVP (Flakka)

Amphetamine

Barbiturates

Benzodiazepines I (Oxazepam)

Benzodiazepines II (Lorazepam)

Benzoylecgonine (Cocaine Metabolite)

Buprenorphine

Cannabinoids (THC)

Fentanyl

Ketamine

LSD

Methadone

Methamphetamine

Opiate

Oxycodone

Phencyclidine (PCP)

Synthetic Cannabinoids (JWH-018)

Synthetic Cannabinoids (UR-144/XLR-11)

Tramadol

6-MAM

NPS I

Bath Salts I (Mephedrone / Methcathinone)

Bath Salts II (α -PVP / MDPV)

Benzylpiperazines

Mescaline

Phenylpiperazines I

Phenylpiperazines II

Salvinorin

Synthetic Cannabinoids (JWH-018)

Synthetic Cannabinoids (UR-144/XLR-11)

Synthetic Cannabinoids (AB-CHMINACA)

Synthetic Cannabinoids (AB-PINACA)

NPS II

Acetylfentanyl

AH-7921

Buprenorphine

Carfentanil/Remifentanil

Clonazepam

Etizolam

Furanylfentanyl

Mitragynine

MT-45

Naloxone

Ocfentanyl

Sufentanil

U-47700

W-19

Catalogue Numbers

For Forensic Use Only (Unless Specified)

Evidence Investigator

Product	Result Reporting Format	Matrix	Full Kit Cat. No.*
DoA Array I	Qualitative	Oral Fluid	EV3619
DoA Array I	Qualitative	Urine	EV3512
DoA Array I +	Semi-quantitative	Urine	EV3746
DoA Array I +	Semi-quantitative	Whole Blood	EV3751
DoA Array II	Qualitative	Urine	EV3662
DoA Array II	Qualitative	Whole Blood	EV3681
DoA Array III	Semi-quantitative	Urine	EV3828
DoA Array III	Semi-quantitative	Whole Blood	EV3796
DoA Array IV	Semi-quantitative	Urine	EV3833
DoA Array IV	Semi-quantitative	Whole Blood	EV3807
DoA ULTRA / DUID Array	Semi-quantitative	Urine	EV4103
DoA ULTRA / DUID Array	Semi-quantitative	Whole Blood	EV4056
NPS I	Semi-quantitative	Urine	EV4266
NPS II	Semi-quantitative	Urine	EV4271

*Full kit includes 54 tests

Evidence MultiSTAT

Product	Result Reporting Format	Matrix	Full Kit Cat. No.*
DoA MultiSTAT Oral Fluid**	Qualitative	Oral Fluid	EV4117
DoA MultiSTAT Oral Fluid II	Qualitative	Oral Fluid	EV4279
DoA MultiSTAT Urine	Qualitative	Urine	EV4193
DoA MultiSTAT Urine II	Qualitative	Urine	EV4292
DoA MultiSTAT Whole Blood	Qualitative	Whole Blood	EV4195

*Full kit includes 12 tests

**To be used in conjunction with Intercept® i2™ collection device

Evidence Evolution

Product	Result Reporting Format	Matrix	Full Kit Cat. No.*
DoA Evolution	Semi-quantitative	Urine	EV4226

*Full kit includes 100 tests

Evidence

Product	Result Reporting Format	Matrix	Full Kit Cat. No.*	Half Kit Cat. No.*
DoA Array I	Qualitative	Oral Fluid	EV3613	EV3616
DoA Array I (FDA Approved)	Qualitative	Urine	EV3500	-
DoA Array I +	Semi-quantitative	Urine	EV3742	EV3743
DoA Array I +	Semi-quantitative	Whole Blood	EV3747	EV3748
DoA Array II	Qualitative	Urine	EV3655	EV3654
DoA Array II	Qualitative	Whole Blood	EV3685	EV3686
DoA Array III	Semi-quantitative	Urine	EV3826	EV3827
DoA Array III	Semi-quantitative	Whole Blood	EV3794	EV3795
DoA Array IV	Semi-quantitative	Urine	EV3831	EV3832
DoA Array IV	Semi-quantitative	Whole Blood	EV3805	EV3806
DoA ULTRA / DUID Array	Semi-quantitative	Urine	EV4101	EV4102
DoA ULTRA / DUID Array	Semi-quantitative	Whole Blood	EV4054	EV4055
NPS I	Semi-quantitative	Urine	EV4264	EV4265
NPS II	Semi-quantitative	Urine	EV4269	EV4270

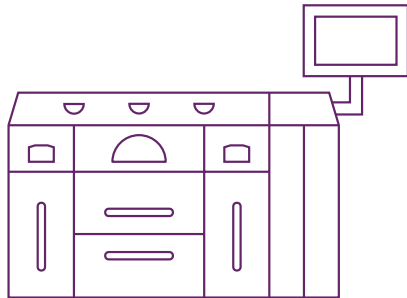
*Full kit includes 360 tests, half kit includes 180 tests

The Evidence Series

The Evidence Series of immunoassay analysers are powered by Biochip Array Technology and combine the latest technological advances for drug residue detection using immunoassay principles. This has resulted in the creation of four systems; the Evidence Investigator, the Evidence MultiSTAT, the Evidence Evolution and the Evidence, which allow for simultaneous semi-quantitative or qualitative analysis of up to 44 tests per sample.



Evidence Range of Analysers

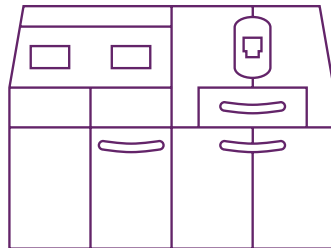


Evidence Evolution

Fully automated, random access analyser

Up to 2640 tests per hour

Ideal for high throughput laboratories



Evidence

Fully automated batch immunoanalyser

3960 tests per hour

Ideal for high throughput laboratories

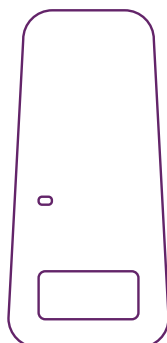


Evidence MultiSTAT

Fully automated, bench top analyser

132 tests per hour

Ideal for workplace, custodial or laboratory drug testing



Evidence Investigator

Semi-automated, bench top analyser

2376 tests in 70 minutes

Ideal for small to medium sized laboratories

Evidence Evolution

Any Test, Any Time



Dimensions

1320 (H) x 1200 (D) x 1675 (W) mm

Weight

720 kg, 1587 lbs

Any Test, Any Time

Evidence Evolution is a highly versatile analyser which can process any required workflow including batch analysis, STAT samples and true random access.



Fast Turnaround Time

Capability to achieve 2640 test results per hour with the Evidence Evolution, with first sample result reported in <36 minutes and up to 44 results reported each minute after.



Enhanced User Experience

Highly intuitive software, customisable user settings and easy to follow result screens ensures usability, allowing laboratories to achieve fast and accurate operations with uncompromised quality.



True Walk Away Time

Innovative engineering reduces the amount of human interaction needed, meaning once the system is fully loaded it can be left unsupervised for 2 hours.



Superior Intelligence

Features such as automatic start-up and shut down, reflex testing capabilities and traceability of Biochips and reagents, ensures the Evidence Evolution can be tailored to your laboratory needs.



Workflow Optimisation

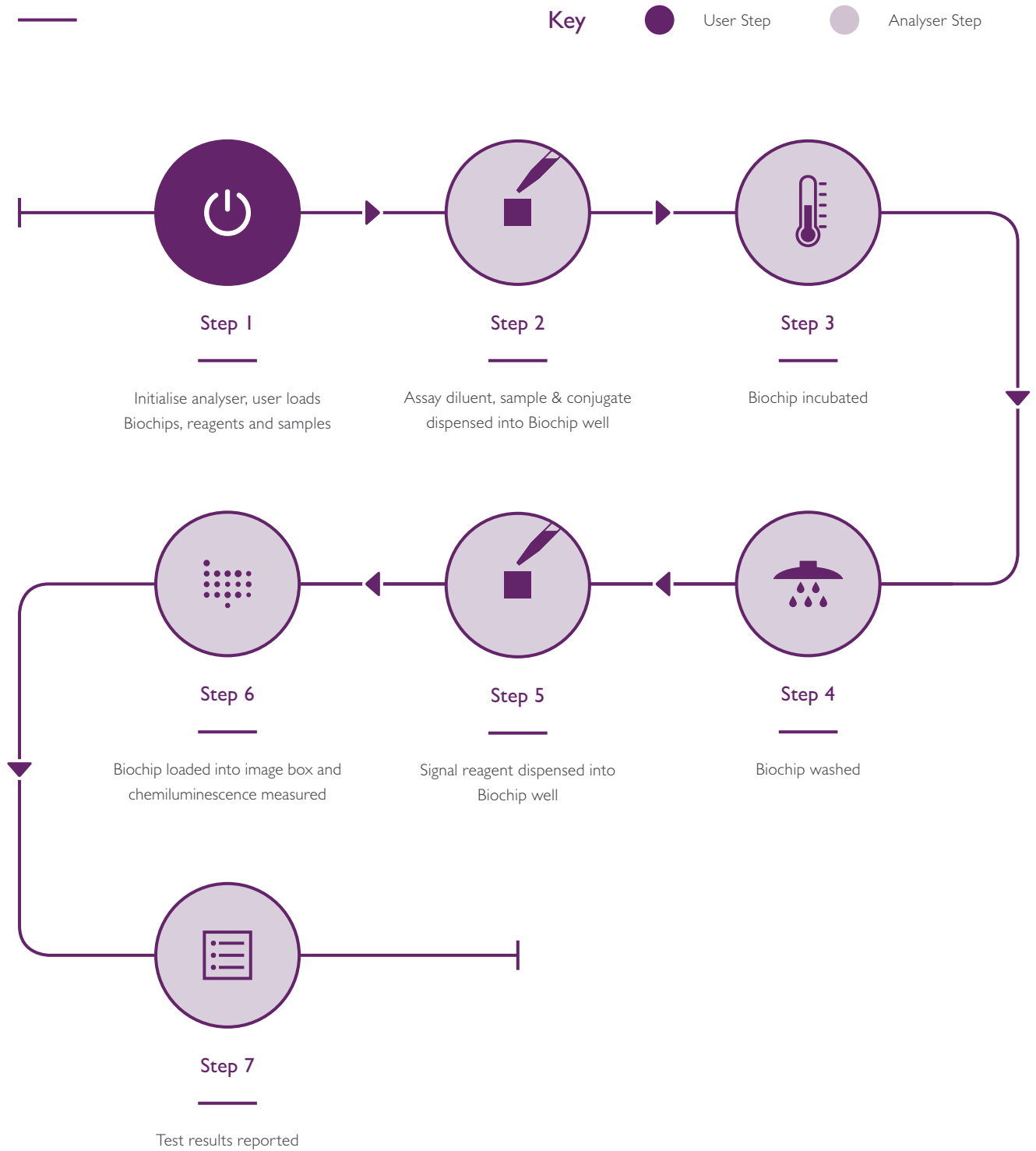
With continuous sample and reagent loading, alongside automated on-board sample dilution and sample information entry; the Evidence Evolution is a convenient solution for busy laboratories.



Evidence Evolution Specifications

Access Loading	Continuous sample, reagent and Biochip input and output
Aspiration Capability	Precision pump with liquid level and clot detection
Biochip Capacity	Cartridge format with 10 x single Biochip, individually sealed wells
Biochip Format	When processing 44 analytes per Biochip, 2640 tests can be carried out per hour
Calibration Principal	6 point master curve generation
Connectivity	6 x USB ports, 1 x Ethernet, 1 x RS232
Data Backup Methods	Via writable DVD, CD, USB mass-storage or network folder
Data Storage Capacity	Up to 12 million test results with complete raw data. RAID 1 data mirroring
Environment	Ambient environment 18°C-30°C, <2°C temperature variation per hour; 20%-85% relative humidity
Liquid Waste	High and low concentration waste separation
LIS Connectivity	Bi-directional: ASTM Standard (RS232 Connection)
Maximum Throughput	60 samples per hour
Measurement Principal	Chemiluminescence
Network Services	Highly secure remote diagnostics, automated software update and array updates
Operational Modes	Random and continuous access, STAT loading with no dedicated loading route required, batch mode
Operator Interface	22" touch screen monitor; highly intuitive e-touch software
Quality Control	Interactive Levey-Jennings, user definable multipoint rules with system alarm
Reagent Capacity	20 twin vessel reagent bottles (50ml per vessel)
Sample Barcode	Code 39, Codabar, Code 128, 1 2 of 5, Code 93, UPC/EAN, Pharmacode, PDF417(option), MicroPDF(option)
Sample Capacity	120 Samples
Sample Dilution	Automatic, on-board dilution, continuously variable between 1:1 and 1:50, array dependent
Sample Tube Compatibility	1-2ml paediatric cups, standard sample tubes (D. 10-16 mm x H. 75-100 mm), Cobas cups (using optional adaptors)
Sample Wedges	10 Independent wedges holding 12 samples each. Each wedge can hold any combination of sample tubes
Sample Volume	Array dependent
System Fluids	Onboard dilution of bulk reagents, refrigerated storage, continuous level monitoring
Time to First Result	Approximately 35 minutes, with 1 sample result every minute after (array specific)
Walk-away Time	2 hours

Evidence Evolution Process



Evidence

The world's fastest toxicology screening analyser



Dimensions

1750 (H) x 1000 (D) x 2000 (W) mm

Weight

650 kg, 1433lbs

Fast Turnaround Time

With a throughput of 90 samples per hour and up to 44 tests per sample, the Evidence analyser is uniquely designed for fast and accurate batch analysis, delivering 3960 test results in 60 minutes.



World's Most Diverse Test Menu

More tests than any other sole supplier with routine and novel tests available. Randox Toxicology are continually investing in R&D in-line with emerging drug trends.



Multiple Matrices

Testing available across multiple matrices including; whole blood, post-mortem blood, urine, oral fluid, hair, vitreous humor, meconium and tissue to accommodate any laboratory.



Cost Consolidation

Multiplex testing allows multiple tests to be carried out from a single sample, reducing the amount of time and labour spent on individual tests.



Reduced Sample Volume

Provides a complete drugs of abuse profile using as little as 6µl of sample, leaving the remainder of sample available for confirmatory testing.



Optimum Laboratory Efficiency

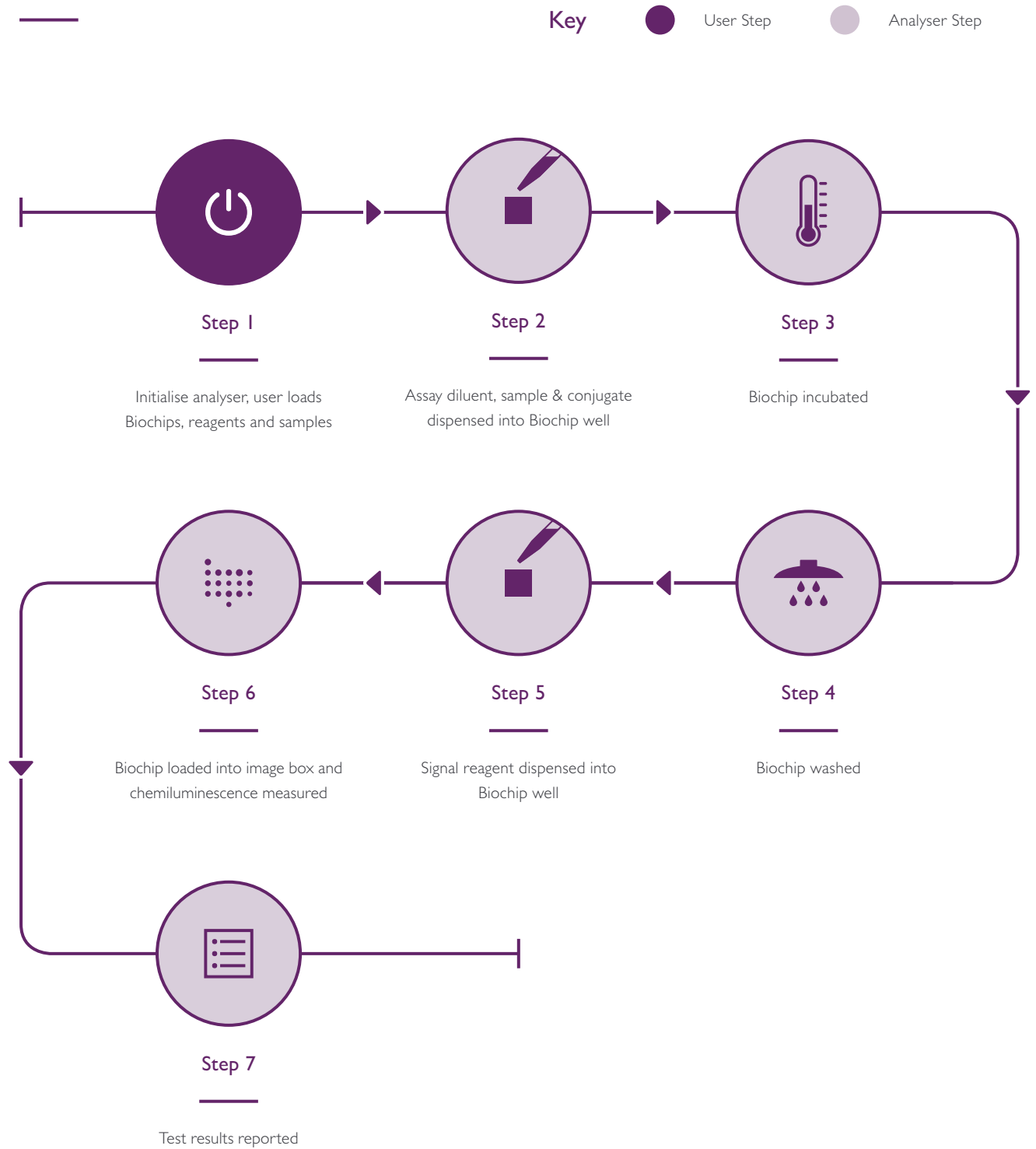
A fully automated system maximises walk-away time. This allows staff to dedicate more time to other important duties ensuring optimum laboratory productivity.



Evidence Specifications

Accreditation	The Evidence analyser is approved through the FDA 510k process. It is manufactured in a facility that is compliant with 21 CFR Part 820 of the Code of Federal Regulations.
Biochip Capacity	4x Biochip cassettes (40 Biochip carriers, 360 Biochips)
Biochip Format	1x Biochip carrier (holds 9 individual Biochips)
Calibration Principal	9 point calibration
Connectivity	LIS / LIMS compatible
Data Backup Methods	CD, electronic back up of operating parameters
Environment	Ambient environment 16°C-30°C, <80% relative humidity
Incubation Time	30-60 minutes (array specific)
Installation Requirements	Evidence must be connected to a three-wire power supply with a safety ground
Liquid Waste	Removed to an external drain or tank
LIS Connectivity	Bi-directional: ASTM Standard (RS232 Connection)
Maximum Throughput	90 samples per hour (array specific)
Measurement Principal	Chemiluminesence
Operational Modes	Windows® based
Quality Control	Extensive QC package including full QC reports, Levey-Jennings charts and multi-rule QC options
Reagent Capacity	16 reagent wedges
Sample Barcode	Code 39, Codabar, Code 128, I 2 of 5, Code 93, UPC/EAN, Pharmacode, PDF417 (option), MicroPDF (option)
Sample Capacity	180 Samples
Sample Tube Compatibility	12mm or 16mm diameter by 100mm, 16mm diameter by 75mm length tubes with minimum volume 500µl. Sample cups of 15mm diameter by 23 – 38mm length and minimum volume 350µl can be placed into 16mm diameter tubes on the carousel
Sample Rings	2 sample rings capable of holding 90 sample test tubes or cups per ring
Sample Volume	6 - 150µl per Biochip (array specific)
System Fluids	Refrigerated reagent storage, bulk storage for wash and displacement

Evidence Process



Evidence MultiSTAT

On-site testing of multiple drug classes from a single sample



Dimensions	585 (H) × 535 (D) × 570 (W) mm
Weight	48 kg, 106lbs

No Laboratory Required

The Evidence MultiSTAT is a versatile analyser that provides automated drugs screening in a range of settings, such as workplaces, custodial environments and low throughput laboratories.



Extensive Test Menu

The Evidence MultiSTAT facilitates on-site simultaneous screening of multiple drug classes, including classical, prescription and synthetic drugs of abuse.



Multiple Matrices

Testing available across multiple matrices including; whole blood, urine and oral fluid to accommodate any testing requirement.



Simple Process

With prefilled reagents cartridges and a simple interface, non-laboratory trained staff can operate the analyser in any environment and achieve accurate, qualitative results in minutes.



Rapid Screening

As minimal sample preparation is required, qualitative results can be provided in under 20 minutes, offering an efficient and accurate toxicology screen.



Reliable Results

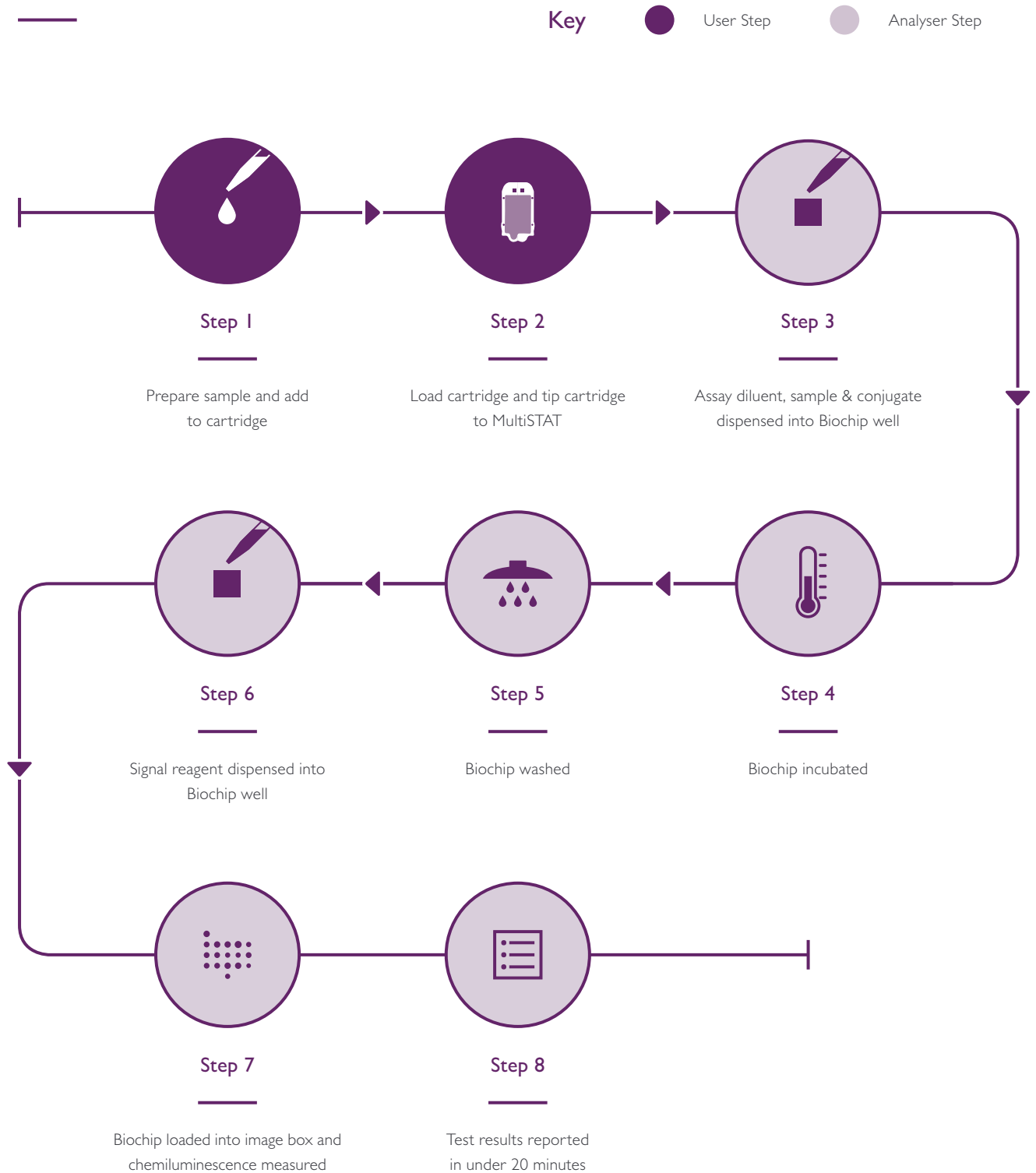
Using chemiluminescence as a measurement principle, the Evidence MultiSTAT consistently delivers accurate results and offers a highly sensitive way to detect drugs of abuse.



Evidence MultiSTAT Specifications

Analyser Description	Fully automated Biochip array analyser
Biochip Format	Cartridge based system – assay reagents sealed in a pre-filled cartridge
Connectivity	LIMS uni-directional interface
Data Back-up Methods	Data export functionality
Environment	Operating temperature 18°C-32°C, <80% Relative humidity, <2000m Altitude, Pollution: Degree 2 (IEC 664)
Measurement Principal	Competitive techniques with chemiluminescent reaction
Operator Interface	15.6" touch screen
Peripherals	Barcode scanner
Power Requirements	Input Voltage 110-240v
Sample Loading	Single cartridge loading bay

Evidence MultiSTAT Process



Evidence Investigator

Versatile, efficient and comprehensive testing



Dimensions	750 (H) x 480 (D) x 420 (W) mm
Weight	24 kg, 52.9 lbs

World's Most Diverse Test Menu

More tests than any other sole supplier with routine and novel tests available. Randox Toxicology are continually investing in R&D in-line with emerging drug trends.



Multiple Matrices

Testing available across multiple matrices including; whole blood, post-mortem blood, urine, oral fluid, hair, vitreous humor, meconium and tissue to accommodate any laboratory.



Fast Turnaround Time

With a throughput of 54 samples in 70 minutes, the Evidence Investigator is uniquely designed for fast and accurate batch analysis and delivers 2376 test results.



Simultaneous Analyte Detection

The multiplex testing capabilities of Biochip Array Technology facilitates accurate simultaneous screening of various drug metabolites across 15 toxicology arrays, with CVs typically <10%.



Small Sample Volume

When using the Evidence Investigator, as little as 10µl is required, leaving more sample remaining for confirmatory testing.



Optimum Efficiency

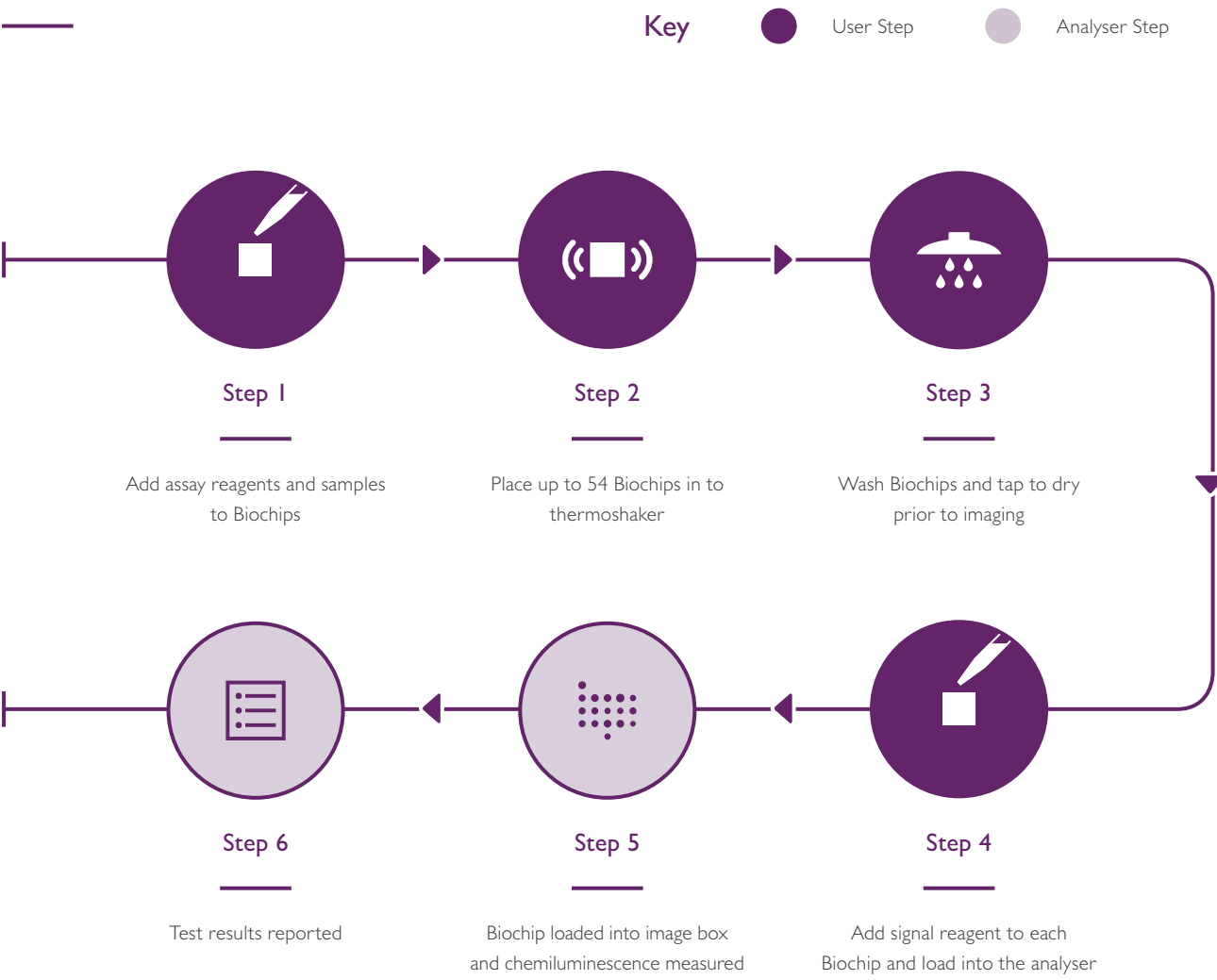
Multi-analyte controls and calibrators with multiplex testing capabilities, facilitate laboratory efficiency and deliver a cost consolidating solution for the toxicology laboratory.



Evidence Investigator Specifications

Accreditation	Internally accredited to full CE and UL certification
Analyser Description	Semi-automated Biochip array analyser
Biochip Capacity	9 Biochips on Evidence Investigator, 54 Biochips on thermoshaker
Biochip Format	1x Biochip carrier (holds 9 individual Biochips)
Calibration Method	9 point calibration
Connectivity	LIMS integration
Data Back-up Methods	Via writable DVD, CD, USB mass-storage or network folder
Environment	Operating temperature 16°C - 25°C, <80% Relative humidity, <2000m Altitude, Pollution; Degree 2 (IEC 664)
Fuses	Mains Inlet Fuse (F1) T 2 A H 250V (20mm x 5mm) Motor Control Board (F1) T 1 A L 250V (20mm x 5mm)
Measurement Principal	Competitive and sandwich techniques with chemiluminescent reaction
Network Services	Highly secure remote diagnostics, automated software and array updates
Peripherals	Printer, barcode scanner, carrier handling tray and thermoshaker
Quality Control	Levey-Jennings, user definable multipoint rules
Sample Loading	Single carrier loading bay

Evidence Investigator Process



02

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ELISA

ELISA

Randox Toxicology's ELISA kits provide a highly sensitive solution for the rapid detection of drugs in various biological specimens. Our expanding test menu includes a range of new psychoactive substances, common drugs of abuse, stimulants, analgesics and sedatives. We recommend two compact and robust ELISA readers, offering optimal performance with every test.



DS2 Plate Reader

DS2 is a compact, easy to use and innovative microplate reader designed with full walkaway capability. DS2 quickly and easily processes two 96-well microplates and up to 12 different assays simultaneously.

- Compact system
- Fully automated
- Fully integrated washing
- Instrument diagnostics
- Automated barcode reading
- Extensive on-board software



800TS Plate Reader

The 800TS is a robust microplate reader ideally suited for routine drug detection in the laboratory. Complete with touchscreen and USB capabilities, the high-quality microplate reader requires limited space for outstanding performance, with Gen5™ software available for advanced data handling and analysis.

- Compact system
- Speed reading
- Optimal performance
- High accuracy
- Multiple plate formats
- Gen5™ software

Test Menu

For Forensic Use Only

New Psychoactive Substances

Product	Cat. No.
Synthetic Cannabinoids (JWH-018/AM-2201)	SC3474
Synthetic Cannabinoids (UR-144/XLR-11)	SC3488
Synthetic Cannabinoids (JWH-250/RCS-8)	SC3503
Synthetic Cannabinoids (AB-PINACA)	PAC10046
α-PVP/MDPV (Flakka)*	PVP10048
AH-7921*	AHE10187
Carfentanil/Remifentanil	CFE10185
DOx Series*	DOX3501
MDPV (Bath Salts)*	MD3476
Mephedrone/Methcathinone (Bath Salts)	MD3475
Mitragynine (Kratom)*	MT3489
MT-45*	MTE10186
U-47700*	UOO10188

Analgesics

Product	Cat. No.
Buprenorphine	BUP3508
Fentanyl	FE3505
Methadone	MTD10012
Opiate	OPI10014
Oxycodone	OXY10114
Pregabalin	PGB10082
Tramadol	TRM3499

Stimulants

Product	Cat. No.
Amphetamine	AMP10002
BZG/Cocaine Metabolite	BZG10010
Methamphetamine	MTH10000
THC (Cannabis)	THC10008

Sedative Hypnotics

Product	Cat. No.
Barbiturates	BAR10004
Benzodiazepines	BNZ10006
Meprobamate	MPB10020
Zaleplon*	ZD3487
Zolpidem	ZD3485
Zopiclone	ZD3486

Others

Product	Cat. No.
Tricyclic Antidepressants (TCA)	TCA10016
Ketamine	KT3459
Phencyclidine (PCP)	PCP10018
Dextromethorphan	DX3497

*Exclusive to Randox Toxicology

03

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Clinical Chemistry

Reagents

Randox Toxicology Drugs of Abuse (DoA) and Therapeutic Drug Monitoring (TDM) reagents, together with the RX series analysers, provide a total package for toxicology testing. RX series DoA screening employs tried and tested enzyme immunoassay techniques, while the TDM assays use latex enhanced immunoturbidimetric reagents which offer excellent performance on a variety of platforms. To complete the package, Randox Toxicology offer a range of calibrators, quality control sera and External Quality Assessment (EQA) schemes for DoA and TDM screening (see p57).

Benefits



Exceptional correlation

Excellent correlation with GC/MS provides a highly accurate solution for toxicology screening.



Applications available

Instrument specific settings for a wide range of clinical chemistry analysers are also available.



Ease of use

Liquid ready-to-use reagents, calibrators and controls offer a convenient and simple to use solution.



Extensive measuring range

Ensures accurate detection of therapeutic and toxic drug concentrations in a variety of samples.



Internationally recognised

Randox reagents are globally recognised as being of the highest quality, continually providing reliable results.

Test Menu

Drug of Abuse Reagents

DoA Reagent	Cat. No.	Method	No of Tests (RX imola)	No of Tests (RX daytona+)
Barbiturates	DA4008	Enzymatic	234	190
Benzodiazepines	DA4009	Enzymatic	234	190
Cannabinoids	DA4010	Enzymatic	234	190
Cocaine Metabolite (Benzoylecgonine)	DA4011	Enzymatic	234	190
Ecstasy	DA4014	Enzymatic	234	190
EDDP	DA4013	Enzymatic	234	190
Ethanol	DA4015	Enzymatic	218	190
Methadone	DA4016	Enzymatic	234	190
Methamphetamine	DA4007	Enzymatic	234	190
Opiates	DA4012	Enzymatic	234	190

Therapeutic Drug Monitoring Reagents

TDM Reagent	Cat. No.	Method	No of Tests (RX imola)	No of Tests (RX daytona+)
Acetaminophen	ACE4023	Color	100	100
Carbamazepine	TD3416	L.E.I	100	100
Digoxin	TD3410	L.E.I	106	106
Gentamicin	TD3413	L.E.I	106	104
Lithium	LM4005	Color	138	100
Phenobarbital	TD3408	L.E.I	100	100
Phenytoin	TD3409	L.E.I	100	100
Salicylate	SAL4024	Enzymatic	100	100
Valproic Acid	TD3414	L.E.I	100	100

RX daytona+

A fully automated, clinical chemistry analyser
with unrivalled performance



Dimensions	625 (H) × 670 (D) × 870 (L) mm
Weight	120 kg

Highly Accurate Testing

The RX daytona+ uses separate sample and reagent pipettes minimising carryover. The serum indices detect lipaemic, icteric and haemolytic samples, building confidence in results.



Superior Performance

Features such as the sensitive clot detection sensor and the built in inventory management system ensures optimum laboratory efficiency.



Flexibility

The RX daytona+ is capable of running monochromatic, bi-chromatic, endpoint, kinetic, ISE and reagent blanking assays and also has 7 different calibration options available.



Ease of Use

Utilising Windows® based software, the RX daytona+ is user friendly, with just one click opening the emergency sample ordering screen and barcode readers for sample identification.



Extensive Test Menu

The RX daytona+ utilises the largest range of tests available from a sole supplier, including routine and unique assays optimised for superior performance.



Time and Cost Savings

With minimal maintenance required, consolidation of testing and a low water consumption, the RX daytona+ offers a cost effective toxicology solution for any laboratory.



RX daytona+ Specifications

Performance Characteristics

Throughput	270 tests per hour, 450 tests per hour with optional ISE unit
Analyser Type	Compact fully automated random access benchtop clinical analyser
Assay Tests	Monochromatic, bi-chromatic, endpoint, kinetic, sample and reagent blanking and ISE

Reagent & Sample System

Data Management	Storage of up to 30,000 patient reports, with a search facility
Test Channels	60 photometric channels, 3 direct ISE
Sleep Mode	User defined sleep mode capabilities with automatic wash and instrument preparation
Maintenance	Minimal daily maintenance, no rear access required, simple twice yearly preventative maintenance
Reagent Pipette	Dedicated reagent micropipette with liquid level sensor and crash detection
Reagent Capacity	Removable turntable with 50 cooled positions for 20ml, 40ml and 70ml bottles
Reagent Cooling	8°C to 15°C
Reagent Identification	Barcode reagent identification
Reagent Inventory	Calculation of remaining reagent volume and tests available, alert for shortage, expired reagent and expired calibration
Sample Capacity	Removable turntable with 50 positions for samples, calibrators and controls
Sample Dead Volume	150µl in standard or primary tubes. 100µl in paediatric cups
Sample Dilution	Pre-dilution and automatic reassay with diluted, reduced or increased sample volume
Sample Identification	Barcode sample identification
Sample Type	Serum, plasma, urine & supernatants
STAT Sampling	STAT samples can be added immediately via the emergency loading port

Reaction system

Reaction Time	10 minutes (r1: 5 minutes + r2: 5 minutes)
Reaction Volume	100µl - 350µl
Stirring Speed	5 speed levels available
Stirring System	Dual 5 speed stick type rotating stirrers
Water Consumption	Maximum 5 litres per hour
Wash Unit	12 stage washing process
Cuvettes	72 semi-permanent cuvettes
Incubator Temperature	37°C ± 0.1°C
Cycle Time	13 seconds

Optical system

Detector Method	Direct absorbance in cuvette (bi-chromatic and monochromatic)
Detection Principal	12 wavelengths generated via diffraction grating: 340, 380, 415, 450, 510, 546, 570, 600, 660, 700, 750 and 800nm
Light Source	Halogen tungsten lamp air cooled by fan

Operating system

Operator Interface	Windows® based software
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Quality Control

Quality Control Material

Our world renowned Quality Control (QC) material offers straight forward assessment of your laboratory performance, creating confidence in results and adherence to quality accreditation standards. Our rigorous quality manufacturing regime allows us to provide you with a superior solution for effective Internal Quality Assessment. To build a QC material that is relevant to your testing, refer to our extensive range of controls and calibrators.

Randox Toxicology offers External Quality Assessment/Proficiency Testing programmes, as a means of assessing the analytical laboratory performance.

Benefits



Flexible design

Test menu consolidation can reduce costs and eliminate waste without compromising quality.



Consistent material

100% human material used in the production of QC controls has no preservatives or additives.



Third party controls

True third party controls provide an unbiased assessment across a range of instruments and methods.



Accurately assigned values

Quantified with LC/MS, no manual value assignment is required providing accuracy and reliability.



Excellent stability

Lyophilised quality controls generally have a shelf life of up to 4 years from date of manufacture.



Leading quality

All QC products are manufactured to the highest possible standard, delivering unrivalled quality.

Controls and Calibrators

Biochip Controls and Calibrators*

Product	Control Cat. No.	Calibrator Cat. No.
DoA Array I (Oral Fluid)	EV3649	EV3648
DoA Array I (Urine qualitative)	EV3551	EV3550
DoA Array I + (Urine)	EV3745	EV3744
DoA Array I + (Whole Blood)	EV3750	EV3749
DoA Array II (Urine)	EV3657	EV3656
DoA Array II (Whole Blood)	EV3682	EV3687
DoA Array III (Urine)	EV3830	EV3829
DoA Array III (Whole Blood)	EV3798	EV3797
DoA Array IV (Urine)	EV3835	EV3834
DoA Array IV (Whole Blood)	EV3809	EV3808
DoA ULTRA/DUID Array (Urine)	EV4105	EV4104
DoA ULTRA/DUID Array (Whole Blood)	EV4058	EV4057
DoA Evolution Array (Urine)	EV4228	EV4227
NPS I (Urine)	EV4268	EV4267
NPS II (Urine)	EV4273	EV4272

*For Evidence Investigator, calibrators are included in kit

Multi-Analyte Controls and Calibrators

Product	Cat. No.
Multidrug Control Level 1	DA3121
Multidrug Control Level 2	DA3122
Multidrug Calibrator Set	DA2704

Single Analyte Controls and Calibrators

Product	Cat. No.
Benzodiazepines Control Level 1	DA3130
Benzodiazepines Control Level 2	DA3131
Cannabinoid Control Level 1	DA3127
Cannabinoid Control Level 2	DA3128
Ecstasy Control Level 1	DA3125
Ecstasy Control Level 2	DA3126
EDDP Control Level 1	DA3123
EDDP Control Level 2	DA3124
Ethanol Calibrator/Control Set	DA2703
Benzodiazepines Calibrator Set	DA3129
Cannabinoid Calibrator Set	DA2700
Ecstasy Calibrator Set	DA2701
EDDP Calibrator Set	DA2702
Ethanol Calibrator/Control Set	DA2703

Therapeutic Drug Monitoring Controls and Calibrators

Product	Cat. No.
Therapeutic Drug Control Level 1	HD1667
Therapeutic Drug Control Level 2	HD1668
Therapeutic Drug Control Level 3	HD1669
Therapeutic Drug Calibrator	TD3417

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Index

DoA I

Amphetamine

Compound	Urine CR%	Oral Fluid CR%
d-Amphetamine	100	100
MDA	544	311
MBDB	189	<0.1
dl-Amphetamine	55	35.2
Phentermine	32	23.2
MDEA	0.4	2.8
BDB	<0.2	250

Barbiturates

Compound	Urine CR%	Oral Fluid CR%
Phenobarbital	100	100
Secobarbital	512	298.2
Butabarbital	429	307.7
Alphenal	257	142.9
Cyclopentobarbital	251	280.8
Pentobarbital	183	210.6
Butalbital	172	96.9
Amobarbital	84	77.8
p-Hydroxyphenobarbital	69	90.2
Barbital	40	35.1

Benzodiazepines I (Oxazepam)

Compound	Urine CR%	Oral Fluid CR%
Oxazepam	100	100
Alprazolam	1818.2	335
Estazolam	1538.5	432
α-OH-Alprazolam	952.4	525
Diazepam	512.8	370
Temazepam	444.4	643
Clobazam	416.7	229
Prazepam	277.8	168
Nordiazepam	250	159
Nitrazepam	241	42.7
Midazolam	227.3	551
Flurazepam	181.8	402
Flunitrazepam	119.8	34.9
Chlordiazepoxide	99.5	27.2
Bromazepam	47.7	4.9
Lormetazepam	47.5	61.3
Triazolam	37.5	108
Desalkylflunitrazepam	29.5	22.6
2-OH-Ethylflurazepam	25.6	88.5
Clonazepam	8.4	3.4
Oxazepam glucuronide	7.3	2.4
Lorazepam	6.7	4.4
4-OH-Nordiazepam	4.2	N/A
7-Aminonitrazepam	3.4	N/A
Temazepam glucuronide	3	13.5

Benzodiazepines II (Lorazepam)

Compound	Urine CR%	Oral Fluid CR%
Lorazepam	100	100
Clonazepam	68.7	80.5
Desalkylflunitrazepam	29.9	6
Lorazepam glucuronide	23.9	37.9
7-Aminoclonazepam	5.5	N/A
Bromazepam	3.7	<0.1
Oxazepam glucuronide	2.9	5.8
Nordiazepam	2	0.2
Oxazepam	2	<0.1
Nitrazepam	1.2	0.1

Benzoylcegonine (Cocaine Metabolite)

Compound	Urine CR%	Oral Fluid CR%
Benzoylcegonine	100	100
Cocaine	6.4	<0.1
Cocaethylene	4.1	0.1
Ecgonine Methyl Ester	<3.0	<0.1

Cannabinoids (THC)

Compound	Urine CR%	Oral Fluid CR%
11-nor- Δ^9 -THC-9-carboxylic acid	100	324
(-) Δ^9 -THC	N/A	100
11-nor- Δ^8 -THC-9-carboxylic acid	49	179
11-OH- Δ^9 -THC	3	114
11-OH- Δ^8 -THC	<5	N/A
Cannabinol	<0.5	41

Methamphetamine

Compound	Urine CR%	Oral Fluid CR%
(+) Methamphetamine	100	100
MBDB	89	58
MDMA	36	32
Fenfluramine	19	18.7
MDEA	6.1	5.2
BDB	<11	0.6

Methadone

Compound	Urine CR%	Oral Fluid CR%
Methadone HCl	100	100

Opiates

Compound	Urine CR%	Oral Fluid CR%
Morphine	100	100
6-MAM	1500	470
Codeine	115	90.9
Morphine-3-glucuronide	67	8.5
Hydromorphone	27	7.8
Hydrocodone	17	7.5
Dihydrocodeine	13	16.1

Phencyclidine (PCP)

Compound	Urine CR%	Oral Fluid CR%
Phencyclidine	100	100
TCP	90	N/A

DoA I+

Amphetamine

Compound	Whole Blood CR%	Urine CR%
d-Amphetamine	100	100
MDA	426	646
BDB	177	155
4-Methoxyamphetamine (PMA)	138	199
Phentermine	35.2	30.5
dl-Amphetamine	29.5	54.3
MDEA	1.4	1.6
MDMA	0.4	1.3

Barbiturates

Compound	Whole Blood CR%	Urine CR%
Phenobarbital	100	100
Secobarbital	371	315.6
Butobarbital	166	215
Pentobarbital	151	130
Alphenal	117	280.8
Cyclopentobarbital	70.1	162
p-Hydroxyphenobarbital	64	106.3
Butalbital	51.1	64.3
Amobarbital	44	76
Barbital	33.3	31.4

Benzoylcegonine (Cocaine Metabolite)

Compound	Whole Blood CR%	Urine CR%
Benzoylcegonine	100	100
Cocaine	84.8	3
Cocaethylene	56.8	2.2

Benzodiazepines I (Oxazepam)

Compound	Whole Blood CR%	Urine CR%
Oxazepam	100	100
Temazepam	382	417
Nordiazepam	317	482
α-OH-Alprazolam	310	2274
Alprazolam	258	3001.2
Diazepam	256	1059
Estazolam	253	1033.1
Clobazam	203.6	698.8
Nitrazepam	194	203
2-OH-Ethylflurazepam	188.1	246.9
Prazepam	172	475
Midazolam	115.5	187
Flunitrazepam	114.1	99.4
Flurazepam	N/A	373.6
Phenazepam	61.2	N/A
Desalkylflunitrazepam	54.4	114.4
Lormetazepam	50.2	29.6
Chlordiazepoxide	46.8	54.7
Triazolam	29.6	340
Bromazepam	21.6	16.3
Lorazepam	13	7.7
Clonazepam	6.9	13.4
Temazepam glucuronide	6.8	5.1
7-Aminonitrazepam	2.4	1
Oxazepam glucuronide	2	0.2

Benzodiazepines II (Lorazepam)

Compound	Whole Blood CR%	Urine CR%
Lorazepam	100	100
Phenazepam	72.8	N/A
Clonazepam	28.2	36.4
Lorazepam glucuronide	24.8	17.2
Desalkylflunitrazepam	8.3	12.6
Oxazepam	5	<0.1
Oxazepam glucuronide	3.5	0.1
Nordiazepam	1.9	<0.1
Nitrazepam	0.8	1
7-Aminonitrazepam	<0.1	2

Buprenorphine

Compound	Whole Blood CR%	Urine CR%
Buprenorphine	100	100
Buprenorphine Glucuronide	51.7	20.9

Cannabinoids (THC)

Compound	Whole Blood CR%	Urine CR%
11-nor- Δ^9 -THC-9-carboxylic acid	100	100
11-OH- Δ^9 -THC	4.5	2.2
11-OH- Δ^8 -THC	N/A	1.1
(-) Δ^9 -THC	1	N/A

Methadone

Compound	Whole Blood CR%	Urine CR%
Methadone HCl	100	100
LAAM	0.7	0.2
EDDP	<0.1	<0.1
EMDP	<0.1	<0.1

MDMA

Compound	Whole Blood CR%	Urine CR%
MDMA	100	100
MDEA	384	402
MBDB	123	92
PMMA	30.5	20.3
MDA	5.5	8.4
d,l,BDB	4.8	6.2
Ethylone HCl	4.6	4.6
Methylone HCl	3.9	3.9
MDPPP HCl	2.4	2.4

Methamphetamine

Compound	Whole Blood CR%	Urine CR%
(+) Methamphetamine	100	100
MBDB	96	113
Para-Methoxy-Methamphetamine (PMMA)	70.7	50.4
MDMA	38	30.1
3-Trifluoromethyl-Phenylpiperazine (TFMPP)	23.5	15.2
Fenfluramine	12.4	11
Buphedrone HCl	7	7
N-Ethylcathinone HCl	5.6	5.6
R(+)-Methcathinone HCl	3.4	3.4
3-Fluoromethcathinone HCl	3.3	3.3
Ethylone HCl	3	3
Methcathinone	2.4	2.4
MDEA	2.1	5.3
S(-) Methcathinone HCl	2.1	2.1
Mephedrone HCl	1.8	1.8
Methylethcathinone	1.7	1.7
Methylone HCl	1.6	1.6

Opiate

Compound	Whole Blood CR%	Urine CR%
Morphine	100	100
6-MAM	1214	730
Codeine	106.6	69.5
Hydromorphone	27.2	7.5
Morphine-3-glucuronide	16.2	20
Hydrocodone	6	3.3
Dihydrocodeine	5	5

Phencyclidine (PCP)

Compound	Whole Blood CR%	Urine CR%
Phencyclidine	100	100

Tricyclic Antidepressants (TCA)

Compound	Whole Blood CR%	Urine CR%
Nortriptyline	100	100
Imipramine N Oxide	1127	1335.7
Imipramine	294	217.4
Trimipramine	238	375
Desipramine	206	131.2
Cyclobenzaprine	201	170.6
Amitriptyline	190	71.8
Opipramol	167	386
Promazine	117	48.7
Maprotiline	96	28.3
Doxepin	95	71.4
Clomipramine	76	12.4
Protryptiline	67	49.9
Cyproheptadine	61	20.2
Lofepamine	58	16
Dothiepin	50	39.4
Chlorpromazine	24.3	10.8
2-Hydroxylimipramine	19.5	11.3
Nordoxepin	19.4	12.3
Perphenazine	17.3	10.4
Prochlorperazine	9.3	N/A
2-hydroxydesipramine	N/A	7
Norclomipramine	N/A	6.4
10-hydroxyamitriptyline	N/A	3.5
10-hydroxynortriptyline	N/A	1.1

DoA II

Buprenorphine

Compound	Whole Blood CR%	Urine CR%
Buprenorphine	100	100
Buprenorphine Glucuronide	27	21

Fentanyl

Compound	Whole Blood CR%	Urine CR%
Fentanyl	100	100
Norfentanyl	6.4	6.35
Sufentanyl	1.7	1.7

Generic Opioids

Compound	Whole Blood CR%	Urine CR%
Oxycodone	100	100
Hydrocodone	1774	3040.6
Ethylmorphine	1308.3	1939.4
Codeine	763.6	497.8
Dihydrocodeine	326.8	471.1
Hydromorphone	180.1	261.3
Heroin	124.3	105.5
Thebaine	110.9	118.4
6 Monoacetylmorphine	36.2	35.1
Levorphanol	33.6	72
Morphine	28.1	21.8
Morphine-3B-D-Glucuronide	9.7	5.3
Norcodeine	9.5	7.8
Oxymorphone	6.8	6.9
Noroxycodone	0.3	3.1

Ketamine

Compound	Whole Blood CR%	Urine CR%
Norketamine	100	100
Ketamine	2.4	<0.1
s Ketamine	4.5	<0.1

LSD

Compound	Whole Blood CR%	Urine CR%
LSD	100	100
Nor-LSD	26.1	27.7
2-oxo-3OH-LSD	2.3	13

MDMA

Compound	Whole Blood CR%	Urine CR%
MDMA	100	100
MDEA	321.7	328.2
PMMA	23.75	12
MDA	5.5	7.8
d,l,BDB	4.8	4.8
MBDB	4.2	62.8

Methaqualone

Compound	Whole Blood CR%	Urine CR%
Methaqualone	100	408.9
2'OH Methaqualone	3.4	100
6-hydroxymethaqualone	3.9	45.3

Oxycodone I

Compound	Whole Blood CR%	Urine CR%
Oxycodone	100	100
Hydrocodone	38.6	62.2
Noroxycodone	19	27.5

Oxycodone II

Compound	Whole Blood CR%	Urine CR%
Oxycodone	100	100
Oxymorphone	88	73.8
Dihydrocodeine	5.3	3.3
Thebaine	3.6	2.2
Hydrocodone	3.4	3.4
Codeine	0.8	2
Ethylmorphine	0.4	1

Propoxyphene

Compound	Whole Blood CR%	Urine CR%
Norpropoxyphene	100	100
Propoxyphene	1521.9	1921

DoA III

Chloral Hydrate Metabolite

Compound	Whole Blood CR%	Urine CR%
Urochloralic acid (Trichlorethyl-β-D-glucuronide)	100	100

Ethyl Glucuronide

Compound	Whole Blood CR%	Urine CR%
Ethyl glucuronide	100	100
Methylethyl glucuronide	9	11.7
Methyl glucuronide	5	7.5

Fentanyl

Compound	Whole Blood CR%	Urine CR%
Fentanyl	100	330.5
Norfentanyl oxalate	N/A	100
Benzylfentanyl	60	425.5
Thienyl fentanyl HCl	23.9	191.8
N-acetyl fentanyl	9.3	33.9
cis-mefentanyl HCl salt	1.9	25.3
Norfentanyl	3	N/A
ω-OH norfentanyl	N/A	1.4

Flunitrazepam

Compound	Whole Blood CR%	Urine CR%
7-aminoflunitrazepam	100	100
Flunitrazepam	79	58.6
Diazepam	7	12.7
Triazolam	3	2.1

Ketamine Metabolite

Compound	Whole Blood CR%	Urine CR%
Norketamine	100	100
Ketamine	2	3.3
Dehydronorketamine	1	1.7

Meperidine

Compound	Whole Blood CR%	Urine CR%
Normeperidine	100	100
Meperidine	182	149.2

Meprobamate

Compound	Whole Blood CR%	Urine CR%
Meprobamate	100	100
Carisoprodol	88	76.6
Mebutamate	8	8.3
Meprobamate N-β-D-glucuronide	3	4.1

Zaleplon

Compound	Whole Blood CR%	Urine CR%
Zaleplon	100	100

Zolpidem

Compound	Whole Blood CR%	Urine CR%
Zolpidem	100	100
Zolpidem Metabolite (Phenyl-4-carboxyzolpidem)	31	27.2

Zopiclone

Compound	Whole Blood CR%	Urine CR%
Zopiclone	100	100
N-desmethylopiclone	141	120.5
Zopiclone N-oxide	135	111.6
Eszopiclone	22	25.4

DoA IV

Acetaminophen

Compound	Whole Blood CR%	Urine CR%
Acetaminophen	100	100
N-acetylbenzoquinoneimine	27.6	37.3
Benorylate HCl	7.3	16
3-cysteinyacetaminophen Trifluoroacetic acid salt	4.8	<2.0
Phenacetin	1.4	1.3
Methacetin	<2	2.3

Dextromethorphan

Compound	Whole Blood CR%	Urine CR%
Dextromethorphan hydrobromide monohydrate	100	N/A
Dextromethorphan	N/A	100
Dextrorphan tartrate salt	32	19.6
(±)-nordextromethorphan	20.4	16.4

Ethyl Glucuronide

Compound	Whole Blood CR%	Urine CR%
Ethyl-β-D-glucuronide	100	100
Methylethyl glucuronide	21.2	18.3
Methyl-β-glucuronide sodium salt	7.5	5.5

Escitalopram

Compound	Whole Blood CR%	Urine CR%
N-desmethyl escitalopram	100	100
Escitalopram oxalate	126.8	94.4
Citalopram hydrobromide salt	40.3	52.6
(R)-citalopram oxalate	7.4	6.9

Fluoxetine

Compound	Whole Blood CR%	Urine CR%
Fluoxetine	100	100
Norfluoxetine	90.6	76.3

Haloperidol

Compound	Whole Blood CR%	Urine CR%
Haloperidol	100	100
Reduced haloperidol	148.4	164.2
Bromperidol	35.1	52.2
Moperone	24.4	23.9
4-(4-Chlorophenyl)-4-hydroxypiperidine	2.8	1.7
Trifluoperidol HCl	1.5	1.5

Ibuprofen

Compound	Whole Blood CR%	Urine CR%
Ibuprofen	100	100
S-(+)-ibuprofen	154.4	95.4
Iso-propyl phenyl acetic acid	64.5	84.8
(R)-(-)-ibuprofen	37.4	24
Ibufenac	23.7	30.2
Rac-2-OH ibuprofen	3.5	3.7
Phenacetin	N/A	3.4
Methacetin	N/A	0.5
Naproxen	<2	<2

Methylphenidate / Ritalinic Acid

Compound	Whole Blood CR%	Urine CR%
Methylphenidate HCl	100	0.6
Rac-erythro-ethylphenidate HCl	1.9	N/A
Ritalinic acid	1	100

Salicylate

Compound	Whole Blood CR%	Urine CR%
Salicylic acid	100	100
4-aminosalicylic acid	481.4	326.5
2,3-dihydroxy benzoic acid	103.2	97
Gentisic acid	15.7	N/A
Salicyluric acid	5	2.9
Aspirin	2.9	1.2
Diflusal	1.5	N/A

Sertraline

Compound	Whole Blood CR%	Urine CR%
N-desmethyl sertraline HCl	100	100
Sertraline HCl	21.8	17.8
Sertraline carbamoyl glucuronide methyl ester	12.5	23.2

Tramadol

Compound	Whole Blood CR%	Urine CR%
Tramadol HCl	100	100
O-desmethyl-tramadol	34.8	26.4
(+/-) N-desmethyl-tramadol	1.8	1.6

Trazodone

Compound	Whole Blood CR%	Urine CR%
Trazodone	100	N/A
Etoperidone HCl	73.1	N/A
Nefazodone HCl	25.1	N/A
M-CPP HCl	2.3	100
Trazodone N-oxide	1.7	N/A
1-(3-hydroxyphenyl)-piperazine	N/A	84.8
1-[3-(trifluoromethyl)phenyl]piperazine	N/A	54.7

Tricyclic Antidepressants (TCA)

Compound	Whole Blood CR%	Urine CR%
Nortriptyline	100	100
Imipramine N oxide	1127	1127
N-desmethyl trimipramine	N/A	396.5
Imipramine	294	294
Trimipramine	238	238
Desipramine	206	206
Cyclobenzaprine	201	201
Amitriptyline	190	190
Opipramol	167	167
Promazine	117	117
Maprotiline	96	96
Doxepin	95	95
Clomipramine	76	76
Protriptyline	67	67
Northiaden (nordothiepin)	N/A	63.2
Cyproheptadine	61	61
Lofepramine	58	58
Dothiepin	50	50
Chlorpromazine	24.3	24.3
Norclomipramine HCl	N/A	22.1
2-hydroxyimipramine	19.5	19.5
Nordoxepin	19.4	19.4
Perphenazine	17.3	17.3
Prochlorperazine	9.3	9.3
10-OH amitriptyline	6.4	6.4
2-OH desipramine	5.1	5.1
Quetiapine fumerate	N/A	4.5

DoA ULTRA / DUID

CR% values represent both Whole Blood and Urine unless specified

Amphetamine

Compound	CR%
S(+)-Amphetamine	100
(±)-MDA	323.3
PMA HCl	292.8
BDB	120.6
(±)-Amphetamine	49.6
Phentermine	25.4
R(-)-Amphetamine	16.6
MDEA	4

Benzo Fury Compounds	CR%
5-IT	1003
5-APB HCl	491.7
6-APB HCl	418.6
5-APDB HCl	393.5

Barbiturates

Compound	CR%
Phenobarbital	100
Secobarbital	371
Butabarbital	166
Pentobarbital	151
Alphenal	117
Cyclopentobarbital	70.1
p-OH-phenobarbital	64
Butalbital	51.1
Amobarbital	44
Barbital	33.3
(±)-Thiopental	1.1

Benzodiazepines I (Oxazepam)

Compound	CR%
Oxazepam	100
Temazepam	382
Nordiazepam	317
α-OH-Alprazolam	310
Alprazolam	258
Diazepam	256
Estazolam	253
Clobazam	203.6
Nitrazepam	194
2-OH-Ethylflurazepam	188.1
Prazepam	172
Midazolam	115.5
Flunitrazepam	114.1
Flurazepam	93.4
Phenazepam	61.2
Desalkylflunitrazepam	54.4
Lormetazepam	50.2
Chlordiazepoxide	46.8
Triazolam	29.6
Etizolam	28.4
N-Desmethylflunitrazepam	23.6
Bromazepam	21.6
α-OH-Etizolam	19.0
Lorazepam	18.4
Clonazepam	6.9
Temazepam Glucuronide	6.8
7-Aminoflunitrazepam	2.4
Oxazepam Glucuronide	2

Benzodiazepines II (Lorazepam)

Compound	CR%
Lorazepam	100
Phenazepam	72.8
Clonazepam	28.2
Lorazepam Glucuronide	24.8
Oxazepam	13
N-Desmethylflunitrazepam	9.6
Desalkylflunitrazepam	8.3
Oxazepam Glucuronide	3.5
Nordiazepam	1.9

Benzoylcegonine (Cocaine Metabolite)

Compound	CR%
Benzoylcegonine	100
Cocaine	103.8
m-hydroxybenzoylcegonine	95.6
Cocaethylene	54.4
Ecgonine Methyl Ester	1.29

Buprenorphine

Compound	Whole Blood CR%
Buprenorphine	100
Buprenorphine-3β-D-Glucuronide	42.8

Buprenorphine

Compound	Urine CR%
Norbuprenorphine	100
Buprenorphine	16.7
Norbuprenorphine-3β-D-Glucuronide	15.0
Buprenorphine-3β-D-Glucuronide	2.0

Cannabinoids (THC)

Compound	Whole Blood CR%
(-)-11-norΔ ⁹ -Carboxy-Δ ⁹ -THC	100
(±)-11-Hydroxy-Δ ⁹ -THC	25.6
Δ ⁸ -THC	13.3
Δ ⁹ -THC	10.9

Cannabinoids (THC)

Compound	Urine CR%
11-nor-Δ ⁹ -THC-9-carboxylic acid	100
11-OH-Δ ⁹ -THC	2.2
11-OH-Δ ⁸ -THC	1.1

Dextromethorphan

Compound	CR%
Dextromethorphan	100
Dextrorphan tartrate salt	32
(±)-nordextromethorphan	20.4

Fentanyl

Compound	CR%
Fentanyl	100
α-methylfentanyl	266
p-fluorofentanil	194
Benzylfentanyl	57.1
Butyrylfentanyl HCl	54
Norfentanyl	27
ω-OH fentanyl	15.2
Thienylfentanyl HCl	8.1
3-methio fentanyl	4.7
Norfentanyl Oxalate	4.2
3-methyl thiofentanyl	3.4
Cis-Mefentanyl HCl salt	3.3
Acetyl fentanyl	3.1
Ohmefentanyl	3.1

Generic Opioids

Compound	CR%
Oxycodone	100
Hydrocodone	1057
Ethyl Morphine HCl	339
Codeine	287
6-Acetyl-Codeine	166.8
Dihydrocodeine	103.5
Hydromorphone	102.5
Desomorphine	41.5
Morphine-3 β D-Glucuronide	35.1
Heroin	29.5
Morphine	26.3
6-MAM	21.2
Levorphanol	14.9
Thebaine	14.6
Norcodeine	9.2
Oxymorphone	5.8
Morphine-6 β D-Glucuronide	0.6

*Morphine cross reactivity (CR%) for urine is 35

Meprobamate

Compound	CR%
Meprobamate	100
Carisoprodol	88
Mebutamate	8
Meprobamate-N- β -D-glucuronide	3

Methadone

Compound	CR%
Methadone	100

Methamphetamine

Compound	CR%
S(+)-Methamphetamine	100
PMMA HCl	291
MDMA	114.4
($\pm$)-Methamphetamine	69.8
MDEA	4.3
($\pm$)-N-Ethylamphetamine	3.0

Benzo Fury' Compounds	CR%
5-MAPB HCl	136.1
5-MAPDB HCl	76.6

Opiate

Compound	CR%
Morphine	100
6-MAM	1168
6-Acetyl-Codeine	430.3
Heroin	353.6
Desomorphine	159.9
Codeine	112.2
Morphine-6 β D-Glucuronide	68.4
Ethyl Morphine HCl	66.5
Hydromorphone	50.8
Hydrocodone	38.4
Thebaine	19.9
Morphine-3 β D-Glucuronide	18
Levorphanol	13.2

Oxycodone I

Compound	CR%
Oxycodone	100
Hydrocodone	132.6
Noroxycodone	29

Oxycodone II

Compound	CR%
Oxycodone	100
Oxymorphone	22.9
6-Acetyl-Codeine	4
Hydrocodone	3.2
Thebaine	2.1
Codeine	1.7
Naloxone	1.4
6-MAM	1.1

Phencyclidine (PCP)

Compound	CR%
PCP	100

Tramadol

Compound	CR%
Tramadol	100
O-Desmethyltramadol	34.8
(±)-N-Desmethyl tramadol	1.39

Tricyclic Antidepressants (TCA)

Compound	CR%
Nortriptyline	100
Imipramine N Oxide	1127
Imipramine	294
Trimipramine	238
Desipramine	206
Cyclobenzaprine	201
Amitriptyline	190
Opipramol	167
Promazine	117
Maprotiline	96
Doxepin	95
Clomipramine	76
Protryptiline	67
Cyproheptadine	61
Lofepramine	58
Dothiepin	50
Chlorpromazine	24.3
2 Hydroxyimipramine	19.5
Nordoxepin	19.4
Perphenazine	17.3
Prochlorperazine	9.3

Zolpidem

Compound	CR%
Zolpidem	100
Metabolite I: (4-carboxyzolpidem)	47.5

DoA Evolution

Amphetamine

Compound	Urine CR%
S(+)-Amphetamine	100
(±)-MDA	323.3
PMA HCl	292.8
BDB	120.6
(±)-Amphetamine	49.6
Phentermine	25.4
R(-)-Amphetamine	16.6
MDEA	4

Benzo Fury Compounds	Urine CR%
5-IT	1003
5-APB HCl	491.7
6-APB HCl	418.6
5-APDB HCl	393.5

Barbiturates

Compound	Urine CR%
Phenobarbital	100
Secobarbital	371
Butabarbital	166
Pentobarbital	151
Alphenal	117
Cyclopentobarbital	70.1
p-OH-phenobarbital	64
Butalbital	51.1
Amobarbital	44
Barbital	33.3
(±)-Thiopental	1.1

Benzodiazepines I (Oxazepam)

Compound	Urine CR%
Oxazepam	100
Temazepam	382
Nordiazepam	317
α-OH-Alprazolam	310
Alprazolam	258
Diazepam	256
Estazolam	253
Clobazam	203.6
Nitrazepam	194
2-OH-Ethylflurazepam	188.1
Prazepam	172
Midazolam	115.5
Flunitrazepam	114.1
Flurazepam	93.4
Phenazepam	61.2
Desalkylflunitrazepam	54.4
Lormetazepam	50.2
Chlordiazepoxide	46.8
Triazolam	29.6
Etizolam	28.4
N-Desmethyflunitrazepam	23.6
Bromazepam	21.6
α-OH-Etizolam	19.0
Lorazepam	18.4
Clonazepam	6.9
Temazepam Glucuronide	6.8
7-Aminoflunitrazepam	2.4
Oxazepam Glucuronide	2

Benzodiazepines II (Lorazepam)

Compound	Urine CR%
Lorazepam	100
Phenazepam	72.8
Clonazepam	28.2
Lorazepam Glucuronide	24.8
Oxazepam	13
N-Desmethyflunitrazepam	9.6
Desalkylflunitrazepam	8.3
Oxazepam Glucuronide	3.5
Nordiazepam	1.9

Benzoylcegonine (Cocaine Metabolite)

Compound	Urine CR%
Benzoylcegonine	100
Cocaine	103.8
m-hydroxybenzoylcegonine	95.6
Cocaethylene	54.4
Ecgonine Methyl Ester	1.29

Buprenorphine

Compound	Urine CR%
Norbuprenorphine	100
Buprenorphine	16.7
Norbuprenorphine-3β-D-Glucuronide	15.0
Buprenorphine-3β-D-Glucuronide	2.0

Cannabinoids (THC)

Compound	Urine CR%
11-nor-Δ9-THC-9-carboxylic acid	100
11-OH-Δ9-THC	2.2
11-OH-Δ8-THC	1.1

Dextromethorphan

Compound	Urine CR%
Dextromethorphan	100
Dextrorphan tartrate salt	32
(±)-nordextromethorphan	20.4

Fentanyl

Compound	Urine CR%
Fentanyl	100
α-methylfentanyl	266
p-fluorofentanyl	194
Benzylfentanyl	57.1
Butyrylfentanyl HCl	54
Norfentanyl	27
ω-Hydroxy fentanyl	15.2
Thienylfentanyl HCl	8.1
3-methio fentanyl	4.7
Norfentanyl Oxalate	4.2
3-methyl thiofentanyl	3.4
Cis-Mefentanyl HCl salt	3.3
Acetyl fentanyl	3.1
Ohmefentanyl	3.1

Meprobamate

Compound	Urine CR%
Meprobamate	100
Carisoprodol	88
Mebutamate	8
Meprobamate-N- β -D-glucuronide	3

Methadone

Compound	Urine CR%
Methadone	100

Methamphetamine

Compound	Urine CR%
S(+)-Methamphetamine	100
PMMA HCl	29.1
MDMA	114.4
($\pm$)-Methamphetamine	69.8
MDEA	4.3
($\pm$)-N-Ethylamphetamine	3.0

Benzo Furfuryl Compounds	Urine CR%
5-MAPB HCl	136.1
5-MAPDB HCl	76.6

Norketamine

Compound	Urine CR%
Norketamine	100
Ketamine	348.8
Dehydronorketamine	2.4
PCP	0.7

Opiate

Compound	Urine CR%
Morphine	100
6-MAM	1168
6-Acetyl-Codeine	430.3
Heroin	353.6
Desomorphine	159.9
Codeine	112.2
Morphine-6 β D-Glucuronide	68.4
Ethyl Morphine HCl	66.5
Hydromorphone	50.8
Hydrocodone	38.4
Thebaine	19.9
Morphine-3 β D-Glucuronide	18
Levorphanol	13.2

Oxycodone I

Compound	Urine CR%
Oxycodone	100
Hydrocodone	132.6
Noroxycodone	29

Oxycodone II

Compound	Urine CR%
Oxycodone	100
Oxymorphone	22.9
6-Acetyl-Codeine	4
Hydrocodone	3.2
Thebaine	2.1
Codeine	1.7
Naloxone	1.4
6-MAM	1.1

Phencyclidine (PCP)

Compound	Urine CR%
PCP	100

Tricyclic Antidepressants (TCA)

Compound	Urine CR%
Nortriptyline	100
Imipramine N Oxide	1127
Imipramine	294
Trimipramine	238
Desipramine	206
Cyclobenzaprine	201
Amitriptyline	190
Opipramol	167
Promazine	117
Maprotiline	96
Doxepin	95
Clomipramine	76
Protryptiline	67
Cyproheptadine	61
Lofepamine	58
Dothiepin	50
Chlorpromazine	24.3
2 Hydroxylimipramine	19.5
Nordoxepin	19.4
Perphenazine	17.3
Prochlorperazine	9.3

Tramadol

Compound	Urine CR%
Tramadol	100
O-Desmethyltramadol	34.8
(±)-N-Desmethyl tramadol	1.39

Zolpidem

Compound	Urine CR%
Zolpidem	100
Metabolite I: (4-carboxyzolpidem)	47.5

DoA MultiSTAT

α -PVP (Flakka)

Compound	Oral Fluid CR%
α -Pyrrolidinovalerophenone	100
MDPV HCl	67
Naphyrone HCl	45

Amphetamine

Compound	Oral Fluid CR%
S(+)-Amphetamine	100
($\pm$) MDA	333
PMA HCl	238
BDB	111
D-Amphetamine	83
Phentermine	24

Barbiturates

Compound	Oral Fluid CR%
Phenobarbital	100
Secobarbital	196
Pentobarbital	139
Butabarbital	139
Cyclopentobarbital	83
Amobarbital	42
Barbital	33

Benzodiazepines II (Lorazepam)

Compound	Oral Fluid CR%
Lorazepam	100
Clonazepam	33
Lorazepam Glucuronide	22
N-Desmethyflunitrazepam	4
Oxazepam Glucuronide	2

Benzodiazepines I (Oxazepam)

Compound	Oral Fluid CR%
Oxazepam	100
Diazepam	392
α -hydroxyalprazolam	333
Alprazolam	333
Estazolam	333
Nordiazepam	278
Clobazam	222
Temazepam	167
2-OH Ethylflurazepam	133
Prazepam	133
Nitrazepam	133
Triazolam	133
Flurazepam	67
Midazolam	67
Chlordiazepoxide	33
Lormetrazepam	33
Bromazepam	20
N-Desmethyflunitrazepam	17
Clonazepam	7
Medazepam	6
7-Aminonitrazepam	1

Benzoylcegonine (Cocaine Metabolite)

Compound	Oral Fluid CR%
Benzoylcegonine	100
Cocaine	133
m-hydroxybenzoylcegonine	67

Buprenorphine

Compound	Oral Fluid CR%
Buprenorphine	100
Norbuprenorphine	220
Norbuprenorphine-3 β D-Glucuronide	132
Buprenorphine-3 β D-Glucuronide	94

Cannabinoids (THC)

Compound	Oral Fluid CR%
(-)-11-nor-9-Carboxy- Δ^9 -THC	100
Δ^9 -THC	20
($\pm$)-11-OH- Δ^9 -THC	9
Δ^8 -THC	4

Fentanyl

Compound	Oral Fluid CR%
Fentanyl	100
p-fentanyl	66
Benzylfentanyl	33
α -methylfentanyl	16.5
Norfentanyl Oxalate	5.5

Ketamine

Compound	Oral Fluid CR%
Ketamine	100
($\pm$) Norketamine	22

LSD

Compound	Oral Fluid CR%
LSD	100
2-oxo-3-hydroxy LSD	22
Nor LSD	16.5

Methadone

Compound	Oral Fluid CR%
Methadone	100

Methamphetamine

Compound	Oral Fluid CR%
S(+)- Methamphetamine	100
PMMA HCl	208
MDMA	67
BDB	1

Opiate

Compound	Oral Fluid CR%
Morphine	100
6-Acetylmorphine	500
Heroin	167
Codeine	19
Morphine-3 β D-Glucuronide	6
Desomorphine	5
Dihydrocodeine	2
Levorphanol	2
Hydrocodone	2
Hydromorphone	1
Morphine-6 β D-Glucuronide	1
Thebaine	1

Oxycodone

Compound	Oral Fluid CR%
Oxycodone	100
Hydrocodone	134
Noroxycodone	38

Phencyclidine (PCP)

Compound	Oral Fluid CR%
Phencyclidine	100

Synthetic Cannabinoids (JWH-018)

Compound	Oral Fluid CR%
JWH-018	100
AM-2201	42
JWH-073 5-hydroxyindole metabolite	22
JWH-022	17
JWH-073	17
JWH-073 4-hydroxyindole metabolite	17
JWH-018 N-(5-hydroxypentyl) metabolite	17
JWH-018 N-(3-methylbutyl) isomer	17
JWH-015	13
AM-694	11
JWH-073 4-methylnaphthyl analog	11
JWH-122	8
JWH-200	8
JWH-018 5-hydroxyindole	8
JWH-018 6-hydroxyindole	8
JWH-018 N-(1-methylbutyl) isomer	8
JWH-018 N-(2-methylbutyl) isomer	8
JWH-018 7-hydroxyindole metabolite	8
JWH-018 N-butanol	3

Synthetic Cannabinoids (UR-144/XLR-11)

Compound	Oral Fluid CR%
UR-144	100
UR-144 N-Pentanoic Acid	740
A-796260	666
UR-144 N-(5-hydroxypentyl)-Metabolite	666
UR-144 N-(5-hydroxypentyl)-βD-Glucuronide	444
AB-005	222
XLR-11	111
XLR-11 N-(4-pentyl) analog	83
XLR-11 N-(2-fluoropentyl) isomer	42
UR-144 N-(5-bromopentyl) analog	33
UR-144 N-(5-chloropentyl) analog	27
UR-144 N-(heptyl) analog	16

Tramadol

Compound	Oral Fluid CR%
Tramadol	100
O-Desmethyltramadol HCl	13
(±) N-Desmethyltramadol HCl	1

6-MAM

Compound	Oral Fluid CR%
6-Acetylmorphine	100
Heroin	1.4
6-Acetylcodeine	1.3

NPS I

Synthetic Cannabinoids (JWH-018)

Compound	Urine CR%
JWH-018	100
AM-1220	238.6
JWH-018 N-(5-hydroxypentyl) metabolite	227.1
AM-2201	219.1
(1-(4-Carboxybutyl)-1H-indol-3-yl) (naphthalen-1-yl)methanone (N-carboxybutyl) JWH-018	179.8
JWH-200 6-hydroxyindole metabolite	146.1
(5'-Carboxy) JWH-018	144.7
JWH-073 N-Butanol	143
JWH-073 N-(4-hydroxybutyl) metabolite	138.1
JWH-019 N-(6-hydroxyhexyl) metabolite	131.1
JWH-073	127.5
(±)-JWH-018 N-(4-hydroxypentyl) metabolite	126.8
AM-2201 N-(4-fluoropentyl) isomer	117.9
JWH-200	115
(±)-JWH-073 N-(3-hydroxybutyl) metabolite	111.7
JWH-018 N-(3-methylbutyl) isomer	95.9
JWH-073 6-hydroxyindole metabolite	86
JWH-019	82
JWH-018 6-methoxyindole analog	81.3
JWH-022	69.6
AM-2201 N-(4-hydroxypentyl) metabolite	68.4
JWH-018 5-hydroxyindole metabolite	65.5
JWH-018 N-(5-hydroxypentyl) β-D-glucuronide	65.3
JWH-018 6-hydroxyindole metabolite	62.7
JWH-018 N-pentanoic acid metabolite	58.7
JWH-073 5-hydroxyindole metabolite	58.4
JWH-018 N-(2,2-dimethylpropyl) isomer	56.4
AM-2201 6-hydroxyindole metabolite	54.2
JWH-073 N-(2-methylpropyl) isomer	51.1
JWH-073 7-hydroxyindole metabolite	49.1
JWH-018 7-hydroxyindole metabolite	45.2
JWH-018 N-(2-methylbutyl) isomer	44.7
JWH-073 4-butanoic acid metabolite	28.1
JWH-019 5-hydroxyindole metabolite	24.8
JWH-018 N-(1-methylbutyl) isomer	24.7
JWH-398 N-(5-hydroxypentyl) metabolite	20.7
JWH-073 N-(1-methylpropyl) isomer	17.6
JWH-200 5-hydroxyindole metabolite	17.1
JWH-020	16.9
JWH-424	13.6
JWH-073 N-butanoic acid metabolite	12.1

Compound	Urine CR%
JWH-122 N-(5-hydroxypentyl) metabolite	11.6
JWH-018 N-(1,2-dimethylpropyl) isomer	11.1
JWH-018 4-hydroxyindole metabolite	10.7
JWH-122	9.8
JWH-073 4-hydroxyindole metabolite	9.5
Win 55, 212-3 mesylate	8
JWH-081 5-methoxynaphthyl isomer	6.5
JWH-122 7-methylnaphthyl isomer	6.2
JWH-073 2-methylnaphthyl analog	6
JWH-122 6-methylnaphthyl isomer	5.7
JWH-398	5.6
JWH-147	5.4
N-desalkyl JWH-018	5.4
JWH-015	5.1
JWH-073 4-methylnaphthyl analog	4
JWH-122 2-methylnaphthyl isomer	3.9
JWH-210 7-ethylnaphthyl isomer or JWH-234	3.8
AM-2233	3.6
JWH-030	3.2
AM-694	3.1
JWH-398 5-chloronaphthyl isomer	2.6
JWH-081 N-(5-hydroxypentyl) metabolite	2.5
JWH-016	2.5
JWH-307	2.3
JWH-018 2'-naphthyl-N-(2-methylbutyl) isomer	2
JWH-007	2
RCS-4 2-methoxy isomer	2
JWH-081 2-methoxynaphthyl isomer or JWH-267	1.9
JWH-081 7-methoxynaphthyl isomer or JWH-164	1.7
JWH-200 4-hydroxyindole metabolite	1.5
RCS-4 3-methoxy isomer	1.5
JWH-210	1.4
AM-694 3 iodo Isomer	1.2
(+)-WIN 55,212-2 (mesylate)	0.9
JWH-210 5-hydroxyindole metabolite	0.8
(R)-AM-1241	0.2
AM-694 4 iodo Isomer	<5
JWH-073 2'-naphthyl-N-(2-methylpropyl) isomer	<5
JWH-210 2-ethylnaphthyl isomer	<5
JWH-210 N-(5-carboxypentyl) metabolite	<5
JWH-030	<1

Synthetic Cannabinoids (UR-144/XLR-11)

Compound	Urine CR%
UR-144 N-Pentanoic Acid	100
A-796260	155
AB-005	146
A-834735	126
UR-144 N-(5-hydroxypentyl) β-D-Glucuronide	104
UR-144 N-(5-hydroxypentyl) metabolite	98
UR-144 N-(4-hydroxypentyl) metabolite	93
UR-144 Desalkyl	40
XLR-11	18.9
XLR-11 N-(4-hydroxypentyl) metabolite	17.7
XLR-11 N-(4-pentyl) analog	15.6
UR-144	15.3
XLR-11 N-(2-fluoropentyl) isomer	14.8
XLR-11 Degradant	8.6
UR-144 N-(5-chloropentyl) analog	6.8
UR-144 N-(5-bromopentyl) analog	5
UR-144 N-(heptyl) analog	2.2
UR-144 degradant	1.3

Synthetic Cannabinoids (AB-CHMINACA)

Compound	Urine CR%
AB-CHMINACA	100
MA-CHMINACA	32
MDMB-CHMINACA	27
MDMB-CHMICA	12
AB-CHMINACA metabolite N-[[1-(cyclohexylmethyl)-1H-indazole-2-yl]-carbonyl]-L-valine	6.7
AB-PINACA	6.2
APP-CHMINACA	6
5-Fluoro-AB-PINACA	5.2
ADB-CHMICA	3.2
5-Fluoro-ADB-PINACA	2.9
5-Fluoro ADBICA	1.7
AB-CHMINACA metabolite MIA	1.2
AB-FUBINACA	1

Synthetic Cannabinoids (AB-PINACA)

Compound	Urine CR%
AB-PINACA N-Pentanoic Acid	100
AB-PINACA N-(5-Hydroxypentyl) Metabolite	153
AB-PINACA Pentanoic Acid Metabolite	139
5-Fluoro-AB-PINACA	127
AB-CHMINACA Metabolite MIA	94
AB-PINACA N-(4-Hydroxypentyl) Metabolite	78
AB-PINACA	66
ADB-PINACA Pentanoic Acid Metabolite	50
ADB-PINACA N-(5-Hydroxypentyl) Metabolite	49
5-Fluoro-ADB-PINACA	45
5-Fluoro-AB-PINACA N-(4-Hydroxypentyl) Metabolite	32
AB-CHMINACA	17.5
5-Fluoro ADBICA	15
AB-FUBINACA	7.2
AB-PINACA carboxylic acid	6.6
AB-FUBINACA carboxylic acid	4.2
ADBICA	1

Bath Salts I (Mephedrone / Methcathinone)

Compound	Urine CR%
Mephedrone HCl	100
Methylone HCl	80
Methedrone HCl	78.2
Flephedrone HCl	46.6
Methcathinone HCl	42.7
R(+)-Methcathinone HCl	38.3
3-Fluoromethcathinone HCl	21.3
3-Methoxymethcathinone (3-MeOMC) HCl	13.5
4-Methylethcathinone HCl	11.3
S(-) Methcathinone HCl	8.9
Ethylone HCl	6.5
N-Ethylcathinone HCl	5.7
Buphedrone HCl	5.3
Butylone HCl	3.5
Mexedrone HCl	1.2

Bath Salts II (α-PVP / MDPV)

Compound	Urine CR%
α-Pyrrolidinovalerophenone (α-PVP)	100
Pyrovalerone	232
3,4-Methylenedioxyprovalerone (MDPV)	204
Naphyrone	167
α-Pyrrolidinopentithiophenone	82
4'Methyl-α-Pyrrolidinobutiophenone (MPBP)	51
4-Methyl-α-Pyrrolidinohexanophenone (4-MPHP)	25
MDPBP	11
4-Methoxy-PV8	6
4-Fluoro-PV9	2
4'Methyl-α-Pyrrolidinopropiophenone	1
Pyrrolidinopropiophenone	1
3,4-Methylenedioxy-α-Pyrrolidinopropiophenone (MDPPP)	0.4

Benzylpiperazines

Compound	Urine CR%
1-Benzylpiperazine	100
1-[4-(Trifluoromethyl)benzyl]piperazine	328.7
4-Hydroxy-benzylpiperazine (p-OH-BZP)	172.1
3-(Piperazin-1-ylmethyl)phenol diHCl	123.7
1-Piperonylpiperazine	101.5
N-(3-Methylbenzyl)piperazine diHCl	52.9
1-[3-(Trifluoromethyl)benzyl]piperazine	12.3
1-(3-Methylphenyl)piperazine	3.9
1-Phenylpiperazine	3.4
1-(2-Methoxyphenyl)piperazine diHCl	3.2
1-(3-Trifluoromethylphenyl)piperazine HCl	1.9
1-(4-Methylphenyl)piperazine	1.3
1-(3-Hydroxyphenyl)piperazine	1.0

Phenylpiperazines I

Compound	Urine CR%
1-(3-Chlorophenyl)piperazine monohydrochloride (mCPP)	100
1-(2-Chlorophenyl)piperazine HCl	122.4
1-(3-Methylphenyl)piperazine	119.5
1-(4-Methoxyphenyl)piperazine DiHCl	99.4
1-(4-Chlorophenyl)piperazine	76.2
Para-Fluorophenyl piperazine DiHCl	72.2
1-Phenylpiperazine	64.9
1-(4-Methylphenyl)piperazine	60.9
1-(4-Hydroxyphenyl)piperazine	35
1-(3-Hydroxyphenyl)piperazine	28.7
1-(3-Trifluoromethylphenyl)piperazine HCl	12.5
1-[4-Trifluoromethyl]phenyl]piperazine	5.3

Phenylpiperazines II

Compound	Urine CR%
1-(3-Chlorophenyl)piperazine monohydrochloride (mCPP)	100
1-(3-Methylphenyl)piperazine	196.2
1-(2-Chlorophenyl)piperazine HCl	159.0
1-(3-Hydroxyphenyl)piperazine	119.4
1-Phenylpiperazine	112.0
1-(3-Trifluoromethylphenyl)piperazine HCl	48.0
Para-Fluorophenyl piperazine DiHCl	32.4
1-(2-Methoxyphenyl)piperazine DiHCl	31.0
1-(4-Methylphenyl)piperazine	25.5
1-(4-Chlorophenyl)piperazine	23.7
1-(4-Methoxyphenyl)piperazine DiHCl	16.2
1-(4-Hydroxyphenyl)piperazine	10.0
1-[4-Trifluoromethyl]phenyl]piperazine	2.4

NPS II

Acetylfentanyl

Compound	Urine CR%
Ocfentanyl	100
Tetrahydrofuran Fentanyl	221.8
Valerylentanyl	191.1
Methoxyacetyl Fentanyl	163.9
Para Fluoroisobutrylfentanyl (FIBF)	132.3
Cyclopentylfentanyl	129.2
Butrylfentanyl	124.8
Parafluorofentanyl	118.2
Para methoxy-Butryl fentanyl (HCl)	116.8
Fentanyl	99.3
Acrylfentanyl	89.8
Acetylfentanyl	84.9
Ω-Hydroxyfentanyl	84.7
Isobutyrylfentanyl	83.5
4-Fluoro-isobutyrylfentanyl	80.4
Thiofentanyl	69
Furanylfentanyl	65.4
Ortho-Fluorofentanyl	59.1
(±)-trans-3-methylfentanyl	32.8
α-Methylfentanyl	31.4
(±)-cis-3-methylfentanyl	27.7
Cis-Mefentanyl	23.7
Furanylethylfentanyl	23.6
3-Methylthiofentanyl	16.9
Meta-Hydroxy-Acrylfentanyl	10.2
Ohmefentanyl	5.2
Despropionyl ortho fluorofentanyl	2.1
Despropionyl para fluorofentanyl	2

AH-7921

Compound	Urine CR%
AH-7921	100
Nor-AH-7921	48.7
N,N-didesmethyl AH-7921	10.8

Buprenorphine

Compound	Urine CR%
Norbuprenorphine	100
Norbuprenorphine-3-β-D-Glucuronide	19
Buprenorphine	11.7
Buprenorphine-3-β-D-Glucuronide	1.9

Carfentanil

Compound	Urine CR%
Carfentanil	100
Remifentanil Acid	60.2
Alfentanil	48.5
Norcarfentanil	31.4
Sufentanil	13.7
Norsufentanil	5.5

Designer Benzodiazepine (Clonazepam)

Compound	Urine CR%
Clonazepam	100
N-Desmethylflunitrazepam	128.2
Delorazepam	41
7-Aminoclonazepam	40.6
Nitrazepam	38.9
Phenazepam	29.7
N-desmethyl clotiazepam	15.3
Desalkylflurazepam	12.1
Flubromazepam	8.9
7-NH-Nitrazepam	8.2
α-OH-Alprazolam	8
7-Aminonitrazepam	5.1
Flunitrazepam	3.7
7-Aminoflunitrazepam	2.7
Diclazepam	2.4
Estazolam	2.2
α-OH Etizolam	1.8
Nordiazepam	1.7
Flubromazolam	1

Designer Benzodiazepine (Etizolam)

Compound	Urine CR%
Etizolam	100
Brotizolam	69.6
α-OH Etizolam	34
Estazolam	33.5
Deschloroetizolam	33.2
α-OH-Alprazolam	19.1
Triazolam	13.5
Flubromazolam	9.2
Alprazolam	5.7
Clotiazepam	1.4

MT-45

Compound	Urine CR%
MT-45	100
3-Hydroxy MT-45	122.8

Naloxone

Compound	Urine CR%
Naloxone	100
Naloxone 3-β-D Glucuronide	70.6
Naltrexone	12.5

Mitragynine

Compound	Urine CR%
Mitragynine	100
O-desmethyl Mitragynine	13.1

Furanylfentanyl

Compound	Urine CR%
Ocfentanyl	100
Thiofentanyl	250.4
Methoxyacetyl Fentanyl	222.5
Fentanyl	186.2
Butrylfentanyl	150.2
α-Methylfentanyl	140.7
Furanylethylfentanyl	140.3
Parafluorofentanyl	115.9
Tetrahydrofuran Fentanyl	112.2
Furanylfentanyl	105.5
Ortho-Fluorofentanyl	69.4
Cyclopentylfentanyl	60.5
Para Fluoroisobutrylfentanyl (FIBF)	57.1
Benzylfentanyl	43
Norfentanyl	37.2
Acrylfentanyl	36.3
Thienylfentanyl	36.1
Isobutrylfentanyl	34.2
Meta-OH-Acrylfentanyl	32.7
Norfuranylfentanyl	22.4
Valeryl fentanyl	20.1
4-Fluoro-isobutrylfentanyl	20
(±)-cis-3-methylfentanyl	16.2
Cis-Mefentanyl	10.2
3-Methylthiofentanyl	8.8
Ω-Hydroxyfentanyl	8.3
Ohmefentanyl	7.9
Acetyl fentanyl	4.3
(±)-trans-3-methylfentanyl	4.2
Norocfentanyl	4.2

Ocfentanyl

Compound	Urine CR%
Ocfentanyl	100
Methoxyacetyl Fentanyl	54.7
Butrylfentanyl	20.2
Fentanyl	12
Furanylethylfentanyl	11.4
Norocfentanyl	10.4
Furanylfentanyl	10.4
Ortho-Fluorofentanyl	10
Cyclopentylfentanyl	9.1
Benzylfentanyl	8.1
Thiofentanyl	8
(±)-trans-3-methylfentanyl	4.7
α-Methylfentanyl	4
Meta-OH-Acrylfentanyl	4
Thienylfentanyl	4.5
Acrylfentanyl	4.1
Tetrahydrofuran Fentanyl	3.6
Parafluorofentanyl	2.4
Valeryl fentanyl	2.3
Norfentanyl	1.8
(±)-cis-3-methylfentanyl	1.5
Cis-Mefentanyl	1.4
Norfuranylfentanyl	1

Sufentanil

Compound	Urine CR%
Sufentanil	100
Alfentanil	92.2
Norsufentanil	23.1
Carfentanil	15.4

U-47700

Compound	Urine CR%
U-47700	100
N-Desmethyl U-47700	24.3

W-19

Compound	Urine CR%
W-19	100
Deschloro W-19	661
W-15	9.1

Order Information



UK

Randox Toxicology Ltd.
55 Diamond Road
Crumlin
County Antrim
BT29 4QY
United Kingdom

Tel: +44 (0) 28 9442 2413
Fax: +44 (0) 28 9445 2912

orderentry@randoxtoxicology.com

USA

Randox Laboratories - US, Ltd.
515 Industrial Boulevard
Bardane Industrial Park
Kearneysville, WV
25430
United States of America

Tel: (+1) 304 728 2890
Fax: (+1) 304 728 1890

orderentryusa@randox.com



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