

EVIDENCE+

Faster Testing, Accurate Results

RANDOX
TOXICOLOGY

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Randox Toxicology are world leaders in drug testing solutions with the capability of detecting over 500 drug and drug metabolites using innovative Biochip Array Technology.



Evidence+

The fully automated Evidence+ analyser is set to truly revolutionise laboratories worldwide. Continuing to provide high standards of quality, efficiency and reliability, the fully automated batch immunoanalyser simultaneously detects multiple drugs and drug metabolites from a single sample.

The Evidence+ analyser enables both efficient and cost-effective testing whilst providing accurate and reliable results to larger high throughput laboratories.

Multiplex Explained

Biochip Array Technology is an immunoassay testing platform for the simultaneous multi-analyte detection 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. The light signal generated from each of the discrete test regions on the Biochip is simultaneously detected using digital imaging technology and compared to that from a calibration curve.

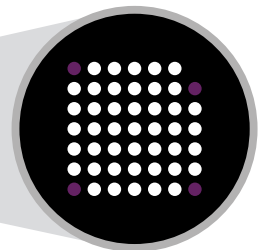
Key

○ Discrete test region

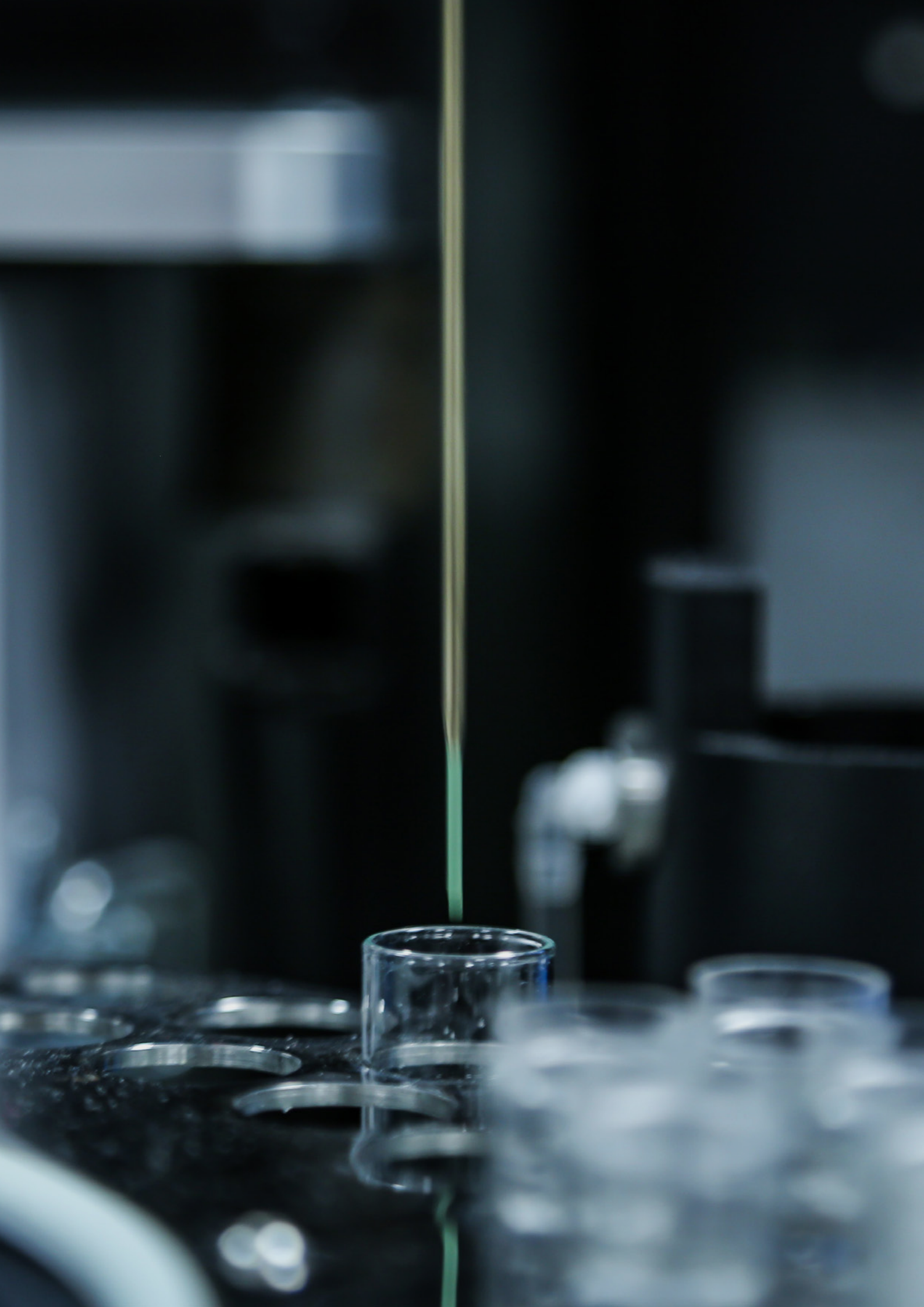
● Quality control spot



7x7 Biochip surface



44 discrete test regions on each Biochip for individual analytes



Benefits



Large Sample Throughput

With the potential of up to 5,280 test results*, and up to 44 tests per sample, the Evidence+ analyser is uniquely designed for fast and accurate batch analysis.



Precise Testing

Biochip Array Technology has a proven high standard of precise testing with CV's typically <10% and multiplex capabilities minimising analytic variation between tests, representing greater value for money as fewer samples and consumables deliver a more in-depth analysis.



Worklist Loading

Allows the operator to save frequently used worklists, reload them onto the system and apply them to different arrays with a few simple clicks, ensuring time to first result is firmly fixed at <45 minutes.



Quality Control Extension

Extended quality control viewing allows results to be displayed on the system for up to 180 days, facilitating the operator with trend analysis for recalibration and control performance.



Email Alerts

Configuration of the system enables message notifications and alerts to be emailed to the user, speeding up the day-to-day running of the laboratory whilst increasing walk away time and productivity.



Barcoded Reagents

Reagent barcodes and signal usage calculation reduces human error and the possibility of using the incorrect reagents allowing a truly effective end-to-end solution.

*Based on a throughput of 120 samples per hour.

Matrices



Blood

- Simple sample preparation
- Matrix dedicated kit for whole blood ensures optimum performance
- Adjustable cut-offs can be selected avoiding re-calibration/use of different calibrators



Post-Mortem Blood

- Small sample volume requirements
- No SPE columns or solvents needed
- Simple sample preparation



Urine

- No sample preparation
- Proven reduction in false results



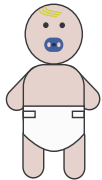
Oral Fluid

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



Tissue*

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



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*

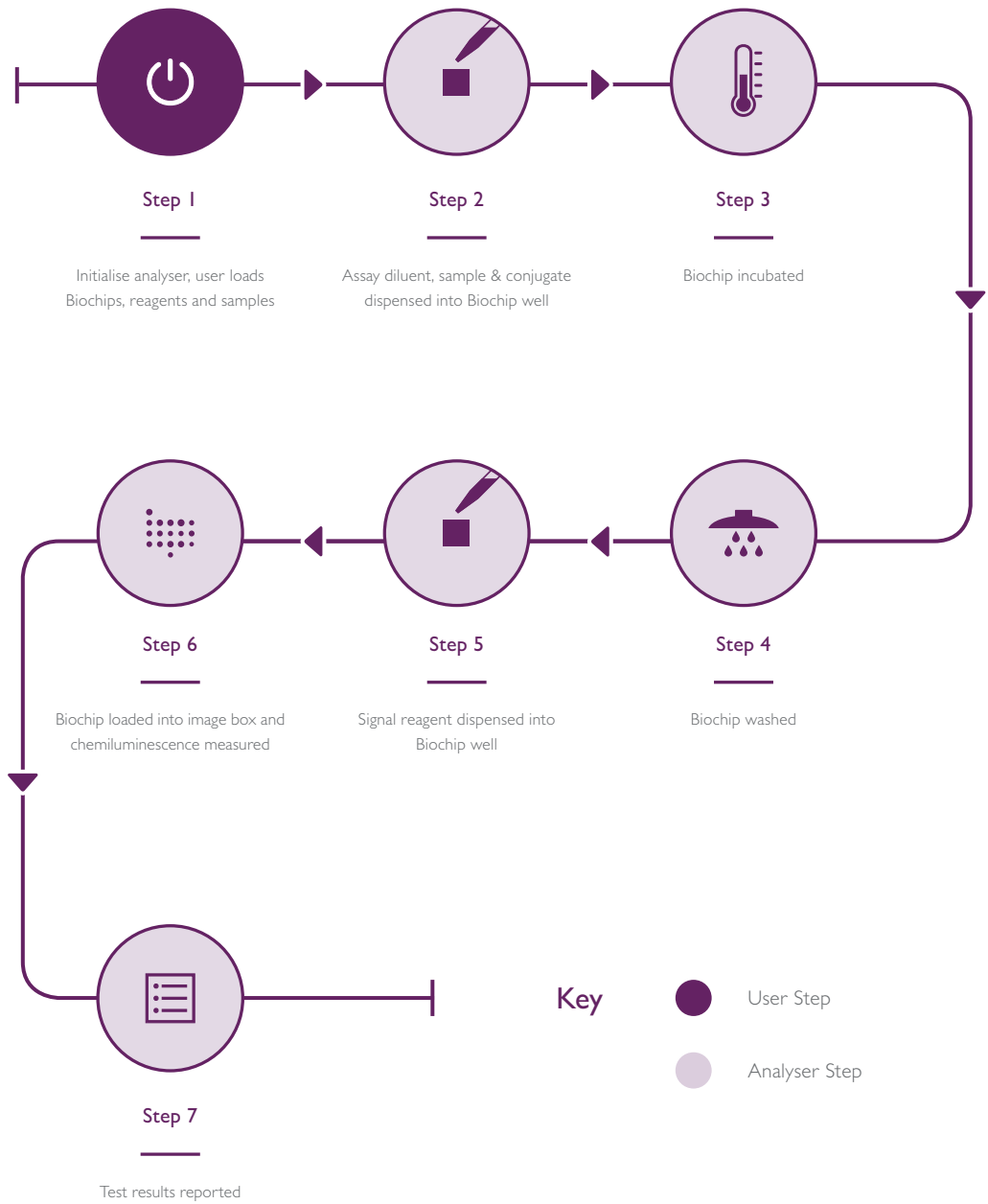
- Sample collection is relatively easy and non-invasive
- Monitoring abstinence is possible over an extended length of time
- Can be used to determine drug abuse history over a period of months



Vitreous Humor*

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

Evidence+ Process





DOA
LOT
2019-10

DOA
LOT 15520EV
2019-10

DOA
LOT 15519EV
2019-10

DOA
LOT 15518EV
2019-10

DOA
LOT 15517EV
2019-10

Evidence+ System Overview



1 Sample Carousel



2 Bulk Reagent Unit

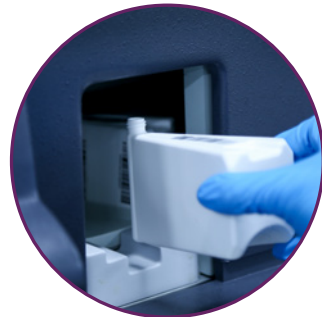


3 Cassette Collection





4 Cassette Loading Tower



5 Refrigerated Reagent Carousel



6 Biohazard Waste Collection Unit





evidence



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1

Test Menu

Drugs of Abuse Array Ultra/DUID

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

New Psychoactive Substances I

Assays	
AB-CHMINACA (Synthetic Cannabinoids)	Mescaline
AB-PINACA (Synthetic Cannabinoids)	Phenylpiperazines I
Bath Salts I (Mephedrone / Methcathinone)	Phenylpiperazines II
Bath Salts II (α -PVP / MDPV)	Salvinorin
Benzylpiperazines	UR-144/XLR-11 (Synthetic Cannabinoids)
JWH-018 (Synthetic Cannabinoids)	-

New Psychoactive Substances II

Assays	
Acetylfentanyl	Mitragynine
AH-7921	MT-45
Buprenorphine	Naloxone
Carfentanil/Remifentanil	Ocfentanyl
Clonazepam	Sufentanil
Etizolam	U-47700
Furanylfentanyl	W-19

Customisable Test Menu

Analgesics

Assays	
6-MAM	O-desmethyltramadol
Acetaminophen	Opiate
Buprenorphine / Norbuprenorphine	Oxycodone I
EDDP	Oxycodone II
Fentanyl	Phencyclidine (PCP)
Generic Opioids	Propoxyphene
Hydrocodone	Salicylate
Hydromorphone	Tapentadol
Ibuprofen	Tilidine / Nortilidine
Meperidine	Topiramate
Methadone	Tramadol
Naloxone	-

Prescription Drugs

Assays	
Baclofen	Olanzapine
Bumetanide	Oxcarbazepine
Carbamazepine	Paroxetine
Clonidine	Phenytoin
Clozapine	Pipradrol
Diphenhydramine	Quetiapine
Escitalopram	Rimonabant (STR141716A)
Fluoxetine	Ritalinic Acid
Fluvoxamine	Scopolamine
Haloperidol	Sertraline
Lamotrigine	Tadalafil
Levetiracetam	Theophylline
Loperamide	Trazodone
Methocarbamol	Tricyclic Antidepressants (TCA)
Methylphenidate	Tripelennamine
Mirtazapine	Valproic Acid
Modafinil	Venlafaxine / O-desmethylvenlafaxine
Naltrexone	-

New Psychoactive Substances

Assays	
α -PVP / MDPV (Bath Salts)	MDMD-CHMZCA (Synthetic Cannabinoids)
Acetylfentanyl	Mescaline
AB-CHMINACA (Synthetic Cannabinoids)	Methoxydiphenidine (2-MeO-Diphenidine, MXP)
AB-FUBINACA (Synthetic Cannabinoids)	Mephedrone / Methcathinone (Bath Salts)
AB-PINACA (Synthetic Cannabinoids)	Mitragynine
ADBICA (Synthetic Cannabinoids)	MN-18 / 5F-MN-24 (Synthetic Cannabinoids)
AH-7921	MT-45
APP-CHMINACA (Synthetic Cannabinoids)	NBOMe
APP-FUBINACA (Synthetic Cannabinoids)	Ocfentanyl
BB-22 (Synthetic Cannabinoids)	PB-22 (Synthetic Cannabinoids)
Benzylpiperazines	Phenylpiperazines I
Carfentanil/Remifentanil	Phenylpiperazines II
Cumyl-PINACA (Synthetic Cannabinoids)	Salvinorin
FUB-AMB (Synthetic Cannabinoids)	Sufentanil
Furanylfentanyl	UR-144/XLR-11 (Synthetic Cannabinoids)
JWH-018 (Synthetic Cannabinoids)	U-50488
JWH-250 / RCS-8 (Synthetic Cannabinoids)	U-47700
MAB-CHMINACA (Synthetic Cannabinoids)	URB's
MDMB-CHMICA (Synthetic Cannabinoids)	W-19

Sedative Hypnotics

Assays	
Barbiturates	Methaqualone
Benzodiazepines I (Oxazepam)	Methoxetamine
Benzodiazepines II (Lorazepam)	Norketamine
Benzodiazepines III (Clonazepam)	Phenobarbital
Chloral Hydrate Metabolite	Primidone
Etizolam	Propofol
Flunitrazepam	Zaleplon
Ketamine/Norketamine	Zolpidem
Meprobamate	Zopiclone

Stimulants

Assays	
Amphetamine	Mazindol
Benzoylcegonine (Cocaine Metabolite)	MDMA
Diethylpropion	Methamphetamine
DMAA	Phenmetrazine / Fluorophenmetrazine
DOx Series	Tetrahydrocannabinol (THC)
LSD	-

Other

Assays	
Atropine	Ethyl Glucuronide (EtG)
Benzhexol	Gabapentin
Bupropion	Methotrexate
Creatinine	Pregabalin
Doxylamine	Sildenafil (Viagra)
Dextromethorphan	-

Intuitive Software

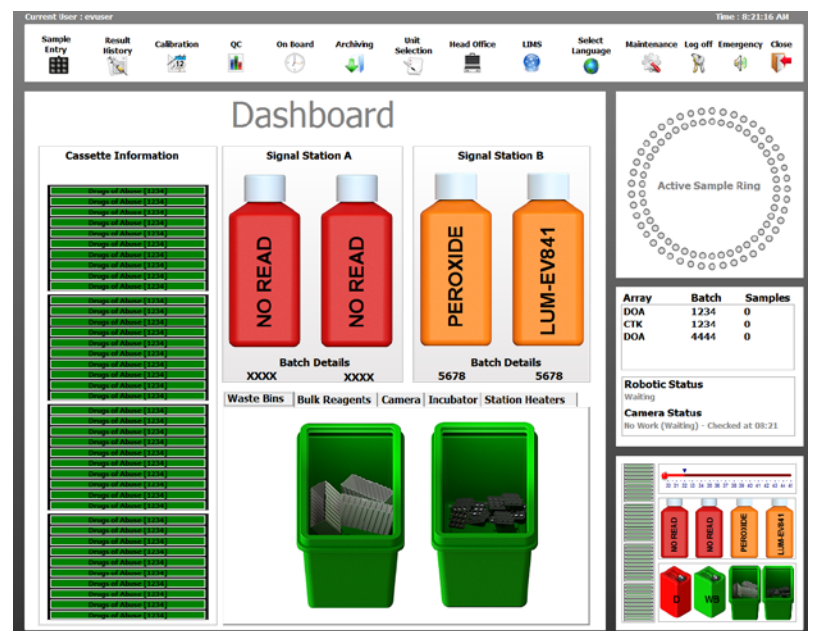
Home Screen

The Evidence+ software provides the operator with easy navigation tabs for frequently used system features.



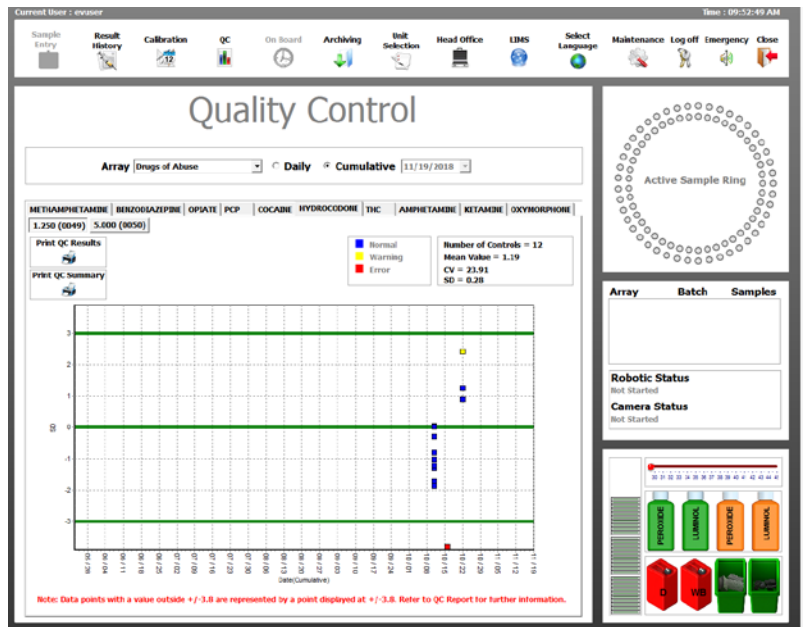
Dashboard

The dashboard screen allows the operator to easily and quickly view the status of on board modules and consumables via colour coded displays.



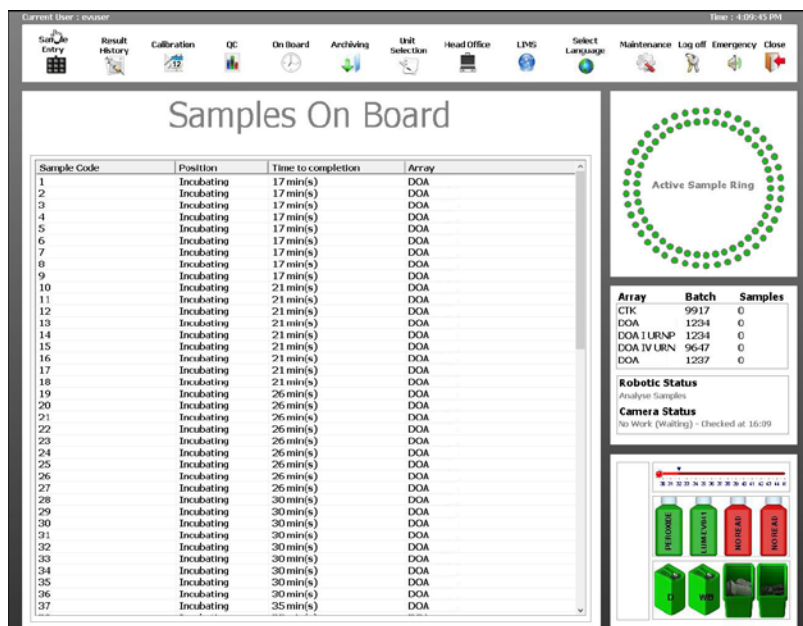
Quality Control

The Evidence+ QC software provides automated statistical analysis including Mean, Standard Deviation (SD), Coefficient of Variation (CV) and Levey-Jennings Charts for all analytes. Controls are graphically displayed for up to 180 days and can be viewed on a daily or cumulative basis.



Samples on Board

The system software allows the operator to view the operational status and time to completion (to nearest minute) of each sample as it is processed through the analyser.



Result History

Results for specific samples can be viewed, printed or exported by selecting the sample(s) of interest. Results will be presented as qualitative or quantitative values dependent on the test array.

Result History

General Search by Array, Date, Reagent Batch & Operator

Array: Drugs of Abuse | Date: 09/17/2018 | Reagent Batch: 9773 | Operator: evasor

Specific Search: Sample Code

Result Selection

Sample Code	Time
ADA049369119031234354	16:54:34
ADA059369119031234736	16:54:35
ADA069369119031234436	16:54:37
ADA079369119031234413	16:54:39
ADA089369119031234643	16:54:41
ADA09369119031234436	16:54:42
ADA091234165151616161	16:54:44
ADA119369119031234163	16:54:46
ADA129369119031234529	16:54:47
ADA049369119031234354	16:59:07
ADA059369119031234736	16:59:09
ADA069369119031234436	16:59:11
ADA079369119031234413	16:59:13
ADA089369119031234643	16:59:14
ADA09369119031234436	16:59:16
ADA1015454515165156161	16:59:18
ADA119369119031234163	16:59:20
ADA129369119031234529	16:59:21
ADA049369119031234354	17:03:36
ADA059369119031234736	17:03:38
ADA069369119031234436	17:03:40
ADA079369119031234413	17:03:42
ADA089369119031234643	17:03:44
ADA09369119031234436	17:03:45
ADA1014546465116568568	17:03:47
ADA119369119031234163	17:03:49
ADA129369119031234529	17:03:51
ADA049369119031234354	17:08:10
ADA059369119031234736	17:08:12
ADA069369119031234436	17:08:14
ADA079369119031234413	17:08:16

Calculated Results : 'ADA129369119031234529'

Analyte	Units	Result	RLU	Error
METHAMPHETAMINE	ng/ml	(+) > 2010	458	6049
BARBITURATE	ng/ml	Positive	81	0
BENZODIAZEPINE1	ng/ml	Positive	220	0
BENZODIAZEPINE2	ng/ml	Positive	708	0
METHADONE	ng/ml	Positive	1264	0
OPIATE	ng/ml	Positive	354	0
PCP	ng/ml	Positive	302	0
RIZ	ng/ml	Positive	192	0
CREATININE	ng/dL	Negative	798	0
THC	ng/ml	Positive	979	0
AMPHETAMINE	ng/ml	Positive	157	0

Other Results Available

Array Batch Samples

Array	Batch	Samples
DOA	1234	0
CTK	9917	90
DOA	9966	0
DOA TURNP	1234	0

Robotic Status: Waiting

Camera Status: No Work (Waiting) - Checked at 11:16

Calibration History

The Calibration History screen allows for the operator to review analyte by analyte calibration curve performance on the analyser based on the test array and reagents used.

Calibration History

Array Calibration Details

Array	Calibration Date	Calibration Time
Drugs of Abuse	09/17/2018	11:12

Calibrator ID	Calibration Status	Calibration Expiry
10	Pass	08/11/2019

Calibrator Batch	Reagent Batch	Signal Batch
9369	9773	1234

Calibrator Expiry	Reagent Expiry	Signal Expiry
01/01/2019	01/01/2019	01/01/2021

Analyte Calibration Details

Analyte	Target curve fit (r)	Curve fit (r)	Status
METHAMPHETAMINE	0.999	0.998	Pass

Analyte Results

Well	Conc	Expected	Actual
Well 1	0	0	0
Well 2	142	142	142
Well 3	281	266	266
Well 4	392	421	421
Well 5	436	608	608
Well 6	863	883	883
Well 7	1266	1260	1260
Well 8	1487	1362	1362
Well 9	2010	1915	1915

Calibration Curve

Intensity vs Concentration (ng/ml)

Array Batch Samples

Array	Batch	Samples
DOA	1234	0
CTK	9917	0
DOA	9966	0
DOA TURNP	1234	0

Robotic Status: Analyte Samples

Camera Status: Acquiring Image 2

Reporting

The image displays several overlapping report templates for 'Drugs of Abuse' analysis. The reports are color-coded and include the following sections:

- Drugs of Abuse Summary Report:** Includes Array Details, Samples Run By (A.N. OTHER), Batch Details (9773), and Date of Sample(s) (09/20/2018). It features a table for Curve Fit (r) values ranging from 0.996 to 0.999.
- Drugs of Abuse Positive Values Report:** Similar header information to the summary report, with a table for SD (Standard Deviation) values ranging from 0.997 to 0.999.
- Calibration Summary:** Provides details on Array Details, Date of Calibration (09/17/2018), Time of Calibration (15:23), and Reagent Batch No. (9773).
- Drugs of Abuse Report (Detailed):** Contains a table of results for various drug classes:
 - All results displayed as normalized values:** Columns include Pos, MSMP, BAPB, BEN1, BEN2, MOONE, and OPAT. Results are color-coded (green for positive, red for negative, blue for borderline).
 - All results displayed as normalized values:** Columns include Pos, PCP, BZ, CBZAT, THC, and AMPH. Results are color-coded.

At the bottom of the reports, there is a footer section with the following information:

- Date of Print: 11/20/2018 9:27:55 AM
- Analysed By: A.N. OTHER
- Analysed Id: 062-18-002
- Page: 1
- Sign Off: _____

Results Reporting

Colour coded reporting allows for the operator to easily identify positive, negative and borderline results. Customisable report headings allow for the laboratory to personalise the reports with their own company branding. Summary reports incorporate essential information pertaining to the calibration, control and sample results on the one colour formatted report.

Local Engineers. Global Coverage

Randox Toxicology provides customers with an unrivalled support service. A team of highly trained specialists are on-hand to deal with any technical and service issues you may have.



Global Offices

We have 25 international offices acting as direct points of contact for customers

100+

Specialists

Randox has over 100 engineers and tech support specialists placed around the world to ensure an efficient response to customer requests

350

Scientists

Radox has 350 scientists placed around the world, dedicated to providing a quality product offering



Global Distributors

We have official Radox Toxicology technical distributors in over 100 countries



Aftercare

We offer the ultimate after-care support with tailored service packages to suit your available budget

Evidence+ Specifications

Analyser Description	Fully automated Biochip Array analyser
Dimensions	170 (H) x 100 (D) x 200 (W) cm
Weight	620kg (approx)
Biochip Capacity	4 x Biochip cassettes (40 Biochip Carriers, 360 Biochips)
Biochip Format	1 x Biochip carrier (holds 9 individual Biochips)
Calibration Principal	9 point calibration
Connectivity	LIS / LIMS compatible
Environment	Ambient environment 16°C - 30°C, <80% relative humidity
Incubation Time	30 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	Up to 5,280 tests per hour (Array specific)
Measurement Principal	Chemiluminescence
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
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
Start Up / Shut Down Time	8-10 minutes start up/shut down
Time to First Result	< 45 minutes (Array specific)

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