



LUXON ION SOURCE®
The fastest process for
mass spectrometry

The Future is now with the Luxon Ion Source®

based on the patented LDTD® technology

Couple the Luxon Ion Source® to your Shimadzu mass spectrometer and attain an analysis runtime of less than 1 second. This apparatus is the second-generation sample introduction and ionization source based on the LDTD® technology for mass spectrometry.

Versatile multicomponent system adjustable to your bench setup :



Imagine your runtime under 1 second!

Luxon Ion Source® offers outstanding analytical performance through several features :

- ▶ < 1 second sample-to-sample analysis
- ▶ Plug-and-play
- ▶ Low volume samples
- ▶ No carry over, no memory effect
- ▶ Uninterrupted automated workflow
- ▶ No liquid waste management

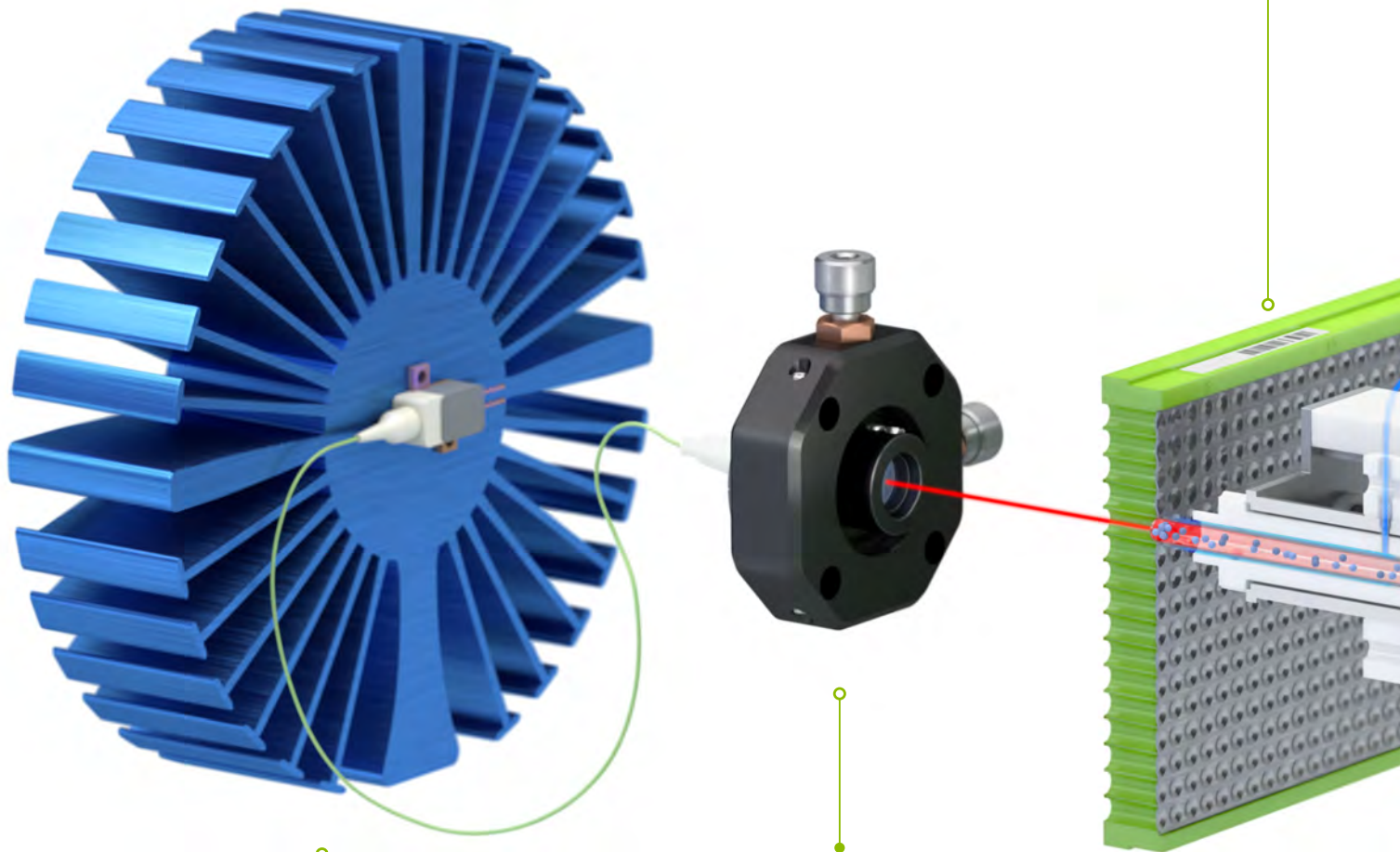
Watch the Luxon Ion Source® in action by scanning the QR code

or find it on Youtube :
youtu.be/KuSVNptfVgY



Luxon, an Ion Source at the Speed of Light

Laser Diode Thermal Desorption, the heart of the technology



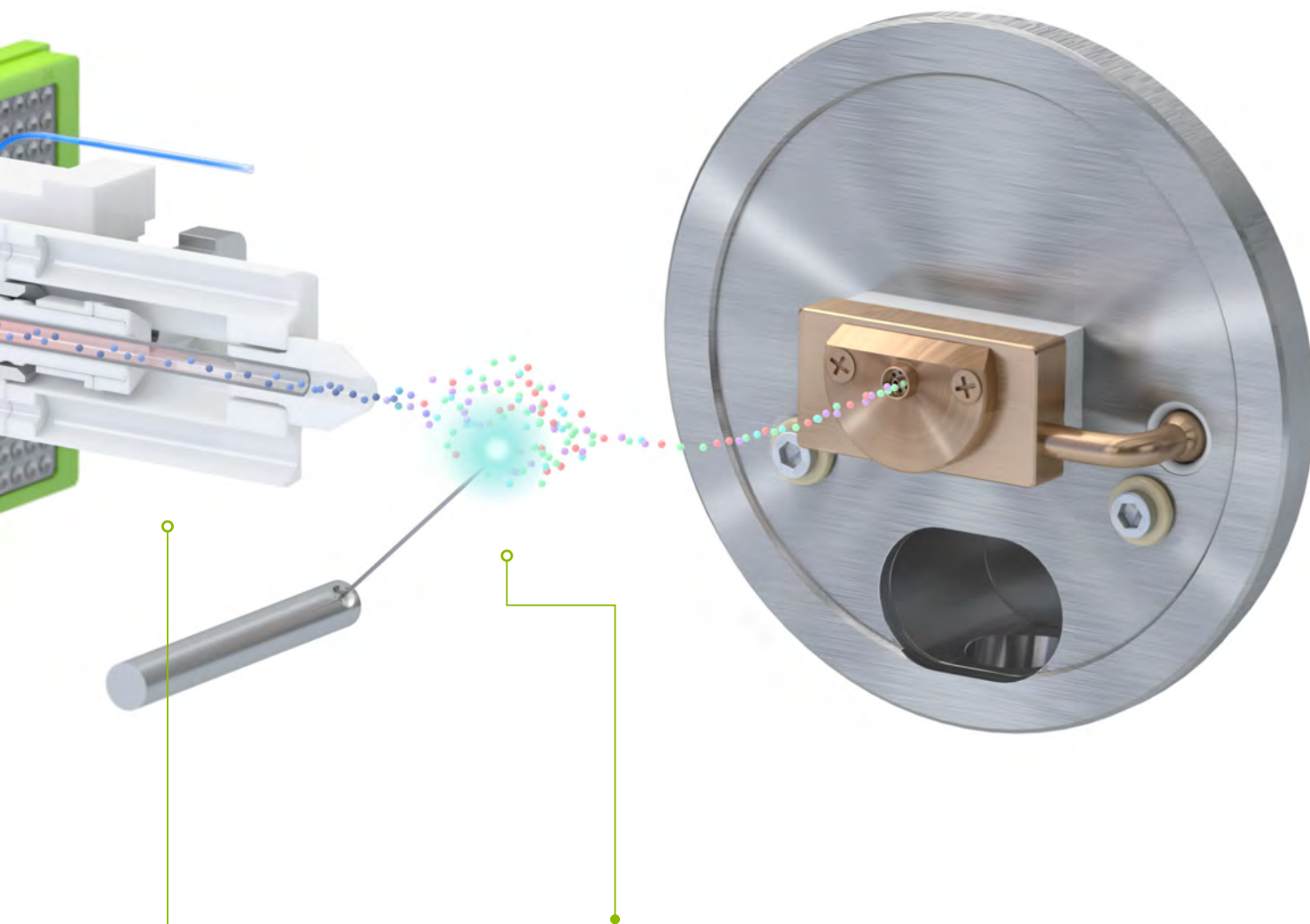
A cooled Fiber-Coupled Laser Diode Array and a heatsink to disregard room temperature variations.

The Fiber Optic Collimator allows unmatched thermal uniformity at the back of the LazWell plate without having to directly interact with the sample.

The rapid and robust pneumatic design ensures that the gas-phase neutral molecules are carried from the LazWell plate to the mass spectrometer inlet while sealing the transfer tube to avoid any sample loss.

This entire process takes less than 1 second

A low-volume sample (50nl-10 μ l) is deposited on the LazWell plate and then fully dried. The patented LazWell design allows for the formation of a precisely centered nanolayer on the well surface.



The thermally desorbed neutral molecules are carried into a corona discharge region to undergo ionization. High-efficiency protonation and strong resistance to ionic suppression characterize this type of ionization and is the result of the absence of solvent and mobile phase.

Other features of Luxon Ion Source®

Plug-and-play

LIGHT-WEIGHT AND EASY TO USE

With the Luxon Ion Source® you can now easily switch between your LC and Luxon within minutes! It is simple to install and remove which allows you to run your mass spectrometer and analyze your data as usual. The Luxon Ion Source® provides a robust walk away solution.

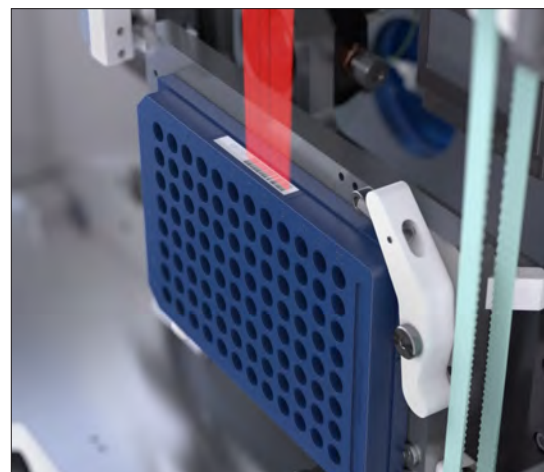


Luxon Ion Source® with a Shimadzu LCMS-8060

Traceability

LUXON FOLLOWS YOUR SAMPLES FOR YOU

The Luxon Ion Source® contains an incorporated barcode reader for an optimal traceability of your samples which makes it an ideal solution for regulated environments. The Luxon Ion Source® driver is supported by most Shimadzu mass spectrometers.

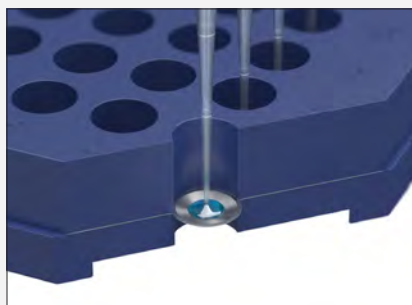


All LazWell™ plates are automatically scanned by Luxon to insure traceability

24/7 Process for mass spectrometry

LUXON TAKES CARE OF YOUR SAMPLES WHILE YOU'RE AWAY

The Luxon Ion Source® can be coupled with a robotic arm and a liquid handler for a completely automated solution, allowing you to run millions of samples without interruption and in a record time. It can also be delivered with a fully-integrated software workflow solution – from liquid handling batch files to the LIMS.



Use your preferred liquid handling system,



pair it with a robotic arm



and let it feed your samples to Luxon Ion Source®

LazWell™ plates

Our patented LazWell™ plates work exclusively with the LDTD® technology to provide accurate and reproducible results at incredible speed with microvolumes to decrease the cost per sample dramatically. Manufactured in a highly controlled environment, all LazWell™ models are barcoded on two sides ensuring a perfect fit with the volume-dispensing precision and sample traceability of conventional liquid handling systems.



LazWell™

The original LDTD® technology well-plate. It is used for most analyses and is designed to hold microvolumes. Each well can hold up to 10 µL for 96-well model, 2.5 µL for the 384-well model and 1 µL for the 1536-well model, depending on the solvent used.

LazWellHDE

HIGH DESORPTION EFFICIENCY

Based on the original LazWell™, this plate is used for samples containing a high ratio of solvents with low surface tensions (MTBE, EtAc, etc). The added coating reins in the solvents, which makes it possible to deposit a larger volume of **organic matrices** in each well.



LazWellDEC

DESORPTION ENHANCING COATING

Specifically designed to analyze molecules in clean matrices, the coating on this plate increases the desorption of **carboxylic acids** and **lipids**. Drug discovery has never been easier.

LazWellAD

ACID DESORPTION

Seal the deal with this screening tool. It can be used to desorb any and all molecules, whether acidic or basic, and is especially useful for analyses in loaded matrices. This is the perfect plate for **drug tests**.



Choose your LazWell™ based on your Luxon model :

Models	LazWell™	LazWellHDE	LazWellDEC	LazWellAD
Luxon SH-960 fits with	LazWell96	LazWell96-HDE	LazWell96-DEC	LazWell96-AD
Luxon SH-3840 fits with	LazWell384	LazWell384-HDE	LazWell384-DEC	LazWell384-AD
Luxon SH-HTS fits with	LazWell384 & LazWell1536	LazWell384-HDE & LazWell1536-HDE	LazWell384-DEC & LazWell1536-DEC	LazWell384-AD & LazWell1536-AD

Combine the Luxon Ion Source® with Shimadzu's Triple Quadrupole LCMS-8050 or LCMS-8060 Mass Spectrometers

The Luxon Ion Source® is fully integrated on Shimadzu 8050 and 8060 mass spectrometers and is THE ULTIMATE SOLUTION for ultra high-throughput in quantitative and qualitative analyses

Luxon Ion Source® is completely integrated on :

- **Triple Quadrupole LCMS-8050 and LCMS-8060 Mass Spectrometers:** Combine the speed of the Luxon Ion Source® with the sensitivity of Shimadzu Triple Quadrupole mass spectrometer and attain unmatched runtime without compromise for your lab automation.

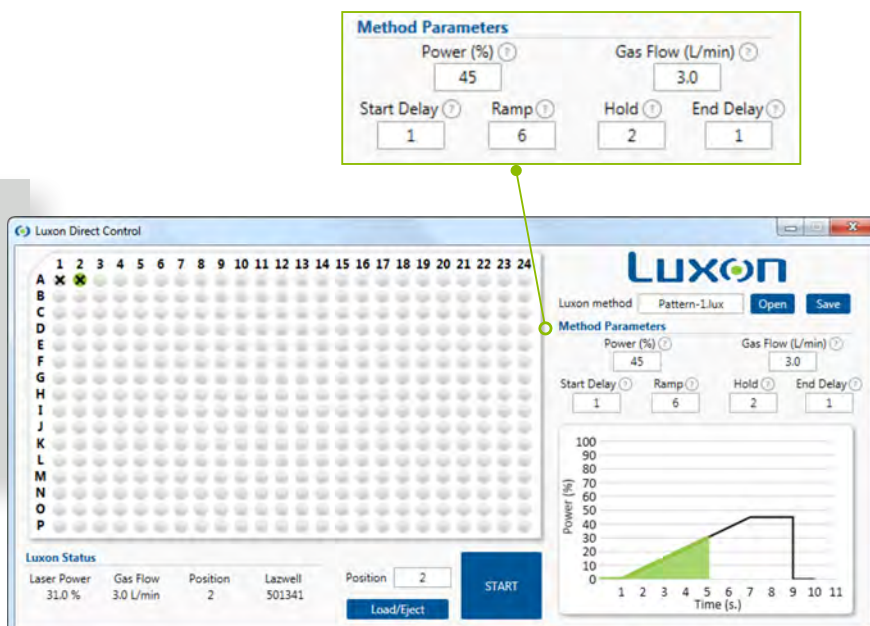
The **Triple Ion Source** system allows you to switch from LC to Luxon with a simple click of a button through the System Exchange module from Shimadzu.



LCMS-8060 System

LUXON DIRECT CONTROL SOFTWARE

Our Direct Control software offers a fast track for manual tuning while developing a method. Watch your peak take shape in real time!

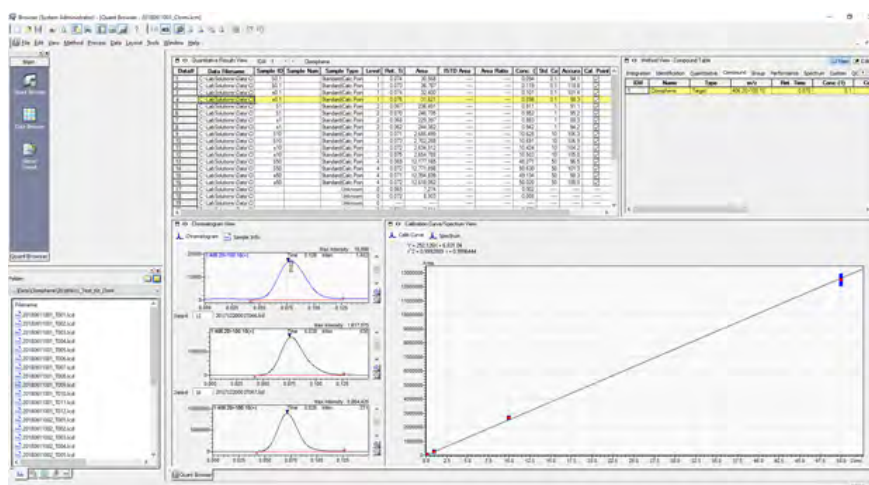


Complete integration within Shimadzu Software

Luxon Ion Source was not only designed to be compatible with MS hardware from Shimadzu, but also to be controlled by softwares created by Shimadzu through our Luxon driver.

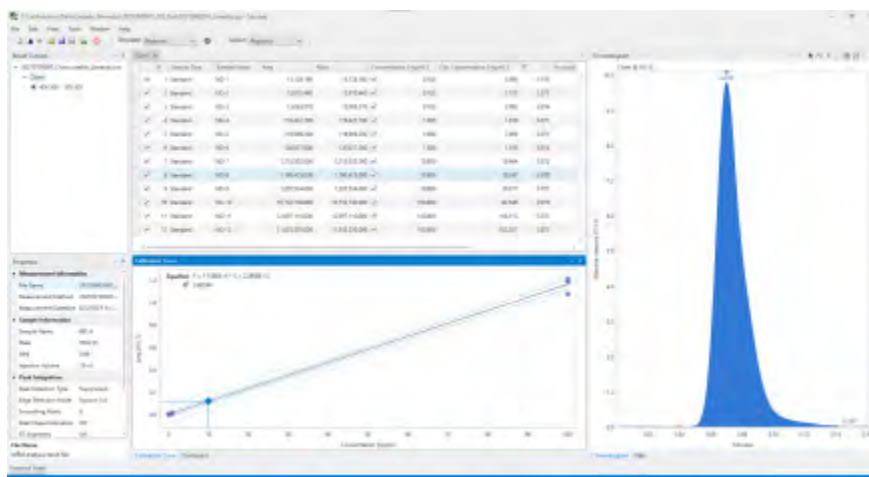
LabSolutions® Software

Shimadzu LabSolutions® Software is the single point of control for the Luxon Ion Source®. Your Luxon batch launches will be identical to your HPLC's.



Cascade for LDTD® Technology Software

The new Cascade for LDTD® Technology Software offers versatility to function at the highest speed possible with the Luxon Ion Source® by using a single run to process a whole LazWell™ plate.



Luxon Ion Source® can be used for various applications such as :

Pharmaceutical Applications

DRUG DISCOVERY AND DEVELOPMENT

The Luxon Ion Source® is a quantitative solution for **High-Throughput Screening** environments thanks to its sub-second runtime.

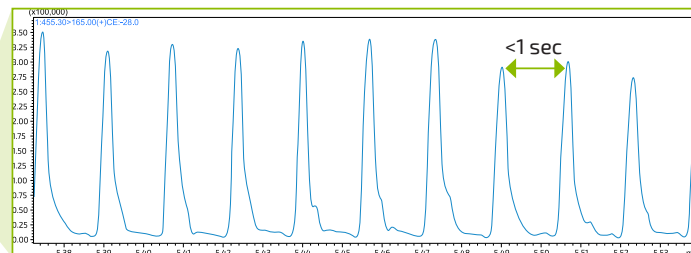
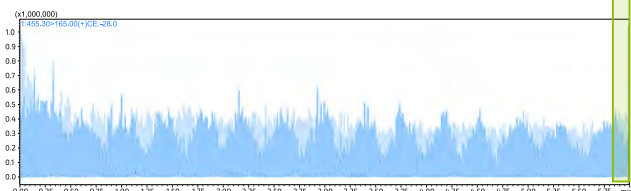
Perform both In Vitro and In Vivo assays such as :

- CYP Inhibition Assays
- Permeability Assays
- Microsomal and Plasma Stability
- Pharmacokinetic Studies (ADME Assays)
- Dried Blood Spot Analysis



This speed of readout would be suitable in an HTS environment that calls for <1 s/ sample. In addition, the low volume requirements for LDTD analysis offer the option of miniaturizing some assays, which was previously unattainable. Therefore, the described method can be adopted to execute HTS campaigns using a number of label-free assays: other ADME-Tox assays, enzyme assays, G protein-coupled receptor (GPCR) endpoints, biomarkers, phenotypic screening, and so on.

Haarhoff et al., Journal of Biomolecular Screening
2016, Vol. 21(2) 165–175



Food and Environment Applications

PESTICIDES – PHARMACEUTICALS – STEROIDAL HORMONES IN WASTE WATER –
TRACE ANALYSIS OF EXPLOSIVES IN SOIL – MORE...

The Luxon Ion Source® meets the industrial needs for quality control in terms of robustness, reproducibility and absence of carryover.

Analyze pathogens in complex matrices such as :

- Boar taint components in pork fat
- Neonicotinoids in honey or water
- Carbendazim in orange juice
- Antibiotics in meat
- Mycotoxins in animal feed



A rapid instrumental at-line method for simultaneous measurement of androstenone and skatole in back fat samples from entire male pigs has been developed. With an automated sample pre-treatment, it will be possible with a single LDTD-MS/MS system to keep up with a line speed of 360 male pig carcasses per hour and to run 16 hours per workday. Cost of operations is expected to be below 0.7€/carcass.

Borggaard et al., 63rd International Congress of Meat Science and Technology, 13th and 18th August 2017, Cork, Ireland

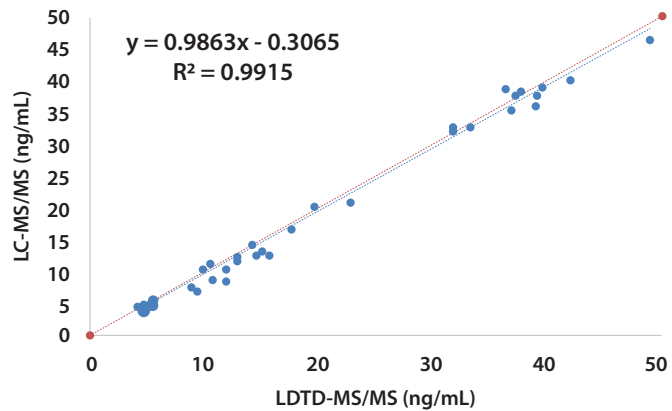
Clinical Applications

IMMUNOSUPPRESSANTS - ANTI-RETROVIRAL - THERAPEUTIC DRUGS - ETC.

The Luxon Ion Source® is a robust, rapid and precise solution with your Shimadzu mass spectrometer for clinical applications.

It is capable of completing the quantification of hundreds of samples, in less than 30 minutes, of a multitude of molecules in various matrices such as :

- Cholesterol in serum
- Cotinine in human plasma
- Biomarker creatinine in serum
- Immunosuppressant drugs
- Antiepileptic drugs in plasma



Forensic and Toxicology Applications

PAIN MANAGEMENT - DOPING - HAIR TESTING - NEWBORN TESTING - MORE...

The Luxon Ion Source® is a quantitative solution for forensic and toxicology laboratories thanks to its many features such as traceability, sub-second runtime and low-volumes required for analysis.



We have used the Phytronix LDTD source for several years and have reported out over a 1,000,000 combined tests on LDTD/MS-MS instruments, and of course have submitted many proficiency samples with never an error [...] it made a 16-hour run by LC decrease to a 15-minute run for 96 samples, and greatly decreased sample volumes required, so fewer QNS samples ...

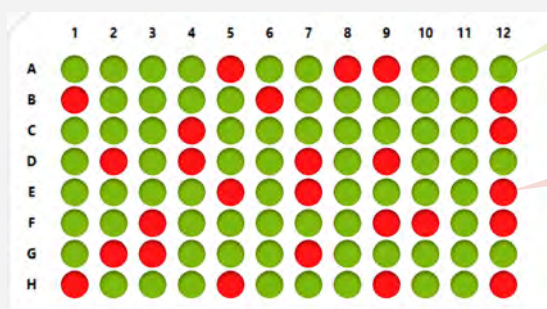
Director of Toxicology Lab

Perform quantitative analysis of over 120 compounds with Luxon Ion Source® such as :

- Cannabinoids (Natural and Synthetic)
- Street Drugs (Heroin, Cocaine etc.)
- Pain Management Drugs (Fentanyl, Oxycodone etc.)
- Antidepressant Drugs
- Hair Testing

FULL WORKFLOW SOLUTION FOR CLINICAL AND TOXICOLOGY APPLICATIONS

From Sample Prep to Go/No-Go Decision Making



Sample #1485245485
Concentration: 42 ng/mL
NEGATIVE

Sample #2496843187
Concentration: 189 ng/mL
POSITIVE, CONFIRMATION
REQUIRED



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