SHIMADZU
Excellence in science

MO363

MALDI Mass Spectrometer

MALDI-7090

UFMS
ULTRA FAST MASS SPECTROMETRY

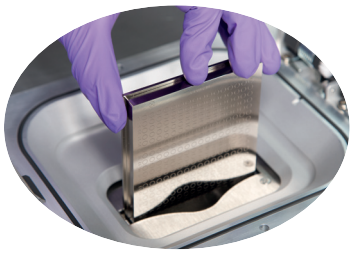
A New Dimension in MALDI TOF-TOF Design...

- Unparalleled MS/MS resolution
- High mass accuracy
- Ultra fast solid-state UV laser
- True 2 kHz acquisition speed in MS and MS/MS mode
- Integrated 10 plate loader
- Wide-bore ion optics
- Low- and high-energy fragmentation
- Unique UV laser source cleaning
- Multi-user software environment
- In-built security and auditing

...the MALDI-7090™

UFMS
ULTRA FAST MASS SPECTROMETRY
Speed Beyond Comparison

The MultiPlex™ platform has been designed as a multi-user *walk-up* system offering unparalleled versatility and efficiency



MultiPlex maximizes the efficient use of the MALDI-7090 through the combination of the integrated 10 plate loader, the 2 kHz ultra fast UV laser and the MALDI Solutions™ multi-user environment software.

MultiPlex enables both manual investigation and fully automated high-throughput analyses accommodating all types of experiments from single spot investigation to even the longest multi-plate LC-MALDI separations. Furthermore, it is also compatible with the FlexiMass-SR™ steel reusable and FlexiMass-DS™ disposable polymeric microscope slide format MALDI targets.

The MALDI-7090 is an ideal platform for individual laboratories and core facilities alike.

MultiPlex expertly manages the MALDI-7090 workflow. Experimental set-up, data processing and results review is now possible from any workstation linked to the instrument network thus creating a highly efficient and versatile multi-user interface. The realtime experiment queue within MultiPlex streamlines automated analyses such as LC-MALDI by assigning specific plate locations within the loader and monitoring progress of the submitted experiments. Plates can be loaded and unloaded from the 10 plate loader ready for analysis even while the instrument is running another experiment. The loader chamber also has the option of being held at standard atmosphere or vented to nitrogen to protect more sensitive samples.

Designed for maximum reliability, MultiPlex offers the ultimate flexibility in both high-throughput and multi-user environments.

A source design like no other

Wide-bore Optics

- Optimized focussing of the ion beam using increased diameter extraction optics
- Minimized risk of source contamination over time
- Reduced need for source cleaning and maintenance

Proprietary ultra fast laser

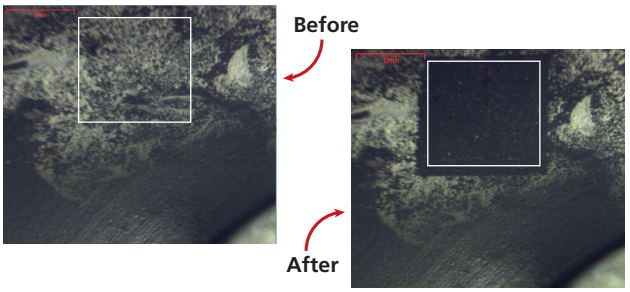
- 2 kHz ultra fast solid-state UV laser in MS and MS/MS mode
- 355 nm wavelength compatible with a variety of matrix compounds and samples
- Variable beam focus from 10 µm to >100 µm
- Reliable with long lifetime
- Innovative Shimadzu technology

HD Sample Viewing

- State-of-the-art high-definition viewing optics, with crystal clear image
- High quality image of the MALDI sample spot
- 10 µm resolution sample viewing
- Full HD colour picture (1080p) with long-life LED illumination
- Software-controlled variable focus, adapted to viewing different surfaces

TrueClean™

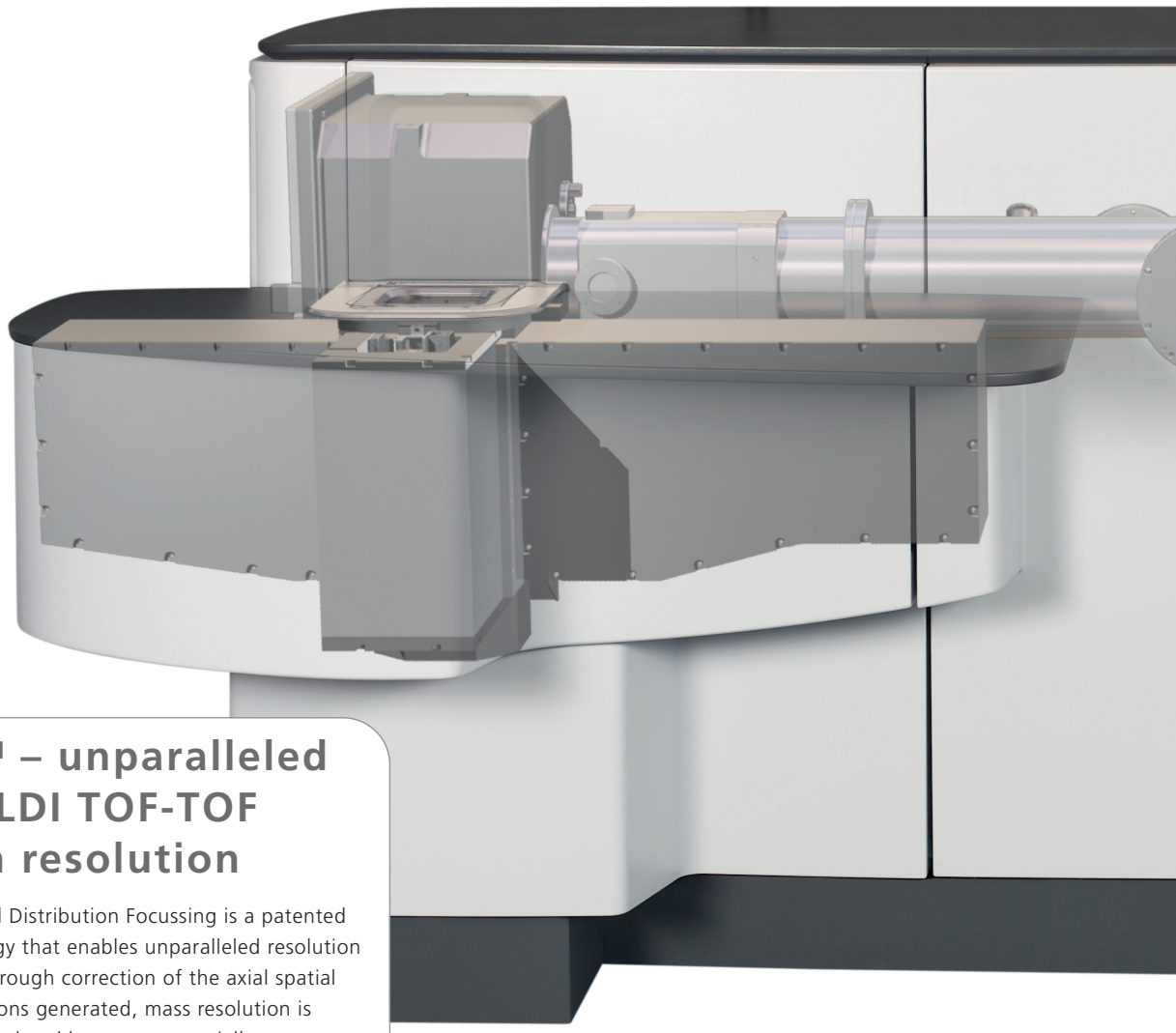
- Fully automated UV laser-based source cleaning
- Novel patented Shimadzu technology
- Software-driven scanning reflective source optics to direct the laser during source cleaning
- Highly efficient, rapid cleaning without the need for source removal or venting
- Planned source cleaning can be scheduled in a fully automated way



Example of a small area cleaned using TrueClean

Hyper-MS^{2}™ – a new stan

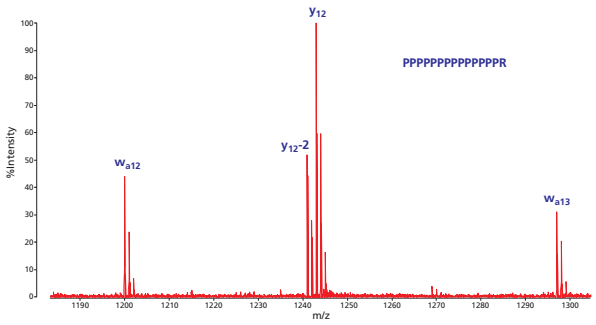
combining core technologies pat



ASDF™ – unparalleled MALDI TOF-TOF ion resolution

ASDF – Axial Spatial Distribution Focussing is a patented Shimadzu technology that enables unparalleled resolution in MS/MS mode. Through correction of the axial spatial distribution of the ions generated, mass resolution is significantly increased and becomes essentially independent of the laser power and sample topography.

With ASDF, the MALDI-7090 can achieve mass resolution in MS/MS of 10 000 FWHM – unobtainable through pulsed extraction alone.



High- and low-energy fragmentation

MS/MS fragmentation in the MALDI-7090 is true high-energy CID (HE-CID).

The ions enter the CID cell with full 20 keV extraction energy. Furthermore, collisions with helium rather than heavier gases (air or argon) result in the most efficient generation of ions only associated with HE-CID (e.g. side chain fragmentation).

MS/MS fragmentation is further enriched by retaining all of the metastable decay ions through the reflectron analyzer, maximizing the amount of information extracted from each sample.

All of these features provide the MALDI-7090 with the highest possible efficiency for metastable and high-energy CID generation and detection.

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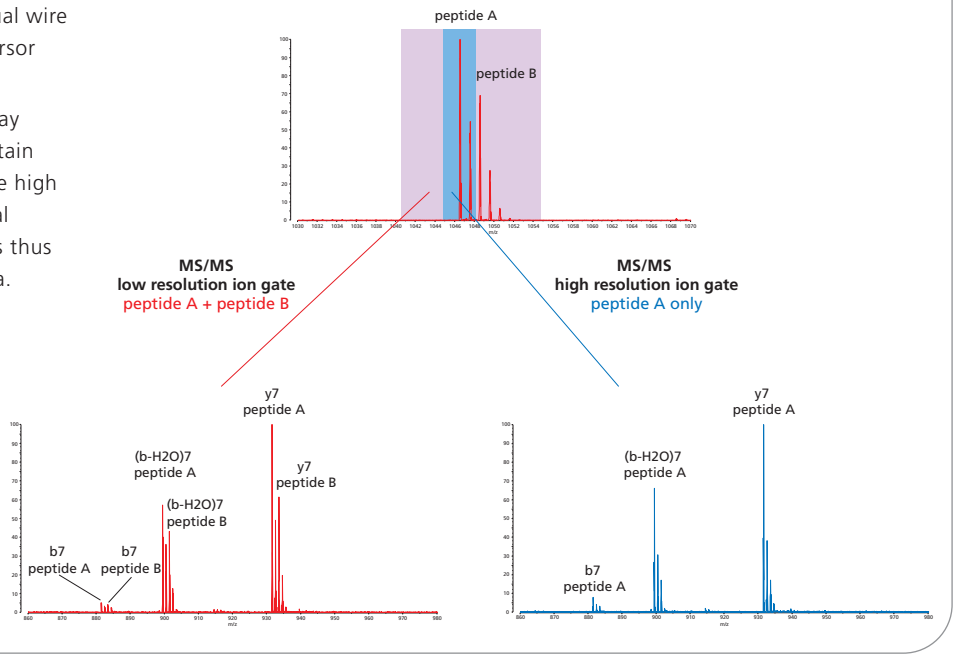
ented and exclusive to Shimadzu

High resolution ion gate

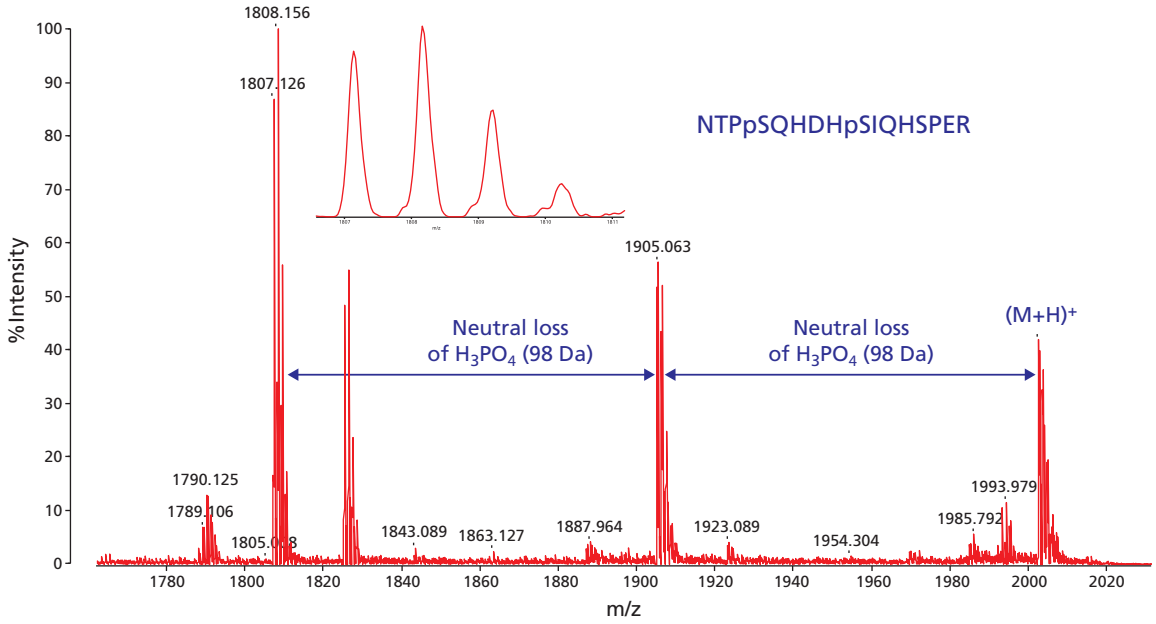
The MALDI-7090 is equipped with a dual wire Bradbury-Nielsen high resolution precursor ion gate.

Compounds of similar nominal mass may produce fragment ion spectra that contain ions from both precursors. However the high resolution ion gate allows the individual gating of species close in nominal mass thus producing distinct fragment ion spectra.

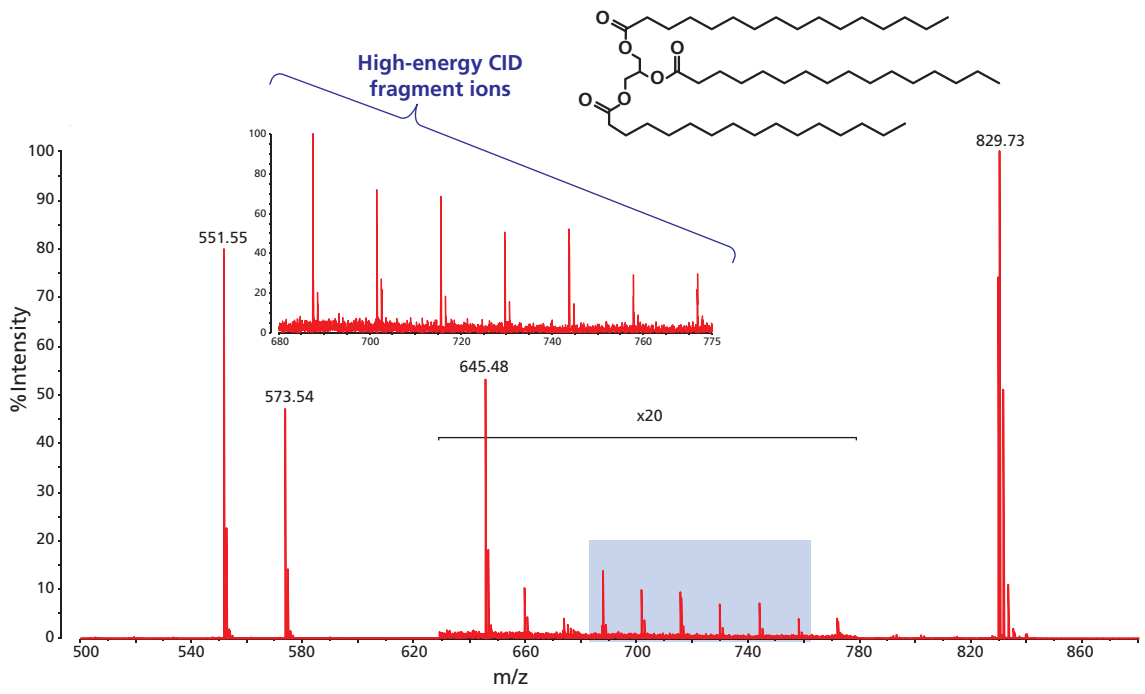


MALDI-7090 ultimate performance

Hyper-MS^2 – post-translational modification analysis

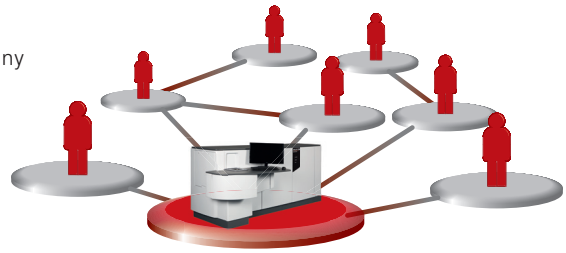


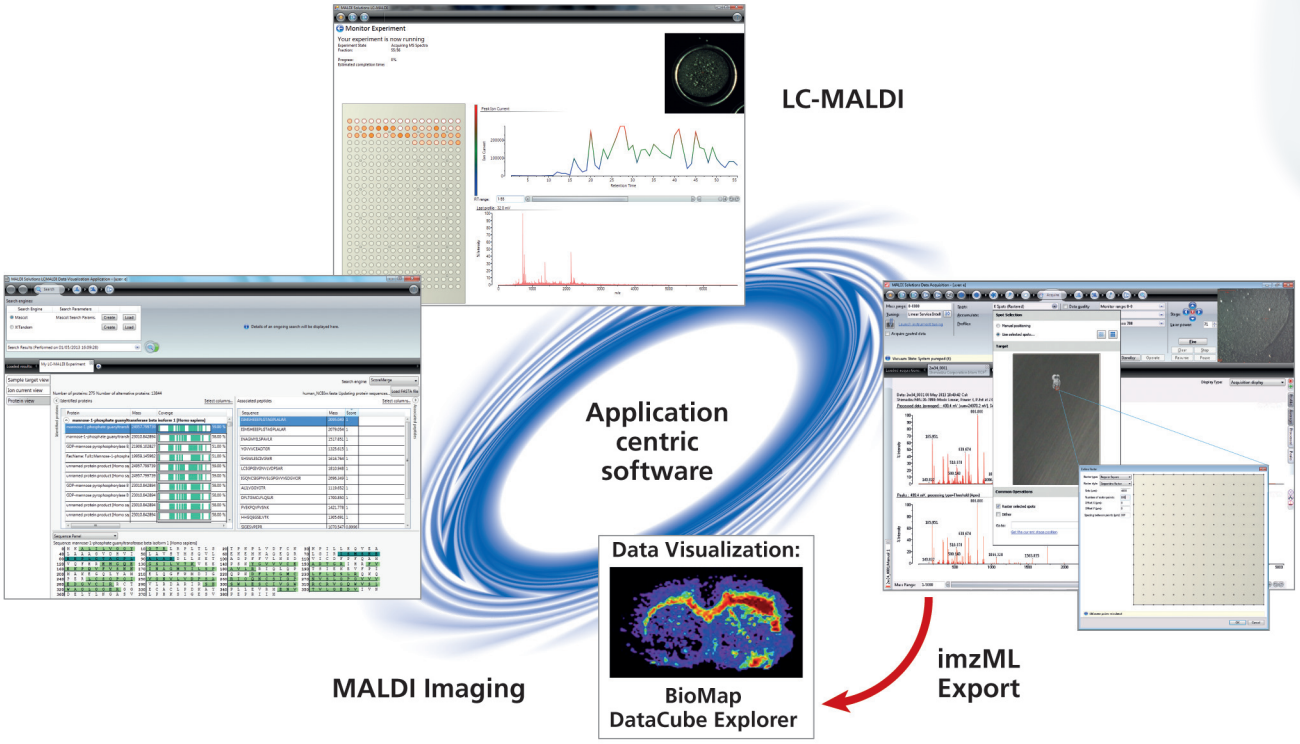
High-energy CID – lipid analysis

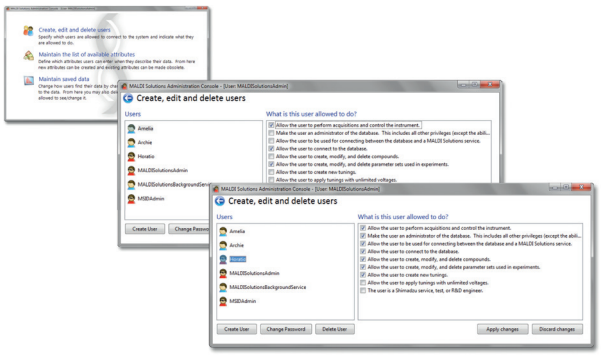


MALDI Solutions™ – a software suite delivering more for the multi-user environment

- Define, acquire and view experiments from the MALDI-7090
- Create experiments and review results using MALDI Solutions on any computer on the user network
- Collaborate and share results in completely new ways
- Full data export to industry standards – imzML, mzML
- Manual acquisition mode for full control of the instrument or full automation using the integrated 10 plate loader







- Administrator-definable user-specific roles from simple acquisition to full control with method development, acquisition and processing
- Centralized secure database for data storage (Microsoft® SQL server)
- User-specific access / restriction to experiments and results
- High level of security, essential in multi-user environments
- Full audit trail
- Provides the level of control required in regulatory environments
- Allows 21 CFR part 11 compliance

Coupling the MALDI-7090 with MALDI Solutions provides a stable, high-throughput multi-user environment which is ideally placed to meet the demands of today's modern high-tech laboratory

Founded in 1875, Shimadzu Corporation, a leader in the development of advanced technologies, has a distinguished history of innovation built on the foundation of contributing to society through science and technology. We maintain a global network of sales, service, technical support and applications centres on six continents, and have established long-term relationships with a host of highly trained distributors located in over 100 countries. For information about Shimadzu, and to contact your local office, please visit our web site at **www.shimadzu.com**

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