

Benchtop Linear High Mass MALDI-TOF Mass Spectrometer

OmegaTOF



OmegaTOF: A compact footprint without compromising on performance

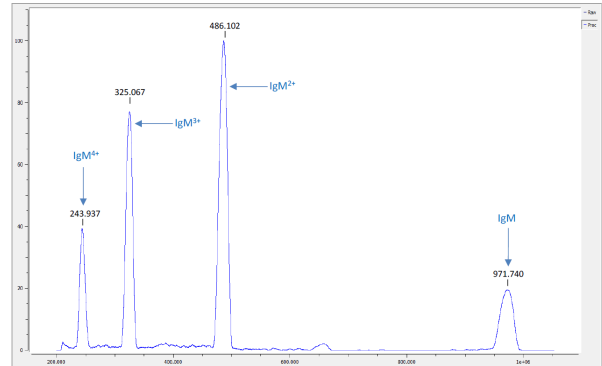
The OmegaTOF is the latest in a long line of MALDI-TOF products from Shimadzu. This is the first instrument to completely integrate the CovalX ultra-high-mass detection into the platform. Packaged in a benchtop, linear MALDI-TOF, the OmegaTOF features a compact footprint, making it an ideal choice for today's increasingly demanding biotherapeutic laboratories.

Key features:

- Linear mode (positive ion) MALDI-TOF
- Direct detection of molecules up to 1.5 MDa
- 200 Hz solid-state laser, 355 nm
- Load-lock chamber for fast sample introduction
- UV laser-based source cleaning (patented)
- Small footprint/benchtop design
- Quiet operation (<55 dB)



Linear mode instruments have traditionally been the instruments of choice in MALDI-TOF-based quality control (QC) and profiling workflows, and the OmegaTOF is no exception. Peptides, proteins, polymers or protein interactions - the instrument is capable of delivering the performance required for QC applications. Research laboratories will also benefit from the MS capabilities of the instrument through the rapid mass-measurement of samples.

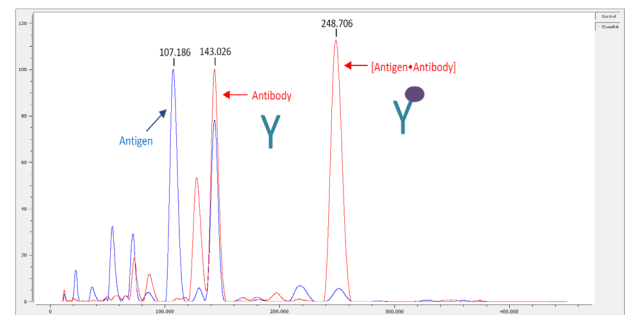


Example of 971kDa Immunoglobulin M monoclonal antibody demonstrating detection to the MegaDalton range.

Sample target solutions

Compatible with the FlexiMass™ series of microscope slide-format sample targets, these slides provide researchers with options depending on their experimental workflow.

The individually barcoded, single-use FlexiMass™-DS slides provide a convenient solution for more routine or defined workflows. Ready-to-use, these disposable targets eliminate the need for cleaning and the risk of carryover. Alternatively, the reusable stainless steel FlexiMass™-SR sample targets provide a cost-effective, longer-term solution to sample preparation.



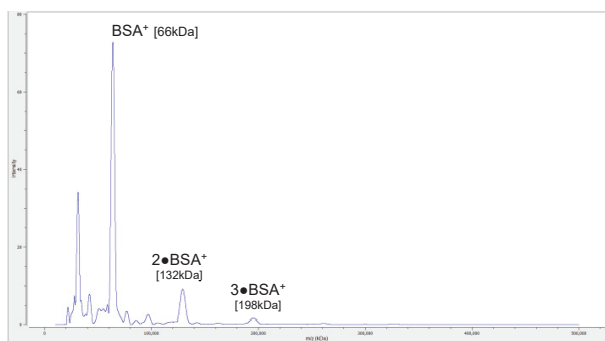
Antibody:Antigen interaction measured directly in the mass spectrometer using CovalX K200 stabilization chemistries. Example of a monoclonal antibody (143kDa, blue) binding to a 107kDa antigen to form a 248kDa complex (red).

High Mass MALDI Applications

The integrated CovalX detector allows for detection of intact molecules up to 1.5 MegaDalton. This allows the OmegaTOF to take advantage of many of the established CovalX MALDI applications for large molecules and protein interaction analysis.

The OmegaTOF can directly measure IgM molecules as from different formulation conditions; directly detecting pentameric vs hexameric species or total glycan content from an intact IgM molecule.

When coupled with the CovalX crosslinking chemistry, the OmegaTOF can also directly detect protein interactions such as antibody:antigen or other complex protein stoichiometries.



Multimer analysis: trimeric peak of BSA protein shown intact at 198kDa

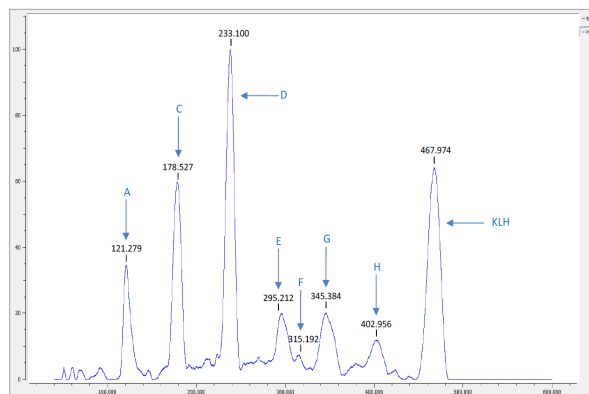
TrueClean™ automated source cleaning

To maintain instrument performance over time, the OmegaTOF features wide-bore ion optics – a feature used on our existing MALDI-TOF products – which minimize the risk of source contamination over time, providing a robust platform.

To maximize uptime, the system is equipped with TrueClean, an automated, rapid (<10 min) UV laser-based source cleaning which can be used to clean the extraction electrode in-situ without breaking instrument vacuum.

Facilitates 21 CFR Part 11 compliance

Operating under the control of MALDI Solutions™ software, the software features a centralized, secure Microsoft® SQL database which can be used to store everything from sample lists and acquisition Parameter Sets to acquired MALDI data. The system is managed by an Administrator and customizable user profiles provide control over access to the database and operation of the instrument. Along with a full audit trail, the software provides the tools to help achieve 21 CFR part 11 regulatory compliance.



Example shows the mass spectrum of the Keyhole Limpet Hemocyanin (KLH) protein. The singly- (approx. 467kDa), doubly- (approx. 238kDa) charged ions.

Quality as Standard

As mass spectrometry moves into clinical laboratories, the OmegaTOF is the perfect choice for researchers developing MALDI-based diagnostic methods.

Through the selection of components demonstrating improved longevity and performance, and by reducing the number of component parts, our engineers have created a reliable and robust platform capable of delivering outstanding performance in a small footprint.

The MALDI systems are maintained by trained service support engineers who form part of the Shimadzu global distribution and support network. Routine maintenance is simplified thanks to the instrument design, providing our engineers with easy access to commonly serviced parts.



The OmegaTOF is a Class 1 laser product.



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