

# Press Release

A-GB-06016

August 28, 2006

**High-energy MALDI CID MS/MS instrumentation delivers greater sensitivity, flexibility**

**Shimadzu Biotech enhances bio-research analyses with new AXIMA-TOF<sup>2</sup>**

Shimadzu Biotech introduced the AXIMA-TOF<sup>2</sup>™, its new high-performance MALDI TOF-TOF mass spectrometer. Representing the next generation in high-energy collision induced dissociation (CID) MS/MS instrumentation, the AXIMA-TOF<sup>2</sup> brings enhanced flexibility to Life Science laboratories, significantly extending the type of analyses they can provide. The device was introduced at the 54th American Society for Mass Spectrometry Conference in Seattle, USA.

With Shimadzu Biotech's intuitive software bundled as standard, the AXIMA-TOF<sup>2</sup> is ideal for use in open-access lab environments, delivering maximum results while requiring the minimum in user input. As a result, the system is equally robust and reliable whether employed by novices, or expert users, while the inclusion of industry standard XML data exporting allows it to integrate easily and seamlessly into any workflow.

Beyond its use in proteomics, the AXIMA-TOF<sup>2</sup> is equally adept at analyzing and processing polymers, oligonucleotides, SNPs,

metabolites, lipids, carbohydrates and small molecules. Using high-energy CID to augment fragmentation of analytes, Shimadzu Biotech's AXIMA-TOF<sup>2</sup> mass spectrometer maximizes its curved field reflectron technology to deliver MS/MS data without the need for post-acceleration.

“The AXIMA-TOF<sup>2</sup> high-energy CID is an invaluable system for a multitude of applications, ranging from protein identification to de novo sequencing,” noted Dr. Emmanuel Raptakis, product manager for Shimadzu Biotech. “In fact, analysis of a wide variety of compound classes, like lipids and carbohydrates, is already yielding invaluable structural information previously out of reach for lower energy MS/MS approaches.”

The novel ion gating technology employed in the AXIMA-TOF<sup>2</sup> affords industry-leading precursor ion isolation resolution, which allows the successful MS/MS analysis of the most challenging complex mixtures. The curved field reflectron technology, under license from Johns Hopkins University, Maryland, USA, has been updated to enhance the sensitivity and quality of high energy CID MS/MS. Ion scattering is minimized by utilizing a totally grid-less ion path and helium as the collision gas of choice.

The AXIMA-TOF<sup>2</sup> key benefits include:

- highest energy collisions (20 keV laboratory-frame collisions)
- outstanding sensitivity
- optimal precursor ion selection
- manual or fully automated operation for seamless analysis
- high-resolution MS data in reflectron mode for accurate peptide mass fingerprinting
- proteomics analysis capabilities

- LC-MALDI software for precise identification of off-line separated complex mixtures via automated MS/MS and integrated database searching.

The AXIMA-TOF<sup>2</sup> comes with multiple software features including:

- **Proteomics Suite** for single sample manual acquisition or fully automated data dependent peptide mass fingerprinting and MS/MS for protein identification with integrated Mascot® searching.
- **LC MALDI Integrated Package** provides total support for LC MALDI-based experiments with fully automated acquisition, including an intensity map of all sample spots across the target to assess the distribution of peptides and identify the position of the apex of chromatographic peaks, compilation of “candidate” list, automatic MS/MS and subsequent database searching.
- **Biomarker Recognition** identifies biomarker patterns and distribution compounds of interest in clinical samples. Data can be easily exported into alternative processing packages.
- **Functional Genomics** offers the user excellent linear mode performance that lends itself to alternative applications such as oligonucleotide and SNP analysis and QC processes.
- **QC Applications**, with Launchpad™ software, includes a module offering fully automated QC analysis of large numbers of samples, complete with a user-defined report indicating the presence or absence of the target compound, an estimate of purity and known contaminants, and adducts or truncated/extended analogues.



**Caption:** AXIMA-TOF<sup>2</sup>, Shimadzu Biotech's new high-performance MALDI TOF-TOF mass spectrometer offers outstanding sensitivity and optimal precursor ion selection.

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