

## autoflex maX

● Practical Power, Maximum Utility

# Wide application versatility with enhanced dynamic range



*The autoflex maX series is based on Bruker's robust and efficient MALDI-TOF MS technology and is engineered for effective and worry-free operation. Continuing Bruker's long tradition of designing instrumentation to meet the demands of today's analytical laboratories, the application flexibility of the autoflex maX series is strengthened by its improved dynamic range, providing a more complete picture of diverse molecular species across a broad mass range.*

## **Simplicity**

The autoflex maX series takes advantage of the straightforwardness of MALDI-TOF for LC-free mass spectrometry. The analytical needs of quality control and target characterization of biopharmaceuticals, glycans, and polymers can be readily addressed.

## **Speed**

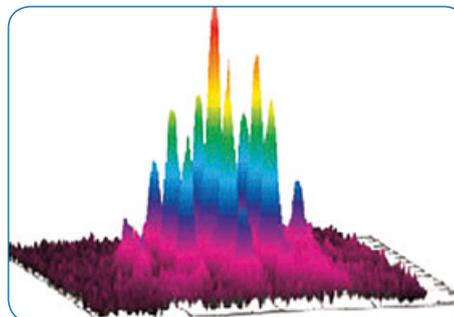
With a laser repetition rate up to 2 kHz, higher throughput workflows including product integrity screening or thin layer chromatography coupled to MALDI are rapidly executed, and molecular imaging studies – from tissue slices to plants and beyond – can be made within practical laboratory timeframes. The horizontal autoloader of the autoflex maX makes it well suited for robotic automation.

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# Straightforward Power, Proven Technology

## Quality data output, maX-imized from each target position

Bruker's proprietary smartbeam™ II solid state laser provides best-in-class ionization efficiency for a variety of MALDI matrices. The laser's low sample consumption promotes high spot capacity for complex samples in both MS and MS/MS modes, benefiting all applications.



*Structured energy profile of the SmartBeam II laser surpasses both the performance and lifetime of traditional MALDI lasers*

## Range, resolution, and sensitivity

Proprietary PAN™ technology provides solid resolving power (up to 26,000) over a broad mass range for confident results - from small peptides to intact antibodies and beyond.

The FlashDetector™ combined with new 10 bit digitizer provide low ppm mass accuracy and amol sensitivity, enabling high confidence results with an enhanced dynamic range.

## Easy instrument control, data analysis, and maintenance

Instrument operation is made easy via Bruker's Compass software suite, including flexControl for user-driven or unattended data acquisition and flexAnalysis for both automated and interactive data analysis. Intuitive software packages for biopharmaceuticals, glycans, and polymers support turn-key target characterization.

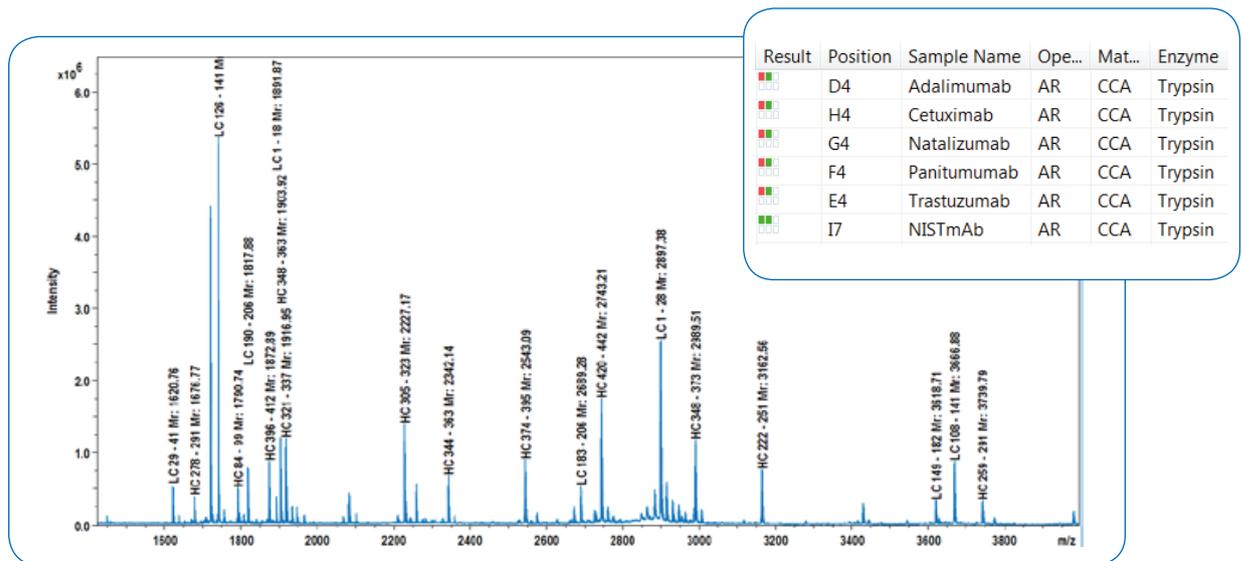
Push button, laser based self-cleaning of the ion source (Perpetual™ Ion Source) maximizes sensitivity and reproducibility with minimal (> 15 minutes) downtime.

# Rapid Biopharmaceutical Integrity Screening

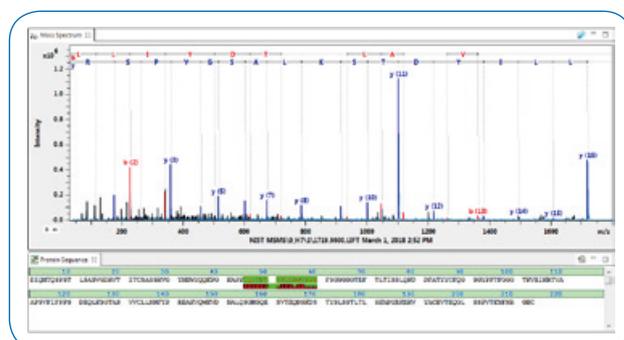
LC-free workflows reduce analysis time and expense

In biopharmaceutical development and production, LC free methods using the autoflex maX MALDI-TOF MS can quickly provide detailed analyses to support the necessary pace for critical product decisions from early development to final quality controls.

## Rapid ID confirmation of monoclonal antibodies



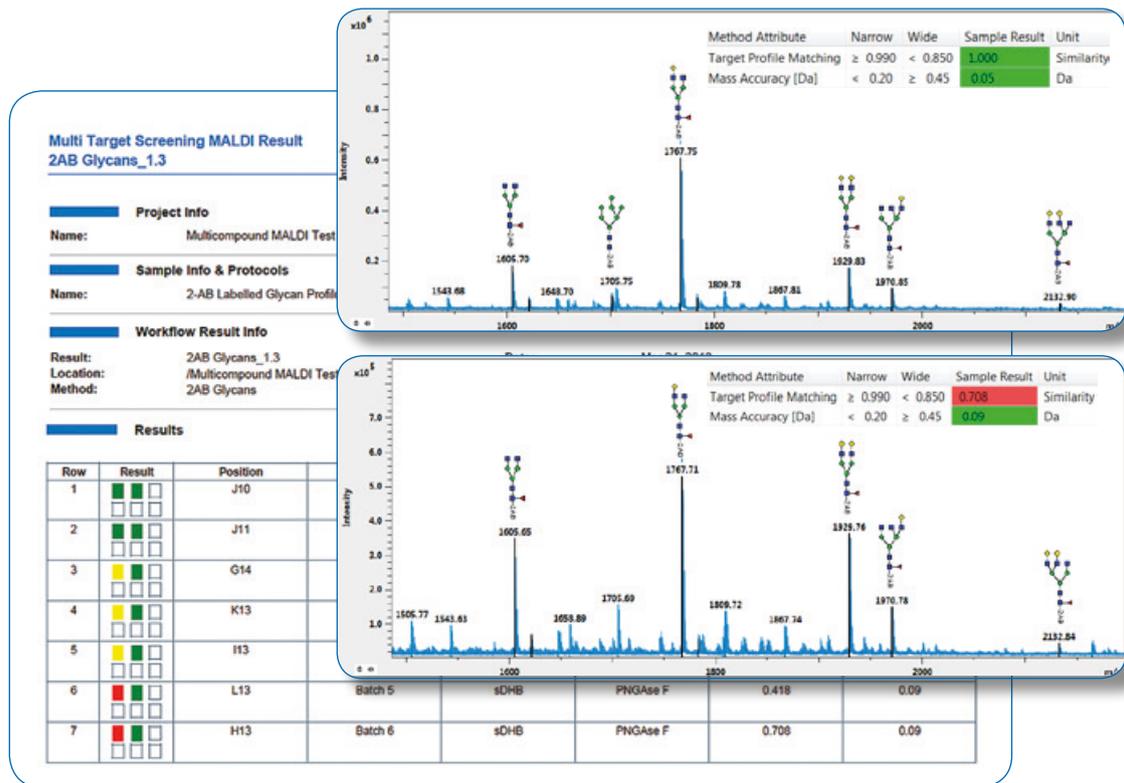
A simple and fast sample preparation protocol using MALDI-TOF based peptide mass fingerprinting (PMF) has been developed to achieve analysis return times from intact antibody sample to automatic identity confirmation on the autoflex maX within **15 minutes**. Biopharma Compass software provides a similarity scoring algorithm which allows for robust and reliable ID confirmation when matching the data against reference digest profiles.



The TOF/TOF option of autoflex maX allows for straightforward protein identification and sequence verification and adds additional specificity and confidence to the MALDI-TOF based rapid identify testing of mAbs.

## Fast LC-free profiling of released N-glycans

Reliable and rapid methods for antibody clone selection are of crucial importance in development and QC of biopharmaceuticals. With its enhanced dynamic range the autoflex maX is ideally suited for LC-free analyses of released mAb glycans. Dedicated software tools, including Bruker's Biopharma Compass, improve and accelerate analysis and reporting.



MALDI-MS profiles of PNGase F released mAb glycans were acquired within seconds and analyzed using Biopharma Compass software.

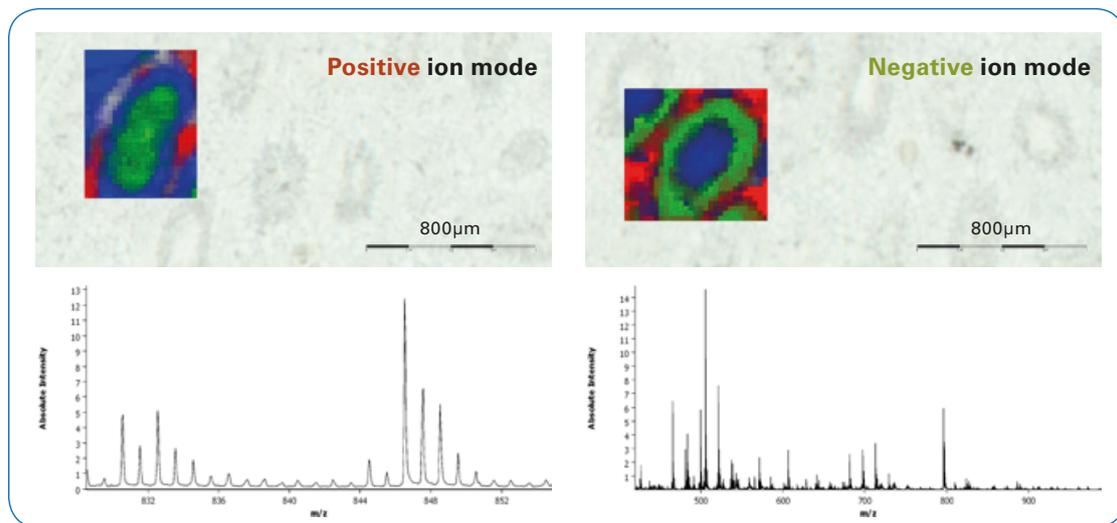
## The autoflex maX MALDI-TOF system enables

- Rapid profiling of released N-glycans for antibody clone selection
- Rapid identity testing of monoclonal antibodies (mAb) via peptide mass fingerprinting
- QC of various pharmaceutically relevant incoming goods, including polymeric materials (e.g. Tween) and other additives used in drug formulations

# Robust and Reliable MALDI Imaging

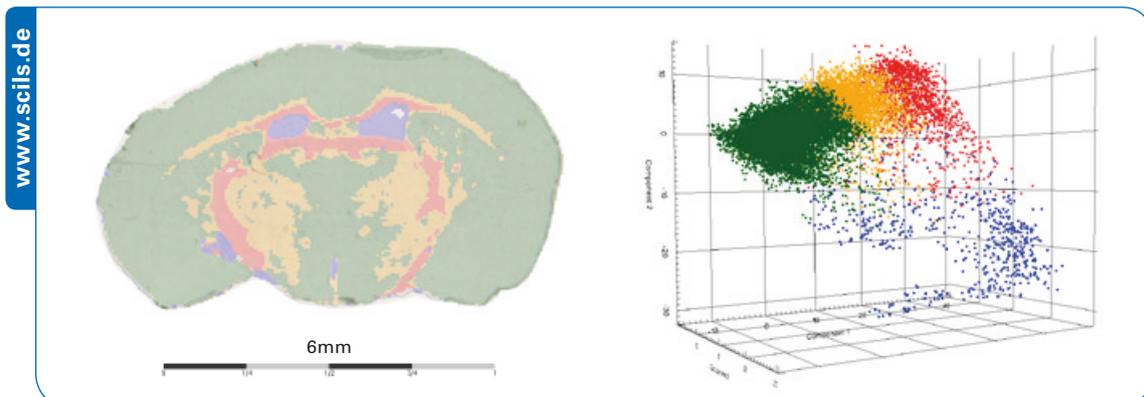
Versatility for targeted and discovery workflows

MS imaging (MSI) opens up new and highly unique ways to a deeper understanding of complex biological processes, and is one of the fastest evolving mass spectrometric methods today. The autoflex maX facilitates MALDI imaging with an enhanced dynamic range, covering a broad variety of compounds from small molecules (e.g. lipids) to intact proteins of 20-25 kDa. Bruker's market-leading SCiLS Lab software offers a comprehensive visualization and analysis toolbox to maximize the value of MS imaging data.



## Histology at molecular level:

MALDI ion images of select lipid species reflect the structure of seminiferous tubules as well as interstitial tissue in rat testis. To obtain a complete picture of the lipid distribution, data acquisition was performed on the autoflex maX in both positive and negative ion modes.



## Getting the most out of MALDI imaging data using SCiLS Lab software:

Multivariate statistical analysis by means of principal component analysis (PCA) separates individual mouse brain regions based on their distinct lipid profiles.

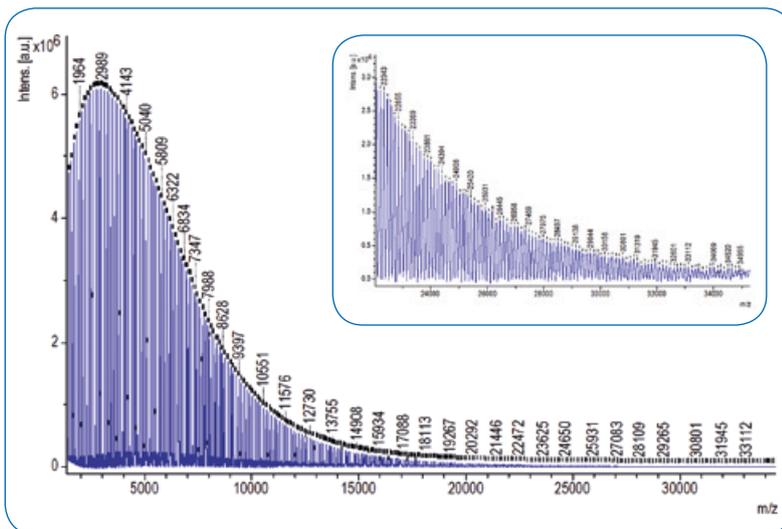
# Polymer Analysis

Modern life without synthetic polymers is unimaginable. MALDI-TOF mass spectrometry is a fast and easy method for polymer characterization in quality control and during material development, as well as for analysis of polymeric additives or impurities.

## Addressing the challenge of dispersity in polymer analysis:

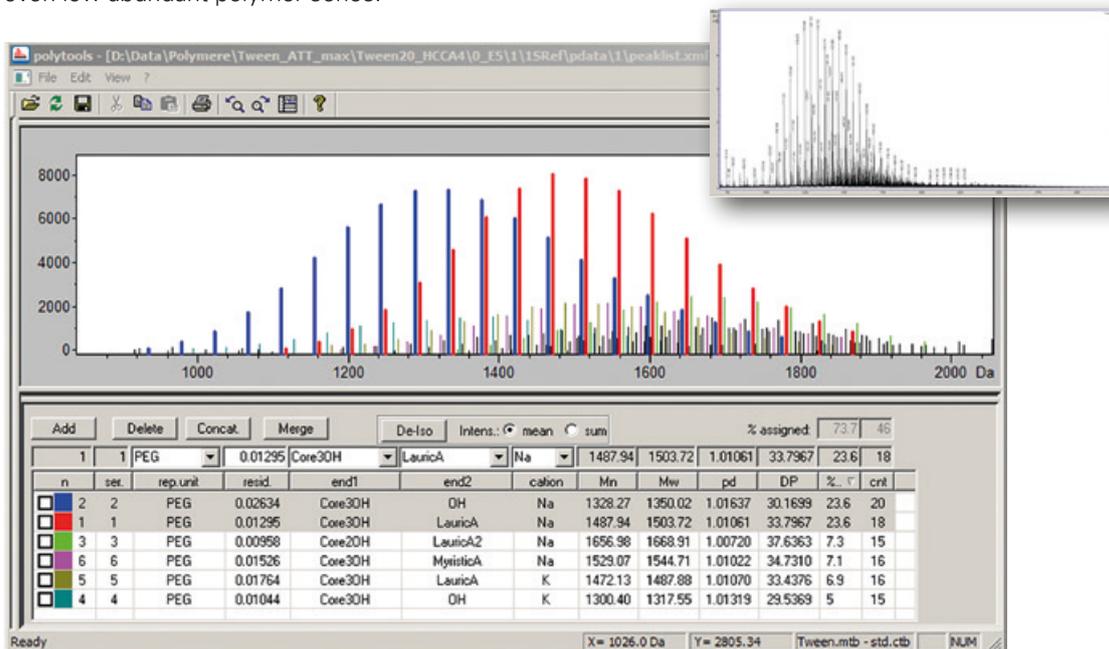
Due to its improved dynamic range of detection, the autoflex maX MALDI-TOF system, enables the analysis of polymer chain distributions, e.g., of polybutylacrylates\*, at greater depth.

*\*[A. Agirre, J. I. Santos, A. Etxebarria, V. Sauerland, J. R. Leiza, Polym. Chem., 2013, 4 (6), 2062 – 2079]*



## Analysis of polymeric additives made quick and easy:

The autoflex maX successfully resolved overlapping polymer distributions in a commercial Tween20 sample. Using PolyTools™ software allowed for time-efficient data analysis and reliable interpretation of even low abundant polymer series.



# One instrument, a myriad of capabilities

High value data - easily acquired, efficiently delivered

Bruker's autoflex maX MALDI-TOF and TOF/TOF systems offer practical power and maximum utility, and their improved dynamic range enables deeper analyses of diverse sample types across a broad mass range. The ability to quickly analyze samples in both positive and negative ionization modes supports application flexibility and provides an additional analytical dimension for all workflows, whether for the assessment of peptide, protein or polymer integrity in samples from solution or the evaluation of lipid profiles via TLC-MALDI directly on plate. With a laboratory-friendly footprint and the option to upgrade from TOF to TOF/TOF capabilities in the field, the autoflex maX offers true value and analytical versatility, and continues Bruker's legacy of providing innovative solutions for every laboratory.

- Molecular imaging
- Glycan profiling and characterization
- Peptide mass fingerprinting
- Polymer analysis
- Lipid analysis
- TLC-MALDI

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