BRUKER

Bruker Daltonics

microflex

- Performance for Screening Applications on the Bench

think forward

MALDI-TOF MS

Entry-Level to High-Performance Time-of-Flight Mass Spectrometry

Whether it is biomarker discovery, oligonucleotide analysis or even the innovative fast and reliable identification of microorganisms: The microflex™ is the perfect instrument to answer questions in clinical proteomics, functional genomics and microbiology.

The microflex is designed to be a compact and affordable benchtop MALDI-TOF system that is convenient for up-to-date life science laboratories.

Performance

Taking advantage from Bruker Daltonics' long expertise in the design of cutting-edge mass spectrometers, the unique design of the microScout™ ion source and the gridless reflectron give the microflex superior resolution, excellent mass accuracy and outstanding sensitivity – unequaled in this class.

Microorganism Identification

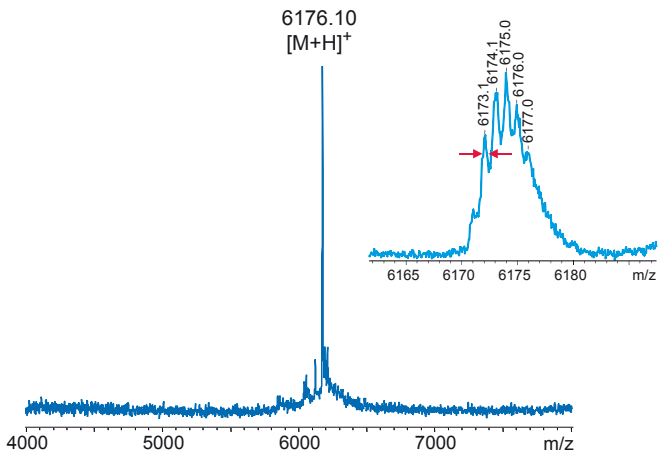
Strain-specific IDs in minutes

Disclose bacteria's identity by its own unique protein composition with the MALDI Biotyper. During microflex MALDI-TOF analysis, proteins and peptides are arranged in a spectrum with increasing mass – revealing a characteristic peak pattern, even for reliable differentiation of strains: The individual fingerprint.

Ease of operation

Single bacterial colonies or other biological material can be applied to a MALDI sample target after a simple sample preparation procedure and subsequently introduced to the microflex. Spectra acquisition is completed after a few minutes and data evaluation is directly linked to the measurement with MALDI Biotyper in a real-time analysis. This simple and exclusive workflow is adequate for most microorganisms, avoiding the need to perform gramstainings, oxidase-tests or to select primers for PCR. A constantly growing, ready-to-use reference library guarantees reliable ID of bacteria, yeasts and fungi.

Oligonucleotide QC

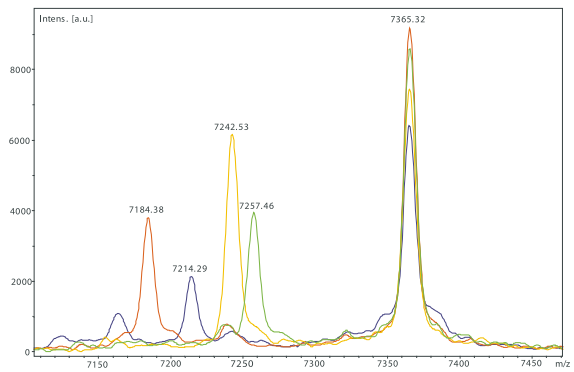


Quality control of a synthetic 20-mer olignucleotide, 5'-CAA TCT GGG TGA CAG AGC AA-3' on the microflex (matrix: 3-hydroxypicolinic acid): The MS of the oligonucleotide reveals its exact monoisotopic mass.

QC of Oligonucleotides and SNP genotyping

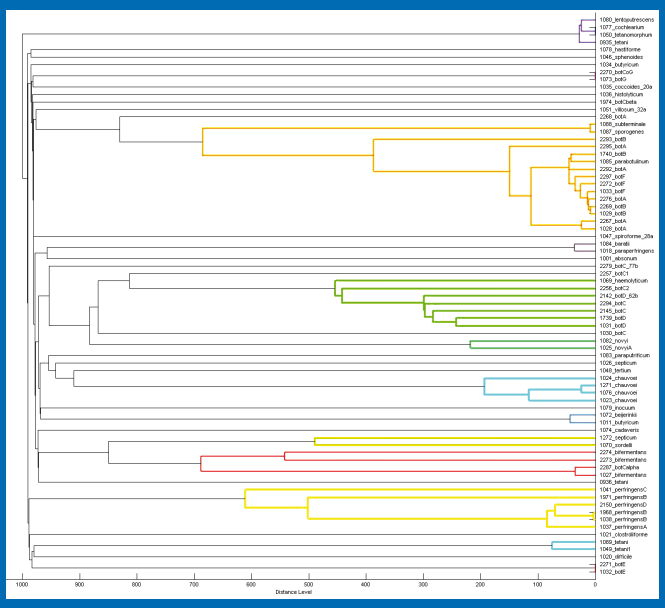
As part of the GENOLINK™ package, the microflex is the ideal tool for routine analysis of oligonucleotides for genotyping projects and quality control of oligonucleotide synthesis. The GENOLINK platform is dedicated to semi-automated SNP genotyping, providing highly reliable results via direct, label-free MALDI-TOF mass spectrometry and data interpretation.

Microorganism fingerprinting



Fast and reliable identification of various bacterial strain with MALDI-TOF mass spectra profiling using MALDI Biotyper, identified by their individual peptide molecular profile.

Dendrogram generation



Clostridia dendrogram created with MALDI Biotyper; finest differences between strains can readily be evaluated. Data were generated in cooperation with Prof. Krüger and Dr. Grosse-Herrenthey, Institute of Bakteriology and Mycology, University of Leipzig, Germany.

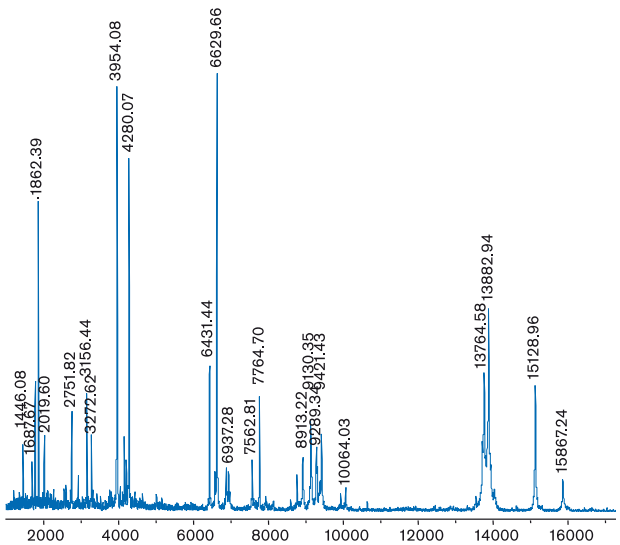
Biomarker Analysis

Proteome profiling

microflex supports the discovery of biomarker patterns and the identification of individual biomarkers in clinical proteomics applications. Superior system performance enables detection of biomarkers throughout the typical mass range for peptides and proteins.

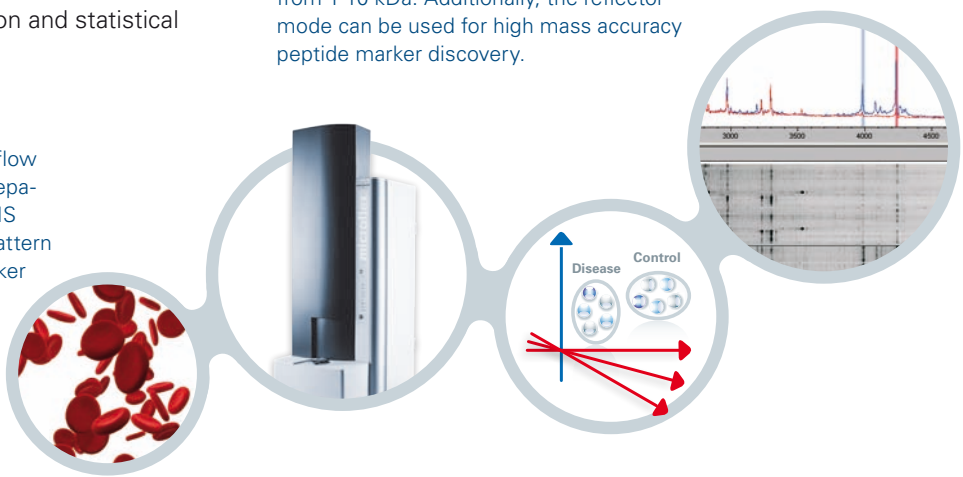
A complete solution for Clinical Proteomics microflex is integrated into the CLINPROT™ suite for peptide and protein biomarker discovery, providing automated magnetic bead based sample preparation and software tools for data analysis, visualization and statistical model building.

Biomarker profiling



Serum profiles can be observed in linear mode exceeding the typical marker range from 1-10 kDa. Additionally, the reflector mode can be used for high mass accuracy peptide marker discovery.

The CLINPROT workflow comprises sample preparation, MALDI-TOF MS analysis, biomarker pattern detection and biomarker identification.



CLINPROTmicro

The CLINPROTmicro™ is an affordable, easy-to-use and compact clinical system dedicated to peptide and protein profiling, biomarker discovery and biomarker validation. It is based on the microflex MALDI-TOF mass spectrometer, providing excellent biomarker detection sensitivity and resolution, as well as the reliability and reproducibility needed for rigorous validation studies of putative biomarkers for cancer and other diseases.

The research package

The package is ideal for cancer research and other clinical and diagnostics research laboratories engaged in biomarker discovery across a range of samples.

The CLINPROTmicro solution consists of:

Unique CLINPROT magnetic bead kits for facile, scaleable and highly reproducible sample preparation.

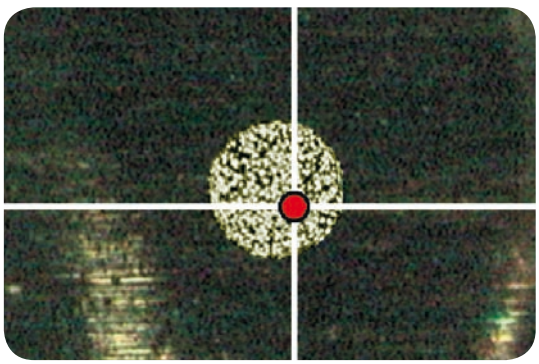
Robust and easy-to-use MALDI-TOF system.

Integrated Compass™ software for intuitive operation by expert and non-expert users alike.

Patented AnchorChip™ MALDI target technology for fast automated acquisition and a 10–100 fold sensitivity increase.

ClinProTools bioinformatics system for smart visualization of large numbers of profiles, the creation of predictive models, the validation of models via cluster analysis, and the classification of unknown samples - addressing all the major functions in biomarker pattern profiling and validation.

Enabling Design

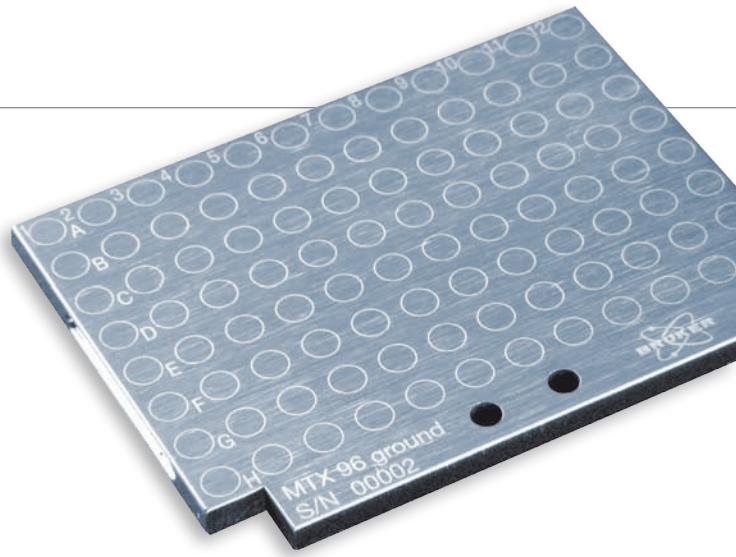


Fast acquisition and superior sensitivity due to AnchorChip technology.

AnchorChip technology

The MALDI (matrix-assisited laser desorption/ionization) process is a vital step for reliable analysis. The patented AnchorChip™ technology accompanies the superior instrument design being the ideal sample carrier to provide homogeneous, exactly-positioned samples for robust and rapid automated data collection, as well as a sensitivity boost by up to two orders of magnitude.

Integrated software packages for clinical proteomics research.



microScout MALDI targets in 1/4 microtiter plate size.

Design

The modular design of the instrument offers several configurations to match a variety of application needs. Anytime, the system can be upgraded easily to meet new analytical challenges.

Intuitive instrument control

The microflex operates within our integrated Compass™ software environment which is used throughout our entire MS product line. All necessary functions from automated acquisition to in-depth analysis via highly sophisticated bioinformatics software are provided. Compass offers a seamless link with the most comprehensive bioinformatics tools in the industry.

Armed with these unique attributes, the microflex is ready for no-compromise molecular analytics and research in today's life science world.

Comprehensive support

Bruker Daltonics' comprehensive service concept includes instrument features like automated self-diagnosis routines and remote service capabilities for online support.

Technical Specifications

MALDI source

- microScout Ion Source with state-of-the-art pulsed ion extraction
- Target area exactly ¼ of industry standard microtiter plates
- Various 96-spot target types available for specific applications
- Compatible with Bruker Daltonics' sample preparation robotics
- Nitrogen laser with variable repetition rate
- Patented AnchorChip MALDI target technology for fast automation, increased sequence coverage and 10–100 fold sensitivity increase over stainless steel target holder

Compass software suite

- flexControl™ module for quick and easy instrument control
- Fuzzy-logic based AutoXecute™ engine for on-the-fly optimization of spectral quality
- flexAnalysis™ module for automated and interactive data analysis, including integration with bioinformatics tools such as MALDI Biotyper, BioTools™, ProteinScape™, ClinProTools™, GenoTools™, and search engines
- Optional Compass Security Pack for work in regulated environments (21CFR part 11 compliance)

TOF analyzer

- High resolution reflectron configuration (microflex) or linear only version (microflex LT)
- Optional MS/MS capability with autoPSD (automated post-source decay) including pre-cursor ion selection device (microflex only)
- Modular design allows for future upgrades
- No maintenance oil-free vacuum technology
- WhisperMode™ erases noise pollution in the lab

Service features

- Remote on-line service capability
- Extended self diagnostics
- Supplementary IQ/OQ/PV procedures available

Integration

- microflex is integrated with Bruker Daltonics system solutions such as MALDI Biotyper, CLINPROTmicro and GENOLINK

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