Shaping Tomorrow's Microbiology Solutions

The MALDI Biotyper® System

Microbial identification with unequaled accuracy and flexibility

Innovation with Integrity

RUO

Accuracy, ease of use, speed and flexibility

At your fingertips

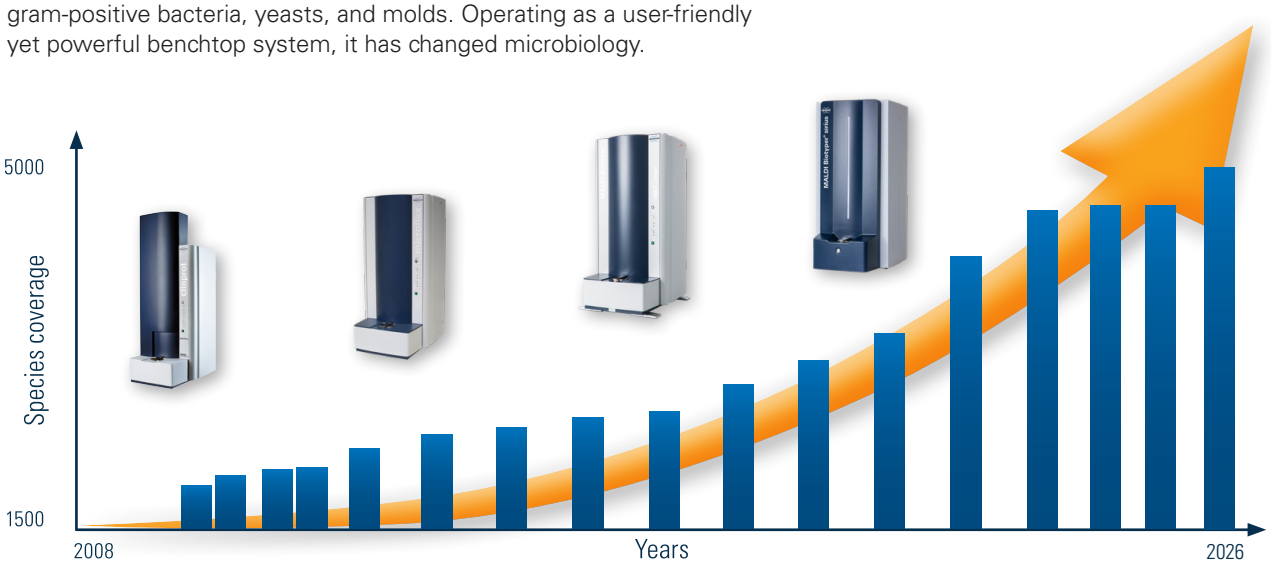
The MALDI Biotyper story: a journey of innovation leading to a paradigm shift

Over two decades ago, it all started with a visionary dream - one with the audacious goal of revolutionizing the microbiology landscape. This dream ignited a journey of relentless innovation, pushing boundaries and reimagining the possibilities within reach. At the core of this transformative quest lies the MALDI Biotyper.

Bruker leveraged its extensive experience to bring forth the groundbreaking MALDI Biotyper System. This revolutionary technology stands as a testament to our commitment to pushing the limits of what's achievable. The MALDI Biotyper empowers research laboratories globally, offering a seamless, reliable, and expeditious microbial identification solution for a diverse array of gram-negative and gram-positive bacteria, yeasts, and molds. Operating as a user-friendly yet powerful benchtop system, it has changed microbiology.

Accurate fingerprint matching to identify the unknown

The MALDI Biotyper operates based on Matrix-Assisted Laser Desorption/Ionization Time-of-Flight (MALDI-TOF) mass spectrometry. The principle involves creating a proteomic fingerprint spectrum of the unknown microorganism. The unique pattern of this fingerprint is then matched to reference spectra of thousands of microorganisms, stored in the heart of the system, the reference library.



The original
Often imitated, never duplicated

Unequaled speed for fast and actionable results

- Analyze 95 isolates + 1 QC sample in ~5 minutes
- Get instant results at a glance, no need to wait for the end of the run
- Enhance your throughput to up to 600 samples/hour

Unmatched efficiency with a large reference library coverage

- Identify more than 5,300 gram-positive and gram-negative bacteria, yeast and filamentous fungi species/species groups
- Analyze filamentous fungi directly from agar with the easy MyT method and a dedicated library
- Enable high-confidence mycobacteria identification with a dedicated library and workflow including safe sample handling
- Increase the identification power with our regular updates of reference libraries to meet expanding needs
- Create your own library entries for special in-house analysis projects

The right fit for your research lab

- Benefit from low training efforts, with a user-friendly software-guided workflow
- Avoid implementation challenges with an easy-to-deploy benchtop system
- Focus on results while relying on the hands-free IDealTune™ autotuning feature - no extra cost, effort or user intervention required
- Minimize maintenance with the integrated source cleaning, activated with a few mouse clicks
- Flexibility and freedom to create own measurement and post-processing protocols

Workflow solutions

- Streamline your workflow with the MBT FAST™ Shuttle and MBT Pilot® System

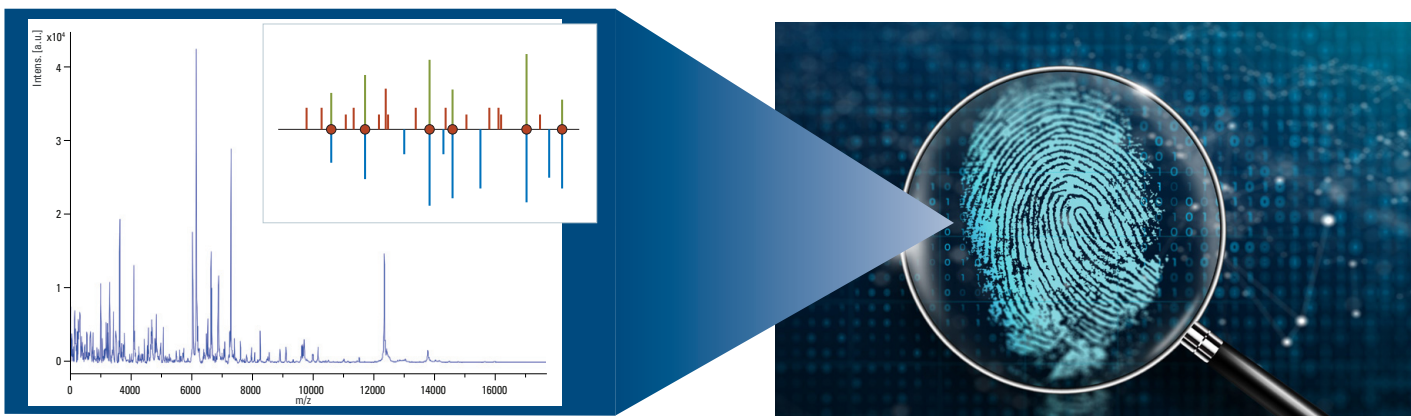
The beating heart of the system

Accurate fingerprint matching providing identification results you need to "stay ahead of the game"

- Identification is based on matching the unique proteomic fingerprint spectrum of the unknown microorganism to a huge collection of reference spectra
- Our continuously evolving library that keeps pace with emerging microorganisms helps you to stay ahead
- We listen to and empower our customers with regular updates of relevant organisms into our powerful "fingerprint" library

A reference library covering thousands of bacteria and yeast

- Access a library covering thousands of gram-positive/negative bacteria and yeast
- Each reference library entry is based on multiple measurements of a single defined strain, safeguarding true biological variability
- This library structure and powerful algorithms simplify expansion and validation of the library



A mighty solution for molds

- The MBT HT Filamentous Fungi Module includes a dedicated reference spectrum library, facilitating the identification of hundreds of filamentous fungi species/species groups
- The easy yet powerful Mycelium Transfer (MyT) sample preparation procedure enables a high identification success rate
- The workflow cleverly uses the surface structure of the MBT Biotarget 96 to break the rigid cells walls, contributing to accurate identification

High confidence mycobacteria identification

- A dedicated MBT Mycobacteria Kit enables a safe and standardized sample preparation workflow for *Mycobacterium* spp. cultivated in liquid as well as on solid media
- Combined with the kit, the MBT HT Mycobacteria Module provides a comprehensive solution covering the majority of the currently known mycobacteria species

Find hidden secrets in the fingerprint spectra

The MBT HT Subtyping Module empowers the automated differentiation of some species that are typically hard to distinguish. Identifying decisive peaks in the high-quality spectra or employing an advanced algorithm enables differentiation of:

- *Mycobacterium chimaera* from *Mycobacterium intracellulare*
- *Listeria monocytogenes*
- *Elizabethkingia species*
- *Streptococcus pneumoniae*, *S. mitis_oralis* and *S. pseudopneumoniae*

Create custom libraries

Laboratories that need to create their own libraries can make use of the optional MBT HT Library Creator Module to easily compile customized reference library entries.

Easy workflow: simplicity meets speed

Bacteria, yeast or mold: an easy workflow for all

- Efficient and user-friendly
- Fully traceable streamlined workflow with a few simple steps
- Typically starting from an isolated single colony from a culture plate
- Minimal hands-on time per isolate (only 20 seconds for most microorganisms)

Dedicated microbiology software

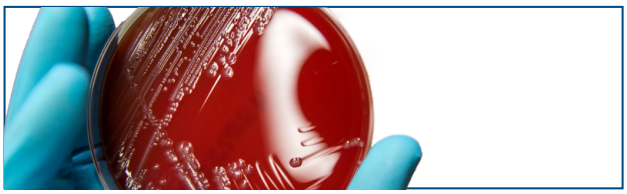
- Software-guided workflows provided by the MBT Compass HT software deliver clear and fast results
- Rapid analysis of 95 isolates and 1 QC sample yields a complete identification report in ~5 minutes
- Identification results presented in an easy-to-interpret 'traffic light' color scheme
- Instant result display on the screen, no need even to wait for the final report

Faster than ever

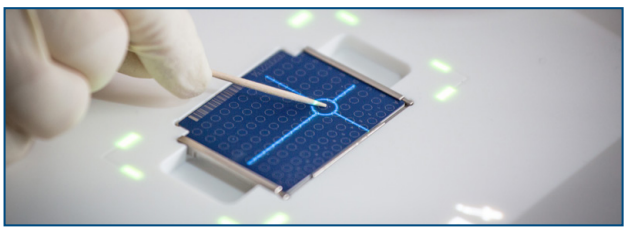
Sample preparation hands-on time:
- 1 isolate ~20 seconds
- 95 isolates < 20 min

System analysis time to ID result:
- 95 isolates + 1 QC sample ~ 5 min

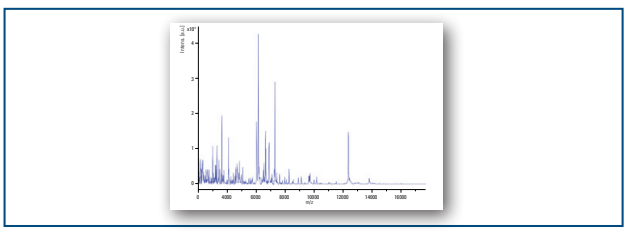
Add target plate to a MALDI Biotyper project list



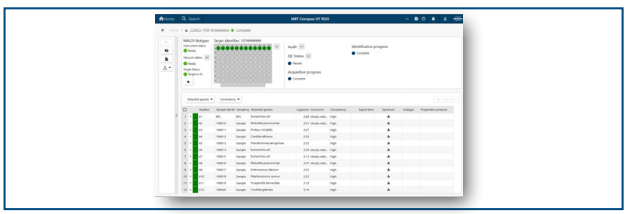
Select an isolated colony



Transfer sample onto the target plate and add matrix



MALDI-TOF spectrum automatically generated by the software



Spectrum instantly matched against the reference library to give identification

Range	Interpretation
2.00 - 3.00	High Confidence Identification
1.70 - 1.99	Low Confidence Identification
0.00 - 1.69	No Organism Identification Possible

Easy result reporting with "traffic light" color scheme

Hands-on time:
1 isolate ~20 seconds, 95 isolates + 1 QC sample < 20 min

95 isolates + 1 QC sample ~5 min

In need for antibiotic resistance detection?

Make the difference with your deeper analysis

Besides being the gold standard for microbial identification, the MALDI Biotyper can easily go beyond this application and answer other microbiological questions.

By deeper analysis of the spectrum of an identified microorganism, or by dedicated assays, the MALDI Biotyper offers:

- An effortless early resistance warning
- Fast phenotypic detection of carbapenemase and cephalosporinase activity
- Enhanced lipid analysis for colistin resistance detection

An effortless screening and early resistance warning tool

Whenever the MALDI Biotyper identification workflow results in successful identification of certain *Enterobacteriaceae*, the optional MBT HT Subtyping Module automatically looks for specific resistance marker peaks in the identified mass spectrum. As a result, the MBT HT Subtyping Module quickly detects bla_{KPC} expression in *Citrobacter freundii*, *Enterobacter aerogenes*, *Enterobacter asburiae*, *Enterobacter cloacae*, *Enterobacter kobei*, *Enterobacter ludwigii*, *Escherichia coli*, *Klebsiella aerogenes*, *Klebsiella oxytoca*, *Klebsiella pneumoniae*, *Klebsiella variicola* and *Serratia marcescens*.

After successful identification of *Bacteroides fragilis*, the optional MBT HT Subtyping Module automatically distinguishes *cfiA* positive/negative *B. fragilis* strains.

Both automated workflows provide additional resistance information without any additional work or cost.

Fast phenotypic detection of carbapenemase and cephalosporinase activity

The fast and easy to use MBT STAR-Carba and MBT STAR-Cepha Kits enable rapid detection of carbapenemase and cephalosporinase activity, respectively. Starting from a culture plate, ß-lactamase producing bacteria are detected quickly. The use of both kits is supported by the optional MBT HT STAR-BL Module.

Enhanced lipid analysis and colistin resistance detection

Traditionally, lipid analysis with MALDI-TOF is performed in the negative ion mode, a capability which is seamlessly integrated into the MALDI Biotyper sirius System.

Thanks to the efficient lipid extraction protocol provided by the MBT Lipid Xtract™ Kit, exploring lipid analysis is now more accessible than ever. Detecting Lipid A modifications and gaining insights into colistin resistance has never been easier. The MALDI Biotyper sirius System, equipped with the optional MBT HT LipidART software module, simplifies this process, making it both straightforward and informative.

MBT Compass HT Software Products

Part No.	Module
1890605	MBT Compass HT
1889527	MBT HT Subtyping Module
1889530	MBT HT Mycobacteria Module
1889531	MBT HT Filamentous Fungi Module
1889534	MBT HT STAR®-BL Module
1889444	MBT HT LipidART Module
1916321	MBT HT Library Creator
1889528	MBT HT Sepsityper Module

The magic behind hassle-free operation

Years of experience condensed in a benchtop system

The high performance and tailored design of the MALDI Biotyper are rooted in over 30 years of Bruker's in-house MALDI-TOF experience, applied to filling a gap in microbial analysis.
Crafting a state-of-the-art and groundbreaking system demands extensive expertise and a commitment to innovation. Unlike merely copying existing systems, the development of the MALDI Biotyper reflects a dedication to pioneering advancements in technology, ensuring that it stands as a must-have in the field of microbiology.
Explore the magic behind the system's speed, resolution and performance.

Unequaled Time-to-Result

With Smart Spectra Acquisition™, data generation is accelerated by minimizing the number of laser shots per sample needed to acquire a meaningful spectrum. Besides saving time, this also allows an optimal exploitation of the laser lifetime.
Fast target exchange contributes to an accelerated Time-to-Result, enabling swift prioritization of time-critical samples.
The analysis speed is further dramatically boosted by the power of the MBT Compass HT software, resulting in identification results popping up simultaneously with spectra acquisition, one by one, without delay.
The complete identification report of an entirely filled MBT Biotarget 96, holding 95 isolates and 1 QC sample, is generated in ~5min. This speed, combined with a superior fast target exchange, allows analysis of up to 600 samples/hour.

Optimal performance secured by zero-effort IDealTune™

Experience peak performance without the hassle - thanks to automated tuning!

- No extra tuning samples
- No extra time
- No extra costs
- Focus on results!

The zero-effort IDealTune feature on our MALDI Biotyper sirius systems automatically finetunes the key parameters of the MALDI-TOF system, ensuring stable data quality. Without any user intervention, IDealTune is performed systematically in the background while analyzing the Bacterial Test Standard, which is anyway part of a sample run. The quick and simple Bacterial Test Standard quality check, performed before each run, ensures the highest standard of run-to-run reproducibility.
Forget about tedious preparation of dedicated tuning samples, forget about time-consuming manual tuning, forget about extra costs.
Relax knowing that machine-driven tuning is in place, and focus on results!

Resolution optimized for reliable profile matching

Overall, the resolution is an important performance parameter in MALDI-TOF mass spectrometry. A high resolution is desired for more precise analysis of samples, as it refers to the ability to distinguish between two closely spaced peaks in a mass spectrum. Thanks to Bruker's patented PAN™ resolution, the compact MALDI Biotyper achieves an optimal resolution over the relevant mass range of the mass spectral profile acquired from the unknown microorganisms. This accuracy is crucial when it comes to profile matching with thousands of reference spectra, for reliable identification of microorganisms.

Continuous operation

The integrated ion source cleaning permits continuous high performance with minimized maintenance requirements. Cleaning the source using the separate IR-laser is performed easily by a few clicks in the software, without breaking vacuum.

MALDI Biotyper RUO System overview

Benchtop MALDI-TOF system

- **MALDI Biotyper® sirius RUO System**
  for microbial identification and resistance detection applications, supported by the positive ion mode, and expanded research capabilities using the negative ion mode, such as the analysis of lipids for e.g., resistance detection.

or

- **MALDI Biotyper® sirius one RUO System**,
  for microbial identification and resistance detection applications, supported by the positive ion mode

Identification of gram +/- bacteria, yeasts

Software
- MBT Compass HT software, including the MBT Compass HT Library
- MBT HT Library Extension, covering highly pathogenic species

Consumables
- Bruker Matrix HCCA, portioned
- Bruker Bacterial Test Standard
- MBT Biotarget 96
- MBT Easy T® Kit

Mycobacteria identification (optional)

Integrated software module
- MBT HT Mycobacteria Module

Consumables
- MBT Mycobacteria Kit

Filamentous fungi identification (optional)

Integrated software module
- MBT HT Filamentous Fungi Module

Resistance detection (optional)

Integrated software modules
- MBT HT Subtyping Module
- MBT HT LipidART Module
- MBT HT STAR®-BL Module

Consumables
- MBT Lipid Xtract™ Kit
- MBT STAR®-Carba Kit
- MBT STAR®-Cepha Kit

Custom library creation (optional)

Software
- MBT HT Library Creator Module

Workflow optimization & automation (optional)

- MBT Shuttle ergonomic target holder
- MBT FAST™ Shuttle for standardized and accelerated drying of matrix and other liquids
- MBT Pilot® System for guided sample transfer

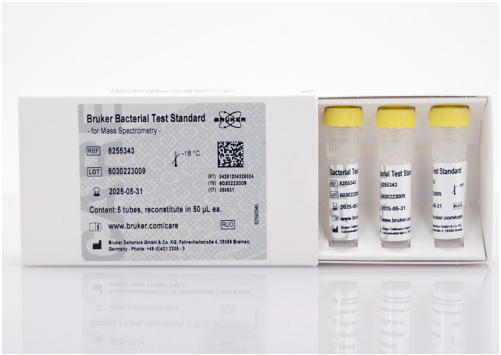
Please contact your local Bruker sales representative for availability of the optional MBT system components in your country.

Consumables

Bruker Bacterial Test Standard (BTS)

BTS is an essential component of the MALDI Biotyper workflow enabling constant high accuracy and optimal operation. This mass calibration standard covers the complete mass range necessary for precise microbial identifications. It furthermore serves as integrated quality control for each run and enables the automated IDealTune™ function ensuring optimal performance of the MALDI Biotyper.

Content: One box consisting of 5 tubes providing
50 µL per tube / Part No. 8255343



Bruker Matrix HCCA, portioned

The HCCA matrix is tailored for microbial identification on the MALDI Biotyper. It is provided in stable dried portions to ensure it is always fresh when needed. The HCCA is subjected to a rigorous purification process and quality control to deliver highly sensitive measurements. Its outstanding purity minimizes the deposition of debris in the system's ion source and thus helps avoiding unnecessary downtime.

Content: One box consisting of 10 tubes providing
250 µL per tube / Part No. 8255344

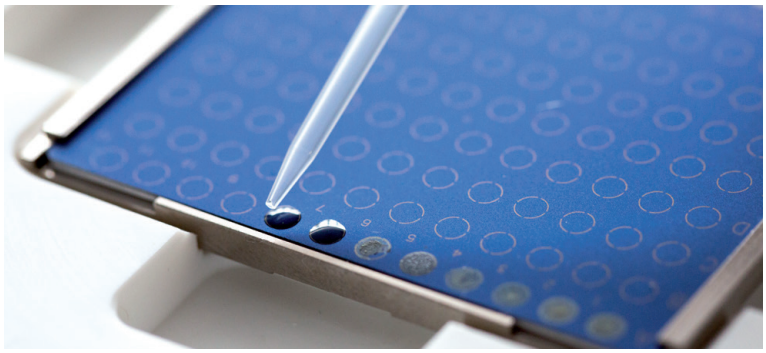
MBT Easy T® Kit

The MBT Easy T Kit is an all-in-one reagent and consumables solution for MALDI Biotyper microbial identification workflows. By combining standardized solvents, ready-to-use formic acid solution, and sample applicators in a single, quality-controlled kit, it helps laboratories achieve consistent results while reducing complexity in daily operations.

Content: One MBT Easy T Kit is for processing up to 2,000 samples and dissolving 10 tubes HCCA Matrix, portioned, and up to
10 tubes BTS / Part No. 1916359

Disposable MBT Biotargets

The ready-to-use disposable MBT Biotargets offer 96 positions and a unique barcode for full traceability in paperless workflows. The AnchorChip™ effect makes it easy for users to achieve consistent preparation of the target and obtain reproducible results.



MBT Biotarget 96

Pack of 20 individually barcoded MALDI Biotyper target plates, 96 positions each / Part No. 1840375

MSP adapter for MBT Biotarget 96

Adapter required to use MBT Biotargets with MALDI Biotyper instruments / Part No. 8267615

MBT STAR®-Cepha Kit

The MBT STAR-Cepha Kit provides all necessary reagents and components to conduct the cephalosporinase assay.

Part No. 1867704

MBT STAR®-Carba Kit

The MBT STAR-Carba Kit provides all necessary reagents and components to conduct the carbapenemase assay.

Part No. 1867701

MBT Mycobacteria Kit

The MBT Mycobacteria Kit provides all necessary reagents and components to conduct safe inactivation and sample preparation of mycobacteria species, from liquid or from solid media.

Part No. 1889119

MBT Lipid Xtract Kit

The MBT Lipid Xtract Kit facilitates extraction of Lipid A and its derivatives from gram-negative bacteria, for subsequent analysis by MALDI Biotyper sirius Systems.

Part No. 1889112

Workflow optimization (optional)

MBT FAST™ Shuttle

Standardized and accelerated drying of MALDI Biotyper matrix and other liquid reagents, increasing the matrix crystallization quality, improving the microorganism identification success rate.

Part No. 1872847

MBT Pilot® System

The MBT Pilot System facilitates correct sample positioning through patented microprojection technology by clearly highlighting the next free MALDI target plate position.

Part No. 1822041

Not for use in clinical diagnostic procedures.
Please contact your local representative for availability in your country.

MALDI Biotyper®, MBT Easy T®, MBT Pilot®, MBT Sepsityper® and MBT STAR® are registered trademarks of the Bruker group of companies.

Bruker Daltonics GmbH & Co. KG

Bremen · Germany
Phone +49 (0) 421-2205-0

info.md@bruker.com

Bruker Scientific LLC

Billerica, MA · USA
Phone +1 (978) 663-3660

Online information
bruker.com/microbiology

No. 1931477 © 09-2026 Bruker Daltonics