



news digest #001

## MALDI Biotyper® sirius and IR Biotyper® for industrial laboratories

No doubt you have already heard about MALDI-TOF mass spectrometry? MALDI-TOF stands for Matrix-Assisted Laser Desorption/Ionization Time-Of-Flight. Some of you may already be using MALDI-TOF for microbiology, others may not. No problem - in this first News Digest we would like to introduce you to our latest MALDI Biotyper® sirius platform for microbial identification!

For sure, microbiological analyses can be diverse and colorful. You are familiar with microbial identification based on biochemical reactions, electrophoresis methods, PCR or Real-time PCR, sequencing, or radioanalytical methods? Take a chance to learn about our innovative unbiased fingerprinting solution using MALDI-TOF mass spectrometry for microbial identification.

Subsequently, our IR Biotyper® system based on FT-IR spectroscopy will be shortly highlighted as a strain typing method which can seamlessly be combined with the MALDI Biotyper® sirius system.

The Bruker MALDI Biotyper® can be used as a reliable rapid test method for hygiene monitoring, food and pharmaceutical quality control, pathogen detection, plus food safety related analytical questions. We also see the MALDI Biotyper® applied in environmental monitoring, control of pharmaceutical production strains, detection of animal or plant pathogens or water analysis. On top of that, plenty of research topics benefit from using the MALDI Biotyper®, such as projects on microbiomes, probiotics, beverages or new food – e.g. meat and milk alternatives are trendy and raise new questions in microbiology.

Proteomic fingerprinting with the MALDI Biotyper® offers you identification of bacteria, yeast and molds in minutes, starting from colony material. The beauty of the method is that you can measure both gram-positive and gram-negative bacteria, yeast and molds, in parallel, in one run. No need for many assays or different reaction plates.

**Selection of colony of unknown microorganism from non-selective, selective or chromogenic agar**



**96 samples from colony to identification in 30 minutes**



**Identification by pattern matching**



**Preparation onto MALDI Biotarget 96 plate**



**Acquisition of MALDI-TOF profile spectrum**

Basic principle: Cell material of gram-positive, gram-negative bacteria or yeast or mold is applied to a MALDI Biotarget 96 (96 sample positions), followed by adding a small droplet of "matrix" solution and air-drying. Once in the vacuum of the MALDI-TOF system, fast laser shots vaporize the sample's proteins, which are then separated according to their mass during their flight through the flight tube, towards the detector, resulting in a very specific proteomic fingerprint mass spectrum of the microorganism. This fingerprint is then matched against the Bruker reference library of fingerprints, covering more than 3000 species.

The workflow is applicable for identification of hygiene and environmental species, starter cultures, microorganisms in ingredients, intermediate and semi-finished products or process water, of in-house strains, veterinary pathogens or pathogen confirmation in different food categories.

Our MALDI-TOF instrument portfolio has grown over the years, and many of you may already be familiar with the microflex LT/SH or the MALDI Biotyper® smart. The new MALDI Biotyper® sirius series has recently been launched, addressing the abovementioned hygiene monitoring, quality and safety questions. With this new instrument platform, the whole procedure has become even faster, allowing low-, medium- and high-throughput sample processing, and is reliable and easy to use for all levels of sample numbers. The accompanying "fingerprint" reference library, covering more than 3000 species, can be used with the existing as well as with the new instruments, meaning that results are perfectly comparable throughout all MALDI Biotyper® systems. Additional good news is that we keep the performance wheel turning by an annual update of the reference library, increasing year after year the number of species covered by the method.

Complementary, our IR Biotyper® system allows same-day strain typing of colonies, based on FT-IR spectroscopy. The IR Biotyper®, for which recently a new software version has been launched, enables easy, fast and cost-effective microbial typing for real-time quality control and source tracking.



IR Biotyper®

Are you interested to identify *Legionella* and discriminate *Legionella pneumophila* serogroup 1 from other serogroups? Read more in our news digests #002 and #003.

Visit our [website](#)

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

**As of May 2021, Bruker Daltonik GmbH is now Bruker Daltonics GmbH & Co. KG.**



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