

Laboratory Technical Bulletin

MALDI-TOF for Microbial Identification

Effective Date: May 3, 2024

McLaren's system microbiology laboratory has completed the validation of new technology that will expand our ability to identify potential pathogens from select clinical specimens. The Bruker MALDI utilizes mass-spectrometry to qualitatively identify bacteria and yeast organisms that have been isolated from a variety of clinical specimens. Direct testing of patient specimens by MALDI is not possible. Microorganisms must be isolated in a pure culture prior to analysis.

The areas where clinicians will realize the greatest value of this new technology will be:

- Reduced time from isolation to identification of organisms.
 - Prior to MALDI, organism ID's were performed by a series of biochemical and immunologic tests that delayed reports for hours to days.
 - Today, many isolates will be processed and analyzed by MALDI which will generally provide a specific ID to the species level in less than one hour.
- MALDI can often be used to identify organisms directly from positive blood culture bottles without the need to transfer them to solid media. This can reduce the time to result by 18-24 hours.
 - A BioFire BCID report will still be run for detection of resistant markers if the ID warrants it.
- Expanded ability to identify most organisms without referral.
 - Occasionally, routine work-up of isolates provide only low-probability ID's which require follow-up and increase the time to report.
 - Often the final and specific identification of certain organisms required submission of the pure culture to MDHHS or other large reference labs for a definitive result. These referrals regularly add 4-5 days to the report.
 - Our MALDI system has been validated and is cleared by the FDA to provide rapid and accurate results to clinicians to aid in patient management and eliminating the need for most follow-up testing or referral to other labs.

While limitations in instrument throughput as well as labor intensive extraction requirements will prevent the lab from using MALDI for the identification of every isolate recovered, it will be used in the following circumstances:

- Isolates from all sterile sites
- Gram Negative isolates from any inpatient specimen
- Yeasts when indicated
- Anaerobes when indicated
- Most stool pathogens

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