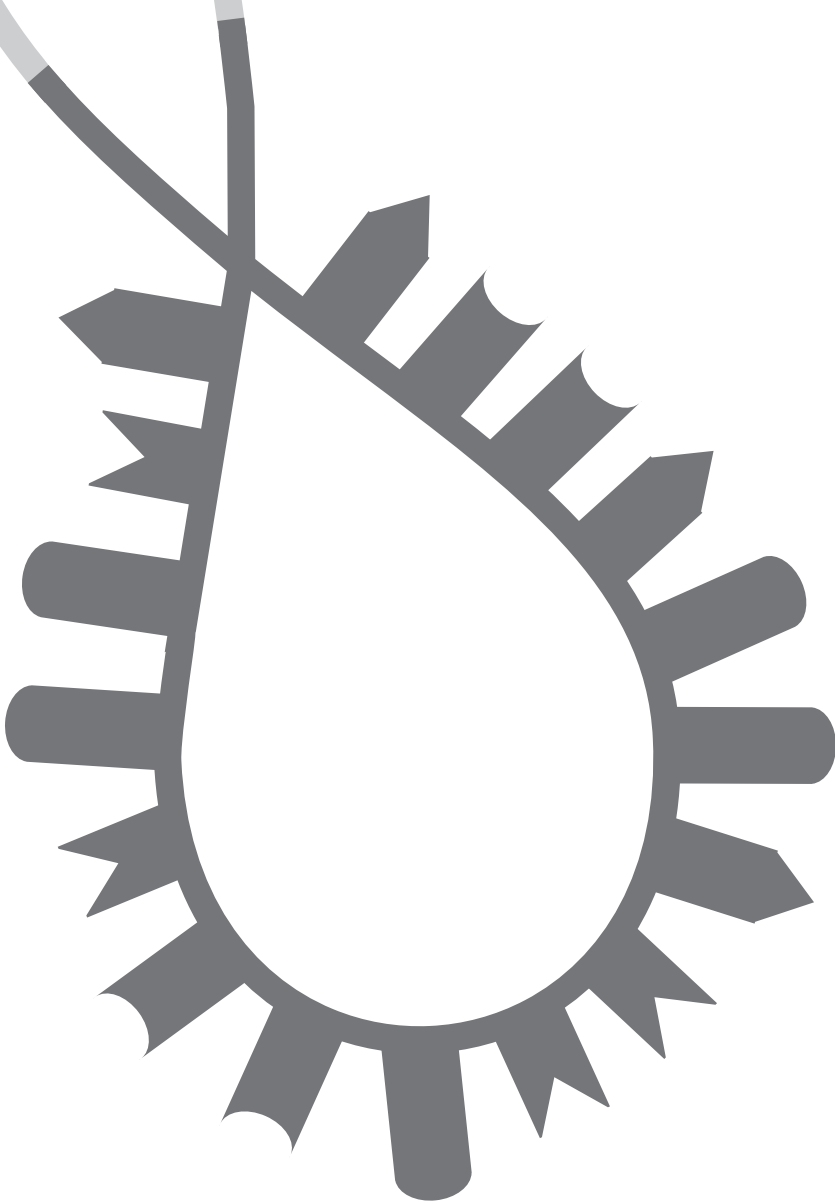




**Direct
Multiplex
Imaging**

Direct identification of
microorganisms without
subculture.



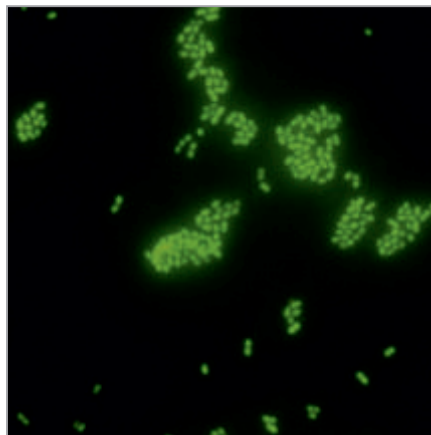
DMI

FROM SAMPLE TO ID IN TIME OF A GRAM STAIN

Hospital-acquired infections (HAIs) are a global burden affecting millions of patients each year, causing significant increases in patient morbidity and mortality. Crucial for better patient outcome but also to reduce healthcare costs is early pathogen identification which allows the selection of an appropriate antimicrobial therapy.

Direct Multiplex Imaging*

DMI is the combination of a novel DNA-based multiplex hybridization technology and automatic imaging. DMI enables fast, specific and reproducible identification of multiple pathogenic microorganisms directly from samples without an additional culture, providing the necessary information for timely decisions and a targeted antibiotic therapy.



Picture showing a positive identification of *Enterococcus faecium* with DMI directly from a patient sample. The green fluorescence is generated by FAM-labelled DMI beacons.

DMI



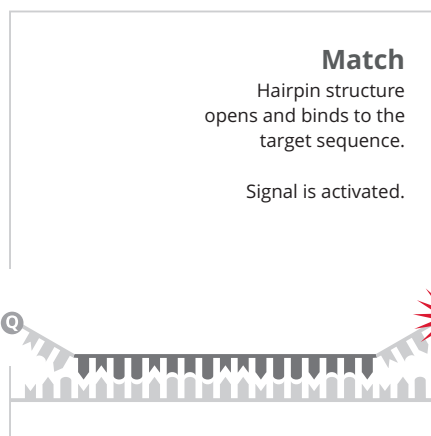
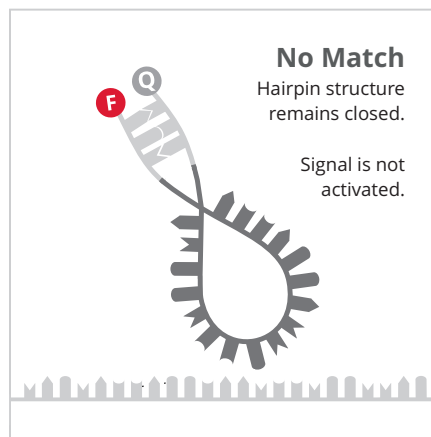
How Does it Work?

DMI uses molecular DNA-beacons as probes that specifically bind to complementary ribosomal target sequences (rRNA) in microorganisms.

Commonly used hybridization targets are the 16S and 23S rRNA, as they contain highly species-specific regions.

DNA-beacons are hairpin-shaped structures that consist of a probe sequence (loop) that binds to the respective target sequence and complementary 3' and 5' ends (stem). One end carries a fluorophore (F) and the other a quencher (Q).

With probe hybridization, the stem opens and a fluorescent signal that can be detected by fluorescence microscopy is emitted.



DMI is fast

The hairpin structure permits probe hybridization in just 10 minutes and the entire identification procedure takes just 35 minutes.

DMI is specific

Ribosomal sequences are highly conserved and very specific for individual microorganism species. DNA-beacons fluoresce only when they hybridize to their perfectly complementary targets.

DMI is sensitive

The probes bind to ribosomal targets which are present in many copies in every microorganism.

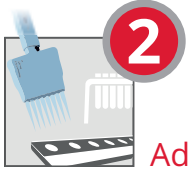
DMI is easy

DMI doesn't need cumbersome amplification and washing steps. Evaluation of DMI assays is performed on the Metafer microscope scanning platform (DMI Scanner*), which captures and archives images automatically. Data review is easy and straightforward with the clearly structured user interface and customizable reports.

DMI Assay - Main Steps



1 Prepare Sample



2 Add Probes



3 Hybridize



4 Analyze

The total assay time including analysis, LIMS-compatible reporting and automated archiving takes just 35 minutes, with new results in continuous mode setting being generated every five minutes.



DMI

 MetaSystems

The Metafer DMI Scanner enables a convenient on-screen result review of multiplex hybridizations.

Hybridization results are immediately displayed and provided for ergonomic assay evaluation.

The interface includes software algorithms and logic controls that support an easy reporting of valid test results.





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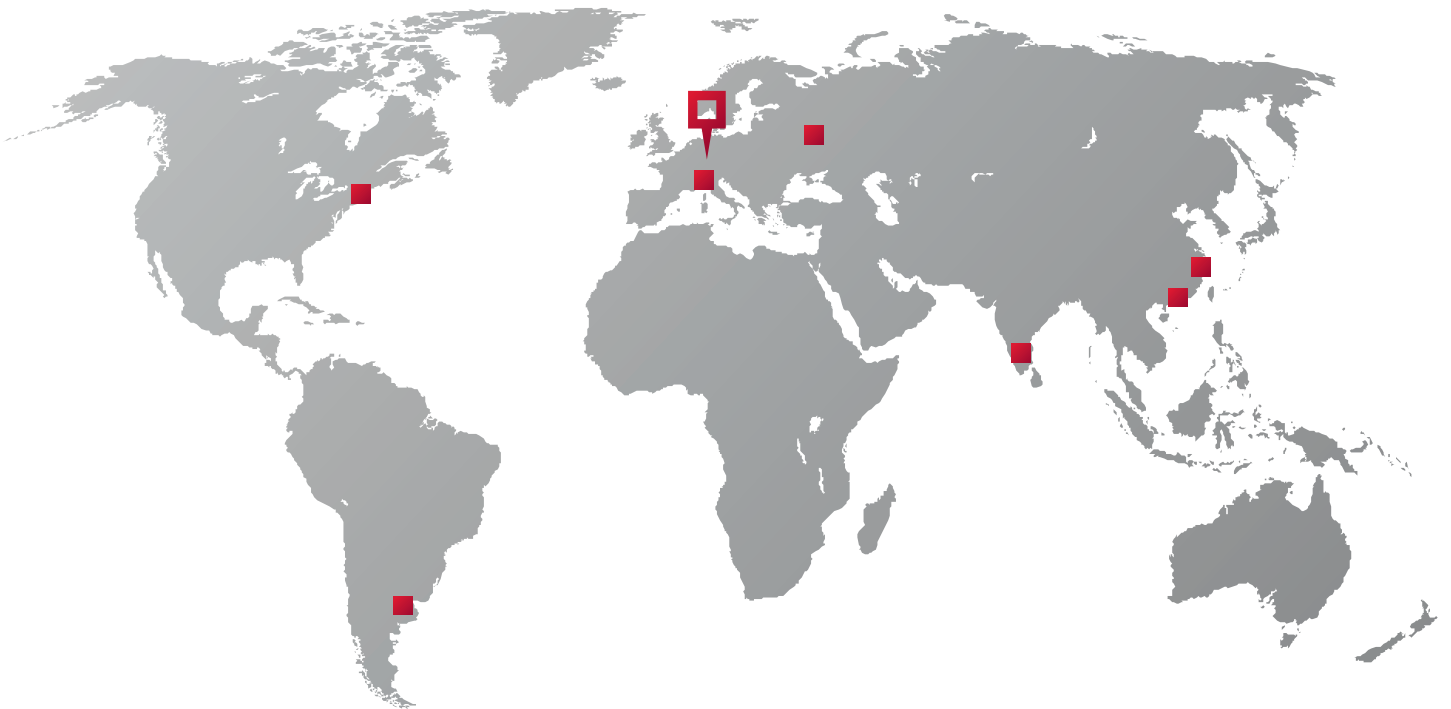
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