UNIVERSITY OF GRAZ

Technology Offer

AI-Powered Microbial Identification

Fast, Accurate and Accessible via Staining and Fluorescence Imaging

Background

Many human diseases are caused by microbial infections, making accurate and timely identification of the infecting microorganism critical for effective treatment. Current methods for microorganism identification require expensive instruments (e.g., mass spectrometers) or are very time-consuming (selective media culture). For example, the high incidence of sepsis in sub-Saharan Africa is partly attributed to the slow identification of microorganisms in blood samples.

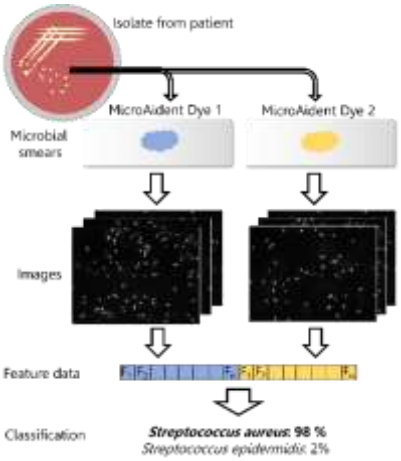
Technology Overview

The technology uses combinatorial staining with novel dye solutions, multi-dimensional fluorescence imaging and AI-assisted image analysis and classification to identify microorganisms in blood cultures.

The technology has been validated using patient samples from the Münster University Hospital.

Advantages

- ✓ High-accuracy detection of infecting microorganism
- ✓ as quick as expensive instruments
- ✓ but at a fraction of the cost
- ✓ easy to use and maintain
- ✓ robust and suitable for routine diagnostics



Principle of the technology,
Illustration credit: J. Liesche

Applications

- ✓ human and veterinary diagnostics of infectious diseases
- ✓ in clinics, diagnostic laboratories and health-care centres
- ✓ replacement for selective media culture; complementary to mass spectrometry and PCR-based methods

KEYWORDS:

Medical diagnostics
Bloodstream infections
Staining with fluorescent dyes
Fluorescence imaging
AI model

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COOPERATION OPTIONS:

Research cooperation
Licensing Agreement
Spin Off creation

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