

The future of test centers

In the future, customized, automated, and modular diagnostic platforms will be used in the increasingly challenging field of bio-analytics. To ensure rapid analysis, the combination of automation and rapid test platforms for nucleic acid and protein detection offers broad application possibilities. In particular, the use of microfluidic systems allows on-demand testing to be performed inexpensively with minimal sample preparation and rapid, accurate analysis.

Our Division Diagnostics provides R&D for microfluidic-based analysis systems with applications in life sciences, medical research and diagnostics, food safety or biotechnology.

Our partners benefit from

- low-cost consumables (disposable)
- minimized reagent consumption for monitoring purposes
- minimal hands-on time or full automation

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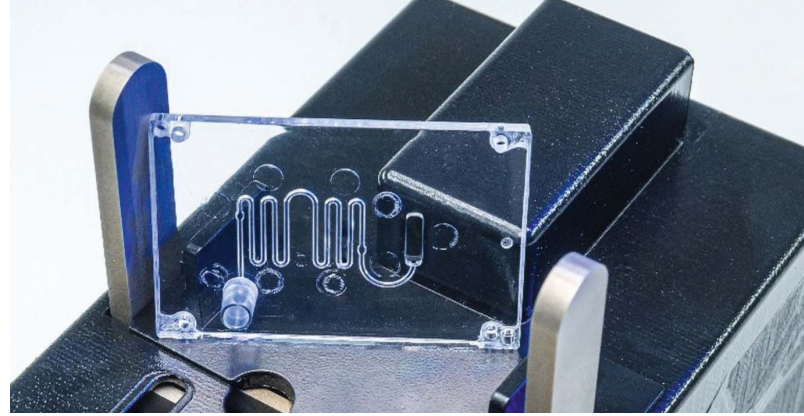
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Decentralized diagnostics:
fast – compact – modular

Early prevention and rapid
containment of epidemic
and pandemic events

Decentralized diagnostics: fast – compact – modular



Platform potential

A showcase in demonstrating the potential of an automated diagnostic platform based on a microfluidic Point-of-care test (POCT) system was presented by using the platform for the early prevention and rapid containment of epidemic and pandemic events.

The test platform shows for the first time how a POCT system might be used for a mass testing scenario. An inexpensive disposable test cartridge with a sensitive PCR-based test is the basis of a fast, sensitive, and quickly adaptable test for identifying the infection with pathogens.

The whole system relies on an ultrafast polymerase chain reaction (PCR) technology developed at Fraunhofer IMM, which enables a PCR in about 6 minutes.

The detection of SARS-CoV-2 by RT-PCR can happen in 15 minutes with a short preanalytical sample preparation.

Future applications

Microfluidic Point-of-care testing has several advantages in having immediately fast and reliable test results offering a direct treatment of patients.

Additional automation of the test enables diagnosis of diseases anywhere. This has advantages for each individual especially in remote regions.

Bringing the idea of decentralized diagnostics in medical centers, pedestrian zones or pharmacies can serve the ever-increasing need for good, fast, and reliable diagnostics in the future.

In particular individual diagnostic has the need of flexible, modular and highly adaptable test systems offering small and medium-sized enterprises a new potential market in the diagnostic field.

Fraunhofer IMM expertise in the field

- fast prototyping techniques (3D printing, milling, hot embossing, injection molding)
- assay development on microfluidic cartridges
- system integration
- highly motivated and interdisciplinary team of scientist and engineers
- broad test infrastructure with the opportunity to cooperate with strong scientific partners
- opportunities for cooperations in publicly funded projects and flexible contract research



Fast and reliable results
are the future of individual
diagnostics.«