EXHIBITOR PRODUCT CATALOGUE

INTERNATIONAL EXHIBITION & CONFERENCE
ON BIOCHIPS AND BIOCHIP SOLUTIONS
7-8 MAY 2019 BERLIN

BioCHIP Berlin
EXHIBITION & CONFERENCE

BIOCHIP-BERLIN.DE

INDEX

Last updated: April 26, 2019

Ärzte gegen Tierversuche e.V.

Doctors Against
Animal Experiments Germany

Goethestraße 6-8 • 51143 Köln • Germany

Doctors Against Animal Experiments Germany (Ärzte gegen Tierversuche e.V.) is a charitable organisation founded in 1979 comprising of medical doctors, veterinarians and scientists working in the medical field. We are an active member of the European Coalition to End Animal Experiments (ECEAE).

What we want

Our aim is the abolition of all animal experiments and an increased support of human-based animal-free research such as multi-organ-chips, as well as increased research on disease prevention including financial support and promotion. We are aiming for a legal ban and are opposing animal experiments not only for ethical but primarily for scientific reasons.

What we do

In the recent past, animal experiments are increasingly criticized by the scientific community, leading to the emerging and accelerating field of innovative in vitro technologies such as microphysiological systems/multi-organ-chips or human 3D cell cultures On our homepage www.aerzte-gegen-tierversuche.de, we deliver profound information about the scientific failure of animal experiments and about innovative animal-free research. Our website is by far the most comprehensive site on animal experiments in the German speaking area. Please note that only the German version of the homepage is constantly updated providing the latest news, facts and background information.

Articles by our medical/scientific experts are focusing on different diseases and are written for the broad public. All information that we provide is based on published cutting-edge science proving the poor validity of animal experiments and the lack of scientific value for human health and medicine. By providing a research grant (Herbert-Stiller prize, see bottom of page), giving scientific lectures and organizing scientific conferences, we actively support and advance animal-free research.

Herbert Stiller Research Grant for animal-free research projects

Innovative and human-relevant projects in the medical or biomedical field can be submitted including human-based in vitro models, in silico analyses or clinical and epidemiological studies. The project should aim at a significant contribution to medical progress and to the elimination of animal experimentation.

All methods and consumables used within the project must be animal-free. The funding amounts to € 20.000. The duration of the project should not exceed 2 years. **BioChip visitors can submit their proposals by June 30th 2019.** Researchers from Germany and the German-speaking area are invited to submit their applications in German or English.

- **Further details: www.herbert-stiller-preis.de**
- **Contact: zietek@doctors-against-animal-experiments.org**

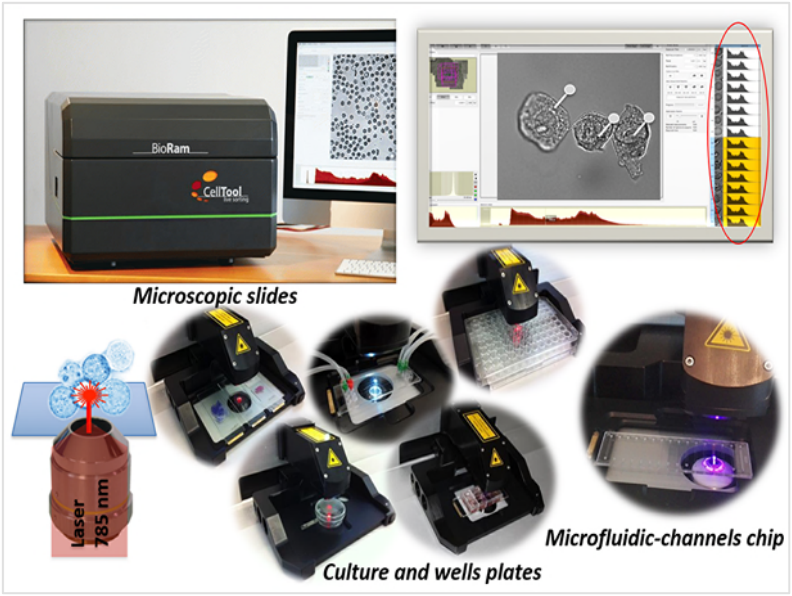
BioRam®: Raman-Trapping-Microscopy for label-free and fast cell analysis

CellTool's BioRam® is a Raman-Trapping-Microscope that is especially designed to meet the biologists needs in a broad range of applications. By the interaction of focused laser light with biomolecules, BioRam® can detect biochemical changes of cells in response to stimuli/drugs, detect cancer in tissue sections, or assure quality control of cell based products. The analysis is conducted in a label-free and non-destructive manner. Therefore, the sample can be used for further cultivation or downstream analyses.

Implemented **Optical Trapping** features enable capturing of specimen in solutions within the laser focus during the Raman analysis - resulting in highly reliable spectra even of motile samples. In addition, cells and particles can be moved and positioned using this trapping effect in small microfluidic channel chips.

CellTool's unique spectra evaluation software tool **CT-RamSES** allows easy access to biological meaningful data evaluation and interpretation.

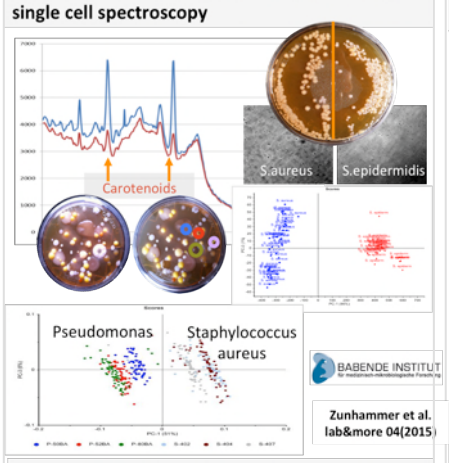
CellTool has established a professional **Service-Lab** for system demonstration, proof-of-concept measurements, research collaboration and contract work.



Our expert Team supports you with Raman spectra acquisition and data interpretation.

Some examples:

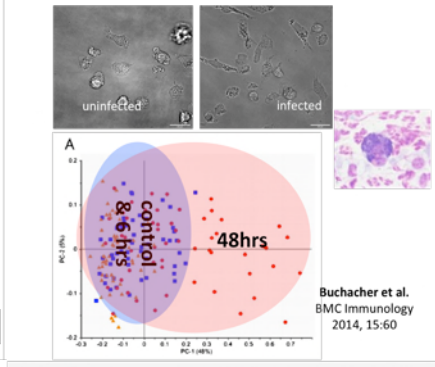
Identification of pathogen contamination with single cell spectroscopy



Zunhammer et al. lab&more 04(2015)

Tracking source of infection; check contamination -> superior to mass spectroscopy detecting rare cells otherwise hidden by overgrowing bacterial types.

Infection of human blood monocytes with intracellular pathogen *Chlamydia pneumoniae*

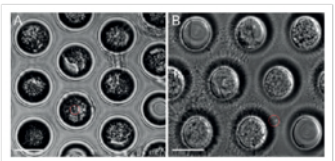


Buchacher et al. BMC Immunology 2014, 15:60

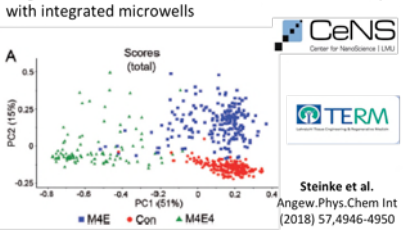
Raman Trapping Microscopy (RTM) identifies percentage of infected cells. Results are in concordance with results of immunofluorescence and oligonucleotide DNA microarray.

Detection of pathogens with RTM -> superior to blood cultures: immediate results; time and cost saving

Rapid Analysis of Cell–Nanoparticle Interactions using Single-Cell Raman Trapping Microscopy



Single M4E-labeled and control hMSCs in a fluidic-chip with integrated microwells



Steinke et al. Angew.Phys.Chem Int (2018) 57,4946-4950

Prove safety of nanoparticles for imaging or therapeutic use. Raman Trapping Microscopy discriminates healthy from necrotic cells.

For further questions please contact:

CellTool GmbH
E-Mail: info-celltool@celltool.de
Tel: +49 8158 9064010
www.celltool.de

Happy cells - healthy people!

BIO X™

The most user-friendly and flexible bioprinter in the world.

INDEPENDENT AND COMPACT LAB FOOTPRINT

BIO X has a small footprint but still contains every component you need to bioprint. It's a complete standalone unit, facilitating work in a laminar flow cabinet without the need for external connections.

INTELLIGENT AND EXCHANGEABLE PRINTHEAD

The snap-on feature offers a fast exchange with many printheads, including our thermoplastic printhead, temperature-controlled printhead, electromagnetic droplet printhead, syringe printhead, HD camera tool head, photocuring tool head and more.

COMPATIBLE MATERIAL PRINTING

BIO X can fabricate constructs with any type of cell, enabling the production of any tissue target found in the body. These constructs can be used in a wide range of applications by incorporating bone marrow stromal cells and mesenchymal stem cells.

CLEAN CHAMBER TECHNOLOGY

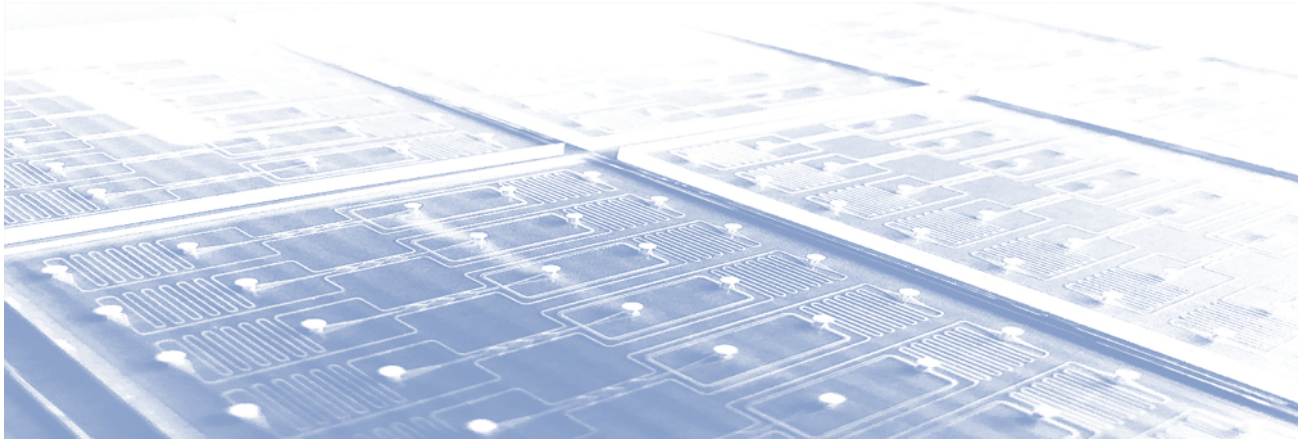
BIO X is equipped with dual high-power fans that create a powerful airflow through its dual-filtration top, and UV-C germicidal lights that allow you to run sterilization cycles. These components create a system of uncompromised cleanliness.

DENZ BIO-Medical GMBH

COMPONENTS • EQUIPMENT • LENSES • CONCEPTS ©

DENZ BIO-Medical GmbH is a **research and development** company and offers a range of services beginning with **fast prototyping** (turnaround of a few days) and **production processes** for microfluidic systems, bio-microsystems, lens-based microsystems, and bio-medical systems; these systems are provided with fluidic connectors, and with smart clamping systems for easy connection.

For our customers, we fabricate both customized and standard chips, out of various materials; polymeric devices (highly transparent or opaque) can be fitted with electrodes, membranes, and fluidics vacuum or pressure controlled. We also fabricate chips with metal and glass as Hybrid Chip systems.



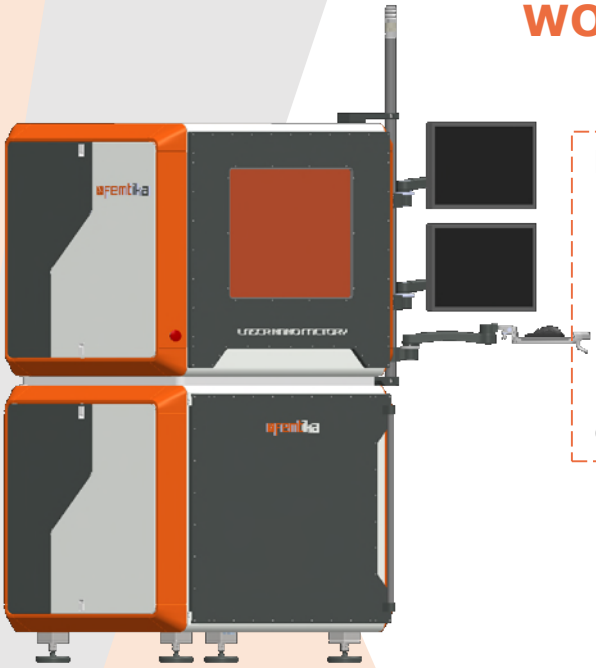
Our support encompasses a **host of applications,** e.g. cell application, organ-on-a-chip, and applications using bacteria, viruses, blood, gene testing, microorganism and water testing, and many more. Our **spotting services** start with pico-liter, and capacity for dispensing in-house too.

We close the loop with a range of **laboratory equipment's** and we provide complete and fully integrated solutions as well as solutions for individual components of your application – **tailored** to your needs. We are delighted to serve you and answer your queries as swiftly as possible.

Contact our team: inquiry@denz-bio-medical.com or call us: +43 5523 21308

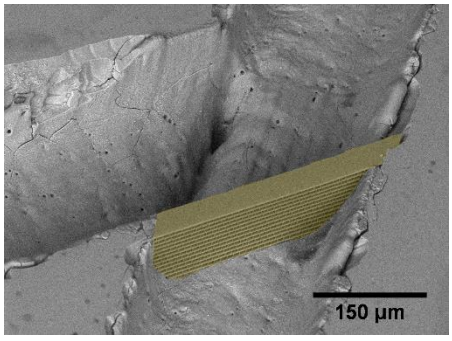
FEMTOSECOND LASER HYBRID 3D MICRO-FABRICATION

WORKSTATION AND SERVICES



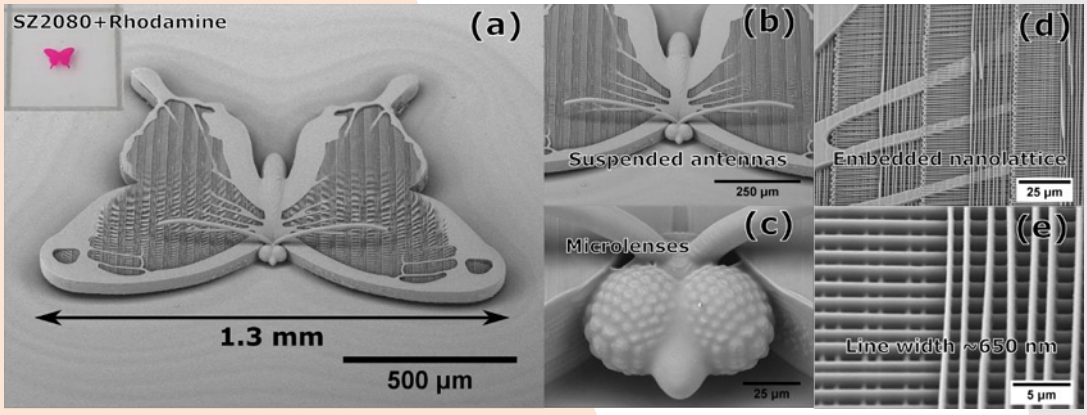
Femtika is a spin-off company from Vilnius University Laser Research Center.

Femtika's goal – to supply growing worldwide demands of available tools and technologies enabling hybrid 3D laser fabrication, with custom design components in micro- and submicro-scale.



Example: application of hybrid fabrication enables rapid production of channels out of glass *via* laser ablation while 3D laser lithography is used to integrate fine-mesh 3D filters of arbitrary geometry inside the channel. Then whole system is sealed with laser welding.

www.femtika.lt
info@femtika.lt
Sauletekio al. 15,
LT-10224 Vilnius,
Lithuania



Example: 3D micro-butterfly showing the capability to fabricate millimeter-sized 3D object with sub-micron features: wingspan – 1.3 mm; wings are made of embedded nanolattice – line width ~ 650 nm; eyes are made of microlenses (diameter of 4-10 µm); the butterfly has suspended antennas.

Fraunhofer
ENAS

FRAUNHOFER INSTITUTE FOR ELECTRONIC NANO SYSTEMS ENAS

TECHNOLOGIES AND SYSTEMS FOR

SMART HEALTH

MEDICAL IMPLANTS

» Miniaturized sensor and actuator systems including system integration and biocompatible encapsulation for replacement, restoration and improvement of human senses and organs

MEDICAL DEVICES

» Integrated sensors and actuators for the monitoring of patients
» Biocompatible materials for the interface between biological tissue and technical devices
» MRI-compatible materials
» Wireless data and energy transfer

MEASUREMENT AND ANALYTICAL TECHNOLOGIES

» Development of diagnostic test systems using micro microfluidic and spectroscopic components
» Miniaturization and automation of established analytical procedures into portable systems
» Novel systems and components based on micro and nano technologies

BUSINESS UNIT MANAGER

Dr. Mario Baum
Phone: +49 371 45001-261 | mario.baum@enas.fraunhofer.de

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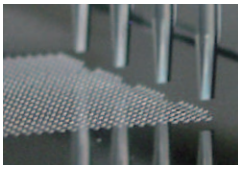
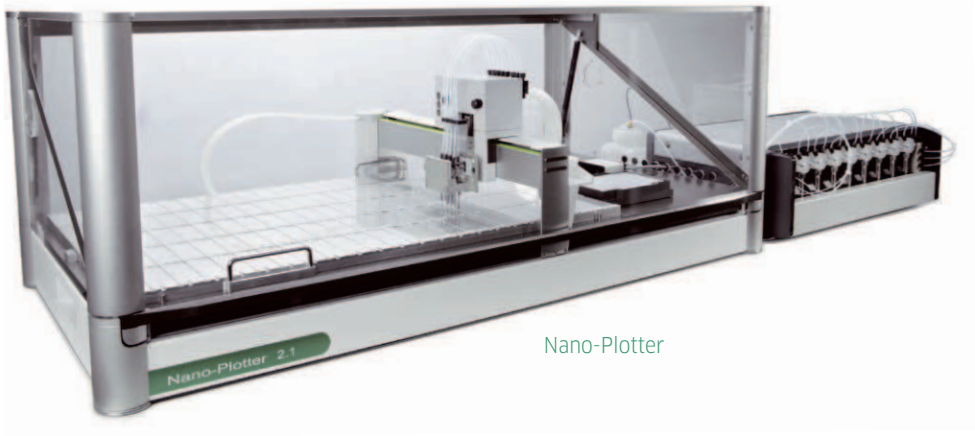
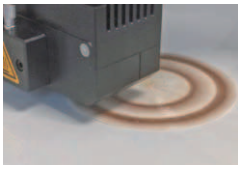
Microdispensing





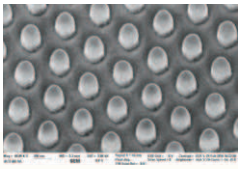
Nano-Plotter

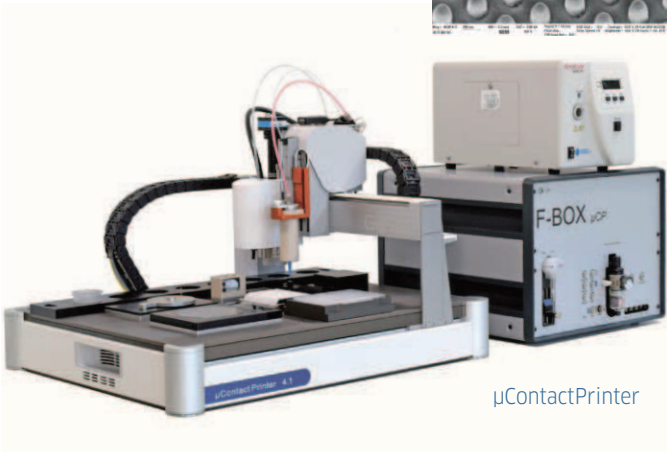
3D Bioprinting



BioScaffolder

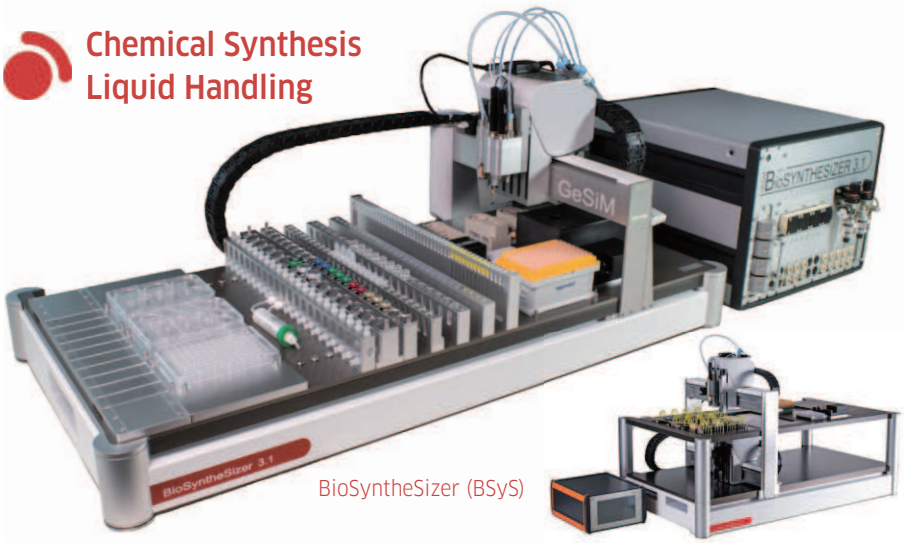
Microcontact Printing
NIL





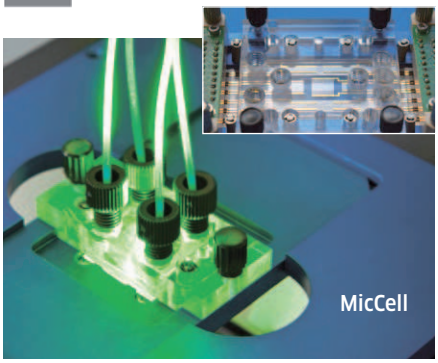
µContactPrinter

Chemical Synthesis
Liquid Handling



BioSyntheSizer (BSyS)

Microfluidics



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IMT

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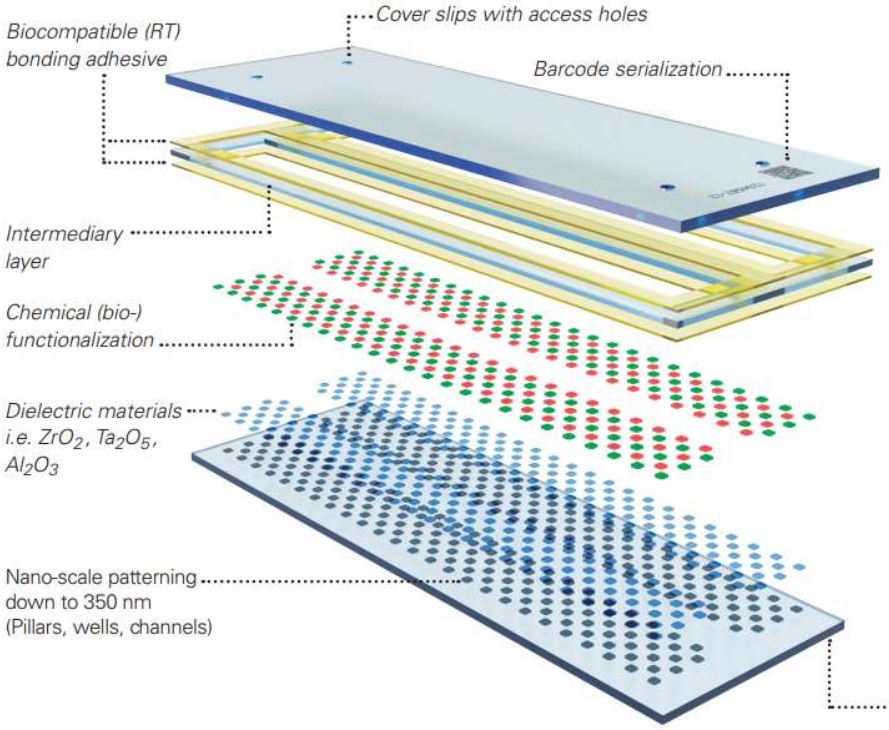
IMT Glass Microfluidics for Life Science and Diagnostics

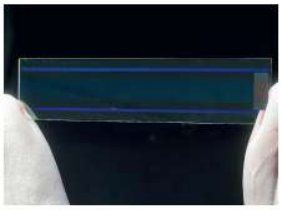
Flexible process offerings that enable microfluidic solutions in glass: design consultancy, prototyping, and scalable manufacturing

IMT microfluidics

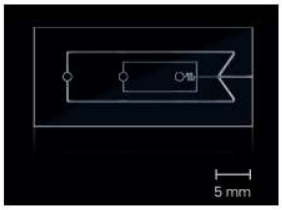
Flexible process offerings that enable customized mircofluidic solutions in glass: design consultancy, prototyping and scalable manufacturing



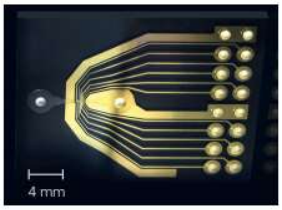
Nanopatterning enabling high-throughput multiplex assays and next generation sequencing



Structured waveguides enabling increased signal-to-noise ratio



Complex glass structuring enabling multiple-emulsion droplet generation



Electrode integration enabling e.g. pathogen detection
- Materials: i.e. Au, Pt, ITO, Ti
- Features sizes down to 2 µm

Glass substrate with the following advantages

- Bioinert substrate material
- Excellent chemical, mechanical, and optical properties
- Outstanding surface properties
- Large variety of glass types available
- Cost- and time efficient scaling from prototyping to mass manufacturing

Applications
NGS flow cell, organ-on-a-chip, lab-on-a-chip, single-cell analysis, cell enrichment, sample preparation and many more

Processes

- Nano-scale patterning of glass down to 350 nm
  - Pillars, wells, channels
- Electrode integration
  - Materials: Au, Pt, ITO, Ti
  - Features sizes down to 2 µm
- Biocompatible bonding
- Structured Bio-functionalisation
- ISO 9001 : 2015

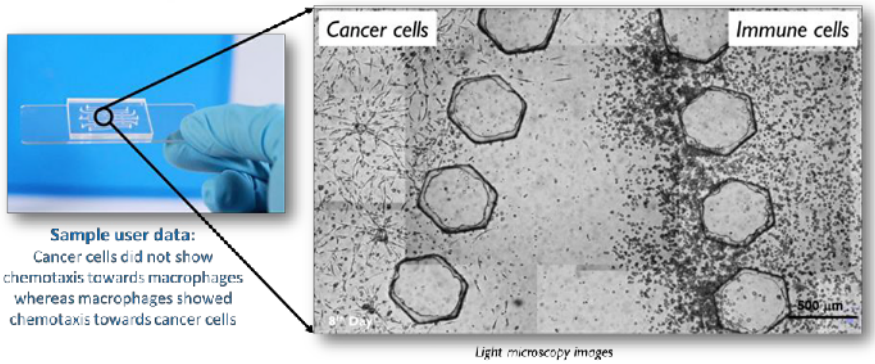
Advantages of microfluidics in glass

- Wide selection of available glass types
- Bioinert
- Excellent chemical, mechanical, and optical properties
- Outstanding surface properties
- Cost-efficient scaling from prototyping to mass manufacturing

INITIO BIOTECH

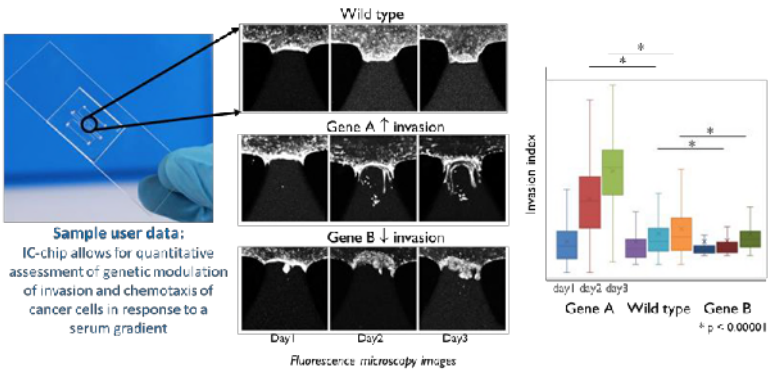
A new discovery in every chip

We develop and produce lab-on-a-chip products for 3D cell culture with a focus on drug discovery.



Sample user data:
Cancer cells did not show chemotaxis towards macrophages whereas macrophages showed chemotaxis towards cancer cells

Light microscopy images



Sample user data:
IC-chip allows for quantitative assessment of genetic modulation of invasion and chemotaxis of cancer cells in response to a serum gradient

Fluorescence microscopy images

DDI-chip Distance dependent interactions chip

✓ Communication between cells located at different distances.

✓ Response of cells to various physical, chemical or biological factors* located at different distances.

*Different cell types, growth factors, etc., stiffness, porosity, elasticity, etc., pH, ions, drugs, etc.

IC-chip Invasion Chemotaxis chip " *I see* " chip

✓ Excellent *in vivo* like setup for determining invasion and chemotaxis in 3D.

Applications:

✓ Drug screening ✓ Patient biopsy screening ✓ Biomarker screening

Detection:

✓*Fluorescence / light microscopy* ✓*Live cell imaging* ✓*Image analysis*

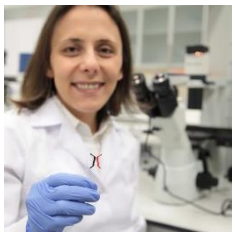
✓ *No capital investment* ✓*Quicker drug go / no go* ✓*Significantly lower costs* ✓*High throughput* ✓*Single use consumable* ✓*Fit for personalized medicine* ✓*Non-Animal Solution*

For videos illustrating use of our Cell-Chips Click IC-chip_1 IC-chip_2 IC-chip_3 DDI-chip_1

A New Cell-Chip for Drug Discovery! LAUNCH AT BioCHIP BERLIN 7-8 May, 2019

enabling the transformation of the pharmaceutical industry today

Aydin Oztunali
Ph.D. (Finance) CEO



Devrim Pesen-Okvur
Ph.D. CSO

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KLOÉ

Microfluidics

is certainly the field of application which is today the focus of our main concerns.

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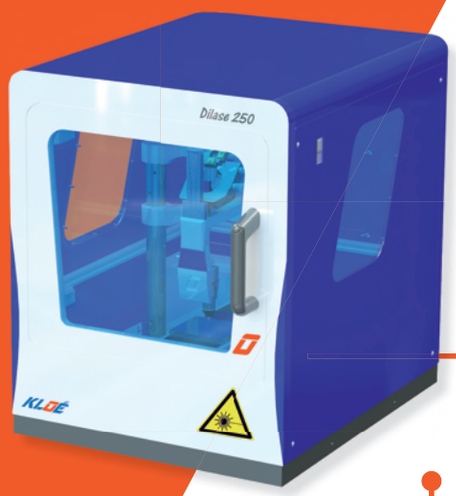
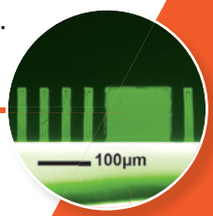
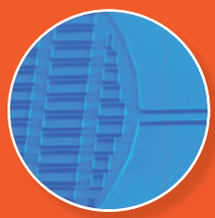
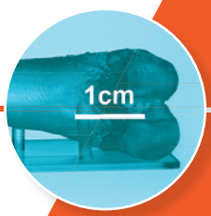
Kloé has developped a **complete range of dedicated equipments** (UV-KUB and Dilase) which offer unique performance for **UV-lithography works** by exhibiting similar final render, control and accuracy, whatever the photoresist layers are very thick or thin.

Our machines are **easy-to-use** and **compact tools**, **safe** for all users.









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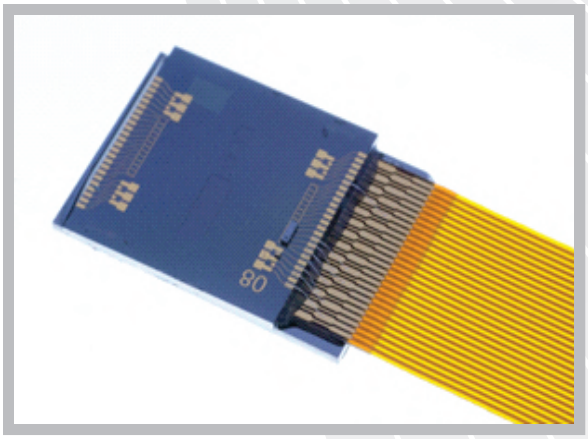
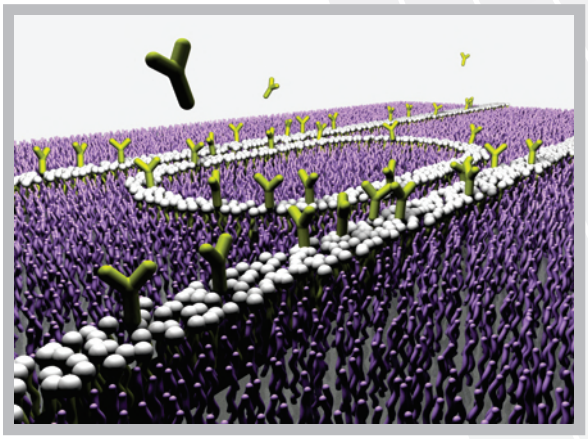
Food and medical diagnostics





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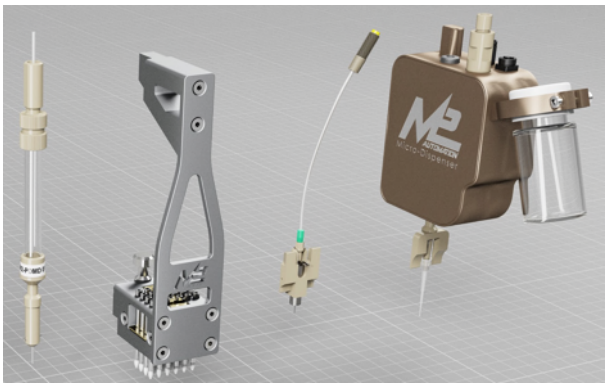
We, **M24You GmbH**, would like to introduce ourselves to the Liquid Handling Dispensing market for supporting customers in the ***Low Volume Liquid Handling Technology for Microarrays, Microfluidics, IVD-Diagnostics, Biosensors, Biochips and other applications,*** *where accurate liquid handling is required.*

Our **long-time experience** in serving customers with developing solutions according their application requests and the expertise in **producing micro-dispensing instruments** with ***Quattro jet technology***, Piezo-PDMD, M2MD-dispenser, Solenoid, Pin and a combination of these dispensers.



All our instruments are developed and produced in **Germany** by our partner organization **M2-Automation.**

Our knowledge and excellent resources mean that M24You is able to provide you with the best dispensing technology in various application fields.

M24You and **M2-Automation** are looking forward to meeting you at their premises.

M24You GmbH & M2-Automation
Bessemerstrasse 16, 12103 Berlin, Germany
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microdrop
TECHNOLOGIES

Non-contact Microdispensing
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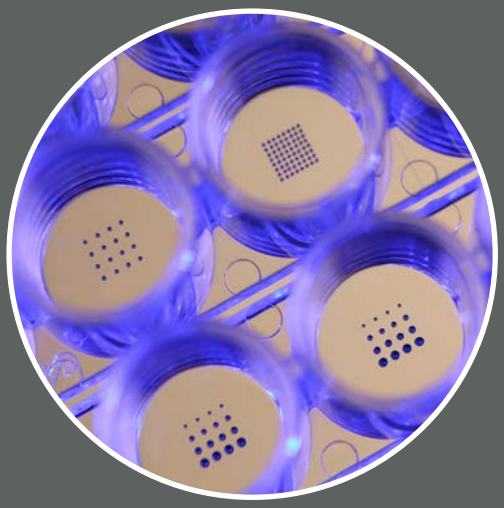
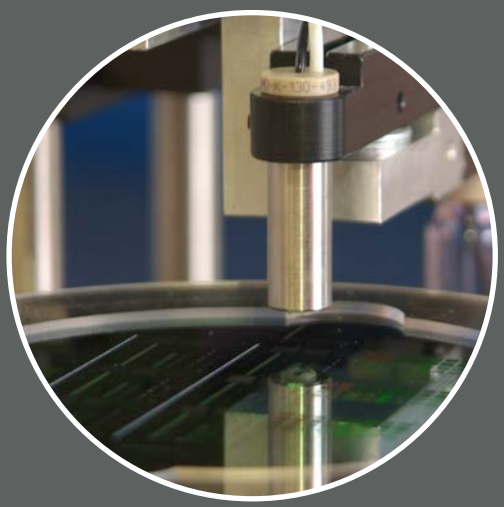
Pico- to Nanoliter Liquid Handling
- Drop-on-demand dispensing
- Precise and repeatable volumes



Microarray Printing
- No risk of cross-contamination
- High positioning accuracy



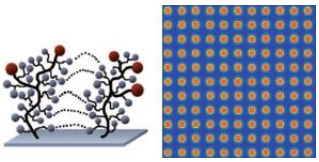
Applications beyond Life Science
- Adhesives, Assembling
- Oil, Lubrication
- Functional Polymers

www.microdrop.de
info@microdrop.de

Molecular Surface Engineering for high performance consumables

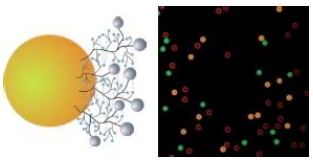
PolyAn is a nanotechnology company specialized in the modification of surfaces using Molecular Surface Engineering (MSE). Since 1996 PolyAn develops and manufactures consumables for multiplex diagnostics and LifeScience research.

Products



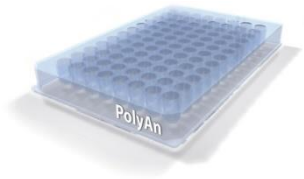
Consumables for Microarrays

PolyAn is one of the leading producers of functionalized substrates for microarrays. Our wide range of surfaces, substrates and handling tools for microarrays enables our customers to easily select the most suitable substrate for their specific application.



Microparticles

PolyAn is offering a portfolio of monodisperse PMMA (poly methyl methacrylate) microparticles (beads) for multiplex bead assays, calibration of flow cytometers and calibration of fluorescence imaging systems. PolyAn's microparticles can be colour encoded with a wide range of fluorescent dyes and functionalized with PolyAn reactive 3D-matrices.



Functionalized Microplates for Immunoassays

PolyAn´s reactive microplates are used for covalent immobilizing biomol PolyAn's microplates are used for immobilizing biomolecules that inefficiently coat by passive adsorption. PolyAn offers Amine binding, 3D-Azide and Streptavidin coated 96-Well plates for challenging ELISA applications.

Calibration tools for fluorescence imaging systems

For fluorescence based detection systems PolyAn is offering re-usable calibration tools. PolyAn's calibration slides for cell assays are used as quality controls in a number of IVD systems for immunology applications.

Molecular Surface Engineering Services - PolyAn is able to equip almost any substrate with our reactive matrices for selective immobilization and antifouling surfaces for the reduction of cell adhesion and unspecific binding, respectively. As part of our Molecular Surface Engineering services, we offer functionalized consumable and substrate materials for OEM applications, which are tailored to specified customer requirements.

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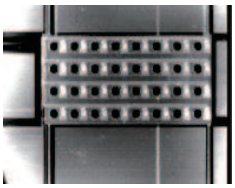
Bringing biological content into Biochip and Biosensor systems: Scaling of multiplexed diagnostic test production on Biochips and Biosensors using ultra-low liquid volume dispensing

Alba Simón-Muñoz, Guido Bared & Holger Eickhoff
SCIENION AG, Volmerstr. 7b, 12489 Berlin, Germany

Introduction

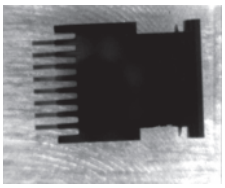
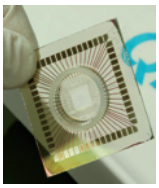
Most rapid diagnostic tests work by capturing molecules on a solid surface. Surfaces can contain discrete binding sites for analytes carrying a specific capture molecule. The trend in the miniaturization of diagnostic test systems with the intention to increase throughput and decrease cost, requires precise handling of picoliter to nanoliter liquid volumes. Due to the possibility to use only picoliter amounts of reagents, test production costs can be significantly decreased. In addition, due to the smaller feature size of the analytes, introducing multiple other analytes onto the same test area can be easily achieved. A technology platform for seamless use from R&D to production, which delivers ultra-low volumes very accurately onto any surface, enables short development times. Sophisticated optical systems for online alignment, calibration and quality control of goods produced are important from the first development steps.



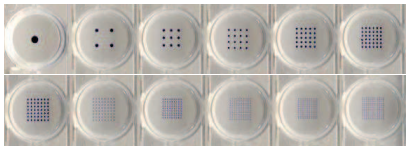

Integrated circuits

Various Biochip and Biosensor formats can be loaded with Picoliters of Biomolecules

Miniaturized test formats for multiplexed testing can look very different. Either landing marks or complete areas have to be loaded with biomolecules and the active surfaces can vary from silicone and glass to polymers and metals. Non contact delivery of biomolecules onto these substrates keeps the surface coatings intact and is compatible with with electronic (amperometric, voltage metering, other) optical and mechanical detection (cantilevers).

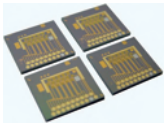
Miniaturized cantileves



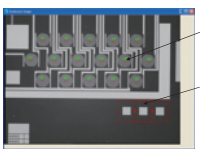
Arrays in wells of a 96well microplate well

Example: One integrated technology for biosensor production

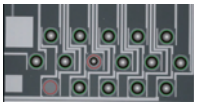
The sciFLEXARRAYER technology can be equipped with CCD cameras for target recognition, alignment of targets and post target loading quality control. Using various algorithms either the desired spot locations can be detected directly or reference marks (fiducials) can be used.

Target / sensor detection with head camera



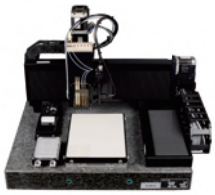
Different alignment methods



Online quality control: Spots can be checked and analyzed with the head camera after dispensing

Dispensing Systems: Adapted to all manufacturing needs

Scienion offers one single drop delivery technology in all its products. Depending on the required scale and throughput various machine sizes can be utilized from early research through development to final production. Different dispensing systems are offered. While the sciFLEXARRAYER S3 is the perfect entry-level model and is ideally suited to establish all conditions for the generation and production of a functional assay, sciFLEXARRAYER S12 and SX are designed for medium and high throughput batch production.



sciFLEXARRAYER S3

sciFLEXARRAYER SX

Large-scale Production: Without limitations

For the high-throughput production of e.g. POCTs, microarrays and the loading of biosensors, continuous in-line systems are needed. Therefore, modular systems that can be tailored to specific production requirements are particularly suitable. The sciFLEXARRAYER S100 enables unlimited batch sizes due to a conveyer belt production, minimizes array to array variation and facilitates the mass production of an extremely broad range of assays for a high variety of applications.

sciFLEXARRAYER S100:
Continuous in-line production

Conclusion

The sciFLEXARRAYER technology is ideally suited to accompany innovative biochip and biosensor technologies for quantitative rapid tests used in diagnostics. The technology can be applied from classical development approaches to manufacturing processes without having the need to switch the technology, thereby saving development time and enabling earlier market access.

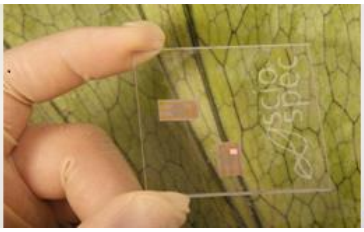
Sciospec - impedance spectroscopy at its best

Sciospec Scientific Instruments specializes in solutions for electrical impedance spectroscopy and other electrochemical/-analytical techniques. Additionally, a growing range of optical and laser-based methods is supported. Primary applications are bio-analytics, biosensors, material science and process control.

Apart from our standard laboratory products, the highly modular platform enables cost efficient, yet highly precise application specific solutions for research and industrial use. Consequently modular hard- and software concepts enable the realization of application specific solutions. Besides high-end laboratory setups Sciospec has developed several modules for applications demanding compact and robust sensor evaluation devices with flexible interfaces for decentralized measurements. Impedance spectroscopy, massive multichannel data acquisition, potentio-/galvanostats, QCM, temperature control, optical and laser-based methods are all available as OEM or integrated into lab instruments.

From small scale biochip solutions over multichannel biochip-readers up to massive-multichannel solutions for fully automated industrial process control or high content screening for pharmacological testing - scalability is embedded at the heart of Sciospec`s technological platform. Flexible and open interfaces both for hard and software greatly simplify the development of application specific add-on modules by us or our customers themselves.

We are constantly thriving to enhance our technology and engage in numerous research activities. Focuses thereby are biosensors and bio-analytical/medical applications. Beyond that we also pair up with expert partners in microfluidics, material characterization and micro mechanical techniques (QCM/SAW) and chip/sensor design. We actively support the scientific community and are member of the International Society for Electrical Bioimpedance and numerous expert committees for impedance-based technology.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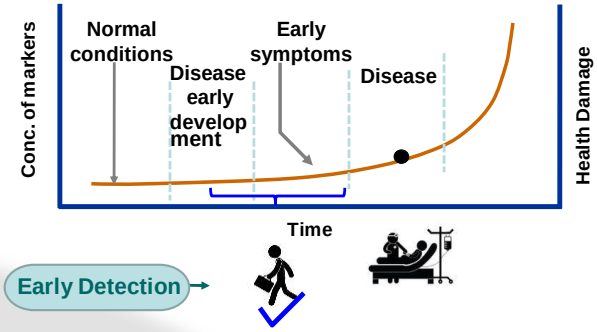
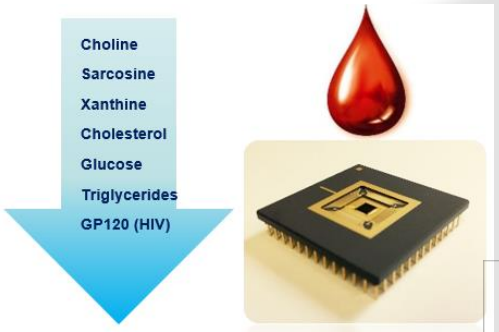
The Multicorder

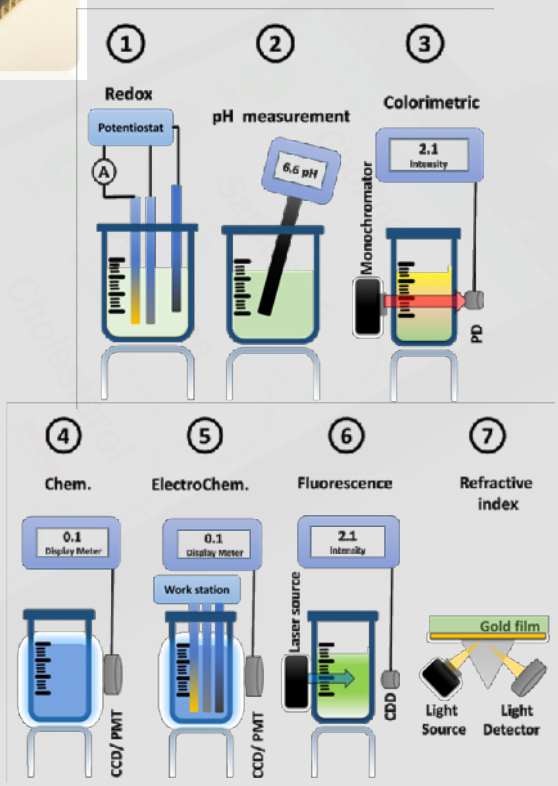
The Multicorder is a low-cost hand held point-of-care device using silicon (CMOS) technology for prognosis/diagnosis of disease which was developed by scientists from the University of Glasgow. It is capable of detecting and monitoring multiple metabolites/proteins in a real-time manner with electrical and optical sensor arrays.



The Multicorder has the ability to diagnose a disease at its early stages. It has a potential to improve public health and reduce the burden from primary care.

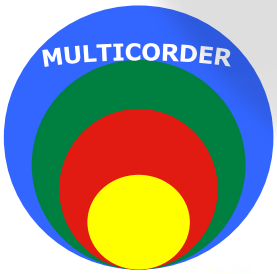


In a drop of blood there are thousands of biomarkers that can be exploited to detect diseases. For most cases, a combination of several biomarkers is required to diagnose one single disease.

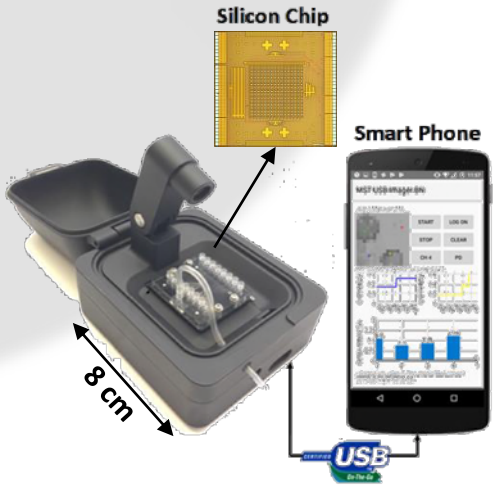


Various diagnostic methods have been adopted for detecting different kinds of biomarkers as shown in the drawing.

Multicorder technology has seven integrated modalities, allowing multiple biomarker detection depending on the dedicated application.



This hand held device with disposable chip has been proven to have the potential for diagnosis of diseases such as CVD, sepsis, and cancer.



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