scienion

ENABLING LIFE SCIENCE

YOUR SAMPLES...

- deposited precisely
- in any configuration at virtually any volume
- on any surface
- with no carryover
- scalable from lab bench to manufacturing!

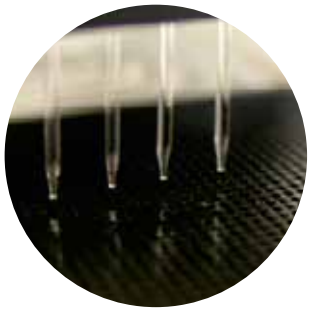
Cell based Assays, Biosensor, Protein Biochips, Nitrocellulose, Allergens, Glycan Arrays
Microneedles, DNA Biochips, Peptide Arrays, Lateral Flow And many more...

IN BASIC RESEARCH...

IN DIAGNOSTICS...

IN YOUR INDUSTRY!

OUR VALUES



Quality

The customer comes first in everything we do. We strive to provide every customer with services and products of uncompromising quality - error free, on time, every time. We do that by dedicating ourselves to the relentless pursuit of excellence in the services we provide.

Integrity

Credibility is the key to our success; therefore, all of our processes, decisions and actions ultimately are driven by integrity. We are honest and forthright in all our dealings with our customers and with each other. We are responsible corporate citizens in the community we serve. We strictly comply with the laws and regulations governing our business, not only as a legal obligation and as a competitive necessity, but because it is the right thing to do.

Innovation

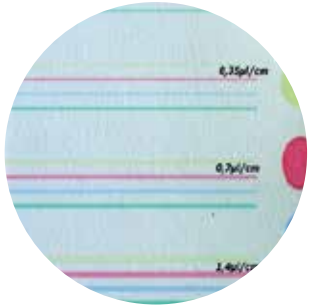
We constantly seek innovative ways to enhance diagnostic testing and provide value to our customers. We support the creativity, courage and persistence that transform information into knowledge, and knowledge into insights. We seek continuous learning through the adaptation of existing knowledge, as well as through experimentation, with the full understanding that we learn from our failures as well as our successes.

Accountability

As a company and as individuals, we accept full responsibility for our performance and acknowledge our accountability for the ultimate outcome of all that we do. We strive for continuous improvement, believing that competence, reliability, and rigorous adherence to process discipline are the keys to excellence.

Collaboration

We believe in teamwork and the limitless possibilities of collaborative energy. We achieve excellence by putting collective goals ahead of personal interests. We support and encourage open communication and meaningful cooperation among colleagues from varying backgrounds and disciplines. We respect individual differences, and we value diversity.



Leadership

We strive to be the best at what we do - both as a company, and as individuals. We embrace the qualities of personal leadership - courage, competence, confidence and a passion for surpassing expectations. We will provide growth opportunities for our employees, quality services and products to our customers and superior returns to our shareholders.

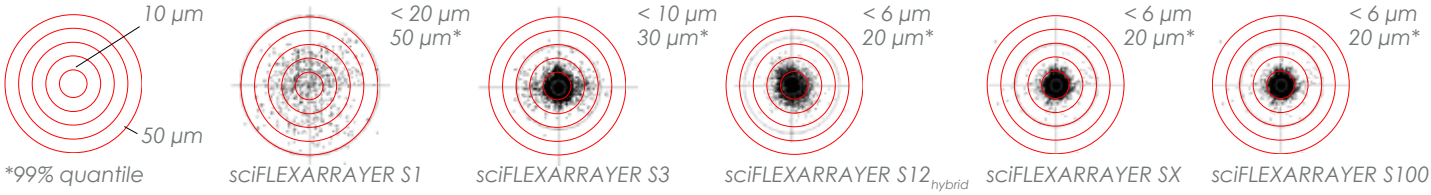
SCIENION is a world leader in ultra-low volume non-contact liquid handling and microarray technologies.

We provide our customers an integrated portfolio facilitating and improving multiparallel bioanalytics, high-throughput screening and production of microarrays.

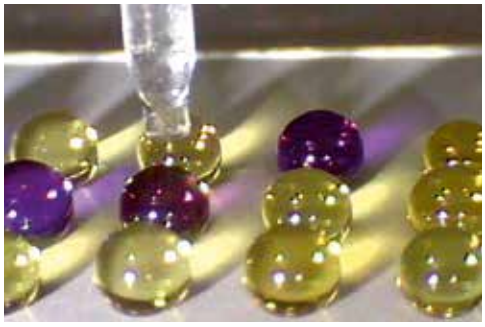
TECHNOLOGY

HIGH PRECISION & ACCURACY

- SCIENION´s non-contact technology minimizes effects seen with contact printing e.g. pin-based contact deposition techniques can lead to some pronounced `donut´ effects
- Mechanical performances: precision as low as 3 µm and accuracy as low as 10 µm
- Standard spot performance and specifications vary by model



- Dispense volume precision for sciDROP PICO < 2% CV



150 pL reagents added to 50 nL drop

High quality spots enables Drop-in-Drop & Drop-on-Drop dispensing!

LOW VOLUME REAGENT DISPENSING

Very small dead volume: < 2 µL

ARTEL VERIFIED

- Enables assay miniaturization beyond current limits
- Easily dispense sub-nanoliter amounts of reagents into 1536 or 3456-well plates, with better than 0.05 mm positioning
- Dispense directly from low profile vials or tubes, or from any plates, without the need for specialized labware

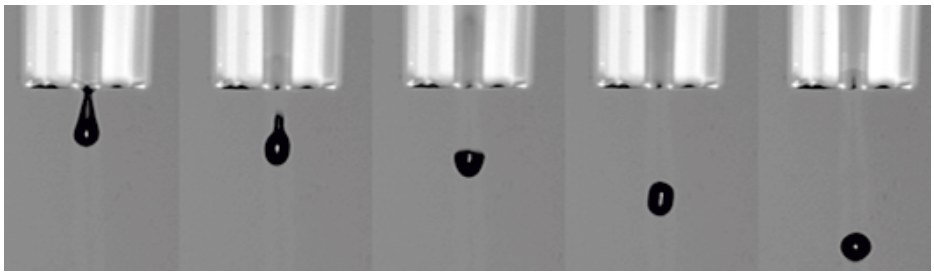
FEATURE	sciFLEXARRAYER	ACOUSTIC DISPENSER
Source reservoir	Single vials or any plates	Qualified plates only (Acoustic dispensing compatible)
Dead volume	< 2 µL total	~ 1 to 20 µL in each source well
Liquid compatibility	Almost any liquid, wide range of viscosities, aqueous and organic	DMSO Aqueous with special calibrations
Volume range and control	0.07 to > 200 nL selectable 0.07 to 0.8 nL increments	2.5 nL to 50 µL (per source well) in fixed 1.0 ~ 2.5 nL increments
Destination	Any plate well or surface with precision drop positioning	Inverted plate or surface

TWO SPOTTING TECHNOLOGIES

sciDROP PICO

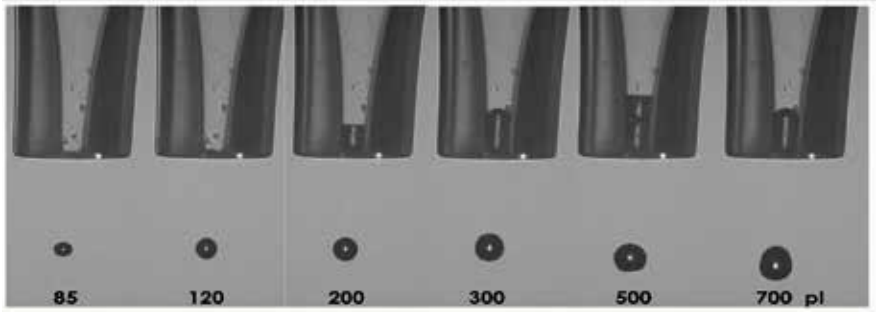
SCIENION's sciDROP PICO is a state-of-the-art non-contact dispensing technology based on piezo driven pulses on an inert glass capillary. This enables accurate and precise droplet deposition under various conditions. All Piezo Dispense Capillaries (PDCs) feature full aspirate and dispense liquid handling capabilities at the picoliter scale.

- Non-contact dispensing
- Pico Dispense Capillaries (PDC)
- State-of-the-art piezo ceramic around glass capillary
- 80-250 µm typical spot sizes
- 50 to 800 picoliter drops
- Up to 5 ~ 10 mPa*s (CPS)
- Aqueous and organic solvents



Stroboscopic imaging of drop ejection from 0 to 200 ms

- Inert glass capillaries ensure sample integrity
- Dispensing into small cavities
- No contamination of source by substrate plate
- Highly reproducible
- No contact with spot surface allows for printing onto sensitive surfaces



TECHNOLOGY

SELECT ONE OR BOTH TECHNOLOGIES ON THE SAME INSTRUMENT!

sciDROP NANO

The heart of the sciDROP NANO technology is an electromagnetic micro valve with an extremely fast response time. Moreover, since the current is kept low, samples are retain at a safe temperature. A unique feature allows for both bulk dispensing from 1, 5, 10 and 50 mL vials, as well as an aspirate/dispense mode.
sciDROP NANO is geared towards applications where lines have to be precisely deposited onto nitrocellulose sheets, lateral flow membranes, dipsticks or other materials.

- Non-contact dispensing
- Bulk dispensing or aspirate & dispense
- Flow rates up to 8 mL / min
- Prints dots, lines,bars and coatings
- Online monitoring possible
- Nano dispense capillaries
- Electromagnetic solenoid microvalve
- Heatable head available on request
- 8 to 100 nanoliter drops
- Up to ~ 200 mPa*s (CPS)

sciLINER LATERAL FLOW DISPENSER

The first dispenser for membrane materials with full active visual drop volume control!

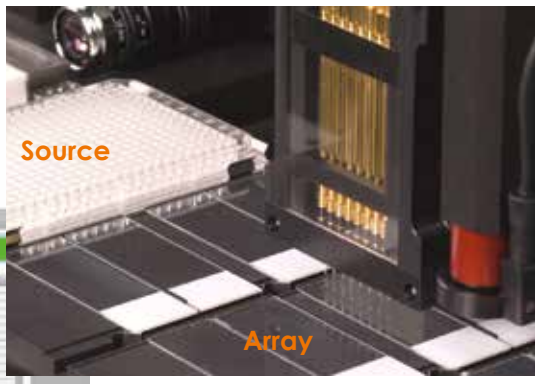
- Multiple dispense modes: up to 4 analytes at same time
- Freely scalable line spacing
- Variable line thickness by exchangeable valves
- No heating of samples
- Easy loading of membranes on magnetic target holder

Use on nitrocellulose, nylon & paper, . . .

SOFTWARE

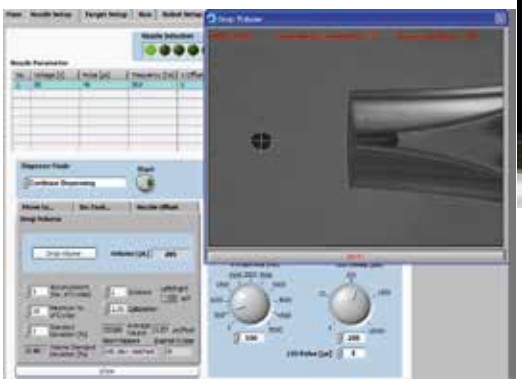
INTUITIVE USER INTERFACE

- Design of spotting setup
- Use of predefined tasks



QUALITY CONTROL

- Drop volume measured to < 1% CV
- Active control of the dispensed drops
- Powerful QC software
- Re-spotting of missing spots
- Tuning of droplets properties
- 3D drop camera
- Live stream camera



SMART TARGET ALIGNMENT

- Online target aligment
- CCD camera for detection
- Easy to use software modules for detection & analysis

Use of fiducial marks allows highly accurate positioning of substances even when the biosensors are not entirely uniform or are not perfectly well arrayed on the target holder.

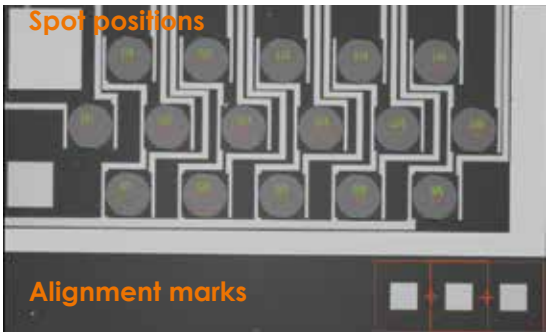


Image analysis, pattern recognition and angle correction to identify deposition targets.

PIEZO DISPENSE CAPILLARIES - PDC

The sciDROP PICO option, together with SCIENION´s surface coating technology, provides access to a broad field of applications with high accuracy and precision dispensing a wide range of liquids: biomolecules using water based printing buffers, small molecules using a range of organic solvents, suspensions of micro- or nano-particles as well as polymers.

The technology is based on a ceramic piezo element that is fitted around a glass capillary. The piezo element is triggered by an electrical pulse which, in turn, leads to a contraction of the ceramic. This creates a gentle wave inside the capillary that forces out a small drop of sample from the orifice of the PDC.

PIEZO DISPENSE CAPILLARIES & PDC COATINGS*

PDC 40: 100-150 pL
PDC 50: 150-220 pL
PDC 60: 220-300 pL
PDC 70: 300-360 pL
PDC 80: 360-440 pL
PDC 90: 440-520 pL
PDC 100: 520-600 pL
PDC 110: 600-800 pL

Type 1: Oligonucleotides in aqueous solutions, some organic solvents
Type 2: DMSO,DMF etc. protein mixtures (lysates, allergens etc.
Type 3: Protein solutions, solvents like methanol, isopropanol, acetonitrile
Type 4: Protein solutions and Sol-Gel™ samples
Customized: modified according to customer requirements

** Proprietary to SCIENION*

Gentle with no sheer stress enables live cell dispensing
No additives (e.g. glycerol) necessary in the sample formulation
Precise drop volume control with unique visual detection
Zero dead volume enabled using Air-Gap dispensing
No crystallization of sample inside the tip due to a round orifice
No satellite drops due to full drop ejection parameters control

Dispensable Media / Samples

We have worked very successfully with the following solutions but this list is not exhaustive:

- Acetone, BSA, Butylacetate, Ethanol, Glycerol, Isopropanol
- Allergens, Antibodies, Antigens, Carbohydrates, Cells, Enzymes, Glycans, Glycoproteins, Lipids, Oligonucleotides / DNA / RNA, PNA, Proteins
- Gelatine, Hepes, Sol-Gel, Sucrose, Tween, Urea
- Magnetic Beads, Nanoparticles, Polymers

The same devices are used from development to large scale production runs. Streamlining process validation!

sciFLEXARRAYER

The sciFLEXARRAYER product line represents the perfect tool for automated ultra-low volume liquid handling of various types of samples (e.g. biological, organic, nanoparticle and dyes) in diagnostics, genomics, proteomics and technical applications. In addition, due to the inert nature of the glass capillaries, it is an ideal tool for miniaturized chemistry applications, such as in polymer and materials research. Within seconds, liquid volumes between 100 picoliters and 1 microliter can be spotted in steps of 100 picoliters. All systems are driven by the same state-of-the-art non-contact dispensing technology.
The sciFLEXARRAYER comes in six well established versions, addressing the needs of our customers from early research to high-throughput manufacturing.

FOR THE LAB / R&D - sciFLEXARRAYER S1 & sciFLEXARRAYER S3

Developed as a basic research tool for applications with less requirements regarding accuracy and speed, the **sciFLEXARRAYER S1** is capable of non-contact arraying of DNA and proteins, cell transfection arrays, loading of biosensors and the preparation of MALDI targets.

The **sciFLEXARRAYER S3** provides a much higher precision and accuracy. With its space-saving design the S3 is an economical entry unit for academic and R&D labs. In addition to the proprietary sciDROP PICO technology it can be equipped with the sciDROP NANO technology, making it also a perfect match for lateral flow device spotting.

MEDIUM PRODUCTION - sciFLEXARRAYER S12hybrid

The **sciFLEXARRAYER S12hybrid**, the advanced version of the sciFLEXARRAYER S11, takes contactless spotting to another dimension regarding speed, accuracy and precision which reaches values as low as 5 µm. The spotter is ideal for small to medium batch-size production as well as for manufacturing high quality arrays in all situations where ultimate precision is required.
Modern design with clear forms and a new, particle minimizing, opening door are characteristics for this printer. Unique: multiple sciFLEXARRAYER S12hybrid units can be connected with conveyer belts to become a powerful in-line production machine.

HIGH THROUGHPUT PRODUCTION
sciFLEXARRAYER SX & sciFLEXARRAYER S100

The **sciFLEXARRAYER SX** with its maintenance-free linear stage is the ultimate contactless spotter optimized for high scale batch production. It can be equipped with up to eight channels of either a sciDROP PICO or sciDROP NANO dispensing unit for liquid handling of picoliter to microliter volumes. Thus, allowing the flexibility to produce targets like biosensors as well as lateral flow and microfluidic targets. The SX has a self-contained, stand-alone setup that can be rolled into any kind of laboratory or production facility. In addition, it is fully compatible with clean-room setups and can be operated in a walk-away mode 24/7.

The **sciFLEXXARRAYER S100** is the world's first in-line linear drive, high-throughput production equipment. The targets are placed on customized carriers that move towards the dispense head mounted on each S100 portal and carriers are shuttled in-between the S100 portals via a conveyor belt. For customer specific applications, the system can be modified to meet any request for a variety of carrier formats. Each portal can be equipped with up to 12 liquid channels. This modularity allows precisely configuring the system to the required production volumes.
It meets the high-throughput production requirements of most bioarray formats like microplates, slides, wafers and a variety of biosensors. The two dispense technologies, sciDROP PICO and sciDROP NANO, are supported allowing for high-volume applications as well.

OUR CUSTOMIZED SOLUTION

Feature/Option	S1	S3	S12hybrid
Field of use	R&D	R&D	Medium scale batch production
sciDROP PICO	✓	✓	✓
sciDROP NANO	✗	✓	✓
Number of capillaries	1-4	1-8	1-8
Target of capacity	24 Slides 4 MTPs	24 Horiz / 36 Vert Slides 4 MTPs	70 Slides 12 MTPs
Axis system	X-Y Belt, Z Spindle	X-Y-Z Spindles	X-Y Magnetic, Z Spindle
X-Y Speed	50 mm/s	100 mm/s	3000 mm/s
Resolution (step size)	10 µm	1 µm	1 µm
Precision	< 25 µm	< 5 µm	< 3 µm
Accuracy	< 50 µm	< 15 µm	< 5 µm
3D drop camera	✗	✗	Optional
Live stream camera	✗	Optional	Optional
Vacuum target holder	✗	Optional	Optional
Spot-on-the-fly (encoder triggered)	✗	✗	Optional
Online target aligment	Optional	Optional	Optional
Online array QC software	✗	Optional	Optional
Dimensions with enclosure (L x W x H)	665 x 600 x 700 mm	760 x 850 x 650 mm	1250 x 830 x 1820 mm

sciFLEXARRAYER

FOR YOUR UNIQUE REQUEST!

S12hybrid	SX	S100	Feature/Option
Medium scale in-line production	High-Throughput batch production	High-Throughput in-line production	Field of use
✓	✓	✓	sciDROP PICO
✓	✓	✓	sciDROP NANO
1-8	1-8	1-12	Number of capillaries
70 Slides 12 MTPs	140 Slides 27 MTPs	Continuous production	Target of capacity
X-Y Magnetic Z Spindle	X-Y Magnetic Z Spindle	X-Y Magnetic Z Spindle, conveyer belt	Axis System
3000 mm/s	3000 mm/s	n/a	X-Y Speed
1 µm	1 µm	1 µm	Resolution (step size)
< 3 µm	< 3 µm	< 3 µm	Precision
< 5 µm	< 5 µm	< 5 µm	Accuracy
Optional	Optional	✓	3D drop camera
Optional	Optional	Optional	Live stream camera
Optional	Optional	✕	Vacuum target holder
Optional	Optional	Optional	Spot-on-the-fly (encoder triggered)
Optional	Optional	Optional	Online target aligment
Optional	Optional	Optional	Online array QC software
1250 x 830 x 1820 mm	1674 x 1712 x 851 mm	1300 x 800 x 1200 mm	Dimensions with enclosure (L x W x H)

RELATED PRODUCTS & SUPPORT

A WIDE RANGE OF ACCESSORIES AND OPTIONS

- Custom wash stations - compatible with organic solvents
- Source plate modules - variety of plate types, such as 384-well thin wall PCR plates
- Slide and plate holders - variety including cooled, heated, vacuum holders
- Standard or custom enclosures
- Humidity control, sensors, dew point control and HEPA filters for environmental control
- Heated head - enables dispensing of viscous solutions up to 1000 mPa*s
- PU vario allows variation of pulse shape for piezo electric generation of droplets

and many more...

SERVICE & SUPPORT

The customer comes first in everything we do. We strive to provide every customer with services and products of uncompromising quality - error free, on time, every time. We do that by dedicating ourselves to the relentless pursuit of excellence in the services we provide.

- Field personnel for onsite service & support
- Full application and engineering support available to ensure your success!
- Local parts inventory for rapid service

The low maintenance components will allow for years and years of use as a flexible and highly dependable tool for drop-on-demand dispensing.

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support@scienion.com | **USsupport@scienion.com**

Offered in BERLIN (Germany), California and New Jersey (USA), and Seoul (South Korea)

sciMULIPLEX PLATFORM

ROBUST MULTIPLEX IMMUNOASSAYS IN MICROPLATES

- high quality multiplex immunoassays
- no non-specific antigen or antibody binding
- reproducible precision
- allow large dynamic range (4 logs) with pg/ml sensitivity

Support
- sciCHIP
- sciPLEXPLATE

Printing and Immobilization
- sciFLEXARRAYER

Incubation
- sciBUFFER

Detection
- sciREADER

Enables miniaturization and multiplexing of classic assay applications to planar array format!

sciREADER CL2

- high resolution digital imaging of colorimetric assays and microarrays
- small footprint, integrable into robotic systems
- seamless integration of spotting patterns (GAL files)
- automated spot finding, image analysis and evaluation of arrays
- designed for clinical diagnostics and life science research
- optimized for sciPLEXPLATES 96 and sciFLEXARRAYER technology

CONSUMABLES

sciPLEXPLATE 96 for best array printing

- High immobilization efficiencies of biomolecules due to optimized surfaces
- Cost reduction by saving reagents, probes and samples
- Max. efficiency for large and small numbers of sample by using exact N° of wells
- Compatible with standard lab automation (pipettors, washers, incubators, etc.)
- Compatible with commonly used scanners

sciCHIP

- Polysiloxane layer offers high density and homogeneity of coupling groups
- **EPOXY** coating for the covalent immobilization of oligonucleotides
- **AMINO** coating for printing of PCR, RT-PCR products
- **ALDEHYD** coating for printing of amine and thiol moieties of amine-modified oligonucleotides, PCR-products, peptides, cells and tissues

sciHYBCHAMBER for improved hybridization results

- Patented sealing technology
- Special inlets for easy slide removal and a stable slide position.
- Chemical resistant and optimized to prevent gradients
- Single slide or simultaneous incubation of two slides ("sandwich hybridization")

sciBUFFER systems

- Optimized for DNA or protein microarray production
- Pre-mixed and sterile, no preparation required
- Compatible with all major microarray spotters

DEVELOPMENT SERVICE

SCIENION offers innovative, complete and flexible solutions for assay development and optimization for diagnostics and Life Science research. Our experts specialize in all aspects of successful assay production. The combination of surface functionalization, printing, immobilization, optimization of incubation protocols, detection and data analysis results in high performance multiplex assays that you can rely on.

Partnerships between our scientists and clients facilitate the creation of RUO or IVD tests that meet your needs exactly. The development service is modular and one can choose between different collaboration models. Design of a multiplex test for your needs, starting from scratch or with existing single assays is possible, as well as the transfer of already existing multiplex assays to the SCIENION platform.

Our validated technology and complete liquid handling portfolio, in combination with our scientific knowledge and experience, fulfill your specific needs for high-quality and high performance tests and systems.

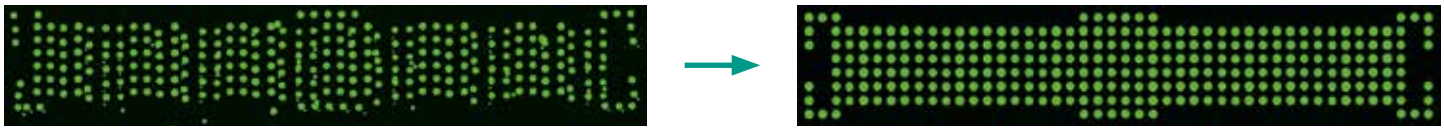
EXPERIMENT DESIGN

You can engage with our offering of services at any experimental or developmental stage.

- Probe labeling (RNA QC step performed. A number of labeling techniques available)
- Array hybridization (offered for many types using sciHYBCHAMBER and sciHYB and sciWASH buffers)
- Array scanning (image generation, offered with different microarray scanners)

APPLICATION DEVELOPMENT & OPTIMIZATION

- Array specifications (array layout – spot diameter – dot pitch)
- Substrate specifications (substrate format – surface chemistry)
- Spotting protocols (buffers, concentrations, PDC surface chemistries, wash procedures)



SERVICE RANGE

- Assay to array transfer development
- Surface functionalization of custom supports
- Miniaturization of assays

Offered in BERLIN (Germany), California and New Jersey (USA), and Seoul (South Korea)

CONTRACT MANUFACTURING

SCIENION is a world class, one-stop-shop service provider with more than 10 years history of success and constant growth in the microarray market. At SCIENION, experienced and specialized professionals handle microarray manufacturing on a daily basis.

Using of State-of-the-Art sciFLEXARRAYER technology we achieve the highest quality and consistency for array production. Quality control of 100% of the arrays is guaranteed. We offer the best price/performance ratio and short production cycles from purchase order to shipment. In addition, we also perform fast assay to array transfers. Leveraging our sciSERVICES saves your time and money, and enables you to focus on your core business

QUALITY CONTROL & ASSURANCE

- SCIENION AG is certified according to ISO 9001:2008 Quality Management System for the development, manufacture and sales of dispensing systems and microarrays
- SCIENION US, Inc. is certified according to ISO 13485:2003 Quality Management Systems - Medical Devices for the development, manufacture and sales of dispensing systems and microarrays
- CE marked instrumentation for high throughput production
- Dust minimized and controlled production environment (HEPA filtered air)
- Advanced in-process QC, 100% automated array control
- Functional QC: Application tests of randomly selected arrays
- QC certificate provided alongside with each batch of arrays

BENEFITS

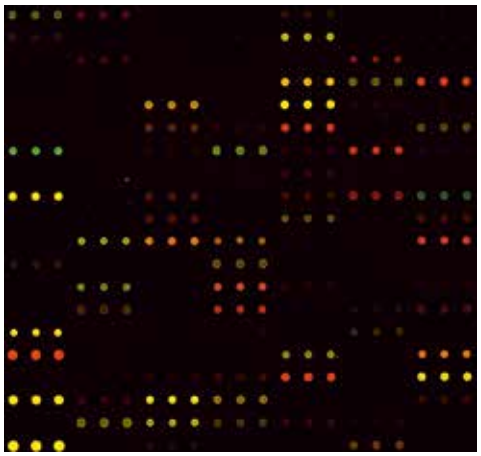
- Guaranteed Results
- Superior spot morphology leads to high reproducibility in diagnostic assay performance
- No surface damage when printing onto sensitive surfaces
- Ability to print onto supports with difficult geometries e. g. different types of biosensors
- Advanced QC: each printed array is imaged and compared to an accepted reference
- Scalable technology ensures process integrity from R&D to industrial-scale production

Offered in BERLIN (Germany) and PRINCETON NJ (USA)

APPLICATIONS

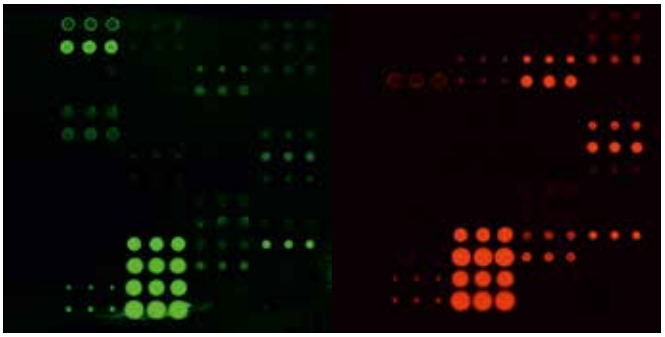
DNA BIOCHIPS

- Single or double stranded nucleic acid samples are spotted on e.g. glass slides in microarray formats
- Functional studies of nucleic acid - nucleic acid or nucleic acid - protein interactions are important tools in biological research and medical applications
- Nanoliter PCR include real-time expression profiling and SNP genotyping
- These concepts of analysing will generate results within minutes and save money



GLYCAN ARRAYS

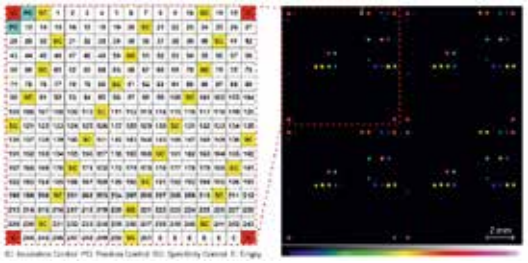
- Microarrays of defined glycans represent a high throughput approach to determining the specificity of lectins, or more generally glycan-binding proteins (GBPs)
- Functional studies of carbohydrates become important tools in biological research and medical applications
- With a multiplex glycan microarray several carbohydrate specific antibodies could be detected
- This concept of analysing will generate results within minutes and save money



Multiplexed Glycan Array 12 x 14 multiplex
(green: coated glycans + serum1, red: coated glycans + serum2)

PEPTIDE / PROTEIN BIOCHIPS

- To use antibodies as diagnostic markers, accurate characterization of their antigen binding region is indispensable
- Using a 251 peptides microarray for the epitope mapping of human antithyrotropin receptor (hTSHR) antibodies, epitopes of seven murine monoclonal antibodies specific for hTSHR (mTSHRAbs) were mapped
- The peptide microarray exhibited excellent performance in single and multiplex antibody analysis as well as high specificity. This technology may have potential as a multideterminate in vitro diagnostic assay for the differential analysis of a heterogeneity of antibodies involved in the pathogenesis of autoimmune diseases



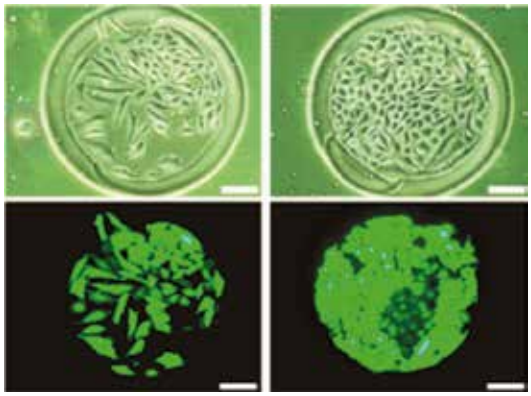
Courtesy of Heiko Andressen, Fraunhofer Institute for Biomedical Engineering

Published in J. of Immunological Met. 315, 11-18 (2006)

APPLICATIONS

CELL ARRAYS

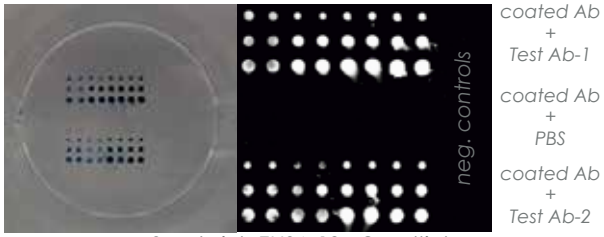
- Immobilization of vital cells is necessary for several applications, e.g. cell based biosensors, multiplexed toxicity assays, drug screnning and protein-protein interaction studies
- Bacterial and mammalien cells are successfully applied
- Cells spotted into microtiter plates, glass slides
- Formation of 100 nL drops on 400-500 µm spots



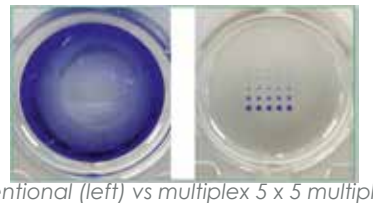
Courtesy of Ophelie Berthuy & Dr. Christophe Marquette
Université Claude Bernard Lyon 1

MULTIPLEX ELISA

- High quality multiplex immunoassays are easily achieved in 96- or 384-well plates
- Deposit a matrix of distinct capture antibodies in a defined array
- Each spot results in a different assay
- No non-specific antigen or antibody binding is achieved with proper optimization
- Very high assay capacity enables replicates for excellent statistical results analysis
- Large dynamic range (4 logs) with picogram/mL sensitivity
- Reduced sample and reagent consumption, lower assay costs



Sandwich ELISA 10 x 9 multiplex
(0.5, 1.0, 5.0 and 10.0 µg/mL concentration coating Ab)



Conventional (left) vs multiplex 5 x 5 multiplex
(100, 200, 400, 1000 and 2000 pL spots)

MULTIPLEXED LATERAL FLOW

- Diagnostic methods can be used to detect all kinds of components such as proteins (biomarkers, toxins, food allergens), microorganisms, specific RNA/DNA sequences, toxic chemicals (plasticizers), contaminants (antibiotics/pesticides), and other quality-determining components
- Multi-analyte lateral flow microarray immunoassays used as diagnostic platform
- Save time, material, and costs

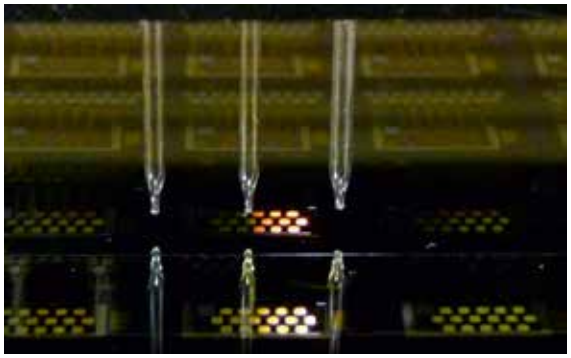
Courtesy of Sartorius Stedium Biotech GmbH

Courtesy of Aart van Amerongen
www.wageningenUR.nl/fbr/sensing-and-diagnostics

APPLICATIONS

BIOSENSOR LOADING

- Loading of biosensors can be quite challenging as surfaces are often highly reflective
- User-friendly SCIENION software tools allow for the detection of microstructures and intricate patterns on biosensors with an unsurpassed level of accuracy
- Precise localization of positions to dispense on and the use of fiducial marks allow highly accurate positioning of substances, even when the biosensors are not entirely uniform and are not perfectly arrayed on the target holder



MICRONEEDLES

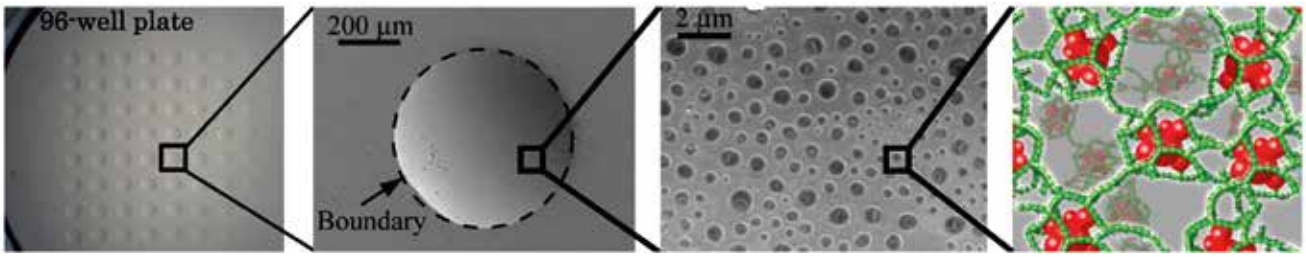
Microneedles have been used to deliver a broad range of different low-molecular-weight drugs, biotherapeutics and vaccines, including published human studies with a number of small-molecule and protein drugs and vaccines.

- High quality loading of different kinds of microneedles (solid, polymer microneedles)
- Reduced sample and reagent consumption, lower production costs

ENCAPSULATION TECHNOLOGY

PCL's SG Cap™ technology is an innovative new way to study molecular interactions. The SolB™ reagent captures large amounts of chemicals or macromolecules within a network of pores. Captured molecules remain in their natural conformation and in an active orientation, without the need for any affinity-tag modifications.

- Drug target identification by compound – target protein binding
- Multiple disease diagnostic chip
- Detection of protein expression in cell lysates
- Reverse phase protein microarray providing high dimensional proteomic data
- Study of molecular interactions, e.g. chemical – protein, protein – protein, aptamer – protein, and more



www.PCLchip.com

WHAT SOME OF OUR CUSTOMERS ARE SAYING

"After a rigorous search for an automated liquid dispensing system with the precision needed to spot sample material onto the Maverick system's 30-micron rings, I am pleased to announce this agreement with Scienion," said Cary Gunn, PhD, CEO of Genalyte. "The company's dependable, ultra low volume dispensers allow for highly precise, contact-free drop spotting. We now can offer our customers a comprehensive validated automated system for multiplexed detection and analysis."

Dr. Viktor Růzicka, CEO of BioVendor Laboratorni medicina a.s., comments: "Miniaturization and automation are key to our immunoassay production and the sciFLEXARRAYER has proven itself to be a state-of-the-art instrument for precise low volume liquid handling. We use it for developing new multiplex tests in microtiter plates to offer our customers cost-effective tools for parallel analytics. First application examples are multiplex IVD tests for the detection of borrelia infections as borreliosis can become a severe disease if not diagnosed early."

"We have been using Scienion manufacturing printing services to produce our CLART® product line. CLART® is a low density well-based microarray - platform for clinical use that allows the detection of multiple targets in a single test. This technology, jointly developed between SCIENION and GENOMICA, has enabled high quality standards and a flexible production schedule." Dr. María Luisa Villahermosa, R&D Director

"I have used the sciFLEXARRAYER S3 printer to develop a variety of applications in glycan microarray. R&D and QC work are made easily with its user friendly GUI, and Scienion's special nozzle coatings. This allows us to robustly dispense samples containing carbohydrates, proteins, and small molecules. Their support is unparalleled." Jian Zhang, Founder.

Dr. Montserrat Calleja, Head of Dept. Devices, Sensors and Biosensors, Microelectronics Institute of Madrid, comments: "The Scienion spotter provides the needed flexibility to address cantilever sensors of almost any size and design. This technique suits the need of high throughput functionalization of arrays of nano-mechanical systems as the inkjet head does not contact the surface of the fragile devices."

"We have a novel chip in our product portfolio in the business segment food analysis to simultaneously detect residues of different antibiotics in milk qualitatively and quantitatively very quickly", stated Dr. Peter Schubert, Head Research and Development at R-Biopharm AG. „For the reproducible high throughput production of this chip in top quality we have been looking for the best available devices for lab automation and production. Tests have shown that the sciFLEXARRAYER clearly achieved the best results compared to other devices. Therefore, we decided for the SCIENION technology."

"Complex oligosaccharides and carbohydrate microarrays play an important role invarious parts of our research activities", says Prof. Peter H. Seeberger from the Max Planck Institute of Colloids and Interfaces in Potsdam, Germany. "After comparing different dispensing systems we decided on the sciFLEXARRAYER S3 as it ideally meets our needs for the precise handling of small amounts of our precious substances and allows for the reproducible production of carbohydrate microarrays."

"My research on magnetic nanotechnologies includes magnetic biochips, in vitro diagnostics, nanopatterning, and many other advanced technologies. Our sciFLEXARRAYER has proven to be an indispensable component of this research. Onsite service and support from Scienion has been terrific." Dr. Shan Wang, Director of the Stanford Center for Magnetic Nanotechnology and Professor of Materials Science & Engineering, Electrical Engineering and Radiology.

Dr. Ulf Steller, Head of Microarray Division at EUROIMMUN AG, gives several reasons for choosing Scienion's sciFLEXARRAYER: "Having compared different dispensers, we regard the sciFLEXARRAYER family as the most advanced DNA and protein printing system currently available. Performing extensive pilot studies at Scienion convinced us of the technology and was a great aid in taking this important decision. For us, the flexibility of the system is a key advantage, as we manufacture different types of diagnostic tests. We expect that the integration of Scienion's scalable technology will help us adapt production processes to the throughput we need in the following years."

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