

SensoSpot[®]

Microarray Analyzer for Multiplexed Diagnostics

Instrument Platform Designed for Routine Diagnostic Use

- Microarray Analysis: Fluorescence and Colorimetry
- Open Platform: No Royalties
- Flexible Formats: Plates, Slides, and more
- Robust, Standalone Desktop Instrument
- Quick and High-Throughput Read-Out



SensoSpot
FLUORESCENCE

SensoSpot
COLORIMETRY

SensoSpot[®]

Microarray Analyzer for Multiplexed Diagnostics



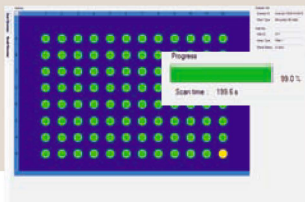
Would you like to read out your multiplexed assays in routine diagnostics?

SensoSpot[®] offers automated analysis of microarrays for multiplexed diagnostics.



Would you like to use an open platform and analyze different formats?

SensoSpot[®] is an open-platform analyzer for read out of microarrays on several substrates such as 96-well plates, microscopy slides or biochips.



Would you like to quickly get diagnostic results with high throughput?

SensoSpot[®] is able to analyze one 96-well plate in less than 4 minutes.



Would you like to integrate your reader with standard laboratory automation?

SensoSpot[®] can easily be integrated with standard liquid-handling or autoloading instrumentation.



... and above all use a robust and affordable system?

SensoSpot[®] has been designed to deliver high-performance results in a robust and compact platform at a competitive price point.

Routine Diagnostics

Open Platform

High Throughput

Robust & Affordable

SensoSpot®

SensoSpot® FL and SensoSpot® CL - Read-Out of Multiplexed Assays

The **SensoSpot®** product line consists of Microarray Analyzers for fast read-out and analysis of multiplexed assays based on planar, low density microarrays.

Fluorescent microarrays can be analyzed in two or three channels using the **SensoSpot®** Fluorescence. A wide range of fluorescent labels are compatible. **SensoSpot®** Colorimetry is used to measure colorimetric microarrays.

The **SensoSpot®** Microarray Analyzers are specifically designed for flexibility: Customized printing by one of our partners offers open configuration of panels and definition of consumables. The microarray might be located at the bottom of the wells of a 96-well plate, on slides, on biochips or other proprietary formats.

The compact **SensoSpot®** platform is equipped with a built-in PC, touchscreen and Sensovation's powerful ArrayReader Software. All instruments are manufactured under ISO 9001 and ISO 13485 and are prepared for certification of your IVD product.

Read-out of Planar Low-Density Microarrays

SensoSpot® Colorimetry: TMB (Tetramethylbenzidine) or similar dyes

SensoSpot® Fluorescence: wide range of labels e.g. Cy 3, FITC/Alexa 488 and Cy5/Alexa 647

Robust & Affordable: high performance at a competitive price point

Flexible Payment Options: hire-purchase, leasing and installments are possible

Colorimetric multiplexed ELISA labeled with TMB (Tetramethylbenzidine) can be analyzed by the **SensoSpot®** Colorimetry.



SensoSpot® Colorimetry and **SensoSpot®** Fluorescence allow for read out and analysis of planar, low density microarrays in 96-well plates, on microscopy slides or other formats.



SensoSpot®

- an open and robust platform

SensoSpot® Microarray Analyzers employ a solid state camera-based concept which is different to the scanning technology used in standard microarray laser scanners. The **SensoSpot®** is equipped with a high-sensitivity, low-noise CCD-camera for detection instead of Photo Multiplier Tubes (PMT). Illumination and fluorescence excitation is done with high power LEDs instead of laser beams.

The advantages are obvious:

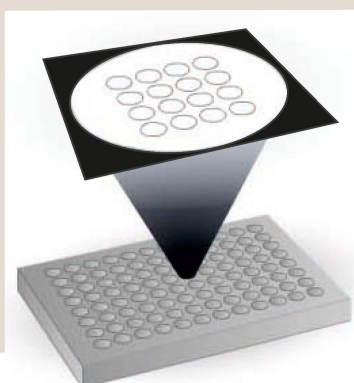
Using CCD technology allows for very compact instruments which are significantly lower in cost. Because the entire microarray image is captured with one shot, image acquisition and result calculation is significantly faster than with laser scanner technology. No filter wheels are used; no scanner optics or other moving parts are needed in the optical system. This is the reason why **SensoSpot®** is tremendously robust - no need for time-consuming installation and alignment or recalibration after transportation.

	SensoSpot®	Laser Scanner
Substrate	plates, slides, biochips	slides
Time for Read-Out	low	high
Footprint	small	large
Robustness	high	low
Alignment	none	needed
Transportation	easy	not easy
Installation	simple	often complicated
Pricing	affordable	high

Example of **SensoSpot®** workflow for scanning a 96-well plate. Similar workflows for other formats such as microscopy slides or biochips are easily configured.

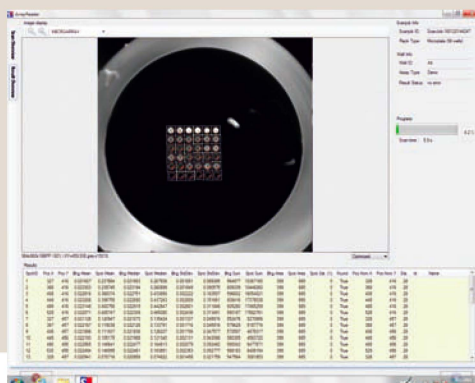
Image acquisition of entire well

The **SensoSpot®** camera takes an image of the entire microarray in well. The sample is illuminated by high-power LEDs.



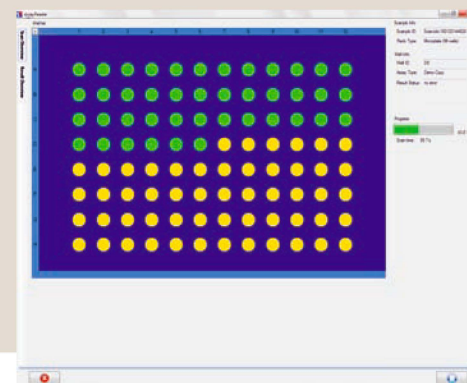
Analysis on the fly

Each Microarray is analysed on the fly.



Complete plate scan

The **SensoSpot®** scans the whole plate well by well.



Intuitive Multiplexing

Flexible Analysis

Intelligent Spot Finding

Easy Data Export



Flexible ArrayReader Software for Microarray Analysis

SensoSpot® system includes Sensovation’s ArrayReader Software in the Windows™ environment. The ArrayReader Software is a powerful instrument-control and array-analysis software – guiding the user from method development to result presentation. The ArrayReader Software provides advanced spot finding and analysis algorithms for fast and reliable microarray analysis. Adaption of various spot finding parameters results in optimal spot finding for the individual spotted microarray. Flexible EXCEL Workbook integration enables calculation of final diagnostic results – including decision making, based on certain threshold values.

The ArrayReader Software can easily be customized to a full diagnostic software. The application specific results of our OEM customer’s assays can also be calculated via a second user interface.

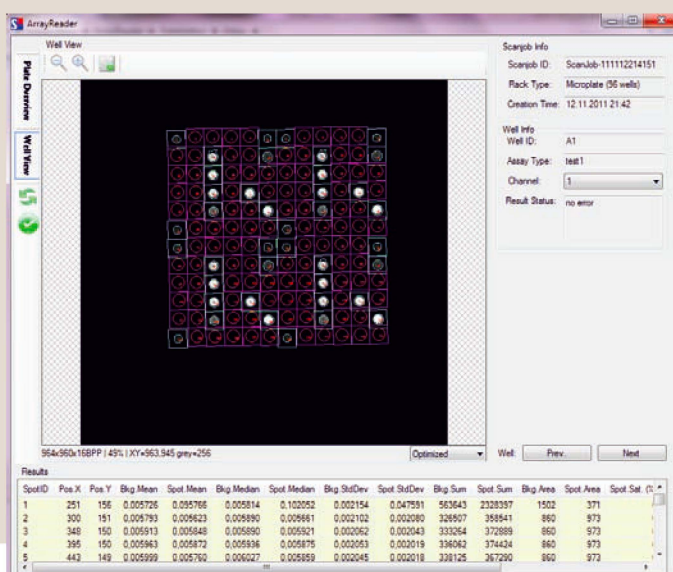
Flexible setup: standard or customized sample carriers

Open platform analysis: of any microarray format possible

Intelligent spot finding options: ensure reproducible and reliable results

Real-time array analysis: for an instant diagnostic answer

Flexible and easy: several data export and result interpretation options



Screenshot of ArrayReader software result window. The captured image was analyzed with automated spot finding algorithms. Result data like spot mean intensity and background mean intensity are listed below the image together with additional statistical data for spot and image qualification.

Result presentation from an EXCEL workbook generated using the EXCEL export feature of the ArrayReader Software.

Result calculation and diagnostic decisions are performed automatically from an application-specific template.

Result:	Final Conclusion:		Marker 1 OK: TRUE
Positive controls present: Present	Assay Valid	VALID	Marker 1 threshold: above threshold
Positive controls valid: valid	Marker 1	POSITIVE	Marker 1 valid: valid
Negative Control ok: TRUE	Marker 2	NEGATIVE	Marker 2 OK: TRUE
Negative Control Valid: Valid			Marker 2 threshold: above threshold
			Marker 2 valid: not valid


SensoSpot®

- your OEM Reader for Multiplexed Diagnostics

Sensovation is primarily in the OEM business and designs customer-specific imaging solutions. With 15 years of design experience, Sensovation works together with companies from the life science and diagnostic sector throughout the entire product lifecycle. The result is a cost-efficient and application-tailored IVD product for multiplexed diagnostics. Several branding options are possible tailored to your corporate design. The ArrayReader software is open to customized software via a TCP/IP remote interface for assay specific data interpretation and diagnostic decisions.

Sensovation is certified according to ISO 9001 and 13485 which provides the optimal basis for OEM product certification.

The **SensoSpot®** Microarray Analyzer platform is used by OEM partners in combination with multiplexed assays for diagnostic purposes as a certified IVD product.



GENOMICA

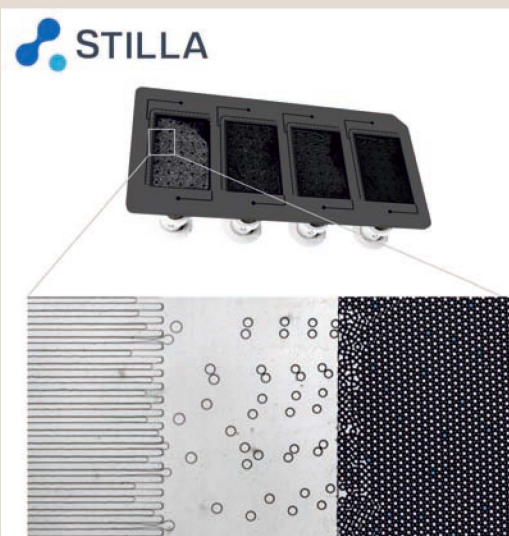
CLART® HPV2

Virus	Result	Controls
Type 6	Negative	Passed
Type 11	Negative	Passed
Type 16	Negative	Passed
Type 18	Positive	Passed



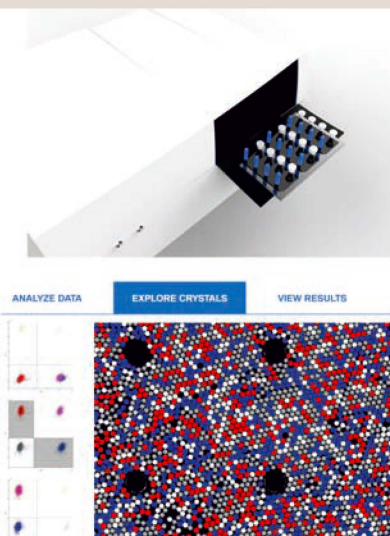
Courtesy of GENOMICA S.A. Unipersonal: The Clinical Array Reader CAR® is used to analyze the multiplexed CLART® HPV2 assay.

This colorimetric, microarray-in-well assay allows for screening of the human papillomavirus. 35 different HPV types can be genotyped.



STILLA

Naica platform components including a multi-well plate and a microarray chip.



Software interface showing analysis results with buttons for ANALYZE DATA, EXPLORE CRYSTALS, and VIEW RESULTS.

Courtesy of Stilla Technologies: The Naica platform implements Crystal Digital PCR for fast and reliable high-resolution genetic analysis. Sapphire Chips are used to produce droplet crystals by applying surface tension gradients. The fluorescence read out in three channels is realized by the customized Microarray Analyzer and diagnostic results are delivered by an application-tailored analysis software.

Autoimmune Diseases

Infectious Diseases

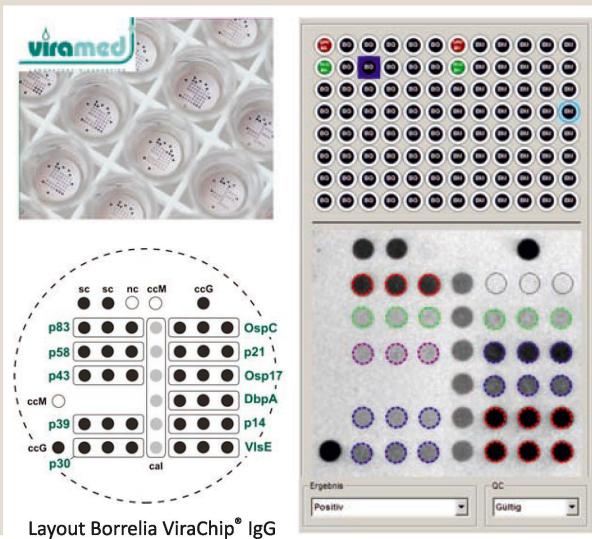
Blood screening

Cancer Research

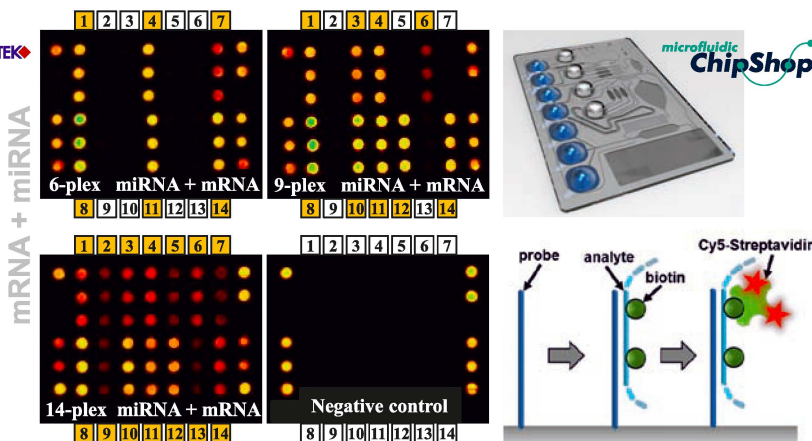
SensoSpot®

Advantages of Multiplexed Diagnostics

Multiplexing allows for simultaneous detection and analysis of different analytes in the same reaction vessel using the same sample. The **SensoSpot®** technology is designed for read out of planar low density microarrays on the bottom of 96-well plates, on slides or on biochips. Various analytes such as nucleic acids (DNA or RNA probes) or proteins (antibodies, antigens) can be spotted for multiplexed diagnostics. Spotting of Microarrays is done by our network of experienced microarray printer companies. We will assist our customers in finding the right partner. Multiplexed assays are applied and sold by a wide variety of **SensoSpot®** customers from the life science and diagnostic market.



Courtesy of Viramed Biotech AG:
Specific Borrelia IgG and IgM antibodies can be detected in human blood using the ViraChip® Test Kit from Viramed. It allows for diagnosis of human Borrelia infection. The colorimetric enzyme-immunoassay is read and analyzed using the **SensoSpot®** Colorimetry reflex.



Special forms of mamma carcinoma can be diagnosed using the NASBA (Nucleid Acid Sequence-Based Amplification) chemistry for automated multiparametric analysis of messenger RNA and microRNA patterns.

The entire sample processing is performed on a microfluidic chip. For detection and analysis the planar microarray is read out in two channels using the **SensoSpot®** Fluorescence. A complete microfluidic sample handling system was integrated in the **SensoSpot®** by Sensovation.

More information is available upon request.



Smart Imaging Solutions

Sensovation provides Smart Imaging Solutions for the Life Science and Diagnostics market certified for medical use (EN ISO 9001 and EN ISO 13485). Our core competencies are development and production of scientific imaging instrumentation and low light detection. We offer intelligent optical detection and data management solutions ranging from scientific cameras up to highly integrated instrumentation for multiplexed diagnostics and microscopy.

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