



# **PLEXERA®**

*Solutions for Functional Proteomics*

## **PlexArray™ HT System**

Label-free, high density and high throughput Surface Plasmon Resonance imaging (SPRi) system for kinetic characterization and multiplexed quantitative analysis of affinities, concentrations, and specificities.



## **Complete Solutions for Analyzing Biomolecular Interactions**

Pharmaceutical R&D

Biomarker discovery and development

Bioassays

Small molecules

Proteins and peptides

Antibodies

Aptamers

Nucleic acids

# PlexArray™ HT Analyzer Fully accelerating your re

## *Surface Plasmon Resonance imaging (SPRi)*

The PlexArray™ HT Analyzer utilizes Surface Plasmon Resonance imaging (SPRi) technology, an advanced and very sensitive optical technology that measures refractive index changes at the sensor surface due to changes in mass during binding events. It is the change in reflected light intensity over time that is used to quantitate biomolecular interactions.

As sample molecules (analytes) pass over the gold coated surface and bind to molecules immobilized to that surface (ligands), the changes in reflected light intensity are recorded and displayed as a “sensogram”. Increased binding or “association” and the subsequent release of the analyte or “dissociation” results in a real time change in the sensogram. When measured over time, the association and dissociation rates and the maximum change in intensity are used to calculate affinity and concentrations.

## *Label-free, high throughput and kinetic data - all in one package*

- Multiplexed label-free, kinetic analysis
- High-density microarray - analyze 10s, 100s or 1000s of unique ligands
- Fast automated analysis - 96 well autosampler allows multiple injections per hour
- Capable of detecting low-affinity interactions
- Parallel analysis of multiplex sample sets
- Automated system, unattended overnight operation
- Flexible platform, compatible with commercial protein printers

## *Highest-Density Microarray*

The PlexArray™ HT system has the industry's highest density format which provides the greatest throughput capacity among label-free, SPRi based systems for detecting biomolecular interactions. Users can print >1,000 features onto a single 1.4cm x 1.4cm array region. The array is analyzed as a movie rather than a one-at-a-time snapshot which provides real-time interaction data sets.

## *Integrated Temperature Control System*

Sample stability and data reproducibility require an effective temperature control system. The PlexArray™ HT Analyzer has multiple monitored and controlled temperature zones. The monitored zones include the thermally-insulated optical compartment and both the electronics and fluidics compartments with passive air flow. The controlled zones are the peltier cooled auto-sampler deck with a loaded sample plate and the docking station with the coupled sensor chip.

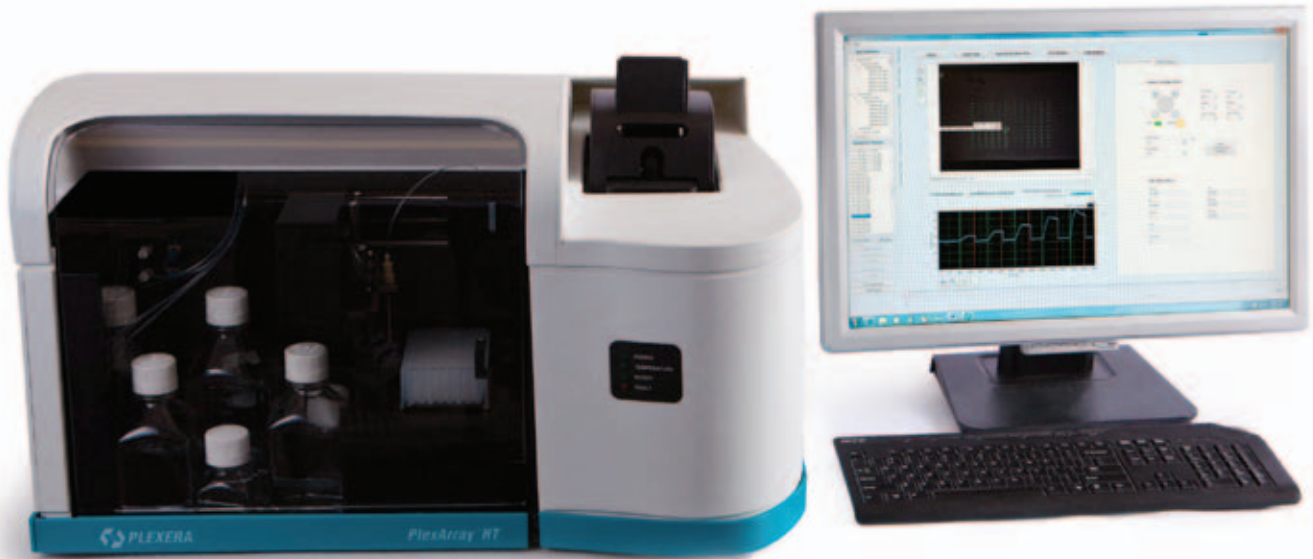
## *Label-free*

Label-free detection makes sample preparation faster, less expensive and the analytical process easier. This avoids the unnecessary chemical treatment of samples with fluorescent or luminescent tags that can interfere with biomolecular interactions and affect reaction kinetics.

## *Automated Fluidics*

The PlexArray™ HT system is equipped with a 2 pump and 2 valve fluidic module. The 2 valve system has high precision optical encoders that drive 6 port and 10 port valves. Intelligent design allows for pulse free programmed sample injection, in line degassing of water and buffers, and wash regeneration cycles. Sample integrity is maintained through smart sample partitioning using discrete plugs of air. The system is equipped with an auto sampler that comes standard with 96 well plate programming and an additional sample block with six 1.5ml tube holders and six 1ml tube holders. Waste level is independently censored. Experimental process times are optimized with concurrent operations like needle washing during an analytical run. All devices and data acquisition methods are controlled automatically via proprietary LabVIEW and Machine Vision code.

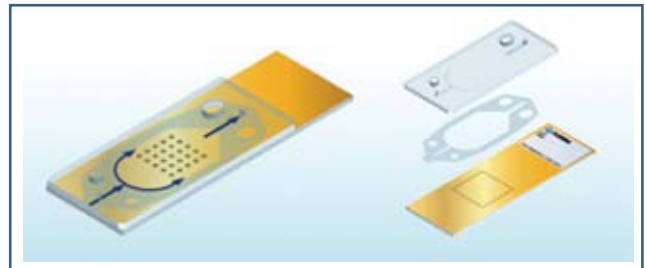
## search and development



### *Powerful Control Software*

The PlexArray<sup>™</sup> HT system software includes proprietary process control and data analysis modules that allow users to automate experiment set-ups and runs.

- Collect 1 frame of all spots per second in an avi file.
- Export data files and names to the data analysis software or industry software tools like Scrubber and Osprai.
- Fit 144 spots in approximately 4 minutes then automatically generate results reports based on National Instruments LabVIEW software
- Control multiple devices like the pumps, valves and autosampler while keeping the process integrity intact.



### *PlexArray<sup>™</sup> HT Sensor Chips and Microfluidic Flow Cell*

A unique, patented flow cell creates an extraordinarily versatile and flexible platform.

- The sensor chip comprises a gold-coated glass slide and a customizable cover that forms a microfluidic flow channel.
- Researchers can print any ligand with any printer, in any pattern.
- Arrays of arrays can be fabricated into the cover to create redundant tests in a single injection.
- After printing, simply fix the cell cover in place and run.

Laminar flow through the microfluidic flow cell ensures a uniform fluid delivery front yielding fast, consistent, and homogeneous surface wetting which reduces both channel artifacts and sample volumes. Undesirable fluid artifacts are swept away from the SPR window to the cell edges allowing uninterrupted analysis runs. Proprietary treatment of the fluidic process lowers internal pressure and minimizes dispersion of the sample solution during the sample injection process.



<b>Parameters</b>	<b>Specifications</b>
Technology	Surface Plasmon Resonance Imaging
Provided Information	Kinetics (ka, kd), Affinities (KD), Specificities, Concentration
Microassay Spot Capacity (analytical)	Up to 1000 spots 100 $\mu\text{m}$ or larger
Physical Spot surface load	5000 spots @ 100 $\mu\text{m}$
Minimum Molecular Weight	< 400 Da
Kinetics	Ka: $10^2$ - $10^6 \text{ M}^{-1}\text{S}^{-1}$
	Kd: $10^{-2}$ - $10^{-5} \text{ S}^{-1}$
Affinities	1pM-1 $\mu\text{M}$
Detection Limit	0.5ng/cm <sup>2</sup>
Flow Cell Volume	30 $\mu\text{l}$
Flow Rate	1-50 $\mu\text{l/s}$
Analysis Temperature	10°C- 40°C
Processing Time	5 to 20 minutes per injection. Over 3000 spots/hour
Data Display	Real-time Sensing Image
Size (high x width x length)	17 x 29 x 22 inch, 150 lbs. approx.
Safety	Designed to UL61010



**Seattle Office**  
 17625 130th Ave. NE Suite 103  
 Woodinville, Wa 98072  
 425-368-7410

Contact [jsmith@plexera.com](mailto:jsmith@plexera.com)  
 General Information [gen\\_info@plexera.com](mailto:gen_info@plexera.com)

**Mailing Address**  
 13110 NE 177th place #100  
 Woodinville, Wa 98072



**Beijing Location**  
 Represented by Gaotong Biotechnology Ltd.  
 No. 1 Wangzhuang Road  
 Room 0607, Building B  
 Haidian District, Beijing, China 100083  
 (86)-10-8237-8385

[www.plexera.com](http://www.plexera.com)