IRIS

Measure Binding Affinities
IRIS Kinetics MX-104™

Label-free imager for the precise measurement of bimolecular binding kinetics and binding affinities.



Measure Long K_{off}
Baseline is stable for hours!

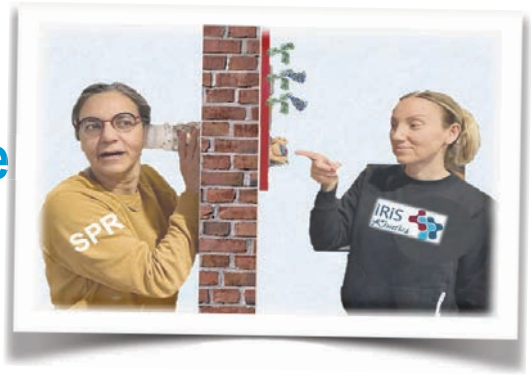
No Bulk Effects
DMSO shifts eliminated!

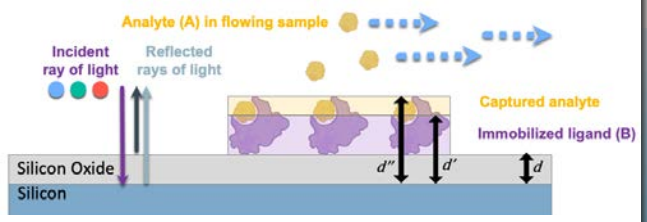
Multiplex Capable
Leverage the power of microarrays!

Generate quality binding kinetics & affinity data from your bench-top

iRiS Technology

Interferometric Reflectance Imaging Sensor for better data!





iRiS Kinetics Technology

The system is based on light interferometry, the most accurate method to measure molecular thickness. As molecules bind to the surface, the surface thickness changes. This produces a change in the reflectance spectrum. Quantitative thickness measurements, free of bulk effect, are possible via wavelength

No Bulk Effect

SPR is very vulnerable to refractive index of solvents. The signal arising from the sample solution can be much larger than the signal from the binding event. With iRiS, solution index changes can be directly measured and binding signal is acquired transparent to such bulk effects.

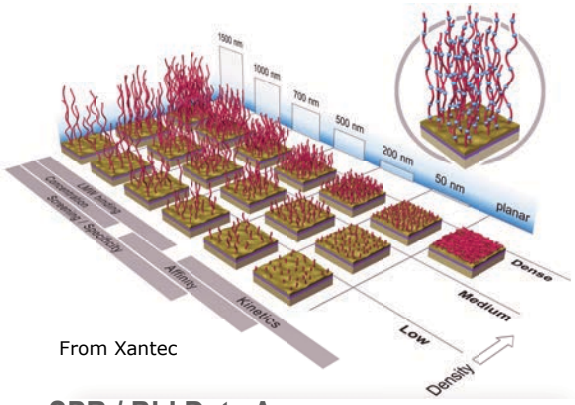
Multiplex Capable

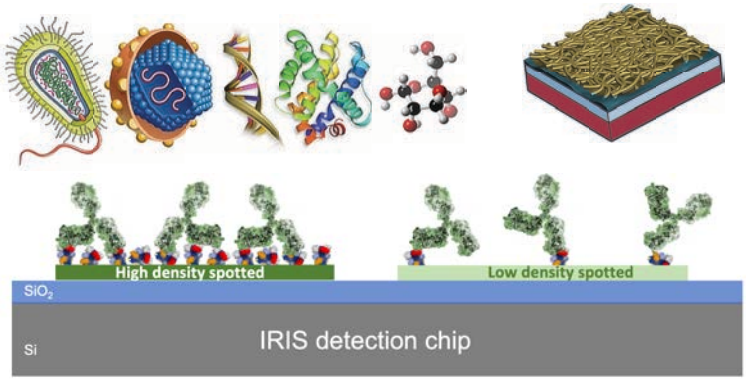
BLI is a simplex technology = one molecule pair in each well. Furthermore, it is mass transport limited. The iRiS flow cell alleviates such transport limitations. The multiplex array spotted on the chip allows for the generation of large number of parallel binding measurements for direct comparison.

SPR uses different chips for different analyses. Each chip type produces different results.

In SPR, small molecules need thick hydrogel, but kinetics measurements require a thin surface.

iRiS has superior sensitivity, allowing using planar coatings for all analytes - from small molecules to nanoparticles - ideal for kinetic measurements.





SPR / BLI Data Accuracy

For SPR, the choice of surface has a profound impact on the observed binding constants. In BLI, mass transport diffusion is an issue.

IRIS Data Accuracy

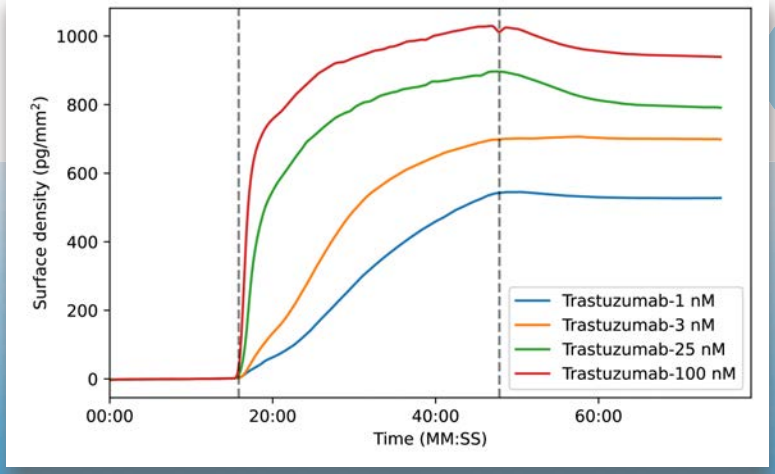
With iRiS, the quasi-2D array on a thin film polymer produces accurate data for all analytes, free of artifacts from diffusion into hydrogels, or from mass transport through a stationary sample solution.

"iRiS allowed us to acquire kinetic information for ligands where traditional SPR failed."
James Needham, PhD, InBios Intl Inc (Seattle WA)

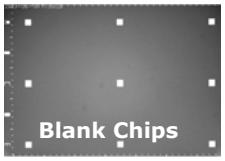
Low cost chips

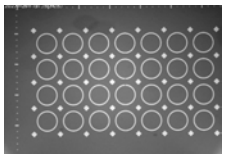
Ready to use for simplex or multiplex binding measurements

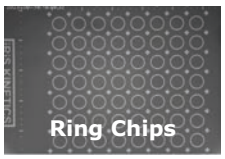




HER2 spotted on IRIS chip Trastuzumab flowed through at various concentrations.







Test different immobilization surfaces in one experiment

Surface:

You can get blank chips, or chips pre-coated with a wide range of immobilization layers.

- Streptavidin
- Epoxy, NHS
- MCP-2, MCP-4, MCP-7
- Custom coatings also available

Pre-Spotted Chips

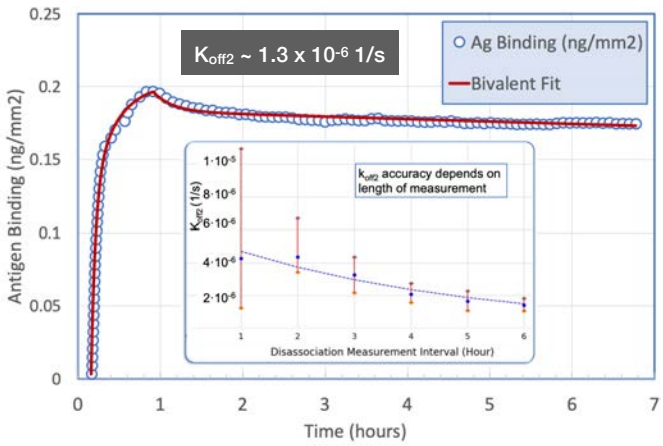
With chips pre-spotted with capture molecules, you simply flow your own capture molecule, followed by your analytes.

- Protein A, G, A/G
- Anti-His
- Multiple spots available for best binding chemistry selection

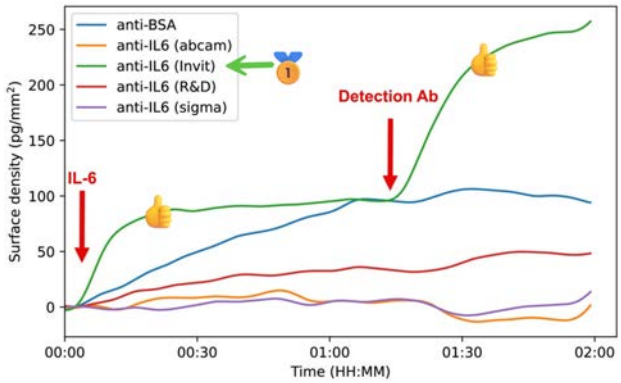


Spot your own arrays

Combined with an iFOUR spotter that is pre-programmed for the various iRiS chips, you load the capture molecules you want arrayed on the chip, and follow simple steps.

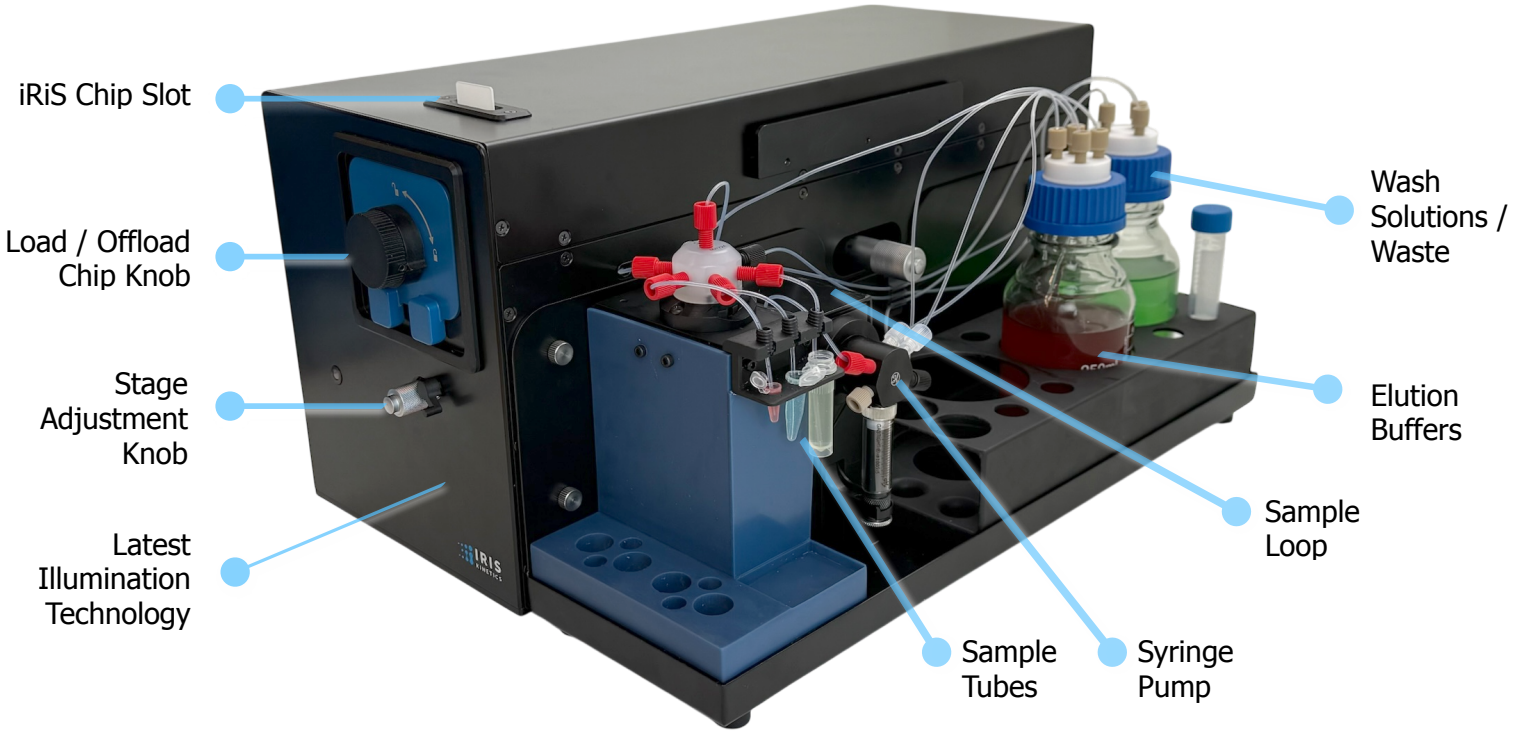


The error on the measurement of long off rates is greatly reduced by increasing the length in time of the measurement..



Selection of best antibody pair for a sandwich ELISA. One Ab is immobilized, the antigen flowed through the flow cell, followed by the detection Ab.

"Signal stability is incredible! *It's so easy to use! Flexibility is very powerful*"
Martin Devonshire, University of Portsmouth (UK)



Simple to operate by design. Works right out of the box!
Built-in computer only needs an external monitor/keyboard/mouse.

Sample Volume Range:	100 uL and up
Chamber volume:	2-10 ul
Flow rates:	1 ul/min to 5 ml/min
Max Experiment Time:	400 min per cycle
	No limit on # of cycles
Dimensions:	20 x 12 x 9 in (lwh)
Weight:	30 lbs
Power:	120-240 V (70 W)
	Uses a 24 Volt adapter

IRIS

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- 650 Albany St, Rm 128, Boston MA 02118

Antibody Selection

Spot your target protein, as well as off-target or related ones. Screen your candidate antibodies for selectivity and desired on-off rates.

OR

Spot candidate antibodies and flow your target analyte. Quantitatively measure and compare each binding characteristics in parallel.

Therapeutic Antibodies

Direct measurements of very long dissociation rates. (10^{-6} 1/s)
Multiplexed antibody chips vs proteins of interest.

Bioprocess Monitoring

The bulk-effect free capability of the technology allows for the sampling of cell supernatants, for the direct label-free measurement of biologics titers and composition.

Small molecule binding measurement - no bulk effect

Avoid surface effects inherent to SPR chips with hydrogels. The excellent sensitivity of iRiS chips allows measurements of small molecule binding to a monolayer of immobilized ligand arrays.

July 2025