Carterra®
High-Throughput SPR Technology

LSA

LSA^{XT}

**Disruptive Drug Discovery Platforms
for Screening and Characterization**

✳ carterra®

Fully integrated platform options for your applications

- 100x the data
- 10% of the time to answer
- 1% of the sample requirements of other systems

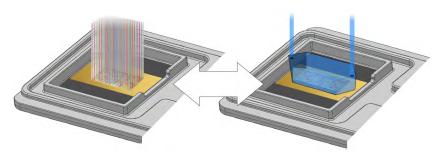|	LSA	LSA^{XT}
Purified or crude antibody kinetics/affinity	✓	✓
Purified or crude epitope binning	✓	✓
Peptide/epitope mapping	✓	✓
Mutant mapping	✓	✓
Quantitation	✓	✓
General multiplexed binding	✓	✓
Blockade assays	✓	✓
DEL compounds	✓	✓
Membrane proteins	✓	✓
Peptides (analytes)		✓
FcγRs		✓
Cytokines		✓
PROTAC®s/molecular glues		✓
Kinase inhibitors		✓
Thermodynamics		✓
Protein:protein inhibition		✓

carterra®

Disruptive Technology for Screening and Characterization

The LSA and LSA^{XT} are the only fully integrated, high-throughput screening and characterization platforms on the market. The systems combine patented flow printing microfluidics with surface plasmon resonance (SPR) detection to deliver high-throughput kinetic and epitope analysis workflows that support state-of-the-art mAb discovery programs.

- Unique fluidics integrate both 96-Channel Printhead and Single Flow Cell modes with high-throughput SPR

- Up to 384 reaction spots + 48 reference spots per array

- Supports capture formats and standard amine coupling

Automated flow cell switching between 96-Channel Printhead and Single Flow Cell

Immobilize up to 384 ligands on a single array using patented Flow Printing technology.

Deliver analyte to as many as 384 ligands immobilized on a single array in a minimum volume using the Single Flow Cell.

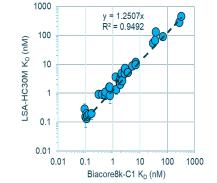# Highest Throughput SPR Results Without Compromising on Data Quality

Other leading systems sacrifice throughput for data quality, but you no longer have to restrict your R&D based on technology limitations.

The LSA and LSA^{XT} not only provide the highest throughput of any SPR system on the market, they do so without any loss in data quality.

- Excellent agreement in kinetic rate constants
- Data correlates across wide affinity range <100pM to >100nM

The LSA:
- consumes only 1% of the sample of the Biocore™ 8K
- analyzes 384 binding interactions in a single day/run
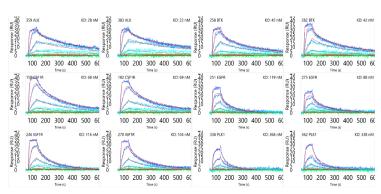- has powerful batch-mode fitting software to facilitate analysis

K_D (nM) (36 clones)

$y = 1.2507x$
$R^2 = 0.9492$

Expanding the Breadth of Applications

The LSA^{XT} expands the boundaries of HT-SPR with enhanced sensitivity and data quality.

When the assays become demanding, LSA^{XT} provides all the benefits of the LSA plus:

- Enhanced sensitivity
- Faster data collection rate
- Measure analytes down to 500 Da

Kinetic and specificity profiles for staurosporine (466.54 Da) binding an array of kinases in duplicate.

Powerful, Intuitive Software Integrates mAb Discovery

The streamlined **Navigator User Interface** enables quick and efficient experimental setup for a diverse range of experiments using intuitive applications for each of the core mAb discovery areas of interest, thereby minimizing hands-on time. Dedicated Kinetics and Epitope data analysis packages provide rapid evaluation, analysis, and visualization of large data sets; we use patented software tools for multiple data views that aid the discovery of unique high-value mAbs.

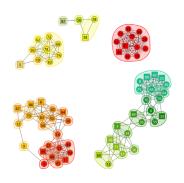Coupled Kinetics   Capture Kinetics   Classical Epitope Binning   Premix Epitope Binning   Epitope Mapping

The **Kinetics** data analysis platform is built to rapidly handle 1000s of interactions in a matter of seconds, using batch-processing routines to simplify the process and speed access to final fitted data. The software automatically applies QC to flag poorly performing clones and facilitates multiplexed studies of mAbs targeting multiple distinct antigens. Kinetic data can be viewed as 384 tile plots or iso-affinity plots with each individual curve and raw data is only a click away.
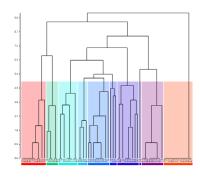

Simultaneous kinetic analysis of 384 antigen/antibody binding interactions using high throughput SPR showing antibodies binding their target with diverse kinetics (low, medium, and high affinities from top to bottom).
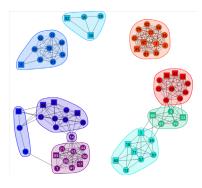
The **Epitope** software enables rapid and efficient binning of up to 384x384 mAb competition matrix experiments that reveal exquisite epitope differentiation and identify unique/nuanced binders. Data is presented across three visualization panels to provide a comprehensive view of raw data, sorted heat maps, and easy-to-interpret network plots, as shown below.

Networks
(most granular bins)

Dendrogram

Communities
(user-defined cut-off height)

Sensor Chips

Visit our *online store* to get more information about our sensor chips, consumable offerings, and to place orders.

Linear polycarboxylate

| HC30M | Polycarboxylate hydrogel, medium charge density, 30nm coating thickness |

| HC200M | Polycarboxylate hydrogel, medium charge density, 200nm coating thickness |

Carboxymethylated dextran

| CMDP | 2D planar carboxymethyldextran surface, <5nm coating thickness |

| CMD50M | Carboxymethyldextran hydrogel, medium charge density, 50nm coating thickness |

| CMD200M | Carboxymethyldextran hydrogel, medium charge density, 200nm coating thickness |

| CMD500M | Carboxymethyldextran hydrogel, medium charge density, 500nm coating thickness |

NTA

| NiHC200M | Poly - NTA derivatized linear polycarboxylate hydrogel, medium charge density, 200nm coating thickness |

Streptavidin

| SAP | Streptavidin immobilized on 2D planar carboxymethyl dextran surface, <5nm coating thickness |

| SAHC30M | Streptavidin, immobilized in polycarboxylate hydrogel, medium charge density, 30nm coating thickness |

| SAD200M | Streptavidin, immobilized in a carboxymethyldextran hydrogel, medium charge density, 200nm coating thickness |

Protein A

| PAHC200M | Protein A derivatized linear polycarboxylate hydrogel, medium charge density, 200nm coating thickness |

Protein A/G

| PAGHC30M | Protein A/G derivatized linear polycarboxylate hydrogel, medium charge density, 30nm coating thickness |

| PAGHC200M | Protein A/G derivatized linear polycarboxylate hydrogel, medium charge density, 200nm coating thickness |

Carterra offers all of your consumable needs in one convenient location.

online store

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Training

The LSA and LSA^{XT} are backed by world class training and support with a number of training options to cover your appropriate needs. We offer basic and advanced training, both on-site and remote, covering our instrument platforms, analysis software, and various applications. We also offer custom training for customers in need of a more tailored approach.

- Basic New User Training
- Advanced New User Training
- Refresher Basic Training

- Advanced Applications Training
- Kinetics Training
- Epitope Binning Training

- Custom Applications and Training

References

Cell Reports — **Power of epitope binning to inform structure and function:**

Science — **Get a drug to the clinic in 90 days:**

App note showing small molecules in DEL format can be screened on LSA and LSA^{XT} as well:

About Us

Carterra is a leading provider of innovative technologies designed to accelerate the discovery of novel therapeutic candidates. Carterra's high-throughput LSA and LSA^{XT} instruments for monoclonal antibody (mAb) screening and characterization combine patented microfluidics technology with real-time High-Throughput Surface Plasmon Resonance (HT-SPR) and industry-leading Kinetic and Epitope analysis and visualization software, delivering up to 100 times the throughput in 10% of the time while using only 1% of the sample compared to existing platforms. The new LSA^{XT} provides enhanced optics to enable additional applications in biotherapeutic discovery and characterization.

The LSA product family provides customers with screening and characterization throughput and functionality that matches the output from state-of-the-art antibody expression platforms. This enables all antibodies to be rapidly and comprehensively screened early in the discovery process so that unique epitopes and potential novel therapeutic candidates can be identified, while expanding and enhancing IP coverage. The Carterra LSA and LSA^{XT} condense months of work into a few days.

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