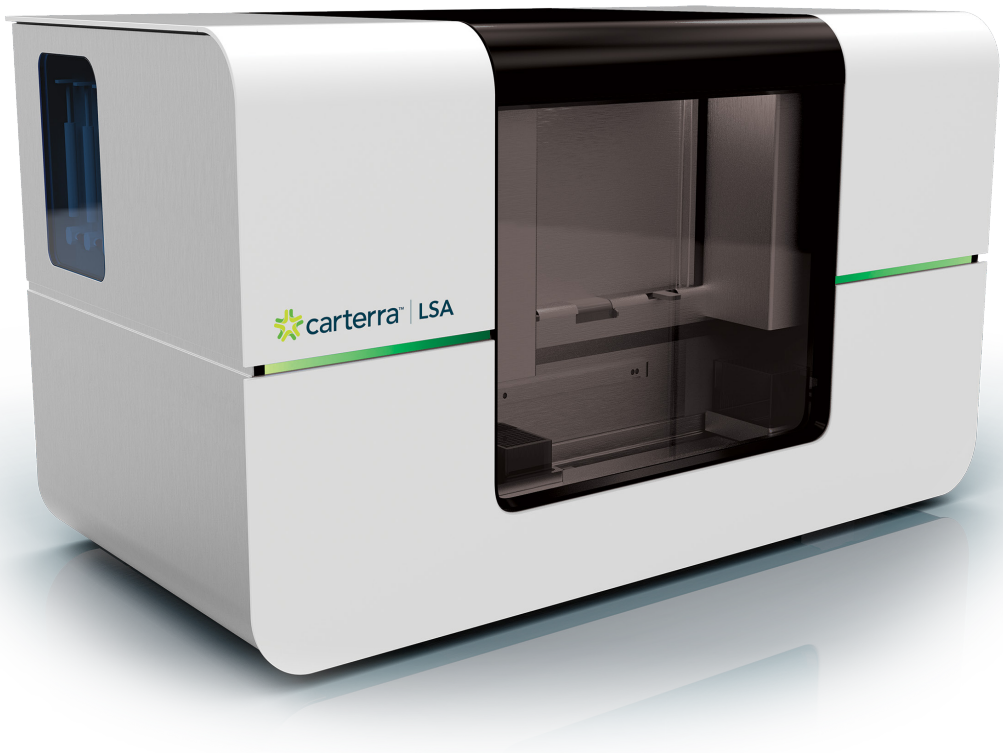
carterra®

Carterra® LSA™ Instrument

Disruptive Technology for mAb Screening and Characterization



Fully Integrated High Throughput SPR Platform

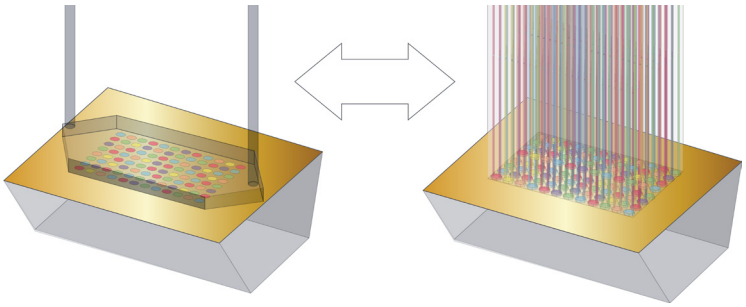
LSA - Disruptive Technology for mAb Screening and Characterization

Understanding a monoclonal antibody's (mAb) mechanism of action (MOA) is fundamental to the discovery of superior therapeutics because a mAb's epitope largely dictates its biological function.

The LSA is the only fully integrated, high throughput mAb screening and characterization platform that combines patented flow printing microfluidics with high throughput surface plasmon resonance (SPR) detection to deliver high throughput kinetics and epitope discovery applications to support state-of-the-art mAb discovery programs.

- Unique fluidics integrates both single flow cell and 96-channel printhead 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 Single Flow Cell and 96-Channel Printhead



The Single Flow Cell delivers analyte to up to 384 ligands in parallel, minimizing analyte consumption.

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

Unrivaled Throughput for Key mAb Discovery Applications

- **Kinetics & Affinity:**
  - » **Capture kinetics: Screen up to 1152 mAbs in a single assay**
  - » **Coupled kinetics: Up to 384 immobilized ligands analyzed simultaneously**
- **Epitope Binning:**
  - » **Interrogate up to 384×384 mAbs in a single assay**

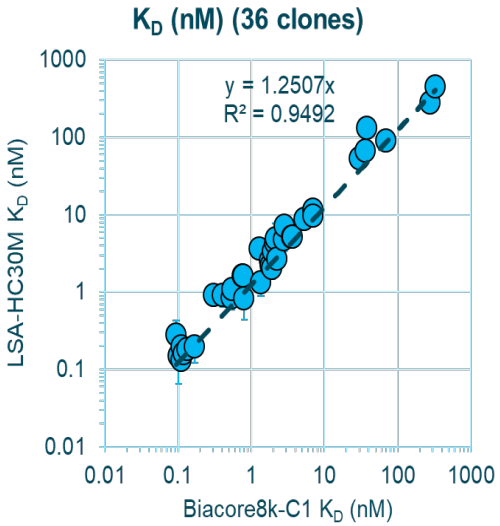
- **50x the data**
- **In 10% of the time**
- **With 1% of the sample requirements of other systems**

No Compromise: Data Quality & Throughput: LSA vs Biacore™ 8K

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

The LSA not only provides the highest throughput of any SPR system on the market, it does so without any loss in data quality.

- Excellent agreement in kinetic rate constants
- Data correlates across wide affinity range <100pM to >100nM
- LSA consumes 1% sample of Biacore
- LSA analyzes 384 binding interactions in a single day/run
- LSA has powerful batch-mode fitting software to facilitate analysis



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 1000's of interactions in a matter of seconds, using batch-processing routines to simplify 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 only a click away.

Simultaneous kinetic analysis of 384 antigen/antibody binding interactions using high throughput SPR (Left), with (Right) Enlarged view of the data from three spots showing antibodies that bound their target with diverse kinetics (low, medium, and high affinities, from top to bottom).

The **Epitope Binning** software enables rapid and efficient 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.

Sensorgrams | Heat Map | Networks

Service Plans

The LSA is supported by a highly experienced Applications and Service Team through a set of plans that provide customers with the flexibility to choose the level most appropriate to their needs:

Summit	• Onsite service within 3 days; phone support; software & firmware updates; all travel, labor, and parts • One annual Preventive Maintenance (PM) visit
Ascent	• Onsite service within 5 days; phone support; software & firmware updates; all travel, labor, and parts; (No PM visit)
Base	• Onsite service within 7 days; phone support; software & firmware updates; all travel, labor, and 25% discount on parts; (No PM visit)
Billable	• Onsite service within 3 days; phone support; software & firmware updates; travel, labor, and parts are charged; (No PM visit)
PM Only	• One annual PM visit; software & firmware updates; all additional travel, labor, and parts are charged

Sensor Chips

The LSA is supported with a comprehensive selection of sensor chips and reagents:

Name	Description
HC30M	Polycarboxylate hydrogel, medium charge density 30nm coating thickness
HC200M	Polycarboxylate hydrogel, medium charge density 200nm coating thickness
CMDP	2D planar carboxymethyldextran surface <5nm coating thickness
CMD50M	Carboxymethyldextran hydrogel 50nm coating thickness
CMD200M	Carboxymethyldextran hydrogel 200nm coating thickness
SAD200M	Streptavidin, immobilized in a carboxymethyldextran hydrogel 200nm coating thickness
HCX30M	NHS activated polycarboxylate hydrogel, medium charge density 30nm coating thickness
HCX200M	NHS activated polycarboxylate hydrogel, medium charge density 200nm coating thickness

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