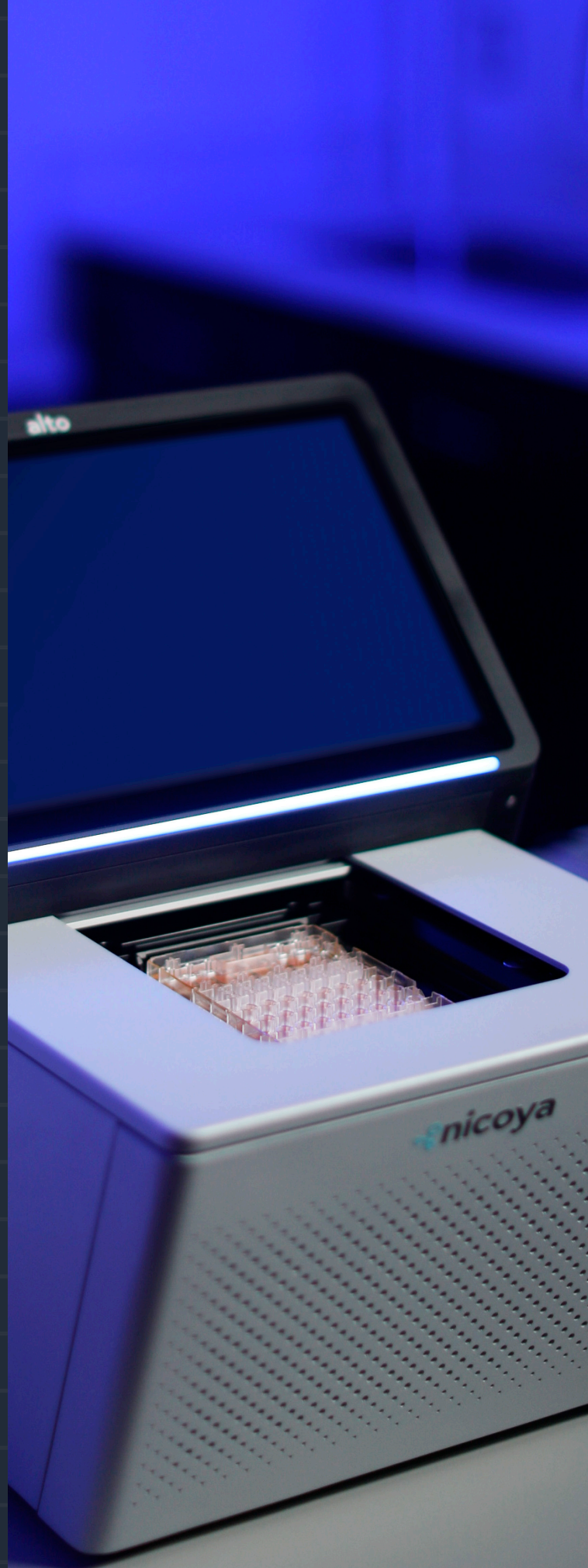


# Alto™

Accelerate your  
drug discovery  
with digital SPR

 nicoya





# Make discoveries, not compromises

## The label-free solution for characterizing biologics

As the world's only surface plasmon resonance (SPR) system powered by digital microfluidics, Alto™ revolutionizes real-time interaction analysis by eliminating the need to compromise on quality and time. Go from sample to answer within hours while streamlining even the toughest of biologics applications with Nicoya® Alto's intuitive and automated ecosystem. Designed to take the complexity out of SPR, Alto will empower your team with the data they need to take their discoveries to the next level.



### Maximize data quality

Automate error-prone steps while eliminating sample dispersion and evaporation.



### Save precious sample

Get full kinetic analysis from 2  $\mu\text{L}$  of crude or purified sample, 100X less than traditional SPR platforms.



### Future-proof your lab

Spend 70% less time at the bench - no purification, dilutions, tagging, degassing, cleaning or manual assay design required.



### Beyond traditional SPR

Empower your team with a label-free platform designed for biologics research.





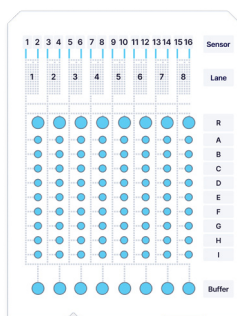
# Beyond traditional SPR

Empower your team with a label-free platform designed for biologics research.



## Universal hardware

A robust benchtop instrument free of fluidic components and easily upgradeable.



## Disposable cartridge

Sensors, fluidics and reagents all integrated in one consumable powered by digital microfluidics.



## Flexible software

Designed for any skill level, with local or cloud access to your data anytime.

## What is digital microfluidics (DMF)?

DMF is a liquid-handling technology capable of accurately controlling and manipulating discrete nanoliter-sized droplets across an array of electrodes. The fluidics are contained within a disposable cartridge, allowing Alto™ to overcome the major limitations associated with increasingly complex fluidic systems present in traditional label-free instruments. The elimination of pumps, valves, tubes and flow cells virtually eradicates maintenance and allows for greater flexibility, accuracy, and performance.

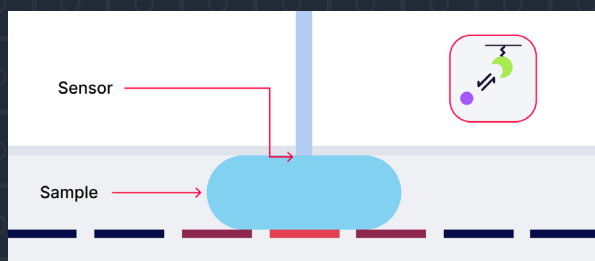


Figure 1: Voltage moves drops across the cartridge in discrete, programmable pathways to deliver, modify, and remove reactants at the sensor surface.

## Run with confidence

Alto's plug-and-play design makes it easy for anyone in your lab to confidently operate SPR. Pre-designed experiments are readily accessible via a touch-screen interface, and flexible cartridge designs enable you

to run hundreds of interactions in a variety of formats. As a "sample in, answer out" instrument, your only task at the bench is to load your cartridge and press play.

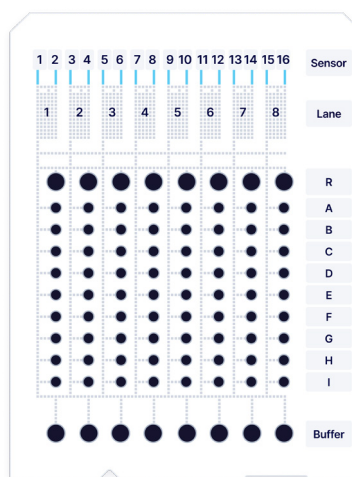


Figure 2: Alto's 16-channel cartridge layout.

# Work from anywhere

Take the guesswork out of SPR with Alto's intuitive analysis software: The Nicosystem™

A first of its kind, the Nicosystem provides a one-stop centralized hub for managing and analyzing experimental runs, all while offering you the flexibility of accessing your data on the cloud or locally.

Discover different Nicosystem options that match your research needs and budget today.

## Nicosystem Essentials

*Ideal for basic research*

- ✓ Kinetics / affinity

Most popular

## Nicosystem Pro

*Ideal for biologics discovery*

- ✓ Kinetics / affinity
- ✓ Quantitation
- ✓ Screening
- ✓ Epitope mapping / binning

## Design on the go

Map your sample layout, set up your assay, and build your experiment all without needing to be at the bench. Any experiment designed on the Nicosystem™ will be immediately available to run on your instrument once you're back in the lab. And with Alto's application-centric design modules, you will always be in control of when and how your team runs experiments.

## One-click analysis

Eliminate lengthy post-processing with Nicosystem's one-click analysis. A diverse range of models and investigative tools are available to accurately interpret your data and provide high-quality insights. With Nicosystem's seamless end-to-end handling of your experiments, you'll be empowered to scale your workflow and quickly share new discoveries.



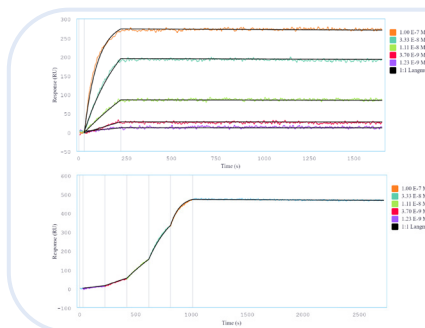
# Built for biologics

Investigate a wide range of applications with a platform built to handle the unique complexities and constraints of biologics.

## Characterize affinity/kinetics

Simultaneously analyze multiple targets in different assay formats while reducing hands-on time with complete assay automation.

- Screen a wide range of affinities.
- Predict drug potency with kinetics.
- Determine specificity & selectivity.
- Reduce hands-on time by up to 70%.
- Flexible assay design.



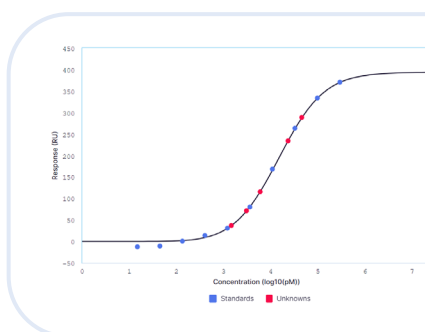
### Kinetic formats

Multi-cycle and single-cycle kinetics of influenza A protein binding to immobilized influenza A antibodies.

## Quantify samples

Determine active sample concentrations with high-throughput quantitation.

- Determine up to 40 unknown concentrations
- Automate sample dilutions.
- Generate up to 8 standard curves and calibrate with 5PL curve fitting.



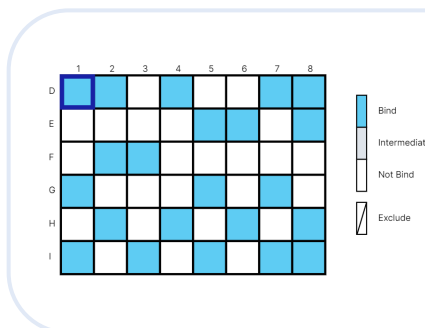
### mAb quantitation

Monoclonal antibodies in serum specific to the H3N2 hemagglutinin protein were quantified at varying concentrations, generating a calibration curve with 10 different known standards.

## Screen complex media

Quickly determine binding activity and select the most relevant hits with Alto's rapid screening protocol.

- Process up to 96 interactions in one run using microliters of samples.
- Screen directly from crude samples via direct or capture method.
- Intuitive analysis with sorting and exclusion.
- Use minimal sample volumes (2-5  $\mu$ L).



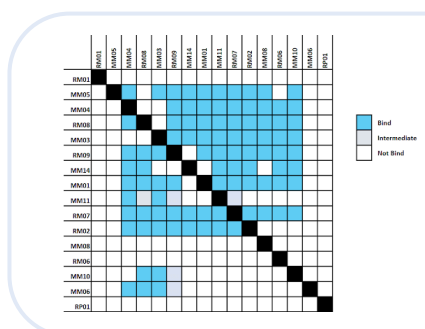
### Blind Ab screening

Heat map generated from antibody screen against H3N2 hemagglutinin (ligand) illustrating which samples contained anti-H3N2 HA Abs (analyte) in direct screening.

## Evaluate epitope diversity

Alto's robust epitope software simplifies competition assays to identify unique binders, and creates exportable visualizations for easy interpretation.

- Rapidly bin up to 16x16 mAbs.
- Process 256 interactions in <16 hours.
- Comprehensive analysis including automatic data normalization.



### Influenza A antibodies

Antibodies binding to influenza A nucleoprotein were characterized with a classic sandwich assay. "Bind" indicated a unique epitope targeted by the antibodies in a 16x16 epitope bin.

# At a glance

## Specifications

Fluidics	
Channels	16
Fluidics Technology	Digital microfluidics
Sample Handling	
Sample Capacity	Up to 48 (240 interactions)
Sample Volume	2 µL per well
Referencing	1:1
Automation	Automated dilutions (3x) Robotics compatible*
Unattended Run Time	24+ h
Crude Sample	Yes
Fluidic Maintenance	None
Performance	
Association Range	Up to $10^9$ 1/M*s
Dissociation Range	$10^{-5}$ - 1.0 1/s
Affinity Range	pM - mM
General	
Assay Types	Kinetics & Affinity Quantitation** Screening** Epitope Characterization**
Temperature Control	Analysis: 25 °C Sample storage: Chilled, 25 °C
Connectivity Mode	Cloud, Local
Weight	23.1 kg
Dimensions	43H x 35W x 52D cm
GxP Compatibility	Please inquire for your specific needs

\* Please inquire for your specific needs

\*\* Available only in Nicosystem Pro Software package

## Applications

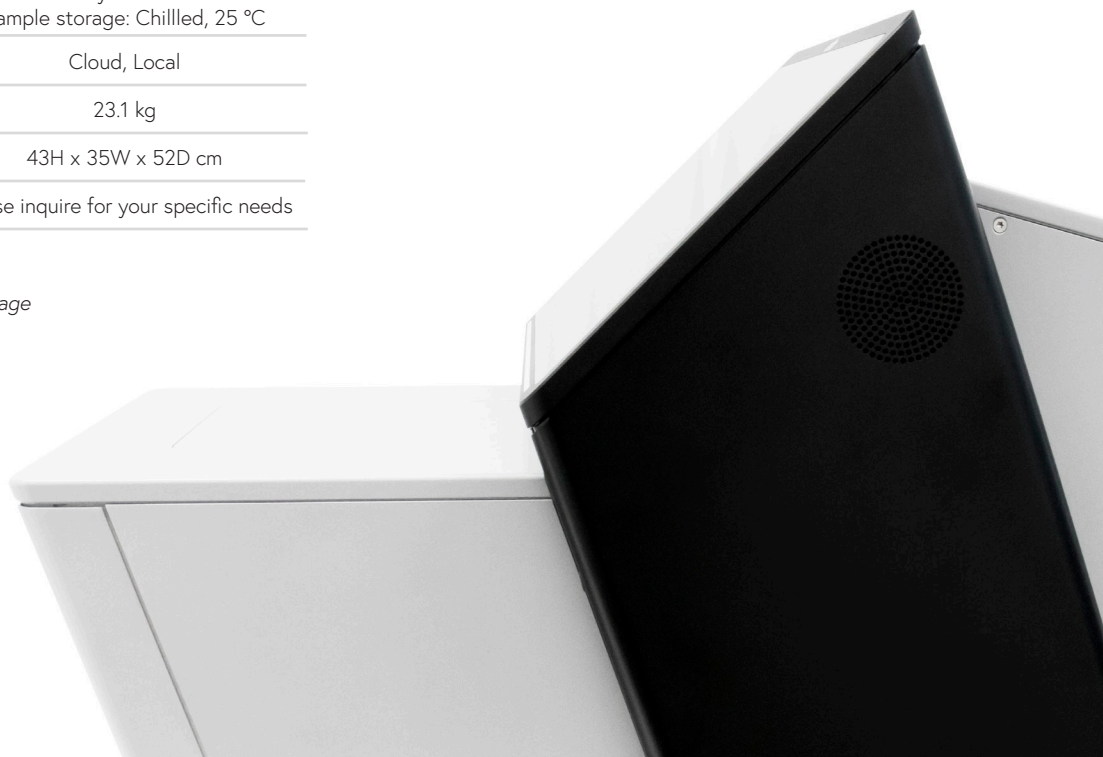
- Kinetics/affinity characterization
- Quantitation\*\*
- Screening\*\*
- Epitope mapping/binning\*\*

## Compatible with

- Proteins/peptides
- Antibodies
- Nucleic acids
- Crude samples
- Viruses
- Small molecules  
(application dependent)

## Surface chemistries

- Carboxyl
- Streptavidin (kit)
- Protein A (kit)
- Anti-His (kit)





Join us on our mission to  
improve human life



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