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Gator® Pivot

Accelerating Biotherapeutics Discovery through Innovation

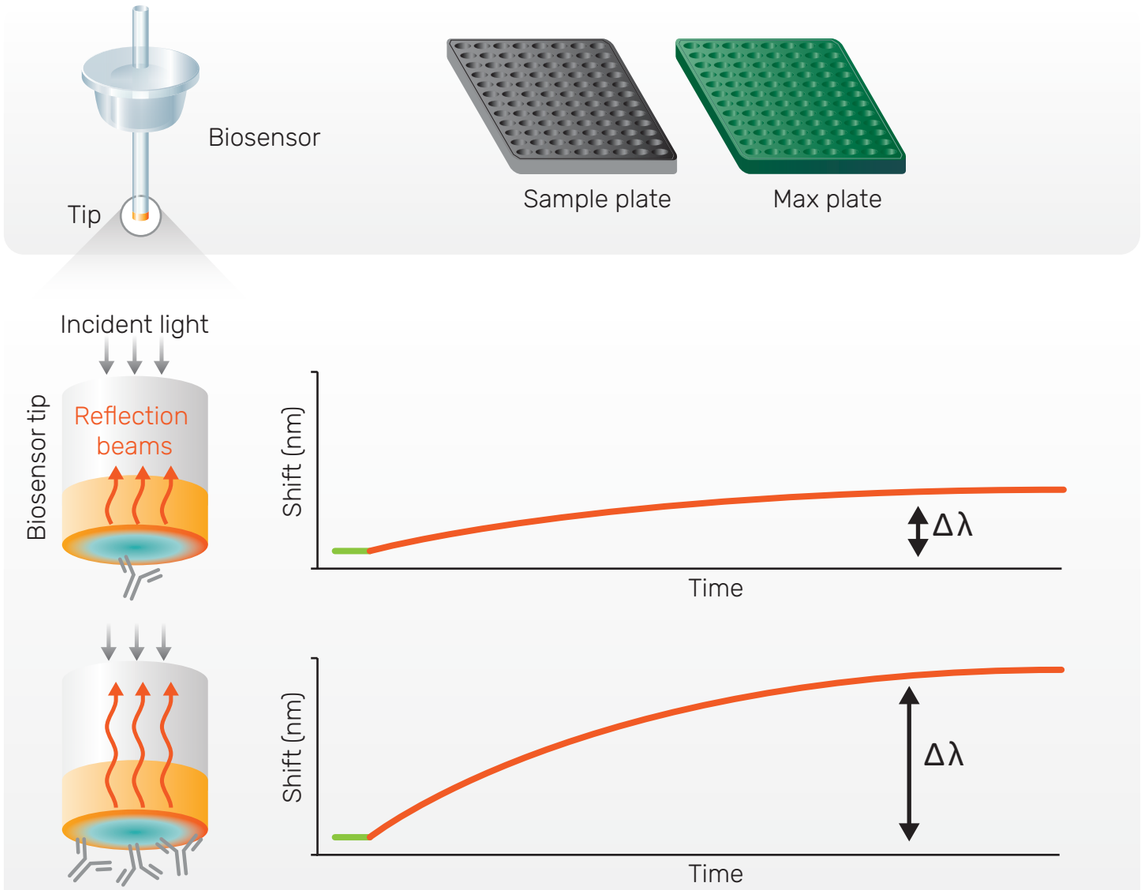
Next-gen Biolayer Interferometry

gator

What is BLI?

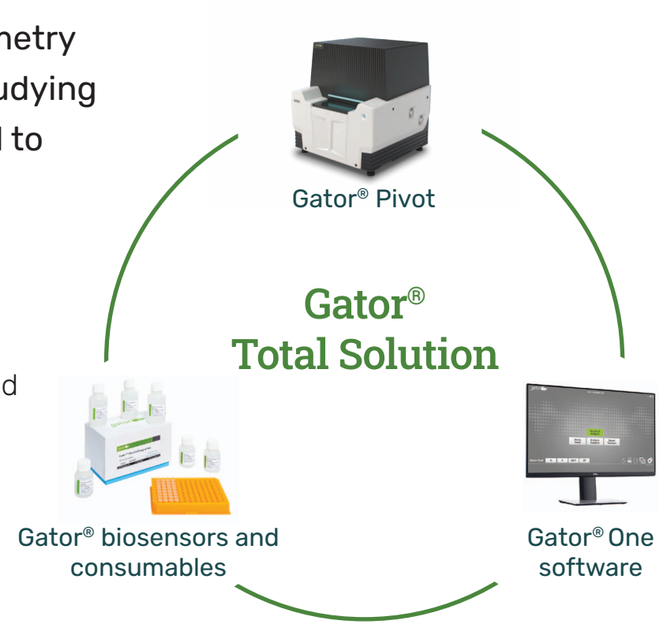
Biolayer interferometry (BLI) is a label-free detection method based on reflection of white light from the surface of a biosensor tip.

It analyzes the changes in interference pattern of white light reflected from the tip when biomolecules bind to it. This change is recorded in real time and is expressed as nanometer shift. It is proportional to the number and size of biomolecules bound to the tip.



One tool. Many answers

The Gator® biolayer interferometry system is ideally suited for studying biomolecular interactions and to support multiple stages of therapeutic development in biopharma.



The Gator® Pivot system is designed for real-time analysis of biomolecules and can be widely applied in antibody screening, quantitation and epitope binning. It also enables AAV and other viral particle analytics.

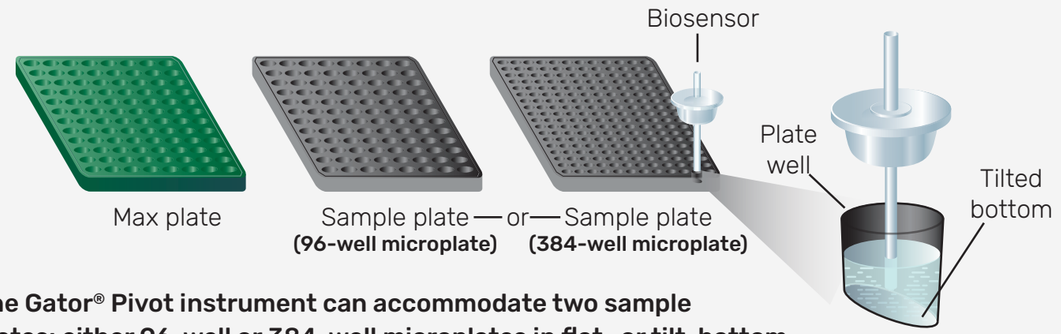
Early discovery	Early development	Lead antibody
Antibody titer determination	Lead optimization	Binding kinetics
Yes/no binding to target antigen	Lead characterization	Activity assay
Isotyping	Detailed kinetic characterization	Stability study
Epitope binning	Epitope binning	
Cross-reactivity testing	Affinity maturation	
Assay development		
Off-rate ranking		
Binding constant determination		

Gator® Pivot features

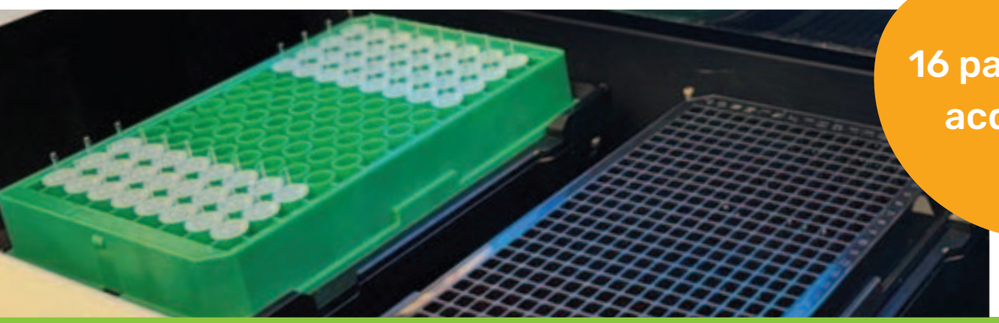
The Gator® Pivot instrument is a versatile platform featuring integrated temperature and evaporation control for rapid, precise, and automated analysis.

Highlights

- 16x 16 Spectrometers enable high frequency parallel measurement of up to 16 samples
- 16x Two sample plate positions enable automated data acquisition for 816 samples per batch
- With next-gen biosensors, the Gator® Pivot system provides accurate, high sensitivity data



The Gator® Pivot instrument can accommodate two sample plates: either 96-well or 384-well microplates in flat- or tilt-bottom formats, or a combination of them. Additionally, it has a designated space for biosensor placement.



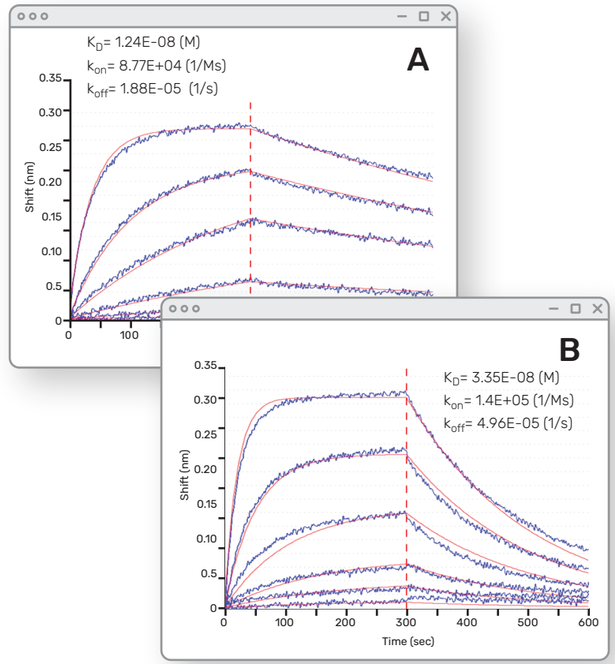
16 parallel data acquisition

Binding kinetics

The Gator® Pivot system can be utilized to determine the kinetics of a drug molecule binding to its target.

Association rates (k_{on}), dissociation rates (k_{off}), and dissociation constants (K_D) can be determined for antigen-antibody interactions with or without the use of labeled reagents. The ultra-stable baseline and extended temperature range further enhance the quality of high affinity kinetic data.

The Gator® Pivot system enables rapid, primary screening of antibody libraries. Off-rate ranking in crude media and complete binding characterization of a purified antigen-antibody binding pair can be accurately determined using a variety of different biosensors and assay configurations.



(A) Antigen-antibody interactions at 20°C
(B) Antigen-antibody interactions at 40°C

Highlights

- 16x Parallel determination of 16x different binding reactions
- Rapid binding constant determination within 10 minutes
- Customizable analyte concentration ranges for accurate results
- Wide range of biosensors to support multiple kinetic assay configurations

Antibody quantitation

The ability of the Gator® Pivot enables simple setup for analysis of antibody titers in various cell culture supernatants to read 16 samples in parallel.

Up to

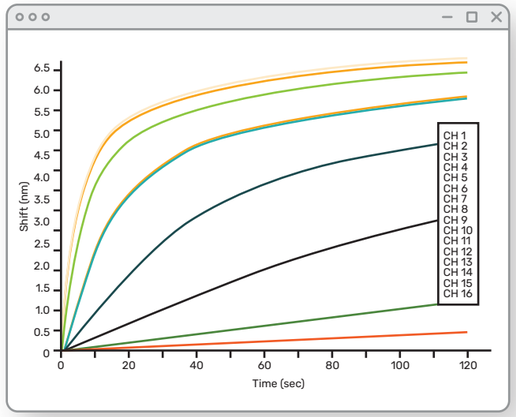
816

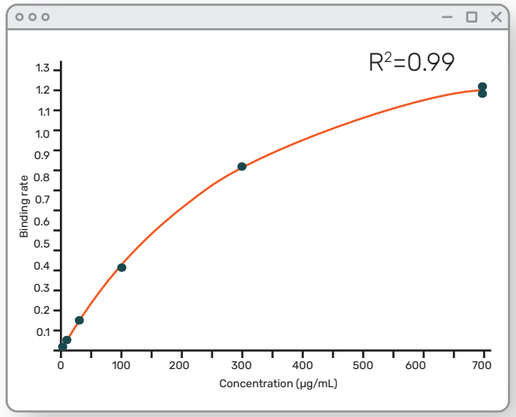
samples

per batch

Highlights

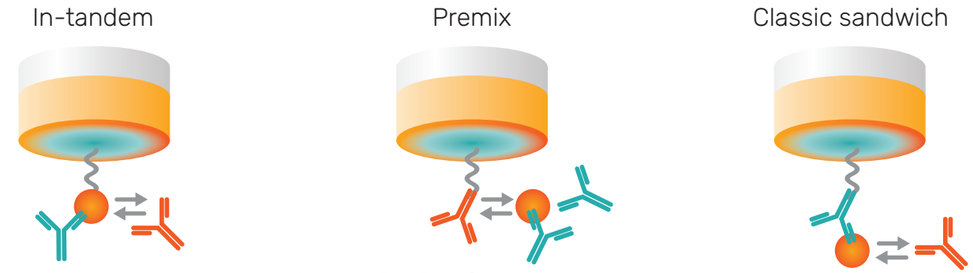
- 5-log dynamic range for titer determination
- 16 simultaneous measurements
- Up to 816 samples per batch



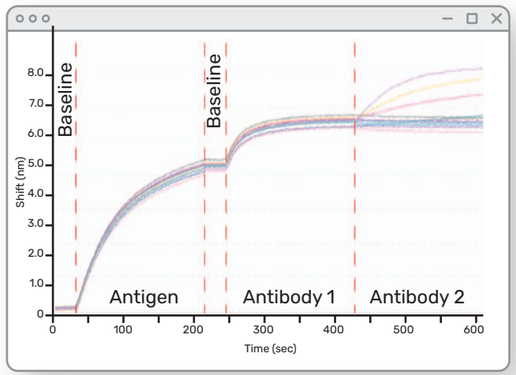


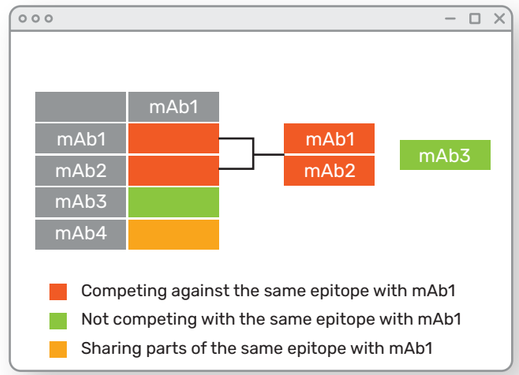
Accurate and precise analysis of human IgG samples using Gator Bio Protein A Probes

Epitope binning



Three epitope binning formats on Gator® Pivot





20 x 20 mAb competition matrix performed in less than 5 hours

The Gator® Pivot system can complete up to 20 x 20 epitope binning in a single automated or classic sandwich assay in just 5 hours.

A series of Gator® probes (HFC, MFC, SA) can be used for epitope binning. This experiment can be set up in in-tandem, premix and classic sandwich formats. Moreover, most biosensors and materials are reusable, significantly saving experimental costs.

Highlights

- 16 parallel competitive reactions in 10 minutes
- Single 20 x 20 EP assay in less than 5 hours
- Comprehensive suite of biosensors for both sandwich and in-tandem formats

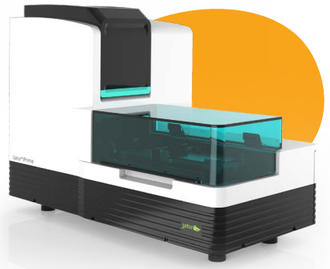
Gator® Instruments

The Gator® Family Portfolio

Gator's comprehensive BLI instrument portfolio, a suite of cutting-edge systems designed to empower researchers to get deeper insights into biomolecular interactions, each meticulously engineered to deliver high performance.

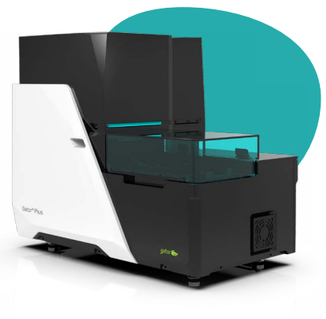
Gator® Pilot

- 4-channel simultaneous read
- 96 well format
- 40 samples/batch



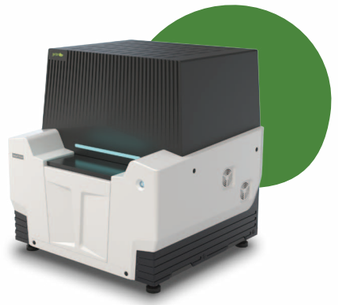
Gator® Prime

- 8-channel simultaneous read
- 96 well format
- 168 samples/batch



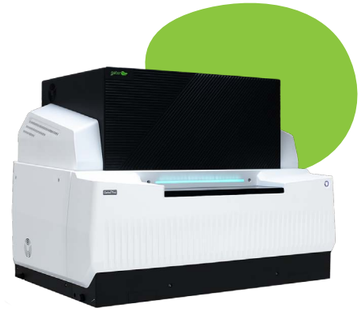
Gator® Plus

- 8-channels simultaneous read
- 96 or 384 well format
- 468 samples/batch



Gator® Pivot

- 16-channel simultaneous read
- Flexible 2 plate format (96 or 384-well plates)
- 816 samples/batch
- Evaporation control & sample cooling



Gator® Pro

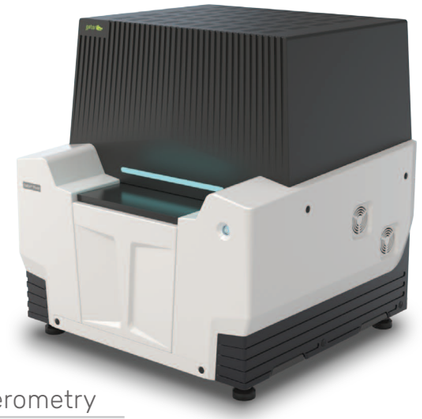
- 32-channel simultaneous read
- Flexible 3 plate format (96 or 384- well plates)
- 1152 samples/batch

Up to **1,152** samples per batch

Throughput

Specifications

Gator® Pivot



General	
Detection	Biolayer Interferometry
Sample Microplate	96-well or 384-well format
Sample type	Proteins, antibodies, peptides, nucleic acids, liposomes, viruses, and small molecules
Maximum sample capacity	816
Software	Integrated
Simultaneous reads	16
Spectrometers	16
Acquisition rate	2, 5, and 10 Hz
Dimension (H x W x D)	92 x 87 x 79 cm
Weight	130 kg
Orbital flow	Static, 100 - 2000 rpm
Analysis temperature range	15°C to 40°C

Kinetics	
Analysis time	Real-time kinetic binding from 5 min to 4 hr
Baseline noise (RMS)	≤ 4 pm
Baseline drift	≤ 0.1 nm/hr
Association rate (k_{on})	10^{1} to 10^{7} M^{-1} s^{-1}
Dissociation rate (k_{off})	10^{-6} to 10^{-1} s^{-1}
Affinity constant (K_D)	1 mM - 10 pM
Molecular weight	>150 Da

Quantitation	
Analysis time	16 samples in 2 min
Quantitation range (Protein A Probes)	0.02 – 2000 µg/mL
Quantitation precision (Protein A Probes)	CV < 10%

Epitope binning	
Analysis time	Up to 20x20 in 5 hr
Pairwise fashion	In-tandem, classic sandwich and pre-mix
Binning capacity	20x20

Applications

Gator® Probes	Function	Applications	Dynamic Range	Regeneration
ProA	IgG titer	Q	0.02-2000 µg/mL	Yes
ProG	IgG titer	Q	0.02-2000 µg/mL	Yes
ProL	Kappa light chain titer	Q	0.02-2000 µg/mL	Yes
SA	Biotinylated and Avi-tagged molecules	K/EP	Protein dependent	No
SA XT	Biotinylated proteins and large molecules	K	Protein dependent	No
Flex SA	Reusable SA kit	K	Protein dependent	Yes
SMAP	Measurement of small molecules, peptides	K	Protein dependent	No
HFC	Human IgG	Q/K/QKR/EP	0.05-300 µg/mL	Yes
HFCII	Advanced human IgG	Q/K/QKR/EP	0.3-6000 µg/mL	Yes
MFC	Mouse IgG	Q/K/QKR/EP	0.02-6000 µg/mL	Yes
Anti-FAB	F(ab), F(ab)2	Q/K/QKR/EP	0.3-3000 µg/mL	Yes
APS	Direct adsorption	K	Protein dependent	No
AR	Amine coupling immobilization	K/EP	Protein dependent	No
His	His-tagged proteins	Q/K/QKR/EP	Protein dependent	Yes
Ni-NTA	His-tagged proteins through Ni-NTA	Q/K/QKR/EP	0.25-1000 µg/mL	Yes
Strep-Tactin XT	Proteins with Twin-Strep-tag®	Q/K	Protein dependent	Yes
Anti-PEG	PEGylated LNPs	Q/K	Analyte dependent	No
Anti-GST	GST-tagged proteins	Q/K	Protein dependent	No for Q
AAVX	Direct binding titer (AAV1-10)	Q/K	$1x10^{9}$-$1x10^{13}$ vp/mL	Yes
AAV9	Direct binding titer (AAV9)	Q/K	$3x10^{9}$-$1x10^{13}$ vp/mL	No
HS AAV	High sensitivity titer (AAV1-8, 10)	Q	$1x10^{7}$-$5x10^{10}$ vp/mL	No
HS AAV9	High sensitivity titer (AAV9)	Q	$1x10^{7}$-$1x10^{9}$ vp/mL	No
AAV Ratio	Empty vs Full Ratio	Ratio	0-100% full	No
Adeno Quant	Adenovirus titer	Q	$1x10^{9}$-$1x10^{11}$ vp/mL	No
Anti-VHH	Binding camelid nanobodies	Q/K	0.05-10 µg/mL	Yes