

Get in touch with us

We're always here to help

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Gator® Pilot

Accelerating Biotherapeutics Discovery through Innovation





<u>www.gatorbio.com</u>













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 in academic research and to support multiple stages of therapeutic development in biopharma.

The Gator® Pilot 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 c
Antibody titer determination	Lead opt
Yes/no binding to target	Lead cha
Isotyping	Detailed characte
Epitope binning	Epitope
Cross-reactivity testing	Affinity n
Assay development	
Off-rate ranking	
Binding constant determination	



development

Lead antibody

timization

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binning

naturation

Binding kinetics

Activity assay

Stability study



Gator[®] Pilot features

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The Gator[®] Pilot instrument is an entry level system designed for fast automated analysis.



Binding kinetics

The Gator® Pilot 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 further enhances the quality of high affinity kinetic data.

With 4 parallel measurements, the Gator® Pilot system enables rapid, primary screening of antibody libraries. Off-rate ranking in crude media as well as complete binding characterization of a purified antigen-antibody binding pair can be accurately determined using a variety of different biosensors and assay configurations.



(A) Protein – Small molecule interactions, (B) Protein – Nucleic acid interactions, (C) Protein – Peptide interactions

Highlights

 $4_{\rm x}$ Parallel determination of 4x different binding reactions



- Customizable analyte concentration ranges for accurate results
- Wide range of biosensors to support multiple kinetic assay configurations



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Antibody quantitation

The ability of the Gator® Pilot enables simple setup for analysis of antibody titers in various cell culture supernatants to read 4 samples in parallel.



samples

per batch

Highlights

5-log dynamic range for titer determination

4 simultaneous measurement

Up to 40 samples per batch $40_{\rm x}$



Accurate and precise analysis of 40 human IgG samples using Gator Bio Protein A Probes

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Epitope binning





Three epitope binning formats on Gator[®] Pilot



The Gator® Pilot system can complete up to 6 x 6 epitope binning in a single automated or classic sandwich assay in just 2 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.

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Premix

Classic sandwich







4 x 4 mAb competition matrix performed in less than 2 hours

Highlights



4 parallel competitive reactions in 10 minutes



Single 6 x 6 EP assay in less than 2 hours



Comprehensive suite of biosensors for both sandwich and in-tandem format

Specifications Contemporations Gator® Pilot

General	
Detection	Biolayer Interferometry
Sample Microplate	96-well format
Sample type	Proteins, antibodies, peptides, nucleic acids,
	liposomes, viruses, and small molecules
Maximum sample capacity	40
Software	Integrated
Simultaneous reads	4
Spectrometers	4
Acquisition rate	2, 5, and 10 Hz
Dimension (H x W x D)	49 x 68 x 33 cm
Weight	31 kg
Orbital flow	100 – 1500 rpm
Analysis temperature range	Ambient plus 4°C to 40°C

Kinetics	
Analysis time	Real-time kinetic binding from 5 min to 4 hr
Baseline noise (RMS)	≤ 4 pm
Baseline drift	≤ 0.12 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

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Analysis time	4 samples in 2 min
Quantitation range (Protein A Biosensor)	0.02 – 2000 µg/mL
Quantitation precision (Protein A Biosensor)	CV < 10%

Epitope binning	
Analysis time	Up to 6x6 in 2 hr
Pairwise fashion	In-tandem, classic sandwich and pre-mix
Binning capacity	6x6

Applications

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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	Κ	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	Κ	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°-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	D) 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

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