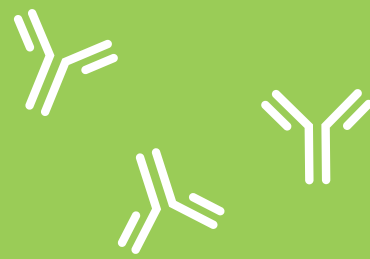# Gator® Pro

Accelerating Biotherapeutics Discovery

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Next-gen High
Throughput
Biolayer
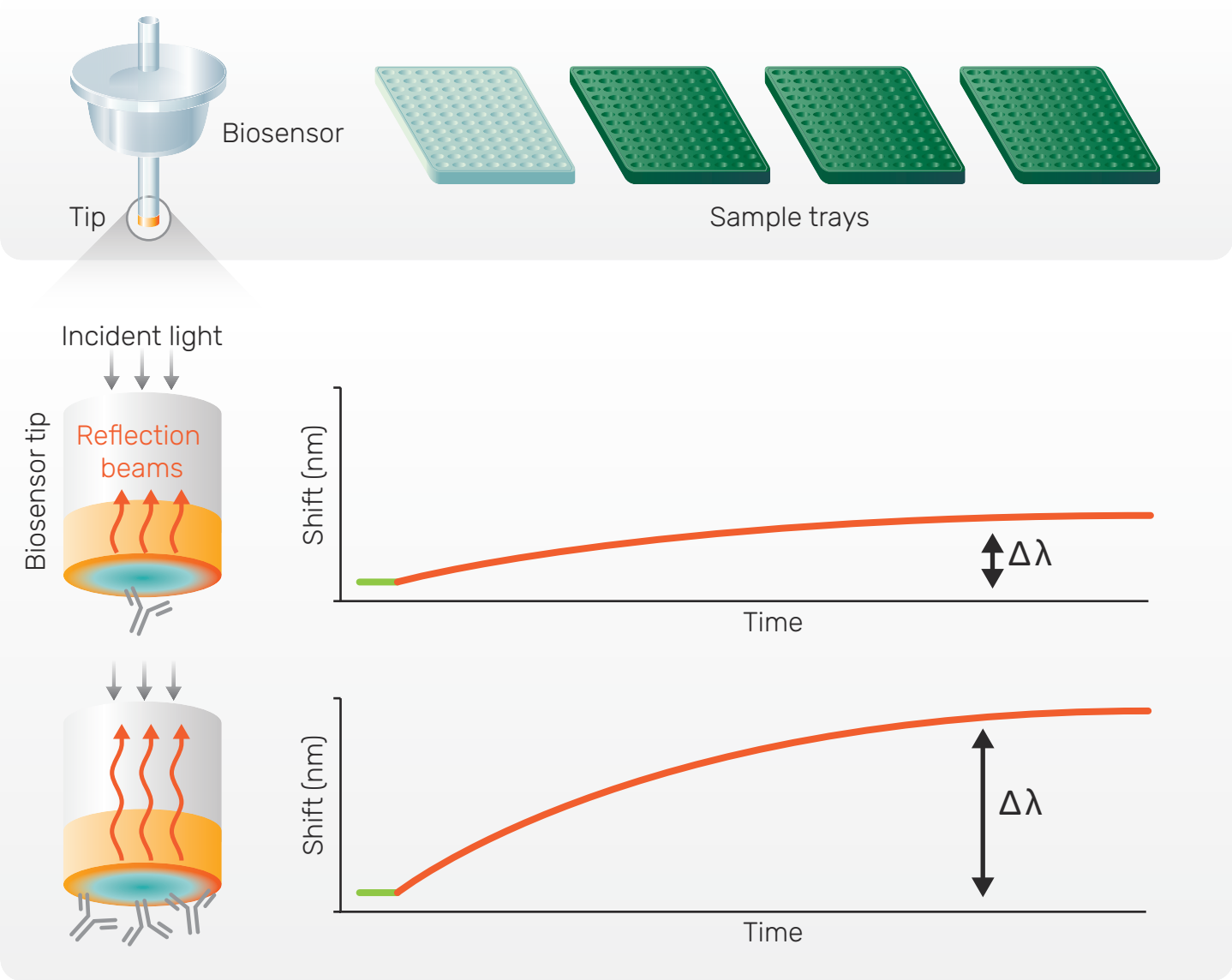Interferometry

gator

gator

What is BLI?

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 enables real-time analysis of biological molecules to support multiple stages of therapeutic development.

The Gator® Pro instrument is designed for high-throughput kinetics, epitope binning and accurate quantitation during antibody development.

The instrument also supports viral vector analytics with capsid titer analysis of multiple AAV serotypes and determination of empty versus full (E/F) content.

With the Gator® Pro instrument, walk-away time is extended while delivering fast, reliable and high-quality data.

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® Pro features

The Gator® Pro instrument is designed for fast, automated, high-throughput analysis.

32 spectrometers enable high frequency parallel measurement of up to 32 samples.

3 sample plates enable automated data acquisition for 1152 samples per batch.

With Gator Bio next-gen biosensors, the Gator® Pro system provides accurate, high sensitivity data.

Highlights

- Fast biomolecule characterization

- Flexible 3 x 96 or 3 x 384-well format

- High throughput, high frequency parallel data acquisition of 32 samples

- Automated data acquisition and processing of up to 1152 samples per batch
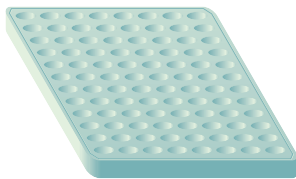
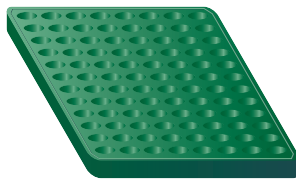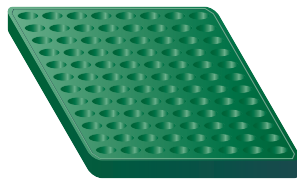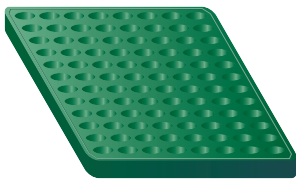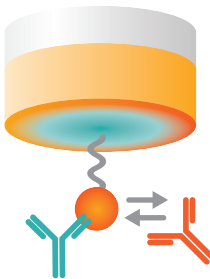Biosensors & regeneration   Plate A   Plate B   Plate C

The Gator® Pro instrument accommodates three sample plates of either 96 or 384-well format. A fourth plate is reserved for biosensors and regeneration.
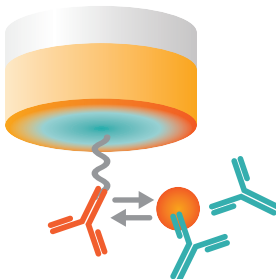
32 high frequency parallel data acquisition

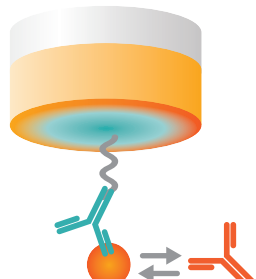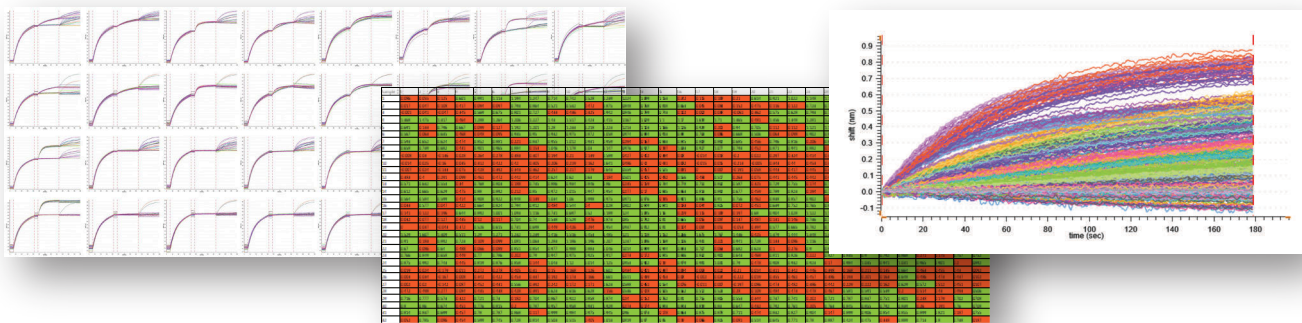# Epitope binning

In-tandem   Premix   Classic sandwich

Three epitope binning formats on Gator® Pro

32 x 32 mAb competition matrix performed in less than 8 hours

The Gator® Pro system can complete 32 x 32 epitope binning in a single automated tandem or classical sandwich assay in just 8 hours.

The workflow is powered by Gator® Navigator software. Easy data visualization and presentation make interpretation straightforward. Multiple assays can be combined into a larger binning matrix. By combining eight 32 x 32 binning assays, the report for one 96 x 96 competition profile can be achieved in less than 5 days.
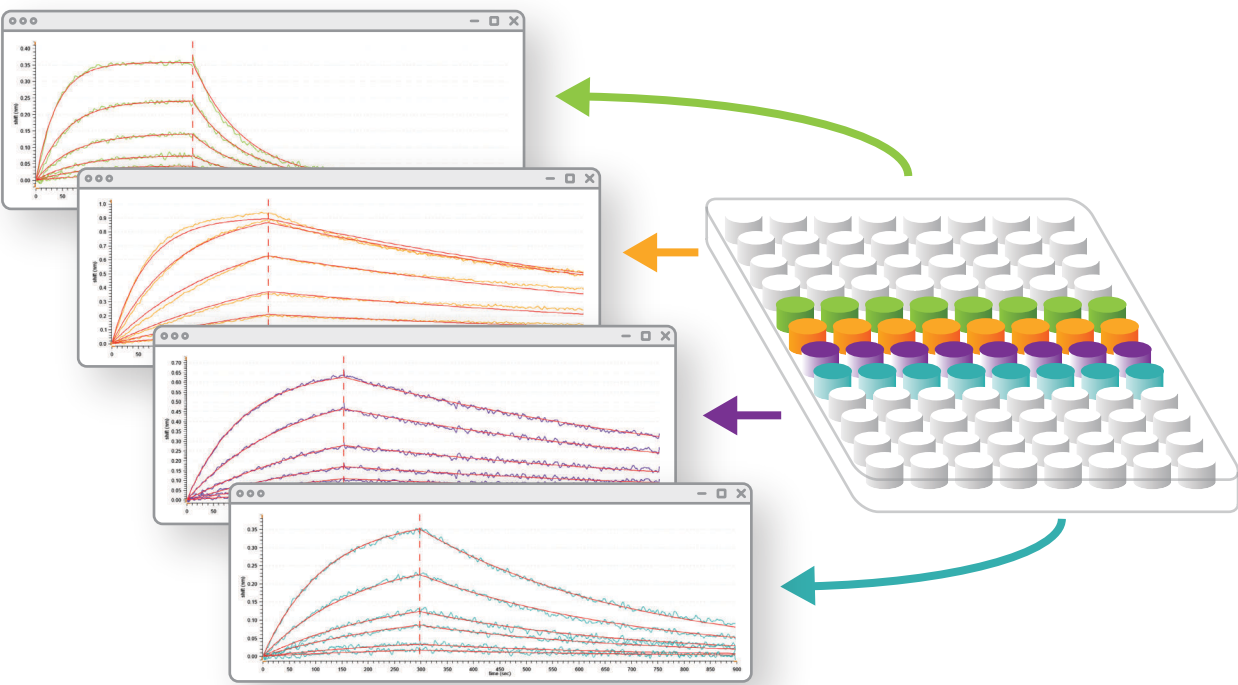
Highlights

- 32 parallel competitive reactions in 10 minutes

- Single 32 x 32 EP assay in less than 8 hours

- Comprehensive suite of biosensors for both sandwich and tandem format

- 96 x 96 report in 5 days

High throughput kinetics

The Gator® Pro 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 equilibrium 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 32 high frequency parallel measurements, the Gator® Pro system enables high throughput 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.

Kinetic sensorgrams of 4 different biosimilars in a single run

Highlights

- **X 32** High frequency parallel determination of 32 different binding reactions

- Customizable analyte concentration ranges for accurate results

- Rapid binding constant determination within 10 minutes

- Wide range of biosensors to support multiple kinetic assay configurations
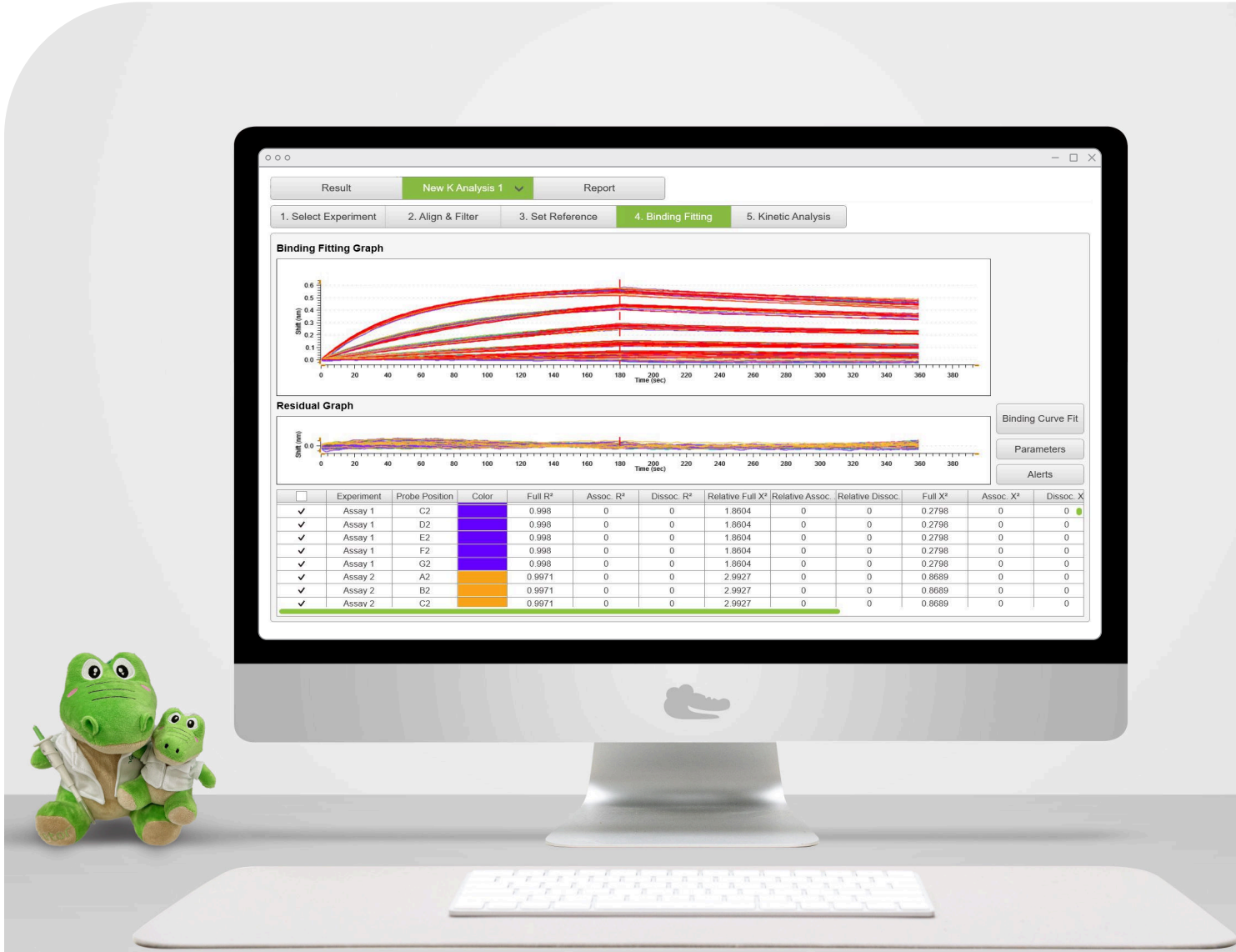
Gator® Pro system enables 32 parallel acquisitions for high quality screening and pairing readouts

Antibody quantitation

The ability of the Gator® Pro system to read 8, 16, 24 or 32 wells in parallel enables a flexible assay design that maximizes analytical throughput.

Using the 32-biosensor mode, rapid whole-plate quantitation of 96 or 384 samples can be achieved in as little as 12 minutes or 32 minutes respectively, instead of hours.

With only 32 biosensors and on-board regeneration capability, 1152 samples can be analyzed per batch.

1,152
samples

per batch

Highlights

5-log dynamic range for titer determination

Up to 1152 samples per batch from 3 sample plates

32 simultaneous biosensors provide unrivaled titer throughput

Ready for integration with plate handler for extended walk-away operation

Performance

Known conc. (µg/mL)	Calculated conc. (µg/mL)	Binding rate	Standard deviation	% CV (n = 144)
700	704.00	1.2888	0.0541	4%
300	297.79	0.7435	0.0344	5%
100	103.74	0.2970	0.0159	5%
30	28.35	0.0807	0.0045	6%
10	10.14	0.0260	0.0012	5%
3	3.19	0.0069	0.0004	6%
1	0.98	0.0016	0.0001	9%

Accurate and precise data for 1152 human IgG sample analysis using Gator Bio Protein A biosensors
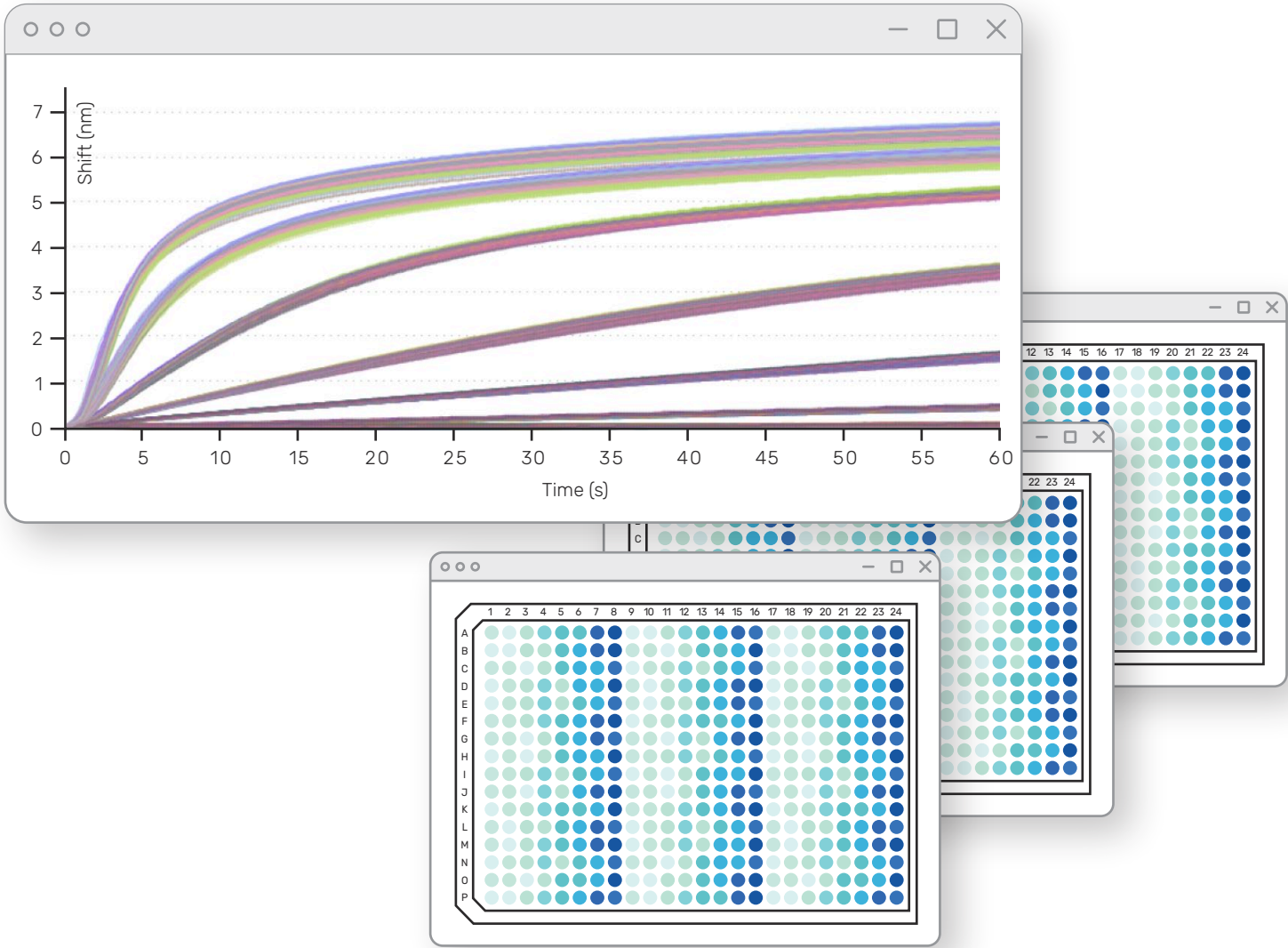
Heat map generated by software for human IgG concentration analysis using Gator Bio Protein A biosensors

Viral vector analytics

The Gator® Pro system provides fast and accurate determination of AAV capsid titer and empty/full ratios.
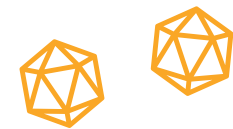
Using a simple "dilute and dip" workflow, different AAV serotypes, including chimerics, can be quantified from both crude media and purified samples.

The high throughput Gator® Pro enables analytics on a single platform compared to multiple techniques such as ELISA, PCR and AUC used for the same analysis.
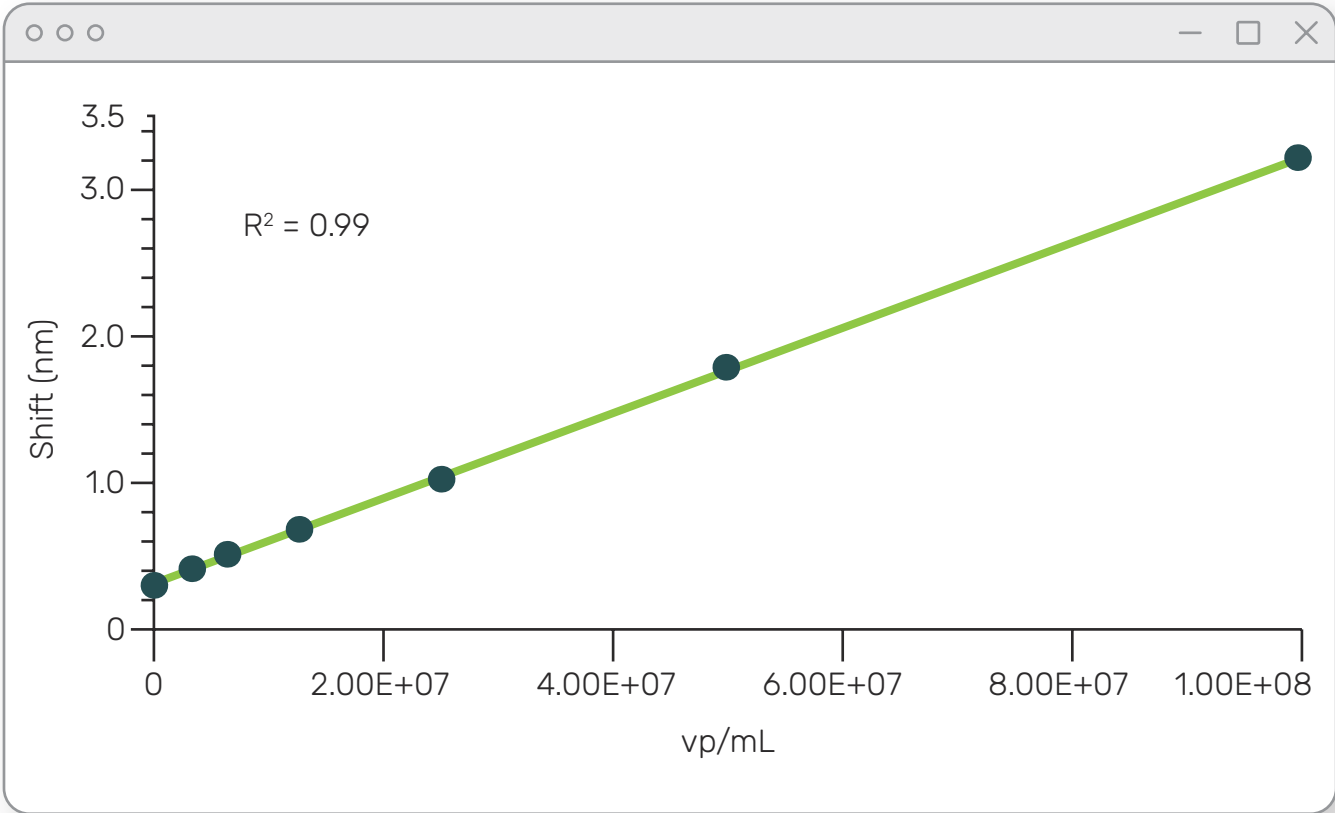
High throughput crude sample analysis

HS AAV kit standard curve for AAV5

Performance

Known conc. (vp/mL)	Calculated conc.	Standard deviation	% CV (n=6)
1.00E+09	8.70E+08	3.50E+07	4%
5.00E+08	5.31E+08	4.87E+07	9%
2.50E+08	2.78E+08	1.91E+07	7%
1.25E+08	1.31E+08	6.06E+08	5%
6.25E+07	6.60E+07	2.90E+06	4%
3.13E+07	3.06E+07	2.69E+06	3%
1.56E+07	1.58E+07	5.37E+05	9%
7.80E+06	7.60E+06	3.95E+05	5%

Dynamic range and reproducibility of AAV9 titer with high sensitivity AAV9 kit

Highlights

- High throughput crude sample analytics
- Up to 32 E/F ratio determinations
- "Dilute and dip" workflow for upstream titer determination from complex matrices
- Easily customizable assays
- Compatible with all serotypes including chimerics
- 96 upstream titer samples completed in 100 minutes

Gator® Pro specifications

General

Detection	Biolayer Interferometry
Microplate positions	4 total (3 x 96- or 384-well microplates and 1 x Max Plate)
Sample type	Proteins, antibodies, peptides, nucleic acids, liposomes, viruses, and small molecules
Maximum sample capacity	1152
Software	Integrated
Simultaneous reads	8, 16, 24, and 32
Spectrometers	32
Acquisition rate	2, 5, and 10 Hz
System baseline drift	≤ 0.015 nm/hr
Dimension (H x W x D)	84 x 114 x 77 cm
Weight	220 kg
Automation compatible	Yes
Orbital flow	100 – 2000 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 (8-32 biosensors)
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 (8-32 biosensors)

Quantitation

Analysis time	32 samples in 2 min, 1152 samples in 142 min
Quantitation range (Protein A Biosensor)	0.02 – 2000 µg/mL
Quantitation precision	CV < 10%
AAV upstream analysis	96 samples in 100 min

Epitope binning

Analysis time	Single run with 32 x 32 less than 8 hr
Pairing format	In-tandem, classical sandwich and pre-mix
Binning capacity	32 x 32

The patented Gator® solution includes BLI instruments, biosensors, chemistry and software for biotherapeutics discovery.

Gator® Pro

Gator®
Total Solution

Gator® biosensors and consumables

Gator® Navigator software

Get in touch with us

We're always here to help

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