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Discover Next-gen High Throughput Biolayer Interferometry with Gator Pro

Gator Pro

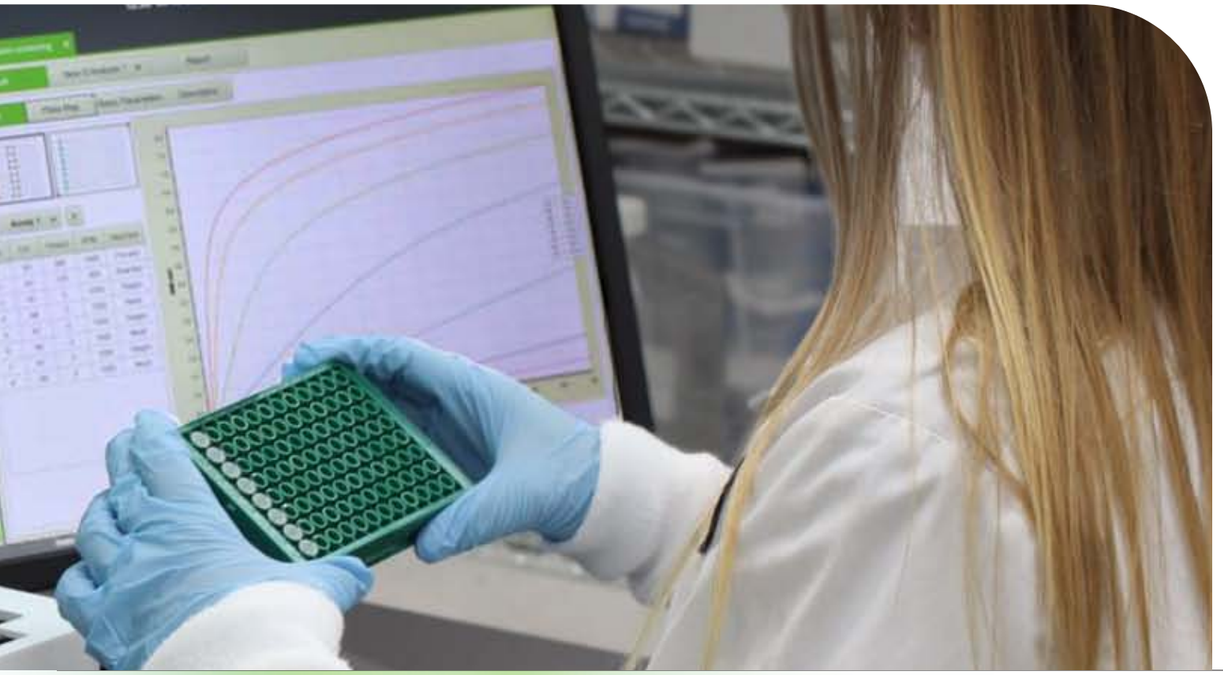
One Tool.
Many Answers.

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.

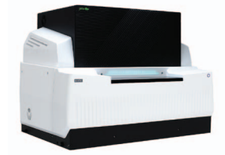
The instrument also supports viral vector analytics with capsid titer analysis of multiple AAV serotypes and determination of empty versus full (E/F) content.

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



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® Pro 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.



Gator Pro

Gator Total Solution

Gator biosensors and consumables

Gator One software

Early discovery

- Antibody titer determination
- Yes/no binding to target antigen
- Isotyping
- Epitope binning
- Cross-reactivity testing
- Assay development
- Off-rate ranking
- Binding constant determination

Early development

- Lead optimization
- Lead characterization
- Detailed kinetic characterization
- Epitope binning
- Affinity maturation

Lead antibody

- Binding kinetics
- Activity assay
- Stability study

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.

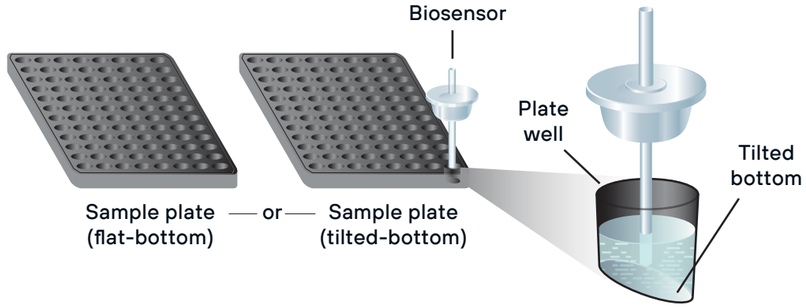
With Gator® Bio next-gen biosensor`s, the Gator Pro system provides accurate, high sensitivity data.

Highlights

- Fast biomolecule characterization
- Flexible 3x96 or 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

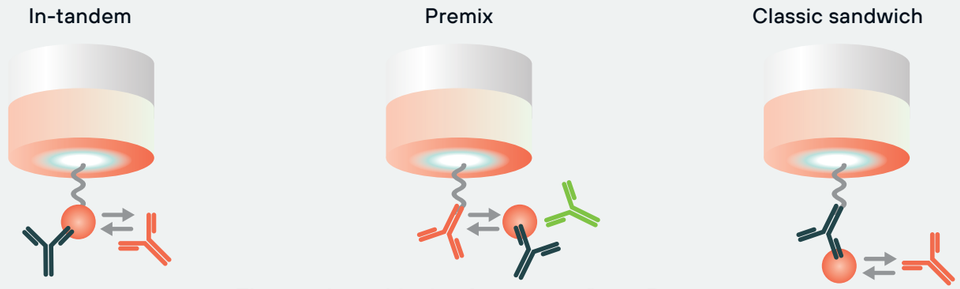
The Gator Pro instrument accommodates one 96-well microplate either tilt-bottom or flat-bottom format.

Another plate is reserved for biosensors placement.

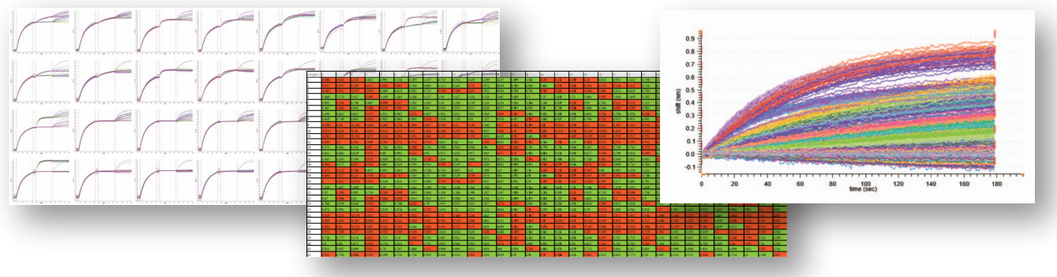


32x
high frequency parallel data acquisition

Epitope Binning



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.

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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

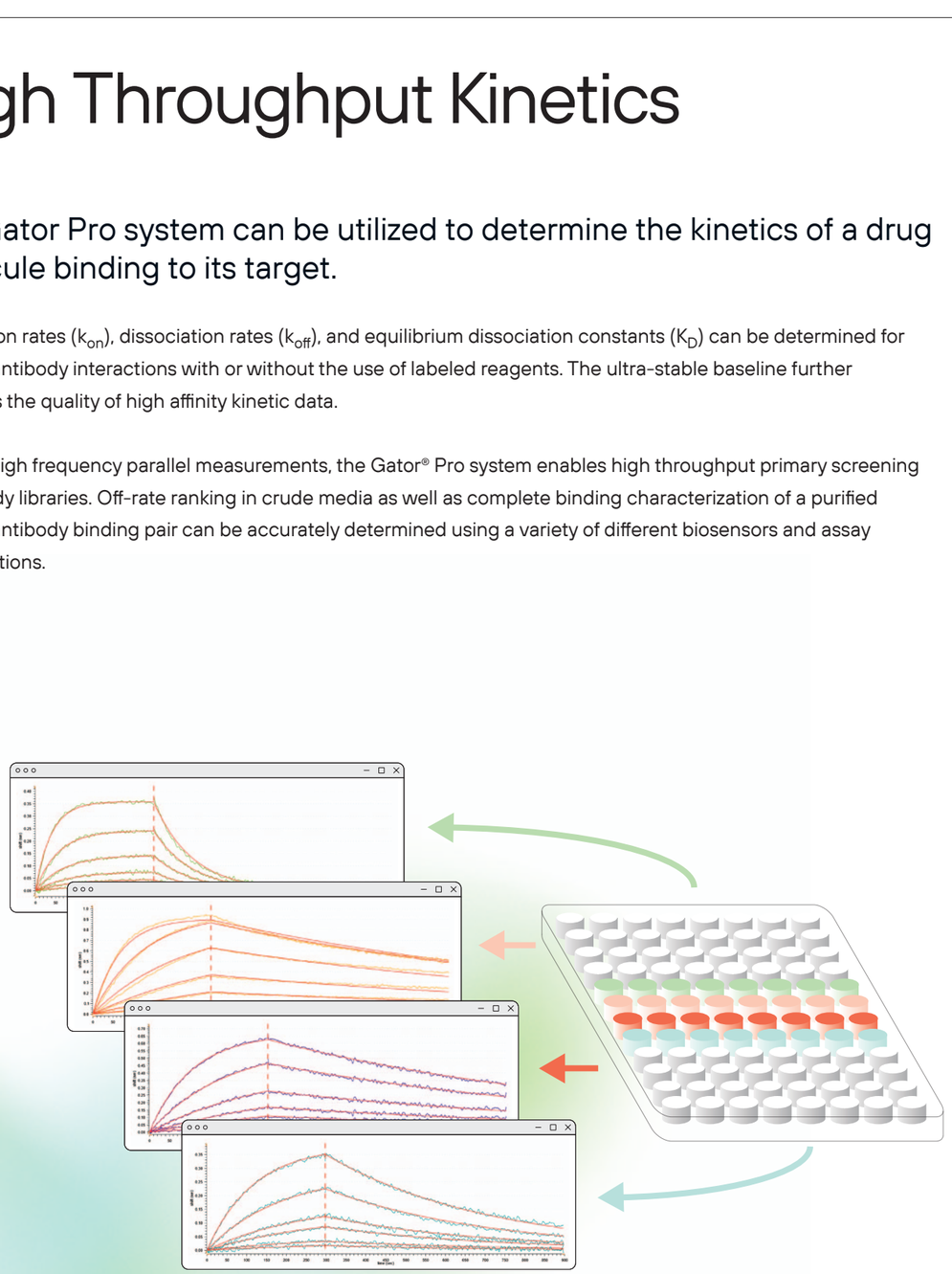
The Gator Pro system can be utilized to determine the kinetics of a drug molecule binding to its target.

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.

Highlights

- 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



Kinetic sensorgrams of 4 different biosimilars in a single run

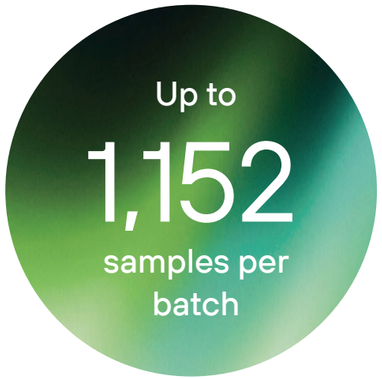
Gator Pro system enables 32 parallel acquisitions for high quality screening and pairing readouts

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.



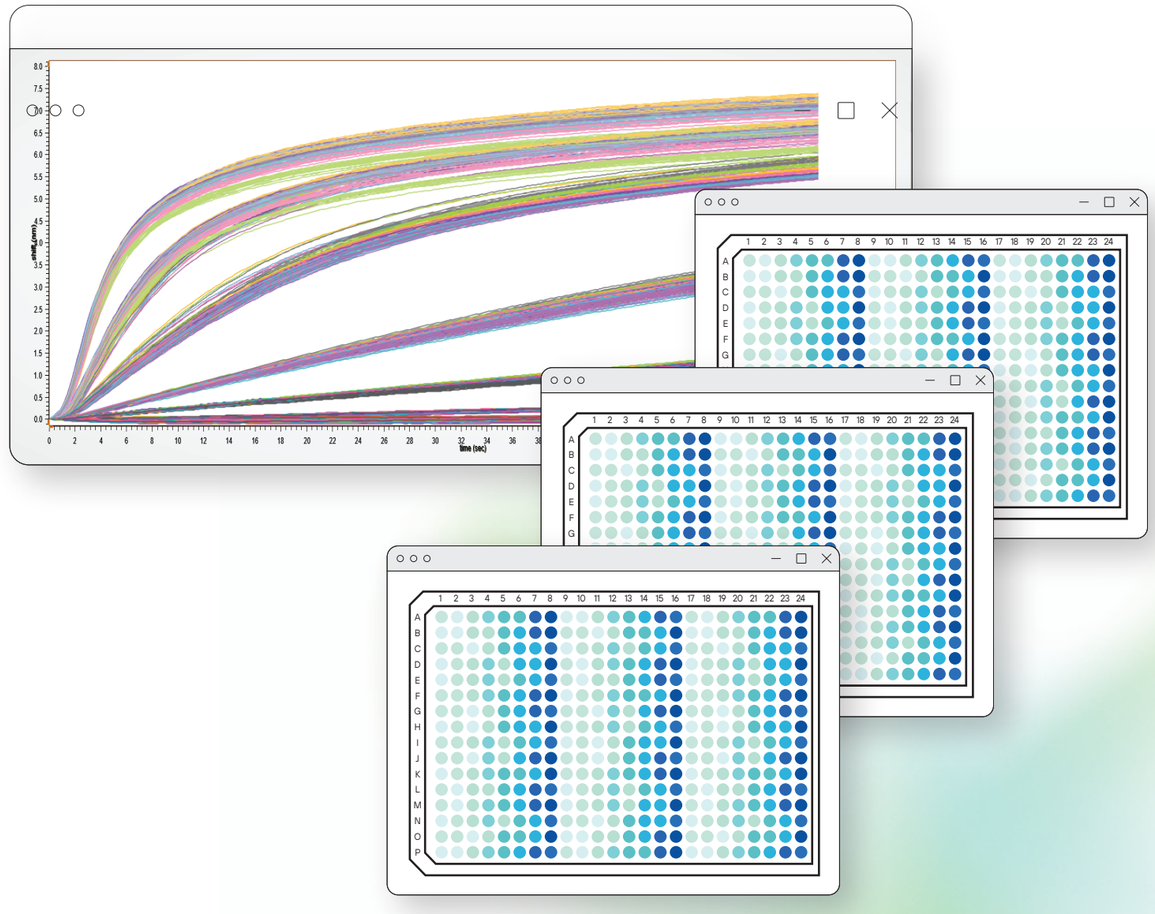
Highlights

- 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%

Accuracy and precision 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

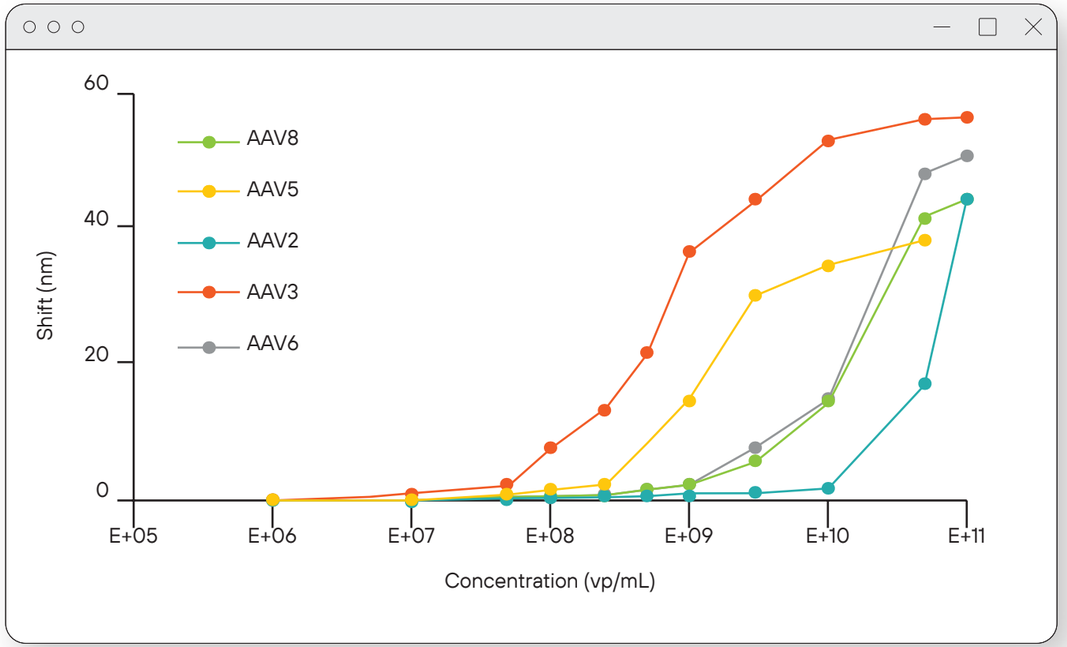
Viral Vector Analytics

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



AAV dynamic range for various AAV serotypes

Performance

Known conc. (vp/mL)	Calculated conc.	Standard deviation	% CV
1.00E+09	8.70E+08	3.50E+07	4%
5.00E+08	5.43E+08	5.30E+07	10%
2.50E+08	2.90E+08	3.20E+07	11%
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 for 96 samples with high sensitivity AAV9 kit

Highlights

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

Specifications

Gator Pro

General	
Detection	Biolayer Interferometry
Sample Microplate	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
Dimension - H x W x D (cm)	91 x 114 x 77
Weight	220 kg
Orbital flow	Static, 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 (Protein A Biosensor)	CV < 10%
AAV upstream analysis	96 samples in 100 min
Epitope binning	
Analysis time	Single run with 32 x 32 less than 8 hr
Pairwise fashion	In-tandem, classical sandwich and pre-mix
Binning capacity	32x32

Gator Probes

Applications & Specifications

Gator Probes	Applications	Quantitation	Kinetics	Epitope binning	Dynamic range (µg/mL)	Reusable
ANTIBODY BIOSENSORS						
Pro A	IgG titer	●		●	0.02 - 2000	●
Pro G	IgG titer	●		●	0.02 - 2000	●
Pro L	IgG Titer using kappa-light chain	●		●	0.02 - 2000	●
HFC	Human IgG characterization by human IgG Fc capture		●	●		●
HFC Gen II	Second-generation HFC probes with higher affinity capture and better regenerability	●	●	●	0.3 - 6000	●
MFC	Mouse IgG characterization by mouse IgG Fc capture	●	●	●	0.02 - 6000	●
Anti-Rabbit Fc	Rabbit IgG characterization by rabbit IgG Fc capture	●	●	●	0.05 - 4000	
Anti-FAB	F(ab), F(ab)2 characterization by CH1 capture	●	●	●	0.3 - 3000	●
IgM	Human IgM titer/characterization	●	●		0.4 - 300	●
Anti-VHH	Camelid anti-VHH characterization	●	●		0.05 - 10	●
PURIFICATION TAGS						
Anti-His	Captures C- and N-terminal 6-His and 8-His tagged proteins	●	●	●	~1 - 100	●
Ni-NTA kit	Ni-NTA capture surface for purified His-tagged proteins	●	●	●	~1 - 100	●
Strep-Tactin XT	Captures win-strep-tagged proteins (seq: SAWSHPQFEKGGGSGGGSGGSAWSHPQFEK)	●	●	●	~0.02 - 20	●
Anti-GST	Captures GST-tagged proteins	●	●	●	0.5 - 300	●
Anti-FLAG	Captures FLAG-tagged proteins		●			
STREPTAVIDIN SUITE						
SA	Streptavidin surface. Captures biotinylated molecules		●	●		
SA XT	High sensitivity SA probe for low Mw (>1 kDa) and high Mw (<2MDa) analytes		●	●		
SMAP	High sensitivity SA for small molecule and small peptide analytes.		●			
FlexSA kit	Re-activatable SA biosensor kit		●			●
CELL & GENE THERAPY						
AAVX/AAV9	Measures intact AAV viral particle titer	●	●		$7E^{9}$ - $1E^{14}$ vp/ml	
HS AAVX/AAV9 kit	Measures low concentration intact AAV viral particle titer	●			$1E^{7}$ - $1E^{9}$ vp/ml	
AAV Ratio kit	Determine AAV empty/full capsid ratio	●			5 - 100% full	
Anti-PEG	Captures PEGylated proteins/LNPs		●			
USER-CUSTOMIZED CHEMISTRIES						
AR	Amine coupling surface ready for EDC-NHS coupling		●			
APS	APS surface for hydrophobic ligand capture		●			
Custom	Customized to your specifications	●	●	●	Varies	Varies

Only available with Gator® Bio.