



Streamlining Biologic Workflows with Label-Free Quantitation and Binding Analysis

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Introduction

Label free analytical platforms are essential tools in the development and manufacturing of biologics, offering rapid, high-throughput measurement of antibody titer and binding activity across cell line development (CLD), process development (PD), and quality control (QC) workflows.

Bio-layer interferometry (BLI) systems are widely utilized for their ability to generate real-time, label-free data directly from crude samples. Meanwhile, complementary technologies like ELISA, SPR and HPLC continue to serve specialized roles in kinetic profiling and concentration/aggregation analysis, respectively. To meet the growing demands of modern biologics workflows—including higher sample capacity, enhanced signal stability, greater probe versatility, and reduced total cost of ownership—Gator Bio's next-generation BLI platform offers:

- Key innovations include an advanced optical coating with proprietary chemistry on **sensor surfaces** that minimizes non-specific binding.
- Expanded portfolio of advanced biosensors** (e.g., Flex SA, anti-VHH, and Strep-Tactin XT) tailored for emerging drug modalities.
- User-centric software and hardware design** that simplifies operation while maximizing throughput.
- The platform's dual-layer thermal control minimizes drift to maintain high signal stability, while user-driven design refinements ensure cost-effective operation and easier maintenance.

This poster highlights representative data and workflows demonstrating the platform's performance in titer measurement and functional binding assays across the bioproduction continuum. Gator Bio's BLI technology empowers scientists to confidently make critical decisions in both research and regulated environments with reliable, real-time analytics.

The Gator Line-up



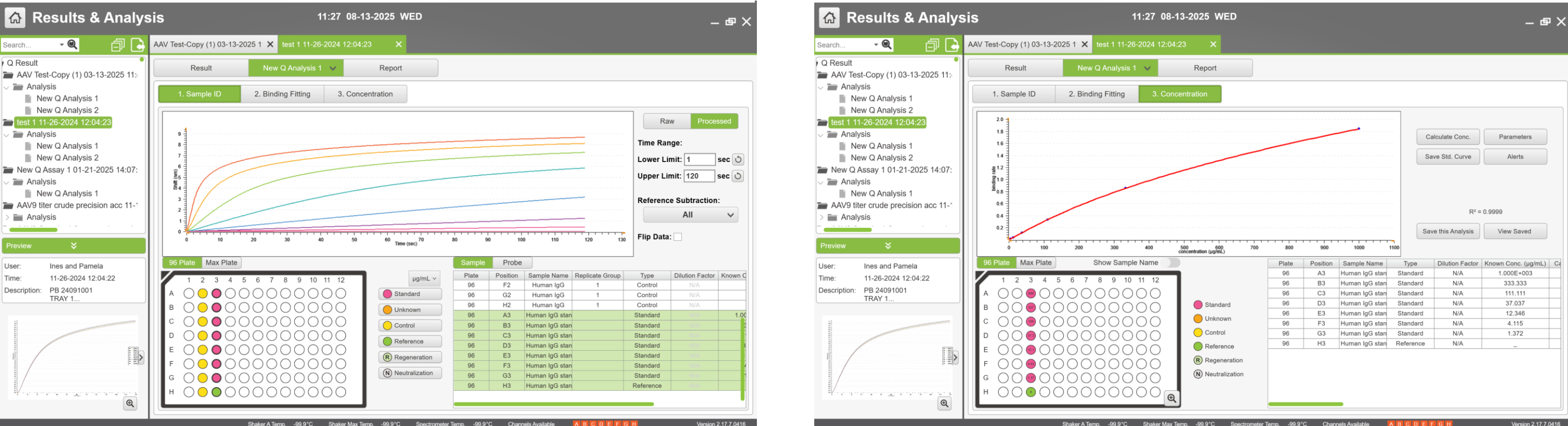
	Gator Pilot®	Gator Prime®	Gator Plus®	Gator Pivot®	Gator Pro®
# Channels	4	8	8	16	32
Usable plates	½ x 96 (Samples) ½ x Max (Probes only, no shaker)	1x 96 (Samples) 1x Max (Probes)	1x 96/384 1x Max	2x 96/384 1x Max	3x 96/384 1x Max
Automation Ready	-	-	-	Yes	Yes
Self-cleaning	-	-	-	Yes	Yes
21 CFR Part 11	Yes	Yes	Yes	Yes	Yes

Probes for mAbs	Applications (Q or K)*	Probes for Proteins and other Biomolecules	Applications (Q or K)*	Probes for CGT	Applications (Q or K)*
Protein A (ProA)	Q	Ni-NTA (NTA)	Q & K	AAVX	Q
Protein G (ProG)	Q	Anti-His (HIS)	Q & K	AAV9	Q
Protein L (ProL)	Q	Anti-PEG	Q & K	High Sensitivity (HS) AAV Kit	Q
Anti-human IgG Fc (HFC)	Q & K	Strep-Tactin XT	Q & K	High Sensitivity (HS) AAV9 Kit	Q
Anti-human IgG Fc Gen 2 (HFCII)	Q & K	Anti-Strep Tag II	K	AAV Full/Empty Capsid Ratio Kit	Q
Anti-mouse IgG Fc (MFC)	Q & K	Anti-GST	Q & K	AdenoQuant	Q
Anti-human Fab (FAB)	Q & K	Anti-FLAG	Q & K	LentiQuant	Q
Anti-VHH	Q & K Screen	Streptavidin (SA)	Q & K		
Anti-IgM	Q & K	Streptavidin XT (SA XT)	K		
Anti-rabbit IgG Fc	K	Small Molecule Analysis Probe (SMAP)	K		
Anti-rat IgG Fc	K	Flex SA Kit	K		
		Amine Reactive (AR)	K		
		Aminopropylsilane (A PS)	K		

* Only available from Gator at time of publication

- BLI enables real-time, label-free detection of biomolecular interactions.
- Gator Bio sensors measure changes in optical thickness during binding.
- Proprietary probe chemistry minimizes non-specific binding.
- Sensor design delivers high signal-to-noise ratios.
- Works directly with crude samples like supernatants and lysates.
- Enables accurate analysis without the need for purification.

Gator® Software



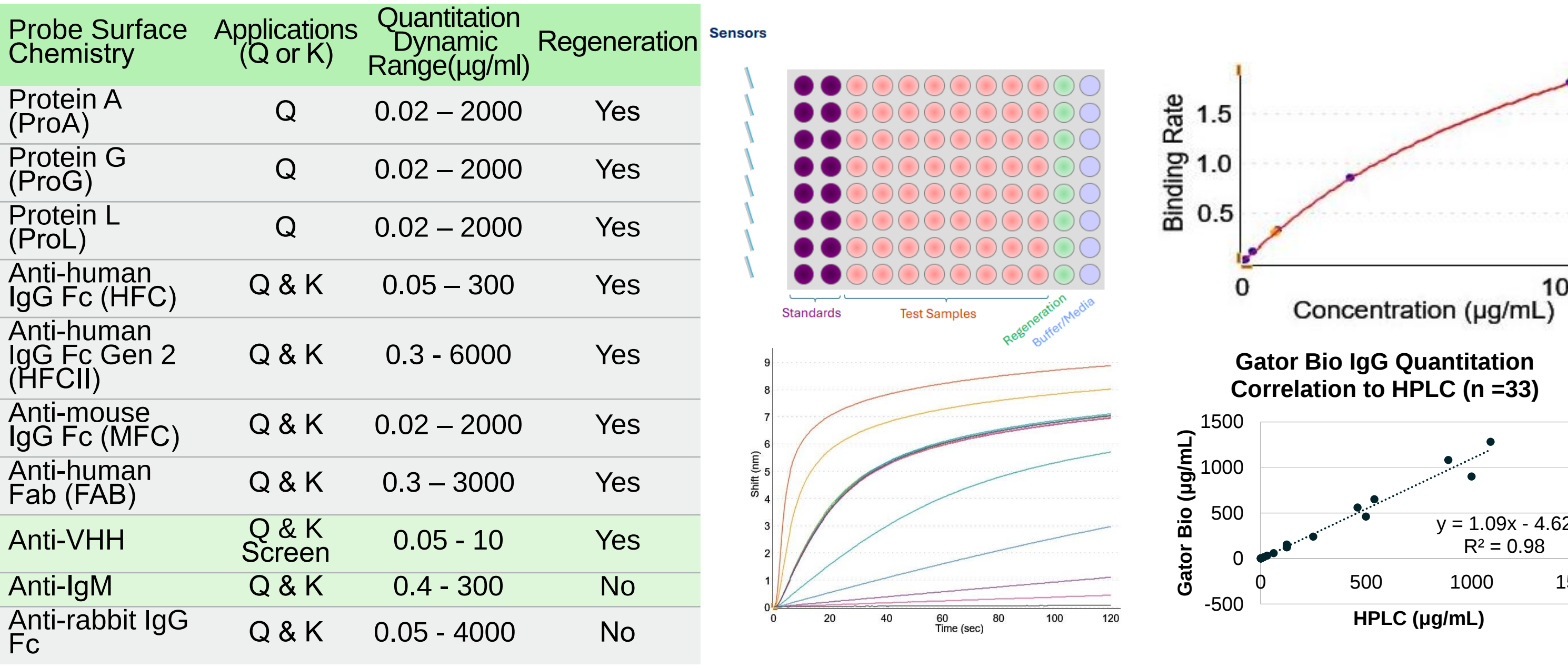
- Gator® software offers a fully integrated solution for assay setup, data analysis, and report generation.
- The user-friendly interface guides users through easy, step-by-step experimental setup and analysis.
- Flexible assay design supports quantitation, kinetics, and epitope binning for diverse applications.
- Gator® 21 CFR Part 11 Software supports compliance in GMP and GLP environments..

Application Across Biotherapeutic Development

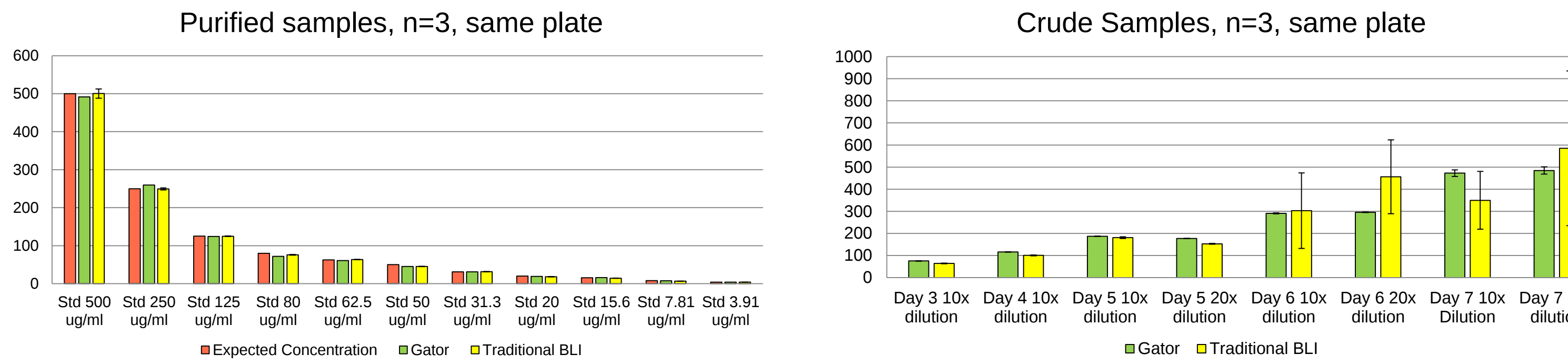
Cell Line Development	Upstream Bioprocessing	Downstream Bioprocessing	QC & Lot Release
Rapid titer + functional binding from supernatant. Rapid assay format delivers results within minutes.	Low-cost titer measurement in crude samples. Optimize media and culture conditions with high-throughput design of experiments (DOE).	Determine Dynamic Binding Capacity (DBC), confirm titer + activity both post-purification and during product stability studies.	Reliably measure comparability and bioactivity in regulated environments. Eliminate cumbersome SPR-based QC with easy-to-learn and use methods.

Performance for Antibody Quantitation

- Up to **32 capture ligand-coated sensors** can be dipped simultaneously into samples in a microwell plate for **60–120 seconds**.
- Analytes in solution bind to the ligands on the sensors, producing a **real-time binding signal**.
- Gator Bio software fits the binding curves to generate a **Binding Rate vs. Concentration** graph.
- Sensors can be **regenerated automatically** for reuse, reducing overall testing costs.
- A **standard curve** is generated from known samples and applied to determine the concentration of **unknown samples**.



Accuracy and Precision of Gator Bio IgG titer in comparison to Competitor

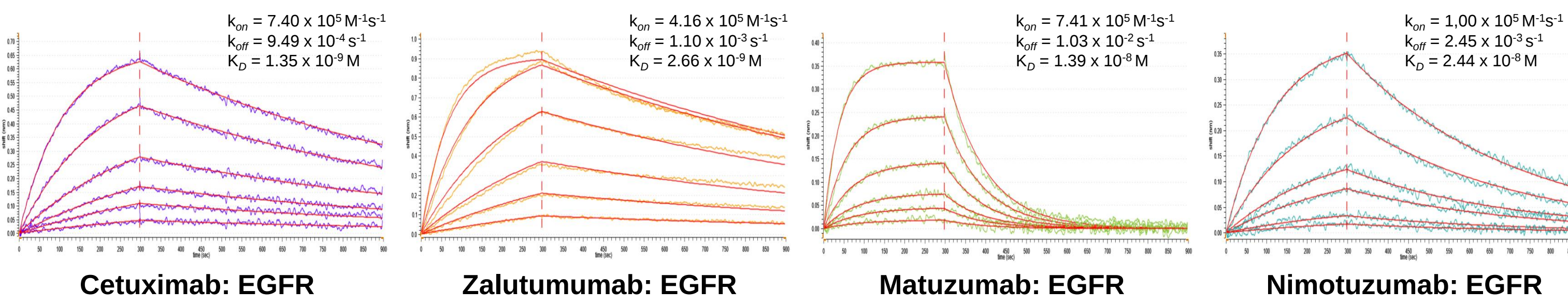


Standard	Gator %CV	% Agreement	Traditional BLI %CV	% Agreement
500 ug/ml	1.6%	98.3%	2.4%	100.1%
250 ug/ml	1.0%	103.9%	1.1%	99.8%
125 ug/ml	0.5%	99.5%	0.6%	99.9%
80 ug/ml	0.4%	89.8%	0.9%	94.8%
62.5 ug/ml	0.6%	97.2%	1.0%	101.6%
50 ug/ml	0.6%	90.4%	0.8%	90.6%
31.3 ug/ml	0.8%	100.0%	1.1%	100.6%
20 ug/ml	0.6%	96.2%	1.8%	90.8%
15.6 ug/ml	0.6%	103.2%	1.4%	91.7%
7.81 ug/ml	0.4%	98.0%	2.5%	83.9%
3.91 ug/ml	0.5%	99.9%	2.1%	99.9%
Average	0.7%	97.9%	1.4%	95.8%

Sample	Gator	Gator %CV	Traditional BLI	Traditional BLI %CV
Day 3 10x dilution	75.3	0.5%	64.4	2.3%
Day 4 10x dilution	116.0	0.9%	100.5	1.8%
Day 5 10x dilution	187.0	0.5%	181.1	2.0%
Day 5 20x dilution	177.4	0.4%	153.0	1.3%
Day 6 10x dilution	290.7	0.9%	303.0	56.4%
Day 6 20x dilution	295.3	0.4%	456.1	36.6%
Day 7 10x dilution	472.7	3.2%	349.7	37.5%
Day 7 20x dilution	484.7	3.4%	585.2	59.8%
Average		1.3%		24.7%

Example of Gator Binding Kinetics analysis

- Supports **flexible assay formats**, including:
 - Screening assays with different analytes in each well.
 - Kinetic assays using a dilution series of the same analyte.
- Biosensor probes** can often be regenerated and reused, depending on assay design and binding strength.
- Reuse of probes **increases throughput and reduces consumable costs**.



Conclusions

- High-throughput, label-free quantitation and binding analysis** designed for cell line development, upstream process monitoring, and quality control.
- Real-time measurement from crude supernatants**, eliminating sample preparation steps required by ELISA, HPLC, and traditional kinetics-based methods.
- Advanced probe surface chemistry** minimizes non-specific binding and improves signal-to-noise ratio.
- Intuitive software interface** simplifies assay setup, execution, and data interpretation.
- Delivers **enhanced analytical performance and lower cost of ownership** compared to established BLI platforms.

