

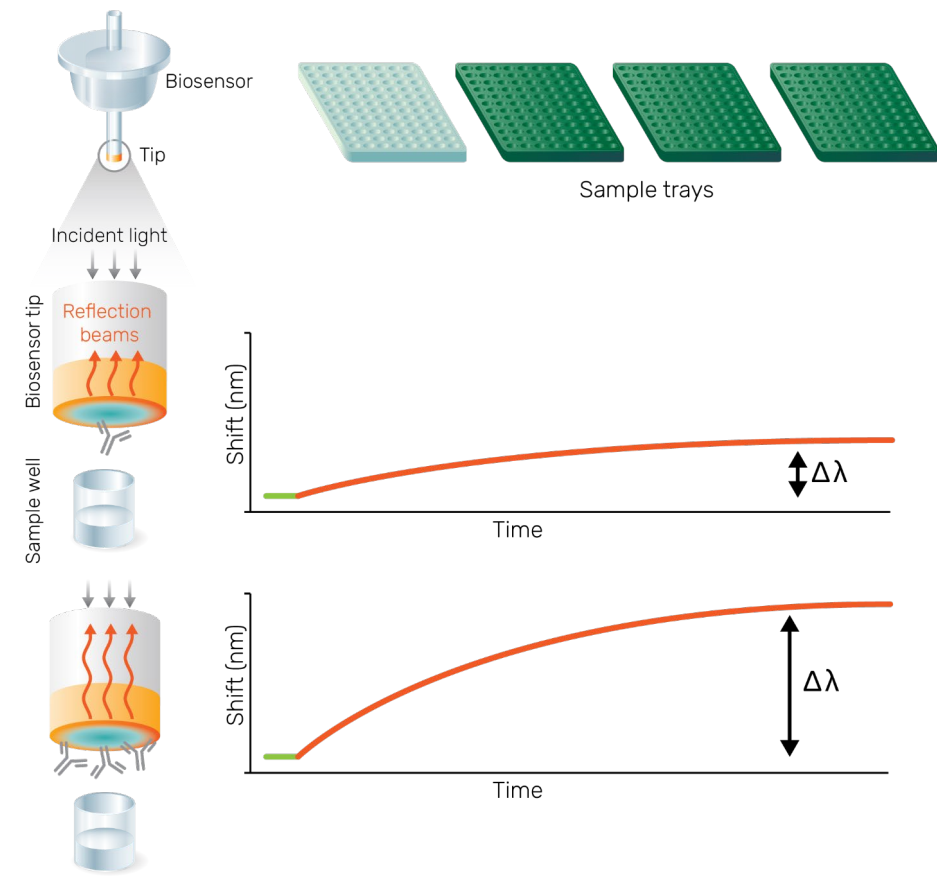
Evaluating the Versatility of Gator® Next Generation BLI Platform for Biotherapeutic Development and Gene Therapy

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Introduction

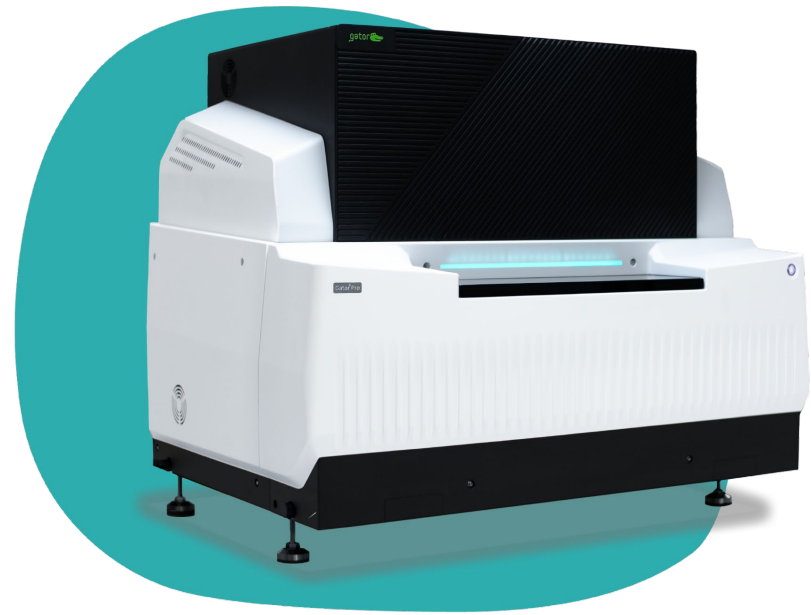
Bi-layer Interferometry (BLI)

- Label-free technology based on reflection of light on the surface of a biosensor tip
- The shift in interference pattern plotted against time when a molecule is bound
- The change in pattern proportional to the number of biomolecules bound
- Gator® next-generation BLI is a versatile real-time analysis platform
- Minimal hands-on time
- Wide applications ranging from protein-protein interactions, therapeutics development and viral vector analysis
- Tolerant to different buffers, cell media, crude lysates, serum and plasma



High throughput Gator® Pro Instrument

- Fast, automated and accurate biomolecule characterization
- Built-in 32 spectrometers for up to 32 parallel biomolecule interactions in as little as 2 mins
- Three sample plates and one biosensor plate for high-throughput monitoring
- Flexible 96-well and 384-well sample plate format



Here, we present data from some unique applications like,

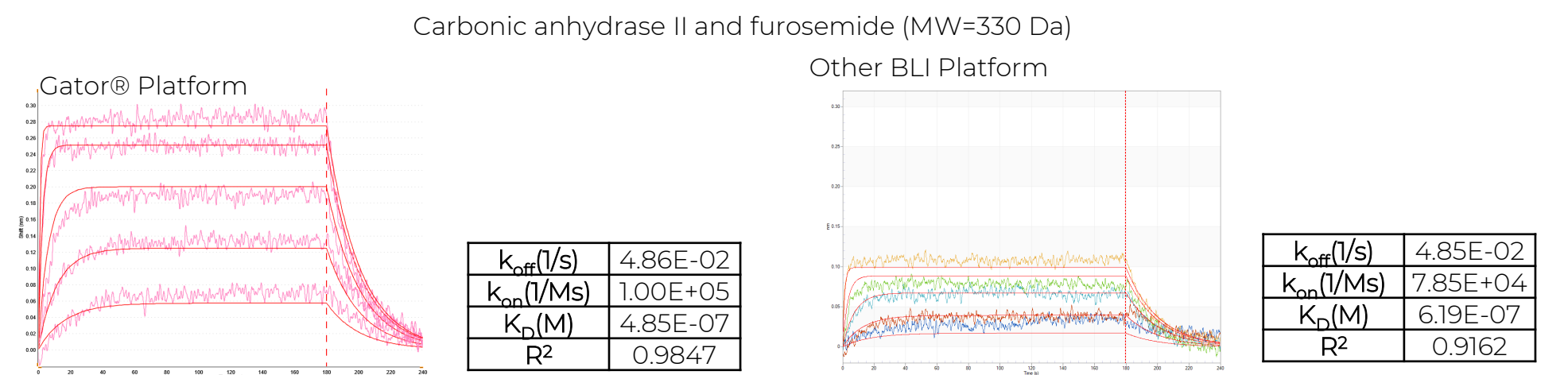
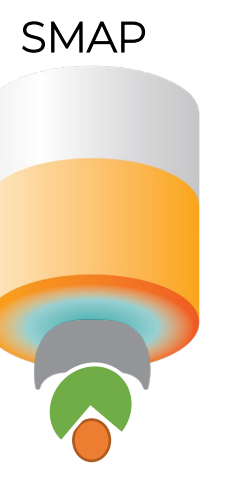
- Epitope binning
- Biosimilar kinetics
- LNP solutions
- Nanobody screening
- Small molecule interactions
- AAV solutions

Gator® Bio's huge portfolio of biosensors can support at multiple stages of therapeutic development and in gene therapy.

Small molecule interactions

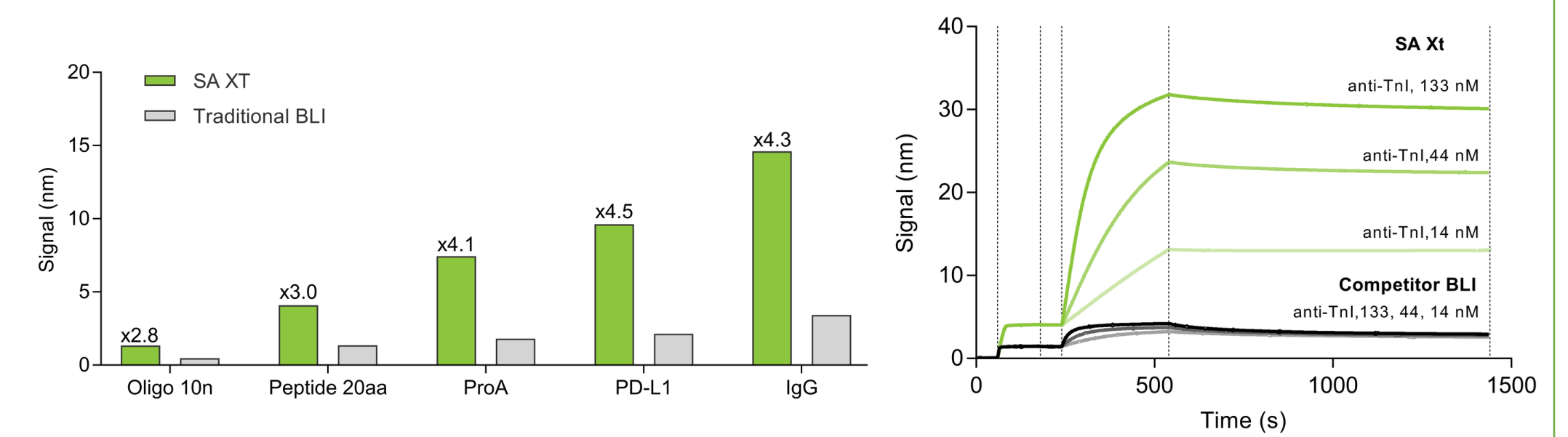
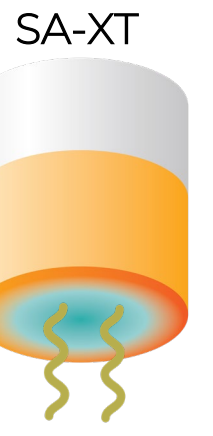
Gator® SMAP Probes

- Detect small molecules up to 150 Da with a binding partner
- Streptavidin based proprietary surface chemistry for high-capacity immobilization of biotinylated binding partner
- Determination of the kinetic parameters (k_{on} , k_{off} and K_D) of the small molecule with the immobilized binding partner
- Enhanced signals vs traditional BLI platforms



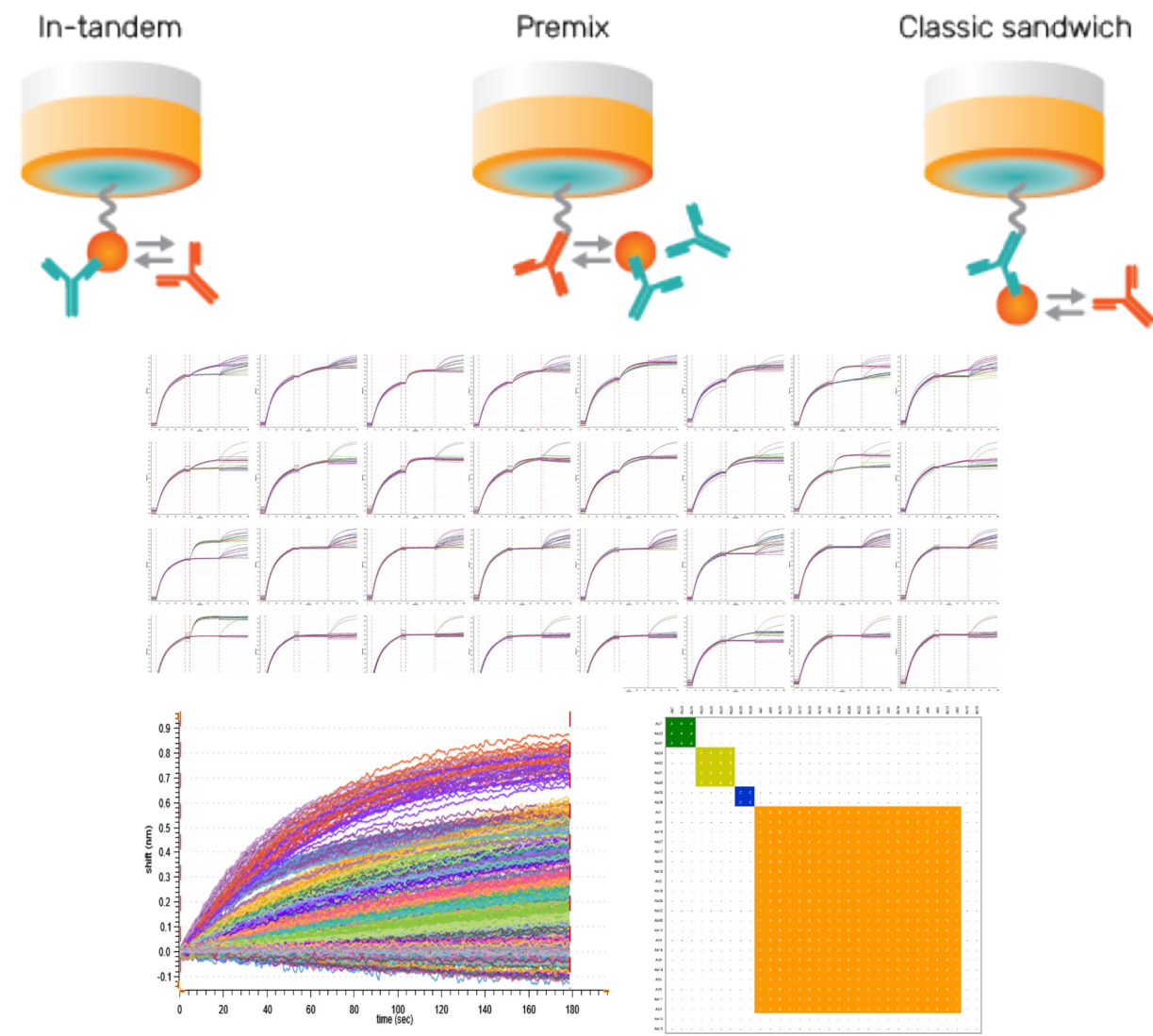
Peptide binding using Gator® Streptavidin (SA) XT Probes

- The biosensors detect biotinylated oligos, peptides and proteins above 1 kDa
- Unique optical layer with novel proprietary chemistry enhances the signal 5-3x than the traditional BLI platform
- Large biomolecule up to 2 MDa can be detected without inversion of signal
- Higher signal allows for lower loading of ligand and analyte, hence conserving precious sample
- Accurate determination of the kinetic parameters (k_{on} , k_{off} and K_D) from small peptides to large biomolecules



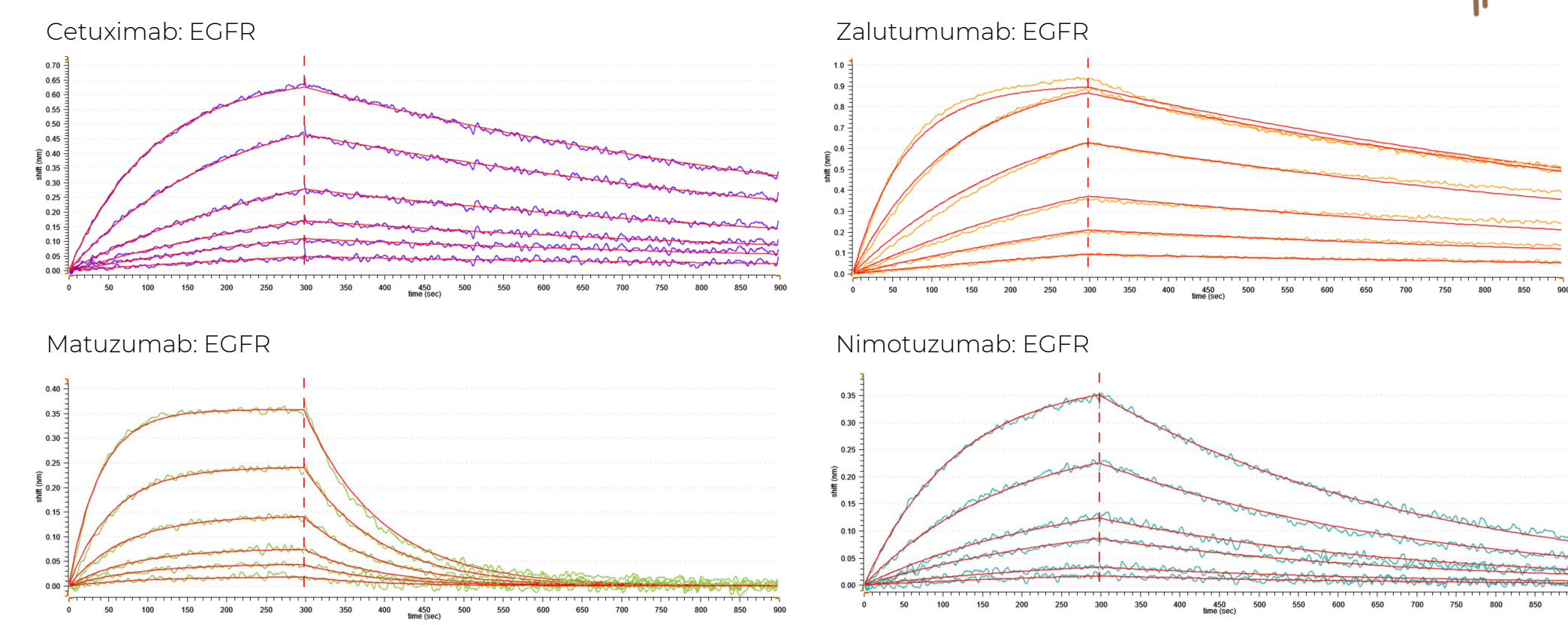
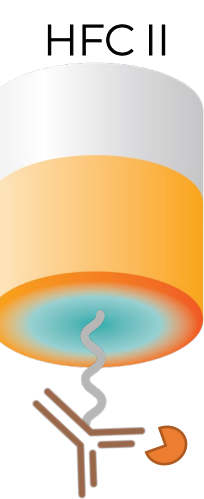
Epitope Binning

- High-throughput 32 x 32 epitope binning assay utilizing Gator® Pro instrument in less than 8 hours
- Accurate and automated tandem or traditional sandwich format
- Easy data visualization and interpretation
- Broad range of biosensors for tandem and sandwich format



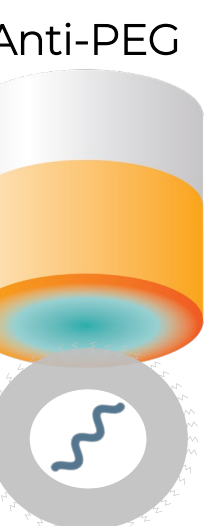
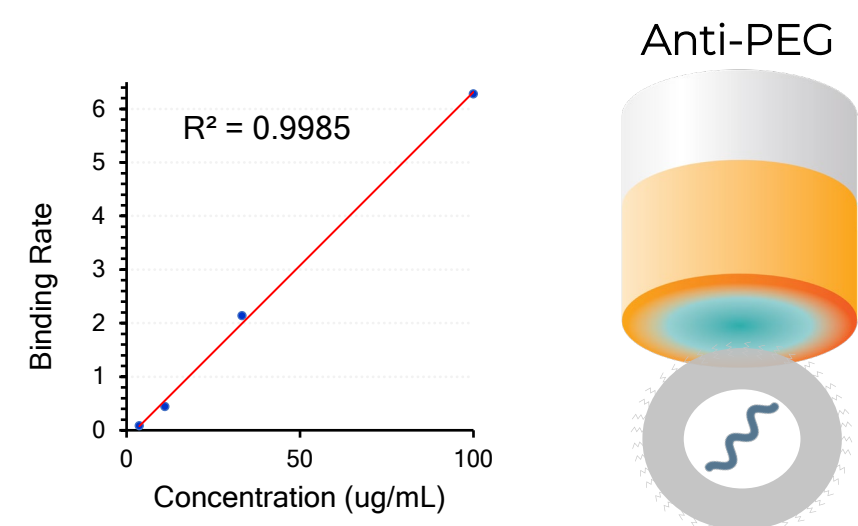
Biosimilar Kinetics

- Gator® Human Fc (HFC) Receptor II biosensor detects Fc region of all four IgG isotype making it suitable for biosimilar screening
- The biosensor can be regenerated up to 20 times without loss in signal, thus making them cost effective
- No cross-reactivity to Human Fab region and other species antibody, making them very specific



Lipid Nanoparticle Solutions

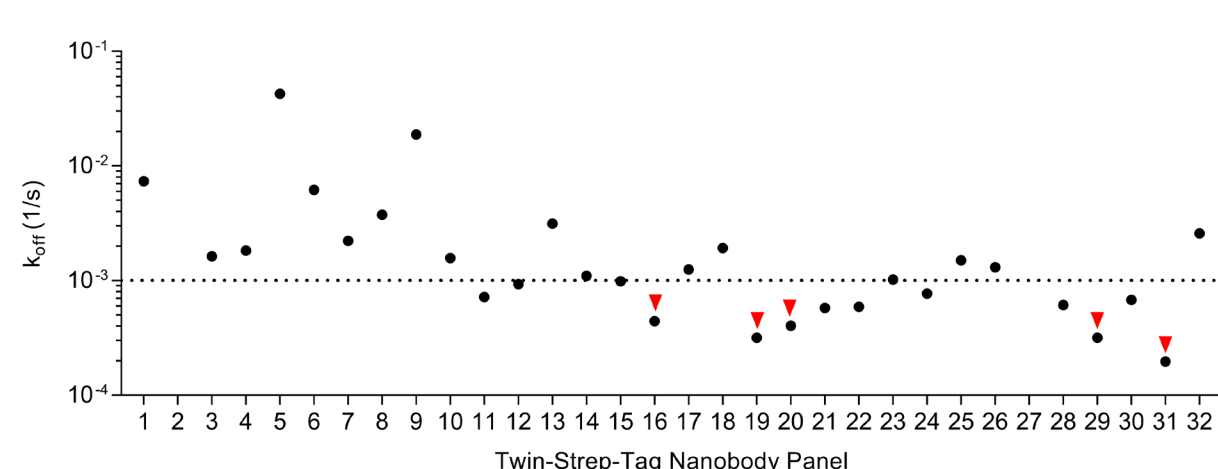
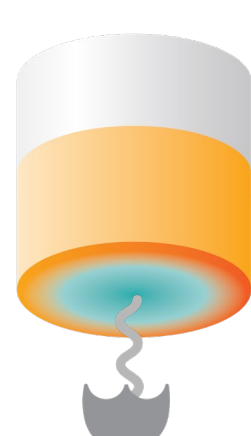
- Anti-PEG probes enables the detection and quantitation of LNPs
- Using unique optical layer, no inverted binding signal from LNP binding
- Serum proteins can be immobilized onto the probes to study the interaction with LNPs



Nanobody Screening

- High affinity (pM) interactions between twin-Strep-tag fused protein, Fab fragments or nanobody with Strep-Tactin® XT biosensors
- Fast and accurate twin-strep-tagged nanobody screening using Strep-Tactin® XT biosensors

Strep-Tactin® XT



AAV Solutions

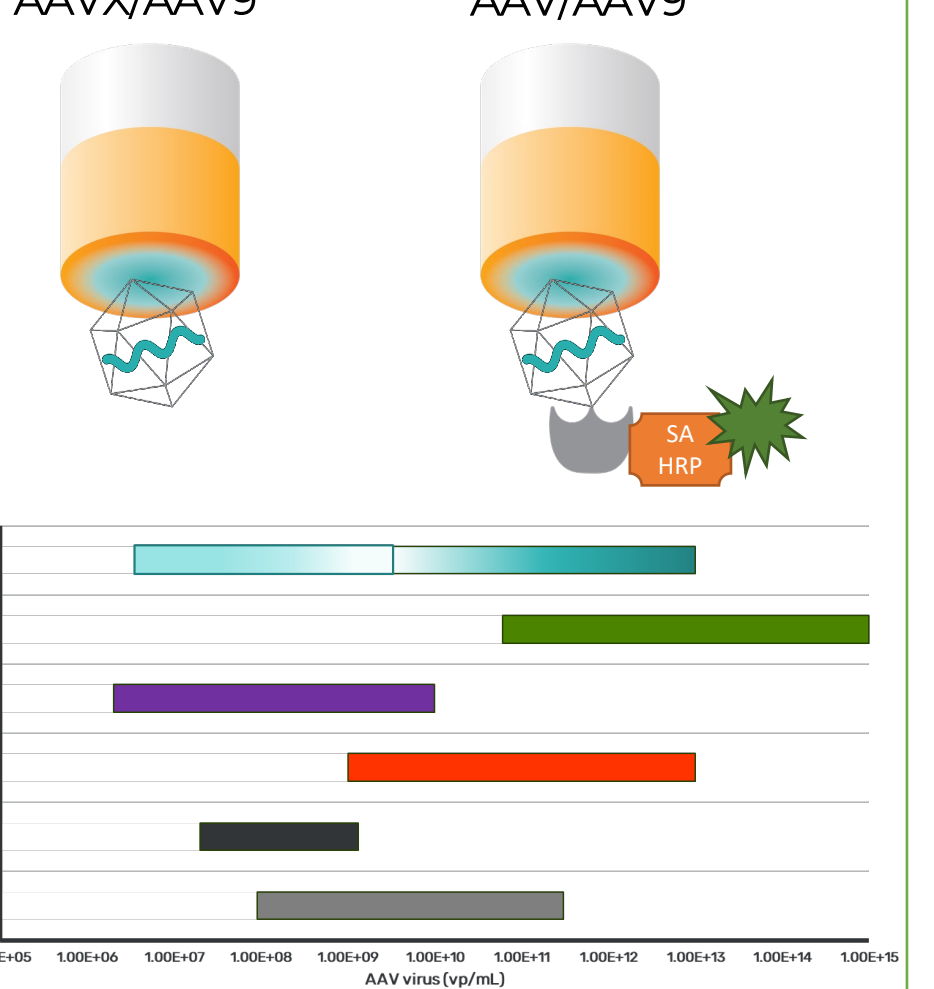
AAV capsid Titer in Crude Samples

- Gator® HS AAV/AAV9 kit is a "dilute and dip" method, perfect for upstream samples
- The kit accurately determines the AAV capsid titer without matrix interference
- The sensitivity is enhanced due to patented amplification technology
- Less hands-on time than ELISA

AAV capsid Titer in Purified Samples

- Together Gator® AAVX/AAV9 biosensors and Gator® High sensitivity (HS) AAV/AAV9 kit detects high dynamic range of AAV serotypes and recombinant AAV capsids (1.00E+07 to 1.00E+13 vp/mL)

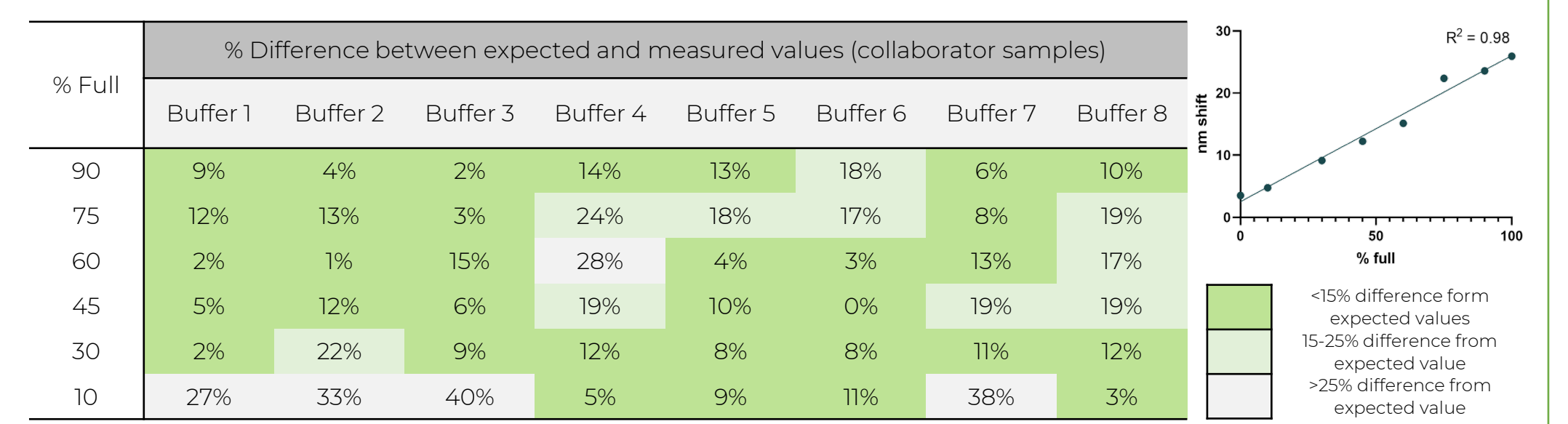
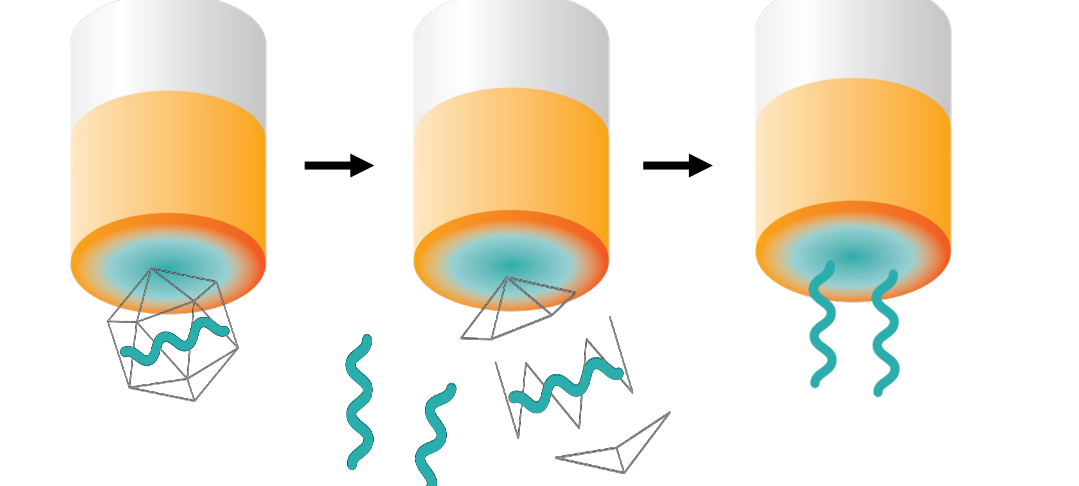
Direct Binding AAVX/AAV9 High Sensitivity Assay AAV/AAV9



Determination of AAV Empty vs Full Ratio

- Easy AAV Empty/Full ratio determination using Gator® AAV Ratio kit
- The process involves AAV capsid capture, lysis followed by DNA quantitation
- Compatible with complex buffers and crude matrices
- Fast assay time without compromising accuracy

AAV Capture Lysis DNA Quantitation



Conclusion

- Gator® next generation BLI platform: one tool, many answers
- Fast biomolecule characterization using Gator® Pro Instrument
- Automated, accurate and fast epitope binning
- Precise and efficient biosimilar kinetics
- Accurate and easy kinetic platform for LNPs
- Easy and specific nanobody screening
- Enhanced small molecule and protein kinetic interactions
- Accurate kinetic parameters for small peptides to large protein using Gator® SA XT biosensors
- Total AAV solutions:
 - Precise AAV titer from upstream to downstream samples
 - Accurate determination of Empty vs full ratio
- Comprehensive suites of biosensors to support different development stages
- Faster and cost-effective solutions in biotherapeutic development and gene therapy