

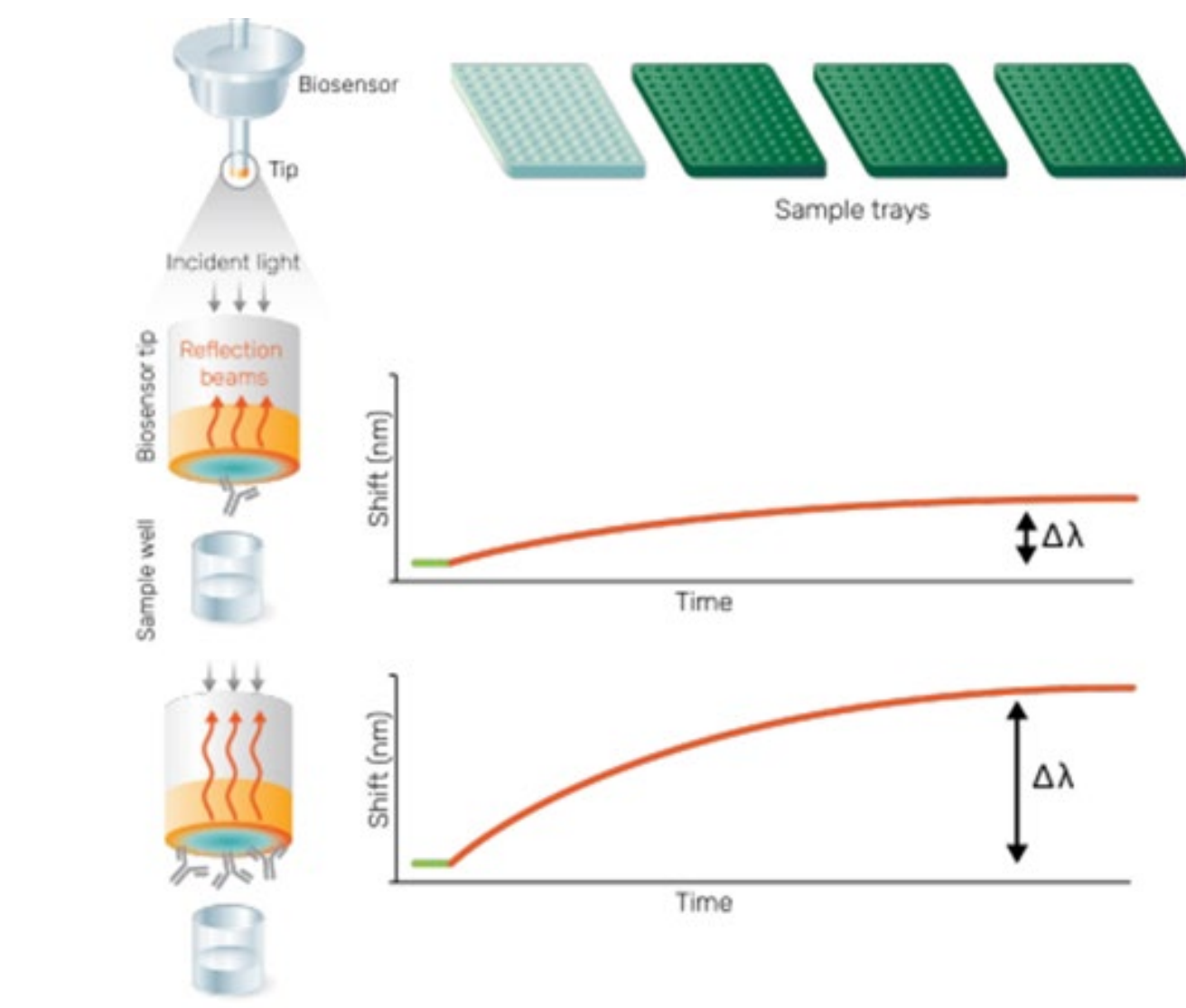
A High-Performance, Sustainable BLI Streptavidin Panel for Enhanced Label-Free Binding Analysis from Small to Large Molecules

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Introduction

Biolayer 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
- 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

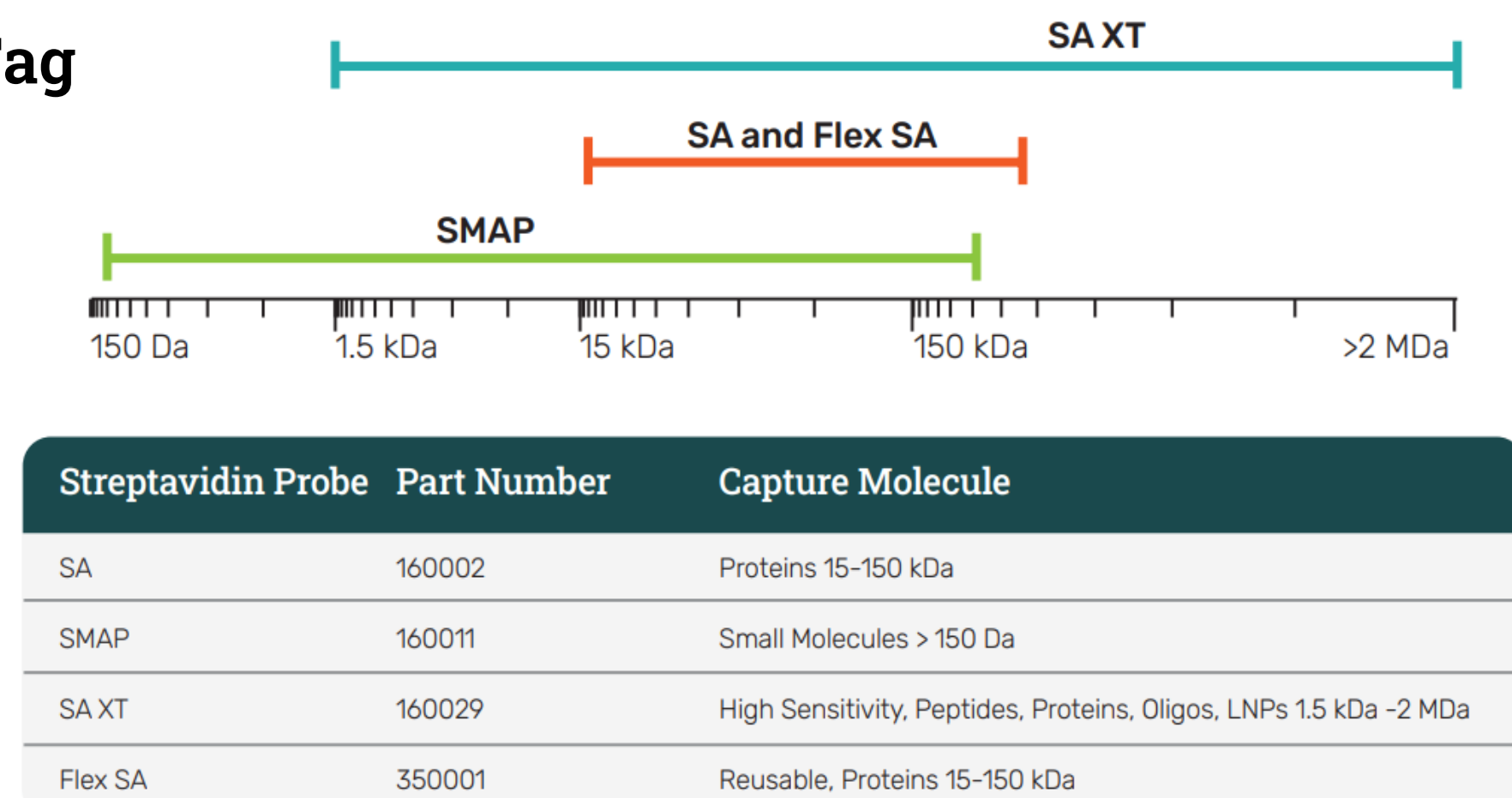


SA Panel binding to Biotin & Avi-Tag

Here, we present data from some unique applications using the Streptavidin Panel of probes for:

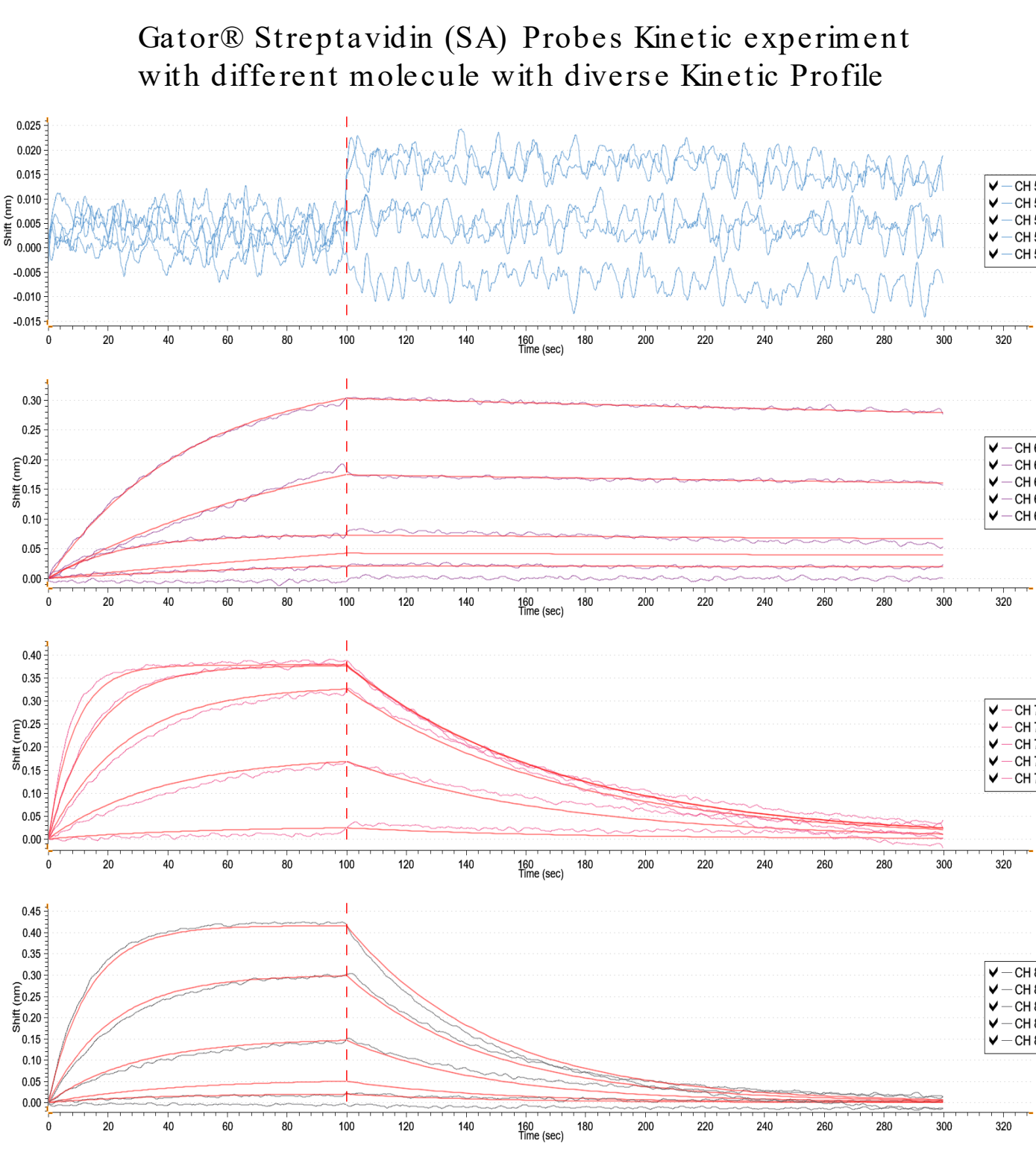
- Small molecule interactions
- Large molecule binding
- Protein/Protein Binding
- Quality and Bioprocess

A wide variety of streptavidin-based chemistry can support multiple stages of therapeutic development

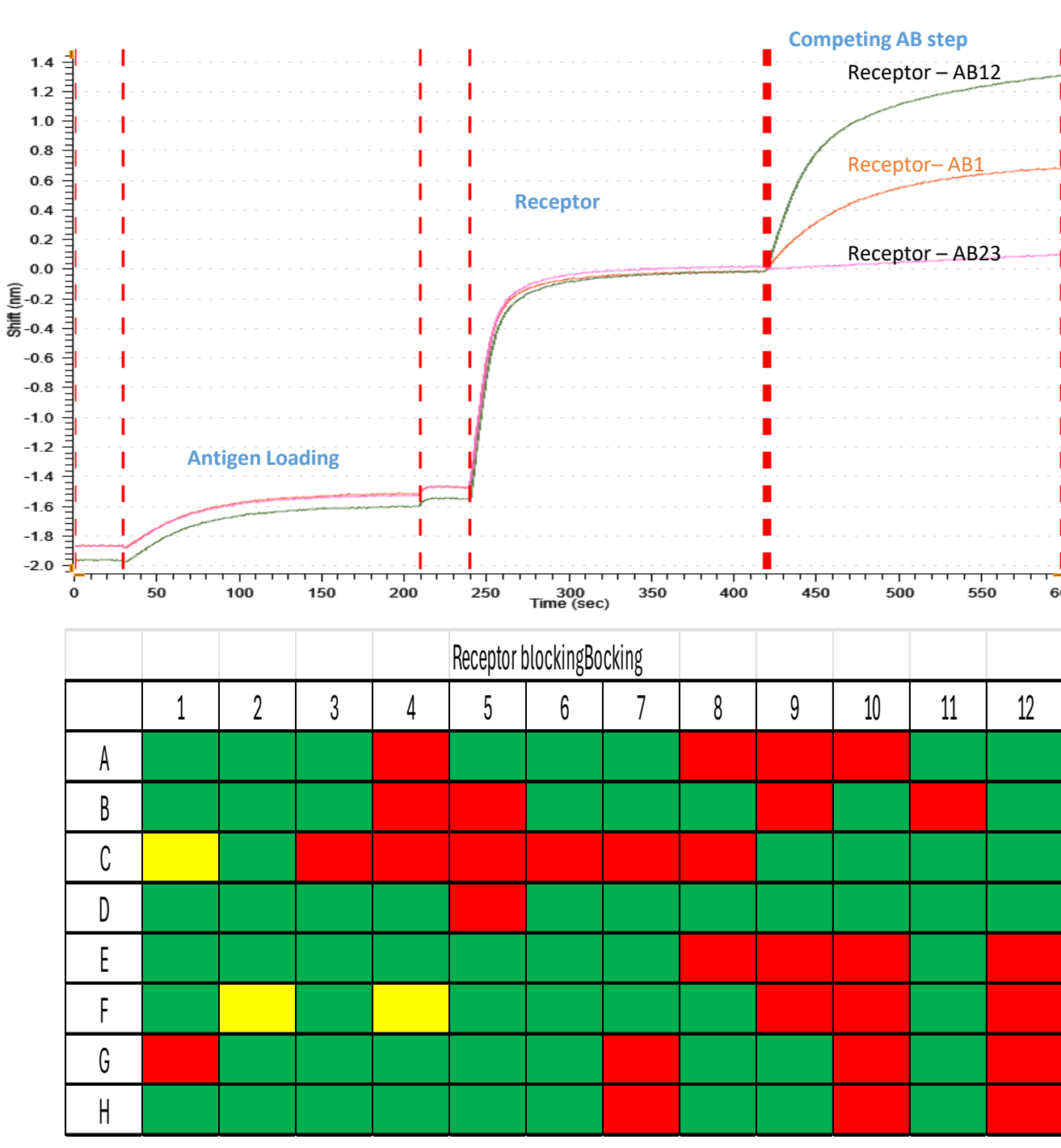


Protein/Protein interaction

- Capture of biotinylated proteins ranging from 15 kDa to 150 kDa.
- Chemistry to coat the SA probe, ensuring precision
- Accurate and dependable protein kinetics data for various applications
- Strong affinity and specificity for biotinylated proteins
- Diverse applications including quantitation, kinetics and epitope binning



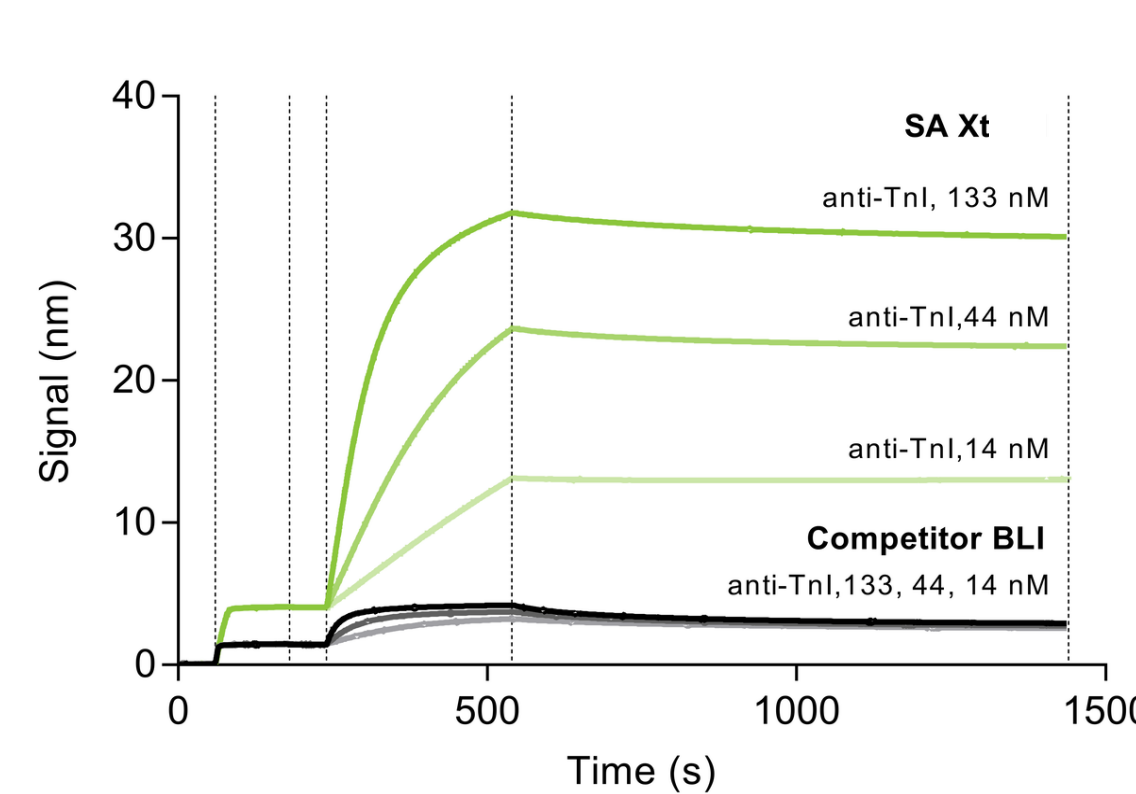
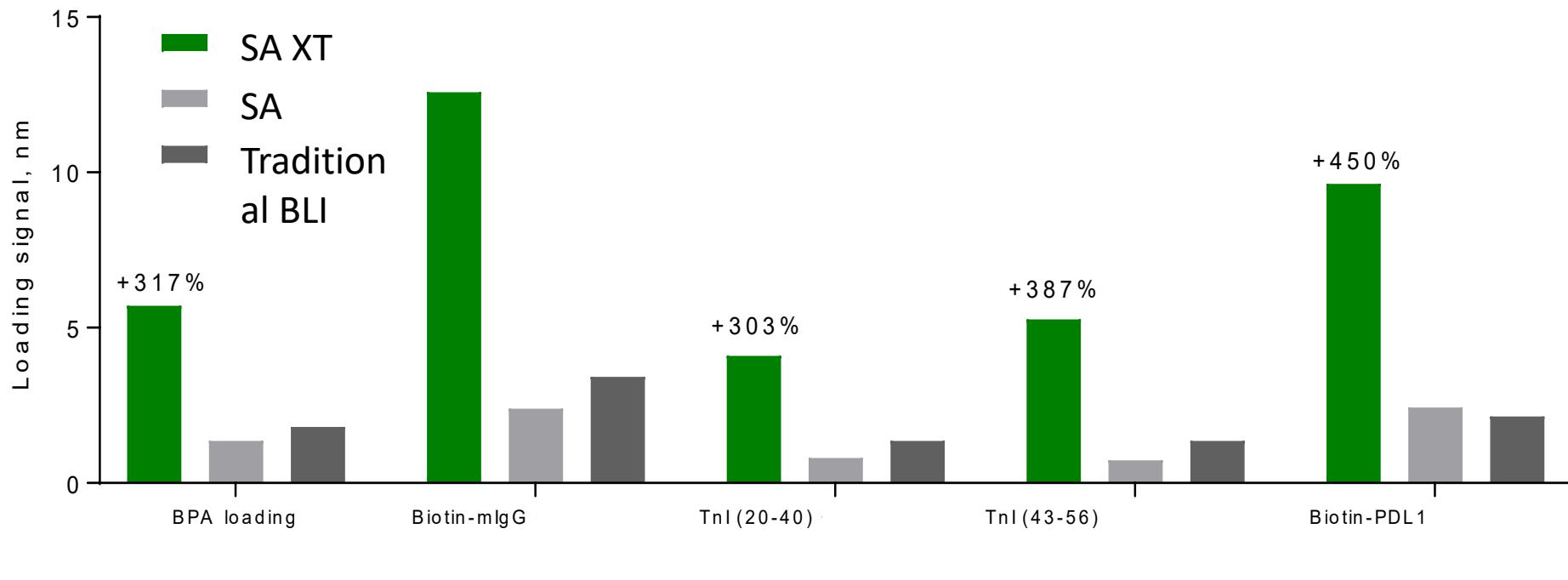
Gator® Streptavidin (SA) Probes used for receptor blocking experiment in high-throughput screening with periplasmic samples



Biomolecules Ranging from 1 kDa to 2 mDa

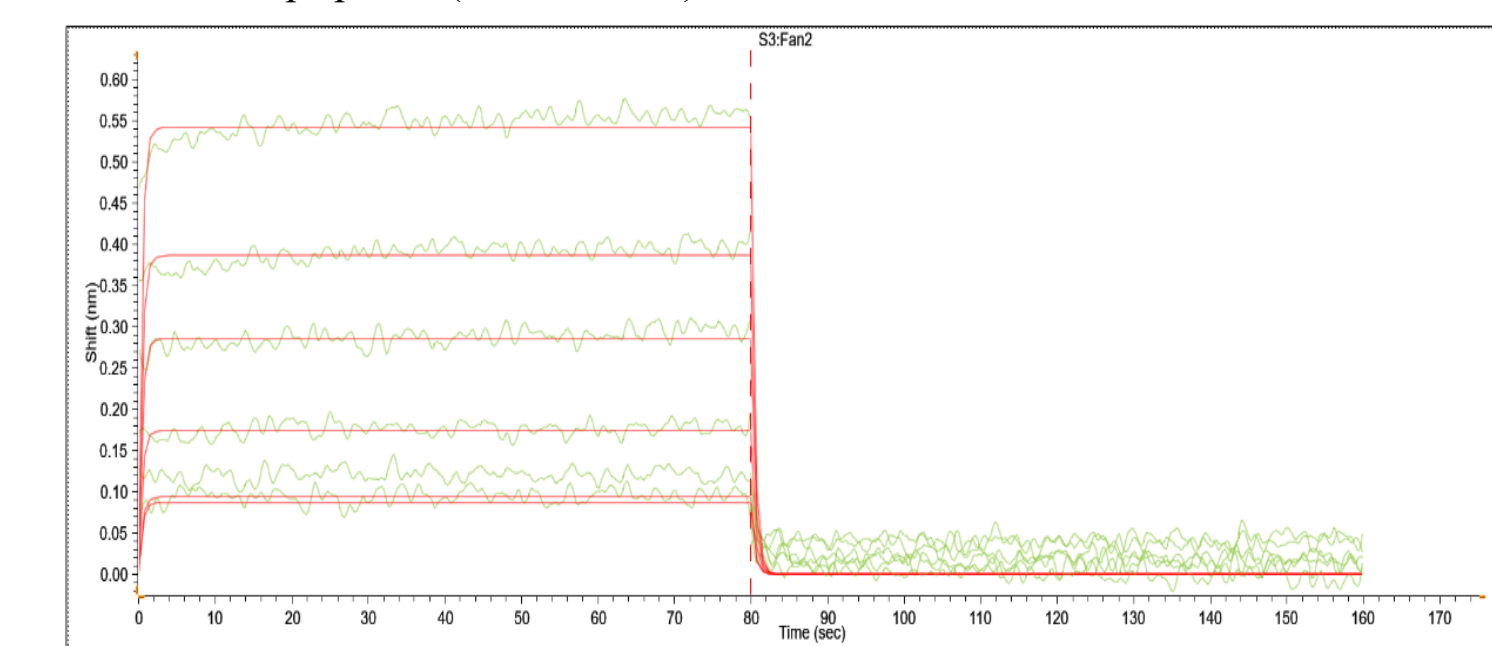
- Capture biotinylated biomolecules ranging from 1 kDa to 2 mDa
- Chemistry and optical properties provide 3-5 times higher signal than traditional BLI streptavidin probes.
- Higher signal (~300% compared to others) allows for ligands and analytes to be loaded at lower concentrations, preserving precious samples.
- Unique optical properties prevent signal inversion observed with traditional BLI when loaded with larger biomolecules.

Generate 3-5X signal for biotinylated molecules, oligo, peptide, Pro A, antigens and IgG

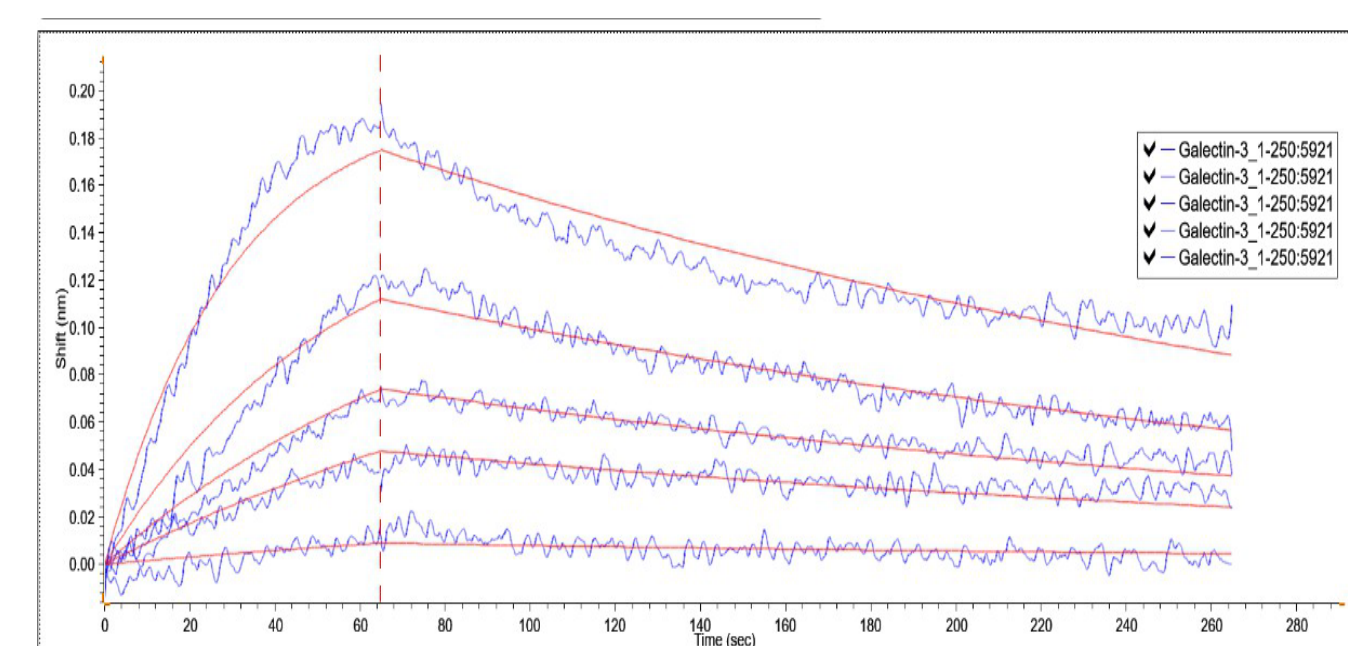


Small to large molecule binding using Gator® Streptavidin (SA) XT Probes

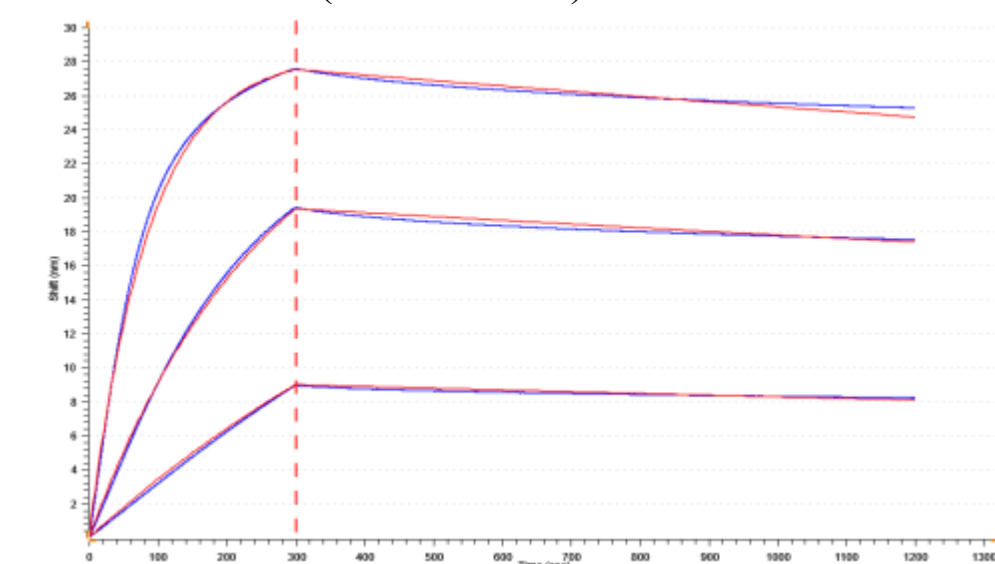
SA-XT probe loading biotin-Protein & association with peptide (MW=1.5kDa). Used buffer PBS+0.02% Tween20.



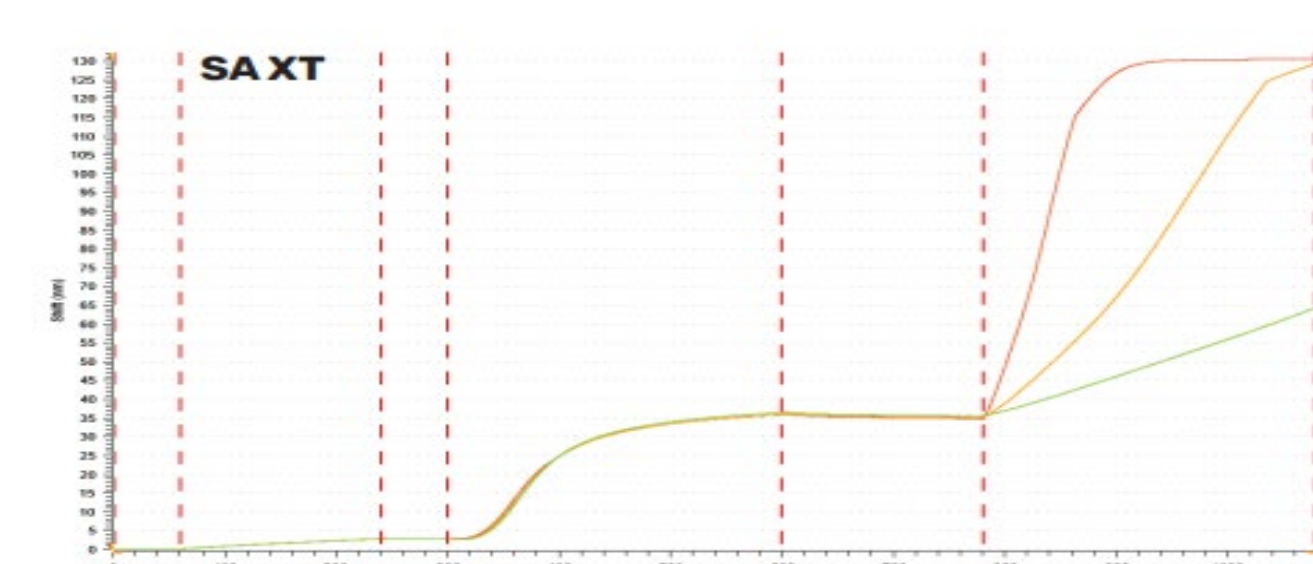
Galectin-3 binding to small molecule KD is 14.1 nM



SA-XT probe loading biotin-Protein & Antibody interaction (MW=150kDa). Used buffer PBS+0.02% Tween20

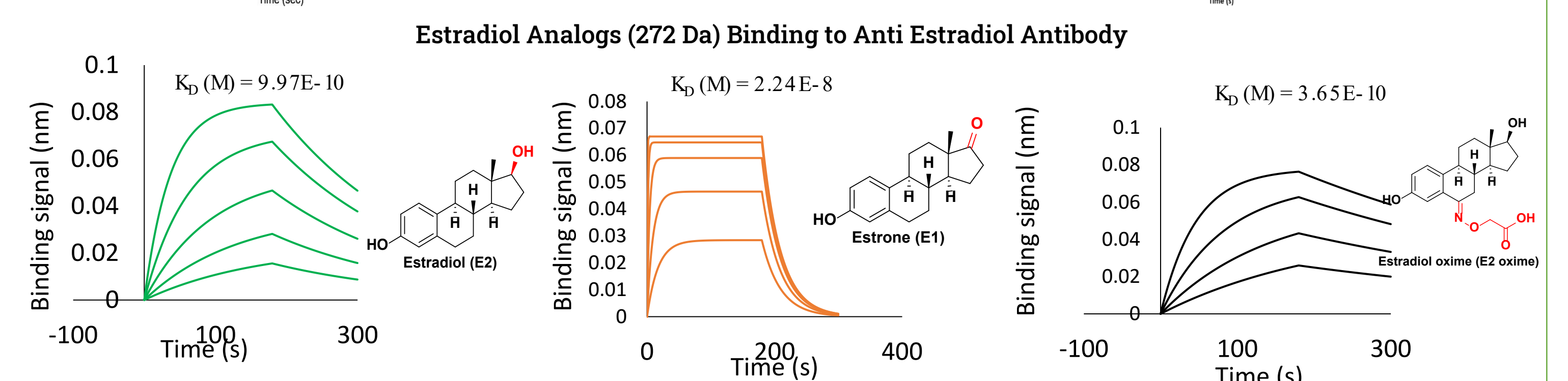
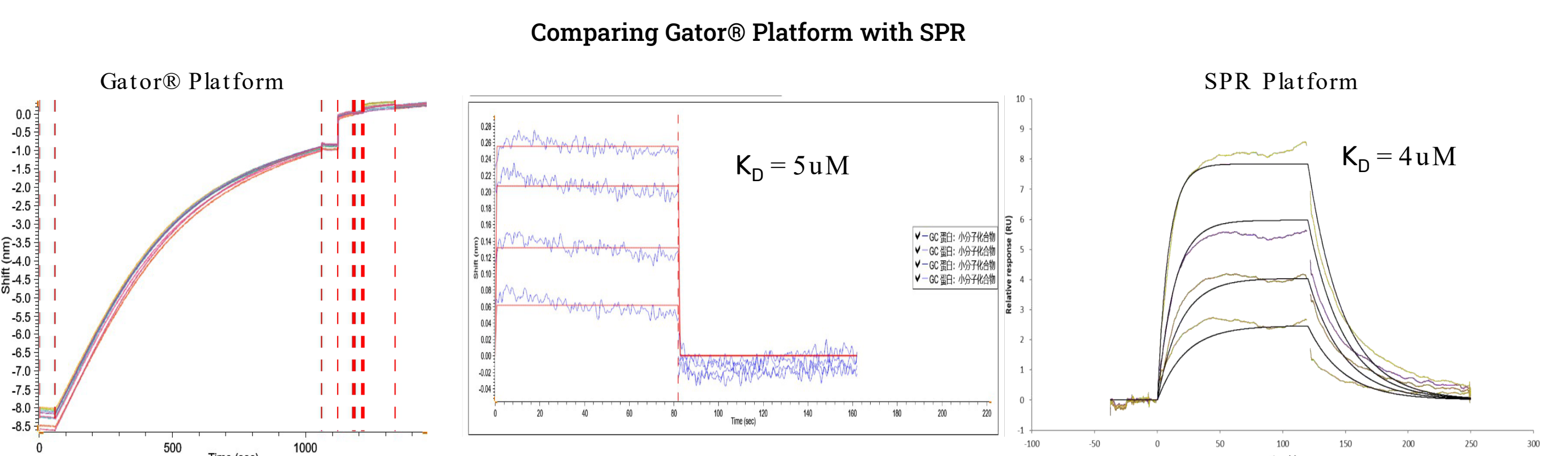
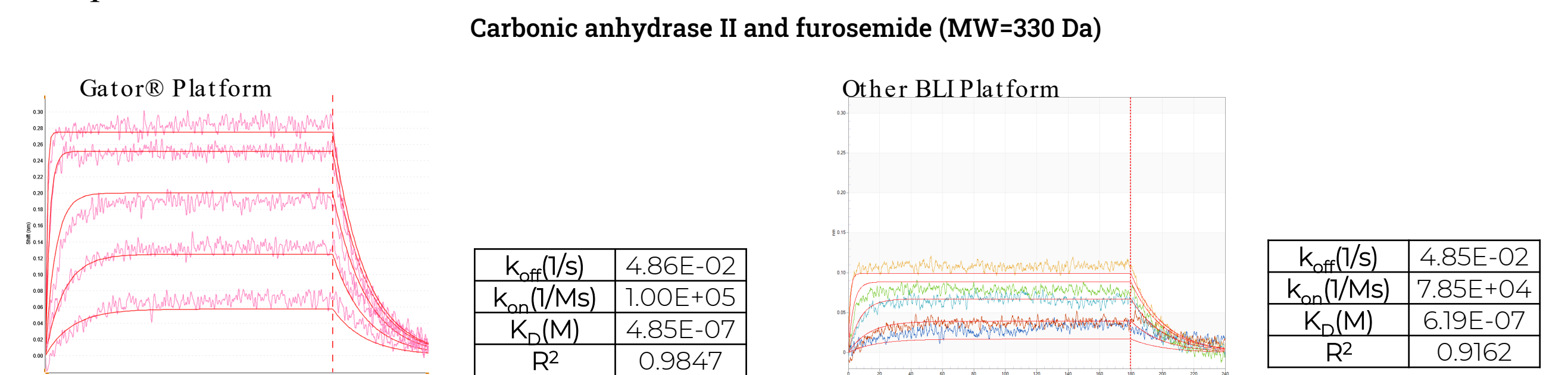


LNP, with a diameter of 100 nm, was then loaded onto SA-XT surface.



Small molecule interactions

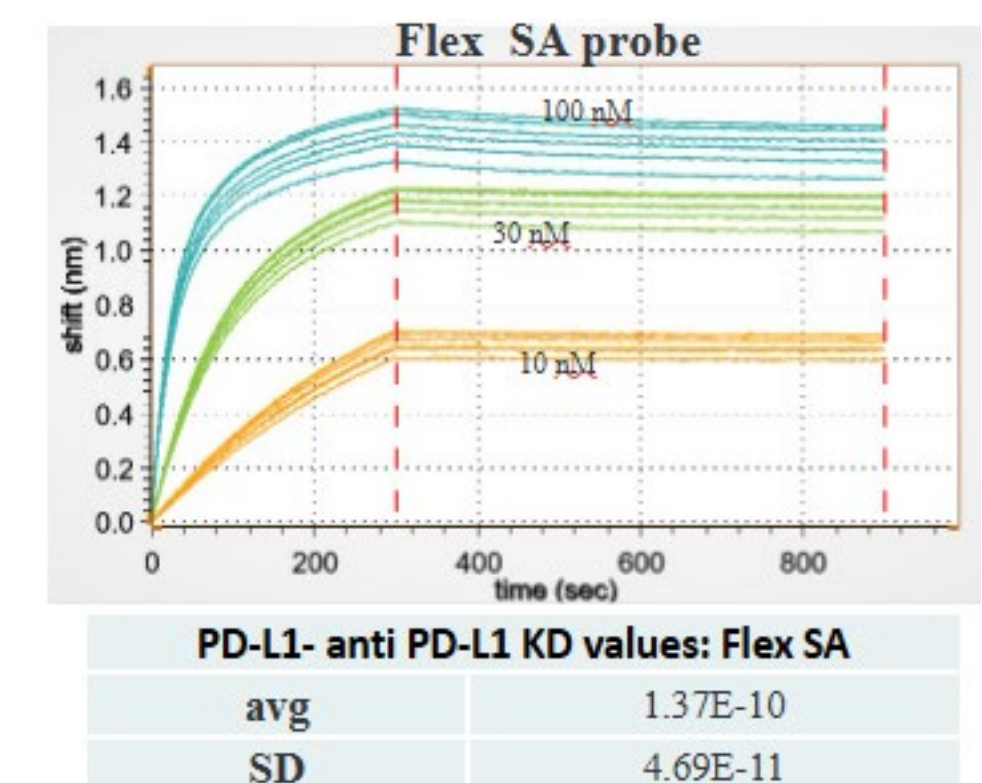
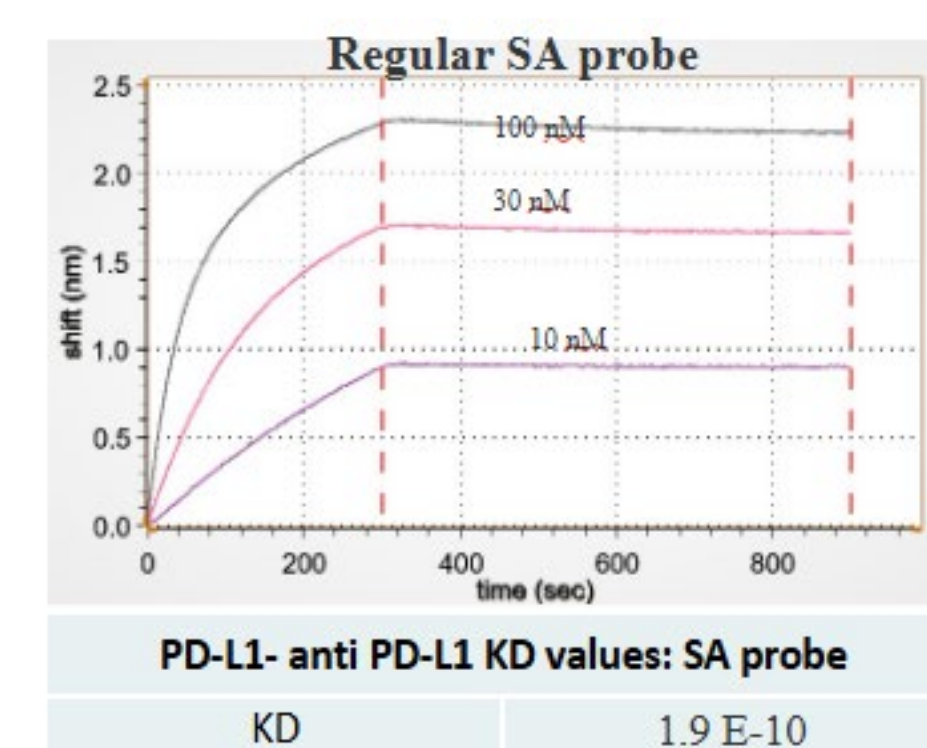
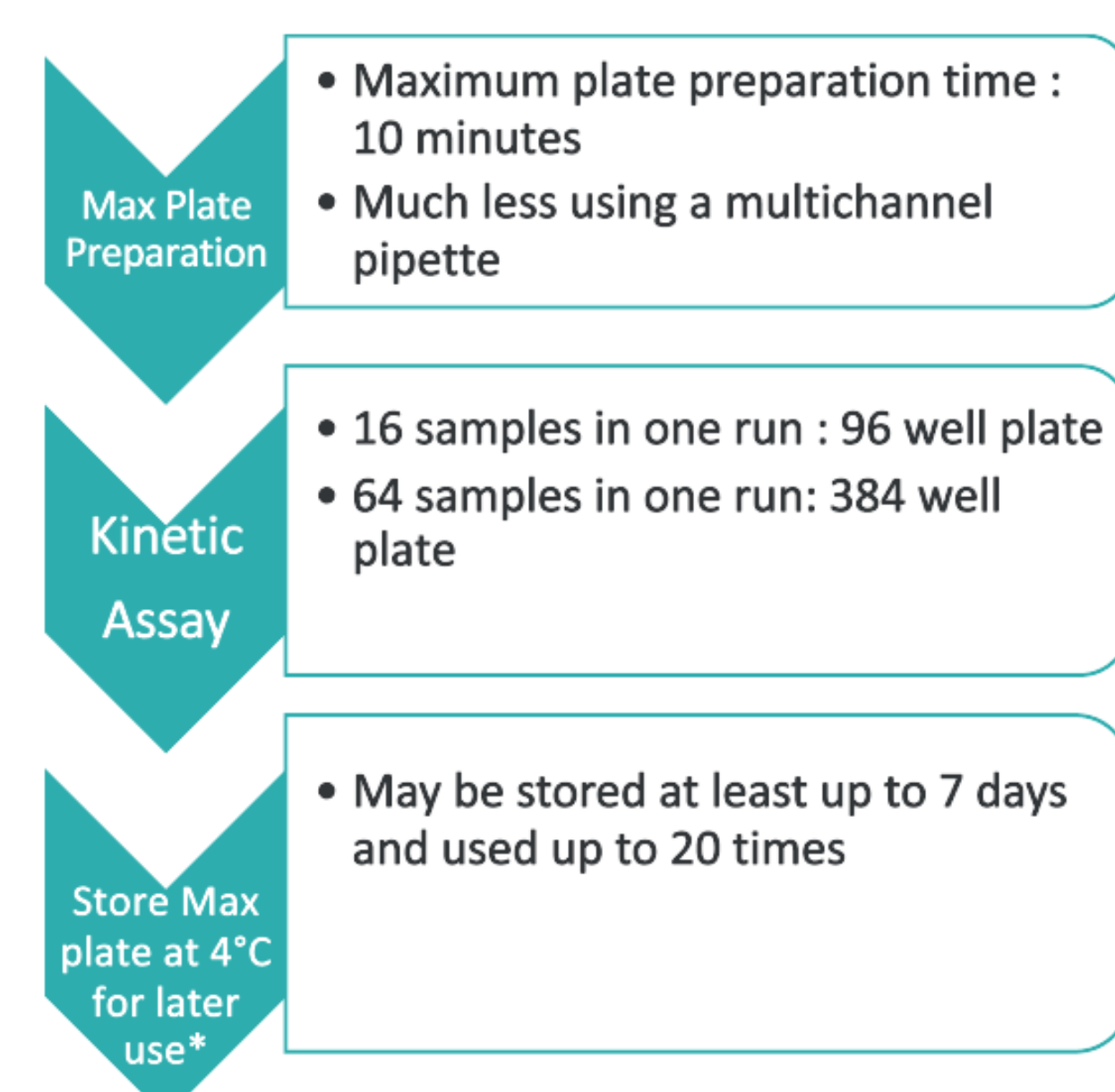
- Small molecules up to 150 Da with a binding partner
- Streptavidin-based surface chemistry for high-capacity immobilization of biotinylated binding partner
- Determination of the kinetic parameters (k_{on} , k_{off} and K_D) of the small molecule with the immobilized binding partner
- Enhanced signals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



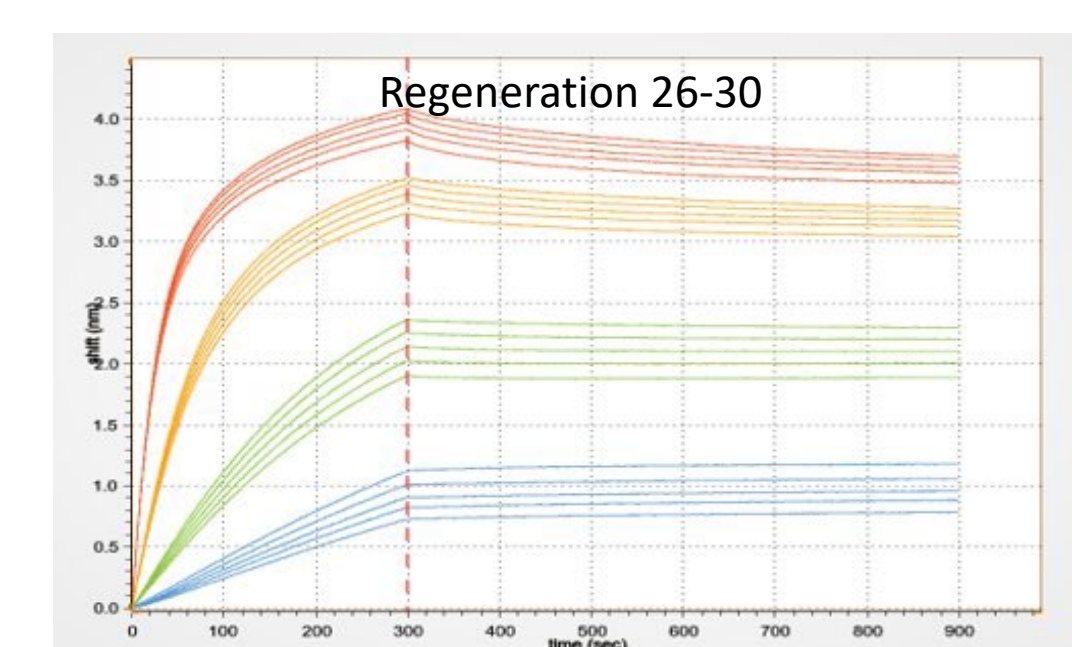
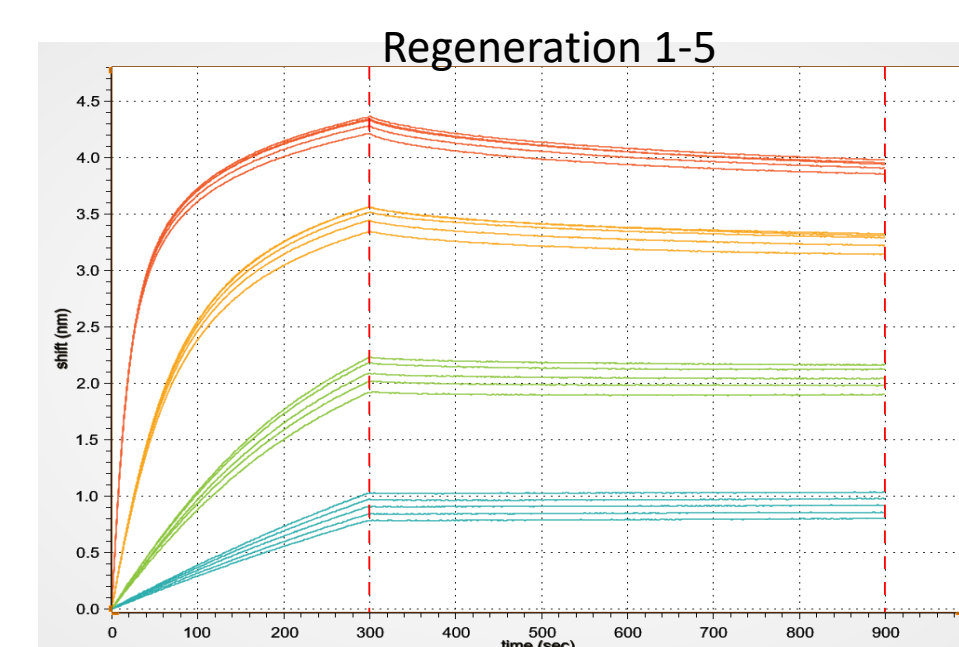
Regenerable SA probes

- Regenerable streptavidin probes and regeneration reagents
- Kinetic characterization of biotinylated proteins
- Quantitation of k_{on} , k_{off} , and K_D for binding interactions between immobilized proteins and their specific antibodies/ ligands
- Enables probe reuse
- Reduces cost per sample by 5- 10- fold depending on regeneration frequency
- Probes can be regenerated and loaded with different proteins after each use, removing the need to restrict a probe to a single protein

Flex SA kit: Assay workflow



Performance: Model System Kinetic Assay: TNF- α



Conclusion

- Ideal for studying biotinylated proteins.
- Surface chemistry enables efficient capture of both biotinylated proteins and proteins expressed with an AviTag™
- Recommended Molar Coupling Ratio: Less than three for optimal biotinylated protein capture
- Binding Measurement: After capture, the SA probe allows measurement of the interaction between the biotinylated protein and secondary proteins.
- Versatility for diverse applications.
- Dynamic Application: The selection of different SA probes enables tailored solutions for specific experimental needs, ensuring precision and adaptability in biomolecular assays.