

Octet[®] Streptavidin (SA) Biosensors

For Kinetic Analysis,
Screening, and Quantitation
of Most Proteins

Key Features

Immobilization of biotinylated proteins for:

- Kinetic analysis of biomolecular interaction pairs
- Quantitative analysis of proteins and their target analyte



Overview

Sartorius Streptavidin (SA) Biosensors are designed for immobilization of biotin labeled proteins for use in assaying protein:protein interactions using the Octet[®] platform. The systems support applications for kinetics characterization and quantitation of analytes binding to the immobilized protein.

Quick Facts

- Baseline Stability: 60 minutes
- Molecular Weight Range: > 1 kDa
- Noise: +/- 0.05 nm
- Recommended Buffer for Kinetic Applications:
Sartorius Kinetics Buffer (part no. 18-5032)
- Recommended Buffer for Quantitation Applications:
Sartorius Sample Diluent (part no. 18-5028)

Kinetics Screening Assay

Using Streptavidin (SA) Biosensors on the Octet® system, a biotinylated antigen was immobilized onto the biosensor surface offline. Thirteen hybridoma clones were screened against the antigen for binding and subsequent off-rate analysis. Binding capacity on the SA Biosensors, measured by the nm shift of the association phase, is shown in Figure 1.

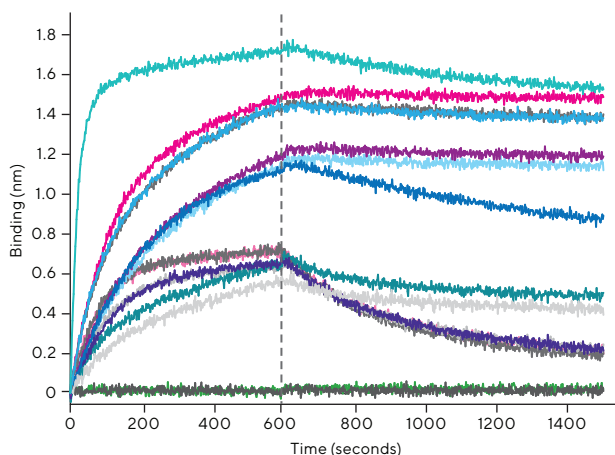


Figure 1: Kinetic screening using Streptavidin (SA) Biosensors.

Calculation of Dissociation Rates

Octet® Data Analysis software can quickly determine kinetic constants from binding data. Figure 2 shows the resulting dissociation rates of the 13 samples in the experiment described above.

Screening Applications

Sartorius Streptavidin (SA) Biosensors are an effective way of quickly screening collections of proteins against an immobilized biotinylated binding partner. The flexibility of the system enables screening protein:protein interactions using k_{on} , k_{off} , or K_D as the screening parameter. The biosensors are minimally affected by crude samples or matrices, allowing kinetic screening of samples without having to first spin them down or purify them.

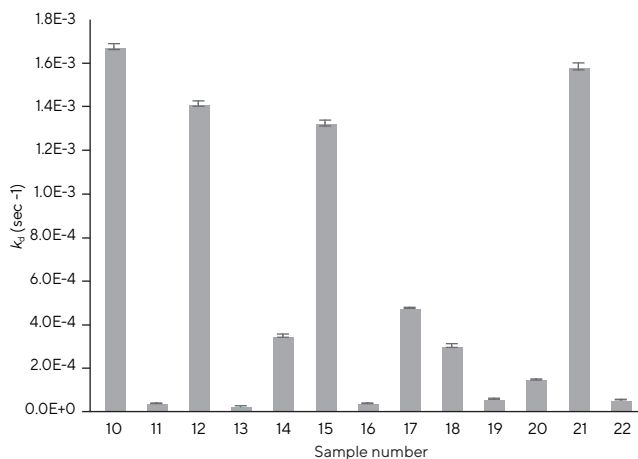


Figure 2: Calculated k_d from Streptavidin (SA) Biosensors.

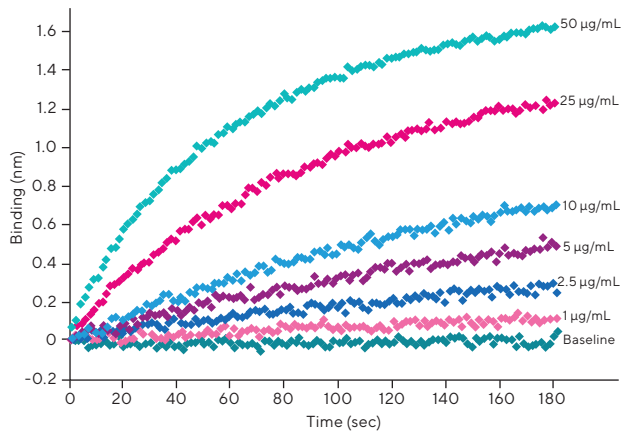


Figure 3: Calibration for endostatin-HIS using Streptavidin (SA) Biosensors.

Table 1: Endostatin-HIS standard curve precision using Streptavidin (SA) Biosensors.

$\mu\text{g/mL}$	Calculated $\mu\text{g/mL}$	Std Dev	CV
50	50.00	5.10	10.2%
25	25.17	2.53	10.1%
10	9.97	0.39	3.9%
5	5.02	0.35	7.1%
2.5	2.51	0.07	2.8%
1	1.00	0.01	1.4%

Kinetic Assay Parameters

- Sample volume: 200 μL /well (post-dilution)
- Hydration solution volume: 200 μL /well
- Sample plate temperature: 2°C above ambient to 40°C
- Biosensor hydration and sample plate equilibration: 15 minutes

Quantitation Assays

A HIS-tagged endostatin standard curve was developed using Streptavidin (SA) Biosensors to first immobilize the anti-penta-HIS antibody (Qiagen part no. 34660) followed by capture and quantitation of HIS-endostatin. The data demonstrates good separation between concentrations (Figure 3) and precision (Table 1).

Sample Types

Streptavidin (SA) Biosensors work best with biotinylated proteins that contain a long chain linker for increased packing flexibility. They are ideal for screening Fabs and smaller proteins.

Ordering Information

Part No.	UOM	Description
18-5019	Tray	One tray of 96 Octet® Streptavidin (SA) Biosensors.
18-5020	Pack	Five trays of 96 Octet® Streptavidin (SA) Biosensors.
18-5021	Case	Twenty trays of 96 Octet® Streptavidin (SA) Biosensors.

Note: Additional materials are required to run these assays.

Dip and Read Streptavidin Biosensors are compatible with all Octet® instruments. All Octet® systems include the latest software and offer optional 21 CFR Part 11 compliance tools.

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