

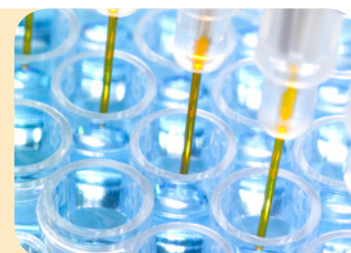
Streptavidin (SA) Biosensors

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



INTRODUCTION

ForteBio Streptavidin (SA) biosensors are designed for immobilization of biotin labeled proteins for use in assaying protein:protein interactions using the Octet system. The Octet system supports applications for kinetics characterization and quantitation of analytes binding to the immobilized protein.

QUICK FACTS

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

KINETICS SCREENING ASSAY USING STREPTAVIDIN BIOSENSORS ON THE OCTET SYSTEM

Using 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.

CALCULATION OF DISSOCIATION RATES

The Octet 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.

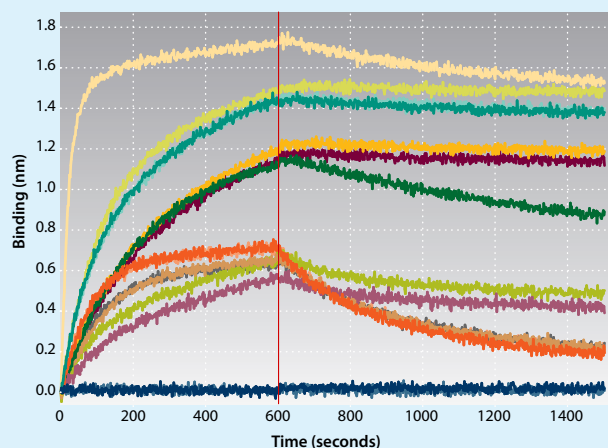


FIGURE 1: Kinetic screening using ForteBio Streptavidin (SA) biosensors.

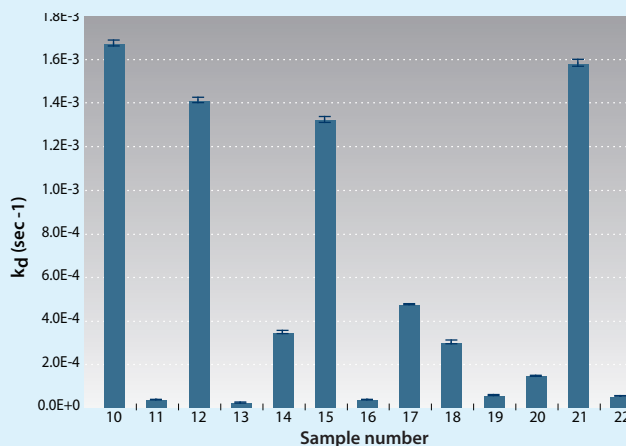


FIGURE 2: Calculated k_d from Streptavidin (SA) biosensors.

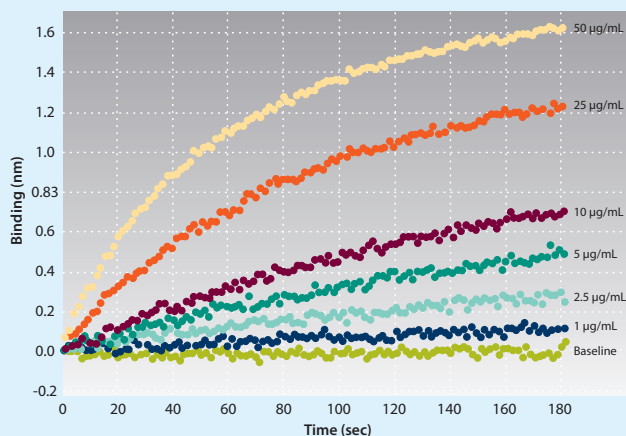


FIGURE 3: Calibration for endostatin-HIS using Streptavidin (SA) biosensors.

[µg/mL]	Calculated [µg/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%

TABLE 1: Endostatin-HIS standard curve precision using Streptavidin (SA) biosensors.

SCREENING APPLICATIONS

ForteBio 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_a , k_d , 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.

QUANTITATION WITH STREPTAVIDIN BIOSENSORS

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

ForteBio 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.

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

ORDERING INFORMATION

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

Note: additional materials are required to run these assays.

Dip and Read Streptavidin biosensors are compatible with all Octet instruments including the new Octet 384 series. All Octet systems include the latest software and offer optional 21 CFR Part 11 compliance tools.

For more information about ForteBio's Octet platform for label-free, real-time detection of biomolecular interactions, applications, and services, visit www.fortebio.com or contact us directly.