SARTORIUS

Product Datasheet

Octet® Anti-Penta-HIS (HIS1K) Biosensors

For Label-Free Quantitation and Kinetic Analysis of His-tagged Proteins

Key Features

- High specificity quantitation of His-tagged proteins
- Easy capture of His-tagged proteins for kinetic analysis with interacting protein analyte
- High specificity and high affinity towards polyhistidine tag
- Allows rapid analysis in purified or crude samples

Overview

The polyhistidine tag, commonly known as His-tag, is fused to recombinant proteins as a means of facilitating detection and purification. The Dip and Read Anti-Penta-HIS (HIS1K) Biosensor consists of high affinity, high specificity Penta-His antibody from QIAGEN pre-immobilized on a Sartorius fiber optic biosensor. In conjunction with the Octet® systems, the HIS1K Biosensor provides a rapid and label-free method for His-tagged protein quantitation and kinetic analysis. The high specificity of the antibody-based biosensor enables the direct capture and quantitation of His-tagged proteins in crude lysates, column eluates, cell lysates and cell culture supernatants, serving as an alternative to traditional time-consuming analytical methods such as HPLC and ELISA.

Flexibility and Versatility

The Anti-Penta-HIS Dip and Read Biosensor is qualified for both kinetic and quantitation applications. It enables users to quickly and easily detect His-tagged recombinant proteins for quantitation measurements, or to capture them for affinity measurements with interacting analytes. Together with the Octet® N1 system's ease of use or the Octet® platform's throughput, HIS1K Biosensors greatly accelerate laboratory workflows and reduce time to results. The Octet® N1 system further enables measurement of precious samples with sample volume requirements as low as 4 µL. The HIS1K Biosensor can be regenerated for kinetic applications, providing a cost-effective solution for generating replicate data for ligand-analyte pairs, or for analyzing multiple analytes.

Range of Applications

The Anti-Penta-HIS Biosensor offers researchers unparalleled ease of use and time-to-results in a wide range of laboratory applications such as:

- Rapid quantitation of any His-tagged protein
- Protein expression monitoring
- Cell line development/optimization

Affinity characterization of interactions between His-tagged proteins and biomolecular analyte binding partners

For technical information on the Anti-Penta-HIS (HIS1K) Biosensor, see Technical Note 42 (*Anti-Penta-HIS (HIS1K) Biosensors for Label-Free Analysis of His-tagged Proteins*).

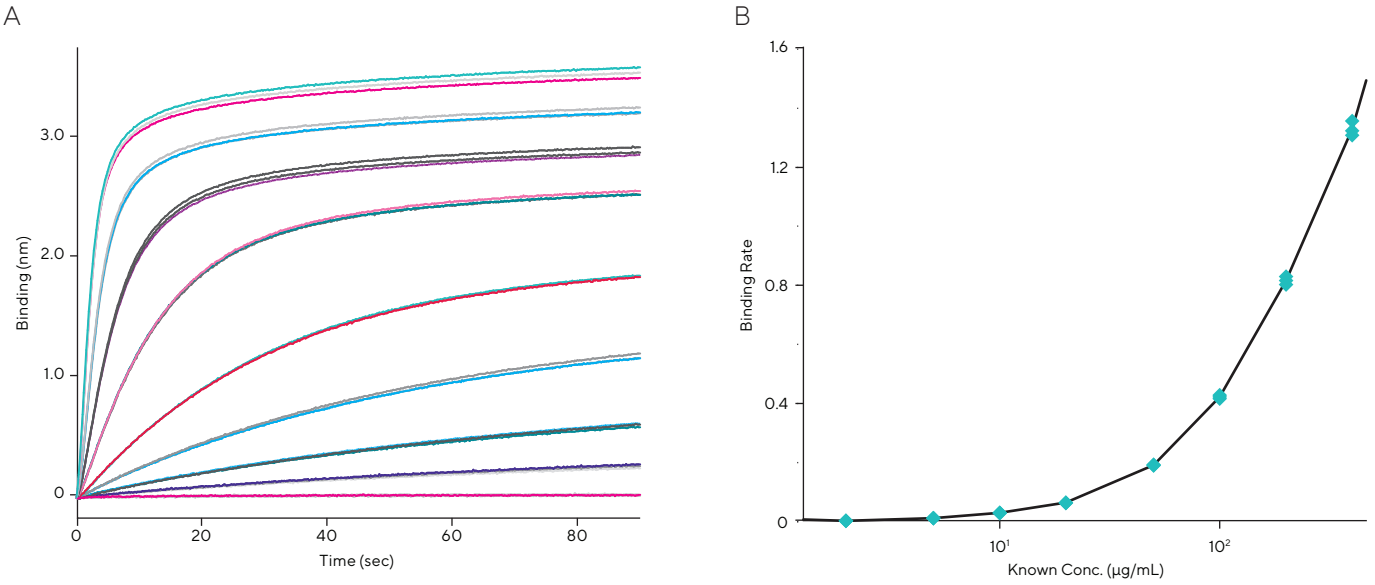

Figure 1: Detection of His-PAI1 and His-Protein A standards using Anti-Penta-HIS Biosensors on the Octet® RH16 system. (A) Raw data, (n=3). (B) Calibration curve for His-PAI1. Sample diluent was used as matrix for all samples, assay run at 1000 rpm.

Table 1: Average calculated concentration and %CV of triplicates of His-PAI1 calibration standards for the data from Figure 1. Results may vary with individual His-tagged analytes and assay matrices.

Known conc. (µg/mL) n=3	Average binding rate	Average calculated concentration	% Recovery	%CV
400	1.3267	400.0	100.0%	1.8%
200	0.8136	200.6	100.3%	2.6%
100	0.4211	100.1	100.1%	2.1%
50	0.1911	50.0	99.9%	3.3%
20	0.0635	20.0	99.8%	3.1%
10	0.0287	10.0	100.0%	2.3%
5	0.0117	5.0	99.9%	3.5%
2	0.0029	2.0	98.8%	14.1%

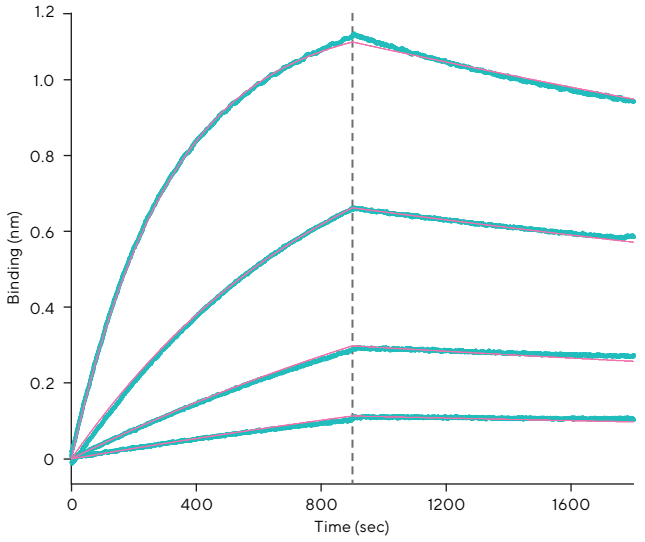

Figure 2: Kinetic analysis of the interaction between ligand His-tagged Rat C-Reactive Protein (24 kDa) and analyte Mouse Anti-Rat C-Reactive Protein (150 kDa). 10X Kinetics Buffer was used as the matrix throughout and the assay temperature was 30°C. Data were processed and curve fit using a 1:1 binding model. The kinetic results are reported in Table 2.

Table 2: Kinetic results for the interaction between ligand His-tagged Rat C-Reactive Protein (24 kDa) and analyte Mouse Anti-Rat C-Reactive Protein (150 kDa) using Anti-Penta-HIS Biosensors.

K_D (M)	k_{on}(1/Ms)	k_{dis}(1/s)
1.79E-09	9.25E+04	1.71E-04

Ordering Information

Part No.	UOM	Description
18-5120	Tray	One tray of 96 Octet® HIS1K Biosensors
18-5121	Pack	Five trays of 96 Octet® HIS1K Biosensors
18-5122	Case	Twenty trays of 96 Octet® HIS1K Biosensors

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