



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 ForteBio fiber optic biosensor. In conjunction with the Octet® and BLItz® 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 BLItz system's ease of use or the Octet platform's throughput, HIS1K biosensors greatly accelerate laboratory workflows and reduce time to results. The BLItz 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.

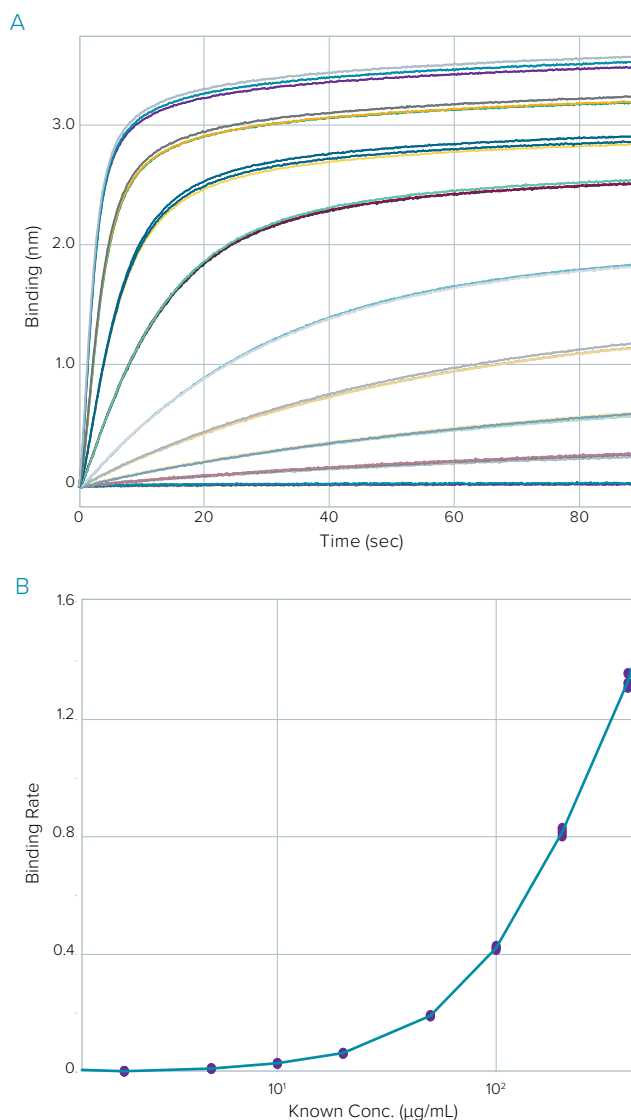


Figure 1: Detection of His-PAI1 and His-Protein A standards using Anti-Penta-HIS biosensors on the Octet RED384 system. A) Raw data, (n=3). B) Calibration curve for His-PAI1. Sample diluent was used as matrix for all samples, assay run at 1000 rpm.

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*).

Known conc. ($\mu\text{g/mL}$) 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%

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.

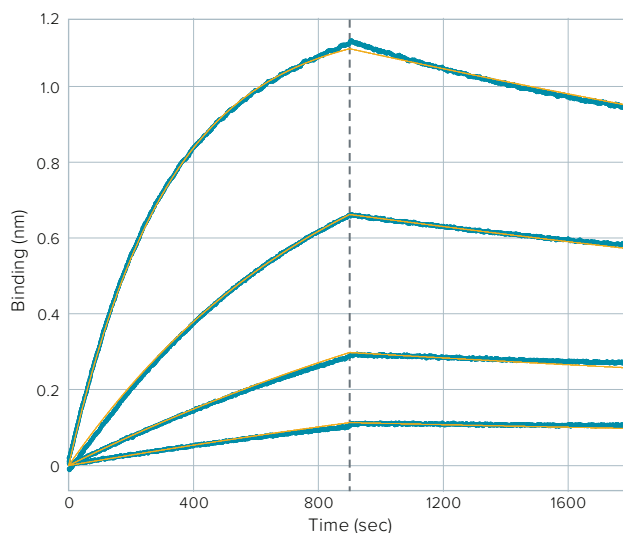


Figure 2: Kinetic analysis of the interaction between ligand His-tagged Rat C-Reactive Protein (24 kDa) and analyte Mouse Anti-Rat C-Reactive Protein (150 kDa). 10X Kinetics Buffer was used as the matrix throughout and the assay temperature was 30°C. Data were processed and curve fit using a 1:1 binding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

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

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.

Ordering information

Part no.	UOM	Description
18-5120	Tray	One tray of 96 Anti-Penta-HIS (HIS1K) Biosensors
18-5121	Pack	Five trays of 96 Anti-Penta-HIS (HIS1K) Biosensors
18-5122	Case	Twenty trays of 96 Anti-Penta-HIS (HIS1K) Biosensors