

Octet[®] GST Biosensors

For Quantitation and
Kinetic Characterization of
GST-tagged Biomolecules



Key Features

- Direct and rapid quantitation of GST-tagged biomolecules
- Easy capture of GST-fusion proteins for kinetic analysis
- Designed for use in buffer and complex media
- Compatible with Octet[®] platform

Overview

Glutathione-S-transferase (GST) is commonly fused to recombinant proteins to facilitate detection and purification, and increase solubility. The robust properties of the GST tag have established it as the standard platform for protein-protein interaction pull-down assays. The Octet[®] GST Biosensor consists of a high affinity anti-GST antibody pre-immobilized on a Dip and Read biosensor. It provides a rapid and label-free method for both quantitation of GST targets (Figure 1) and kinetic analysis of GST fusions and interaction partners (Figure 2). The high specificity of the antibody-based biosensor enables direct analysis of GST analytes in crude lysates, column eluents, cell lysates and cell culture supernatants, serving as a time-saving alternative to traditional analytical methods

Flexibility and Versatility

The Octet® GST Biosensor represents a new product class qualified for both quantitation and kinetic applications. Researchers will now be able to quickly quantify a GST fusion protein and subsequently perform rigorous kinetic characterization of the fusion protein with an interaction partner. Combined with the ease of use and high throughput workflow provided by Octet® instruments, these biosensors minimize and potentially eliminate sample preparation. Compatibility with the Octet® N1 system further enables both quantitation and kinetic low volume applications.

For kinetic screening and characterization measurements, Anti-GST biosensors can be regenerated up to 10 times using a standard low-pH protocol (see Tech Note 29, Octet® GST Biosensor Kinetics Assays). Regeneration detaches the captured ligand and bound analyte, clearing the surface for subsequent analyses. For best results in rigorous kinetic applications, using a fresh Octet® GST Biosensor for each unique capture ligand is recommended.

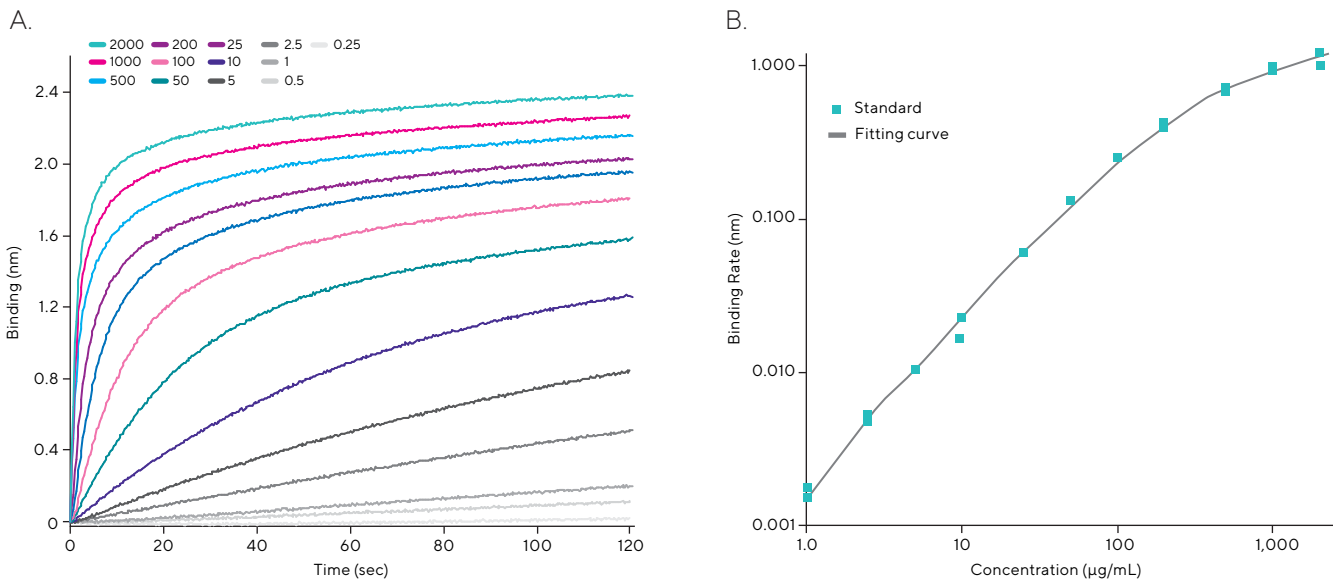


Figure 1: Quantitation measurement of a GST fusion protein showing concentration series of analyte and (A) and resulting standard curve (B).

Range of Applications

The Octet® GST Biosensors offer unprecedented ease of use and time to- result for a wide variety of applications that include:

- Rapid quantitation of GST fusions (purified and crude)
- Kinetic characterization of interactions between GST fusions and binding partners (purified and crude)
- Complete kinetic profiles and off-rate screening
- Easy epitope binning/mapping
- Cell line monitoring in bioprocessing
 - Upstream fermentation
 - Downstream harvest and purification
 - Process development
 - Quality control

Table 1: Kinetic results for the interaction between GST-Protein A and Protein B over three cycles using Anti-GST biosensors. Octet® GST Biosensors were regenerated using glycine pH 1.7 between cycles.

Cycle	K_{on}	K_{off}	K_D
1	1.5×10^4	1.9×10^5	1.2 nM
2	8.5×10^3	4.0×10^5	4.7 nM
3	6.8×10^3	1.8×10^5	2.6 nM

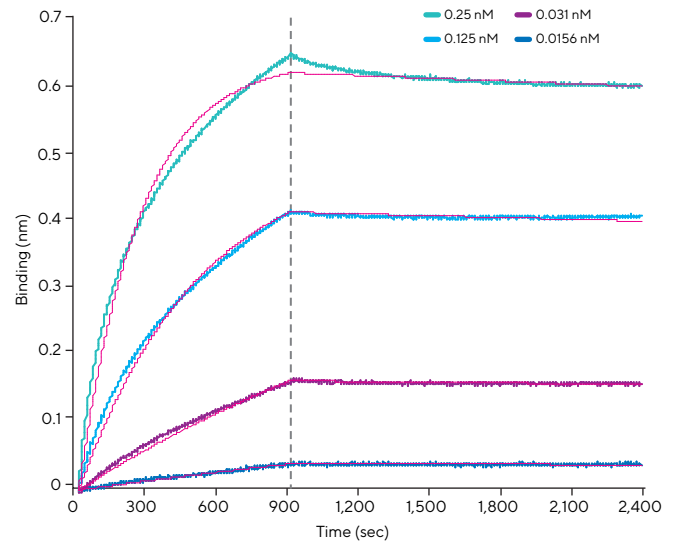


Figure 2: Kinetic analysis of the interaction between GST-Protein A (65 kDa) and an interaction partner Protein B (40 kDa). Octet® Kinetics Buffer 10X (10X KB) was used as the matrix throughout and the assay temperature was 30°C.

Ordering Information

Part No.	UOM	Description
18-5096	Tray	One tray of 96 Octet® GST Biosensors coated with an anti-GST antibody for both quantitation and kinetic applications.
18-5097	Pack	Five trays of 96 Octet® GST Biosensors coated with an anti-GST antibody for both quantitation and kinetic applications.
18-5098	Case	Twenty trays of 96 Octet® GST Biosensors coated with an anti-GST antibody for both quantitation and kinetic applications.

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