

Octet System: Label-Free, Real-Time Kinetic Analysis for Bioprocessing

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The kinetic analysis of antibodies is critical to both the selection of clones for development and as a method of monitoring antibody activity throughout therapeutic antibody production. FortéBio's Octet System uses optical fibers to measure kinetics directly in a microplate. The automated workflow is simple, high-throughput, and flexible without the limitations of flow cell systems.

KEY APPLICATIONS

- **Quick Prioritization of Antibodies:**
96 off-rate measurements in less than two hours
- **Detailed Kinetic Analysis:**
 k_{obs} , k_a , k_d , K_D — without fluidics or surface regeneration
- **High-Throughput for Rank Ordering of Clones**

BIOSENSOR SURFACE CHEMISTRIES

- **Amine-Reactive Biosensor:**
covalent coupling of proteins
- **Streptavidin Biosensor:**
coupling of biotinylated proteins

PRINCIPLE

Protein binding and dissociation events can be monitored by measuring the binding of one protein in solution to a second protein immobilized on the FortéBio biosensor. For methods development, all experimental steps can be fully automated on the Octet System. For higher-throughput applications selected binding steps can be performed in parallel offline, with only the critical steps monitored by the Octet.

KEY FEATURES OF THE OCTET FOR KINETIC ANALYSIS

Real-Time Analysis: Octet using BioLayer Interferometry technology continuously measures the protein binding at the biosensor surface throughout the interaction. Raw data are displayed in real-time, and the rapid analysis fits with process workflow.

Simple Assay Set-Up: Rapid assay development with no need for regeneration

Flexible Assay Design: Customize workflow needs with either online immobilization for full kinetic characterization or offline batch immobilization for kinetic screening.

Direct Readings from Crude Sample Media: Octet biosensors detect binding only at the sensor surface with minimal interference from biological sample media or refractive indices. Proteins can be assayed in cell culture media, crude lysates, or periplasmic samples.

Automated: Octet is automated to perform multistep experimental protocols and complete data analysis. The system runs up to eight samples in parallel and up to 96 off-rates samples in unattended operation.

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Figure 1: Automated kinetic workflow and real-time binding chart on the Octet system

