fortéBIO
A Division of Pall Life Sciences

Octet® K2 System

High-Performance, Budget-friendly Kinetics Characterization

KEY FEATURES

- Simple setup for protein and antibody characterization
- Sensitivity for small molecule analysis
- Flexible second channel for use as a reference or more samples

The Octet K2 2-channel system brings you unprecedented access to exquisite biomolecular interactions data. Priced for start-up labs, low volume users are no longer bound by the trade-off between cost and performance when choosing a label-free assay system. The Octet K2 system detects protein-protein and protein-small molecule interactions, with molecules down to 150 daltons in size. The Bio-Layer Interferometry technology used in the Octet instrument platform offers a fluidics-free alternative to SPR with a wide variety of off-the-shelf Dip and Read™ biosensors for more rapid assay development and optimization. The multi-purpose Octet K2 system also provides quantitative information about specific proteins and other targeted biomolecules — even in complex mixtures like cell culture supernatants and lysates.

KINETIC ANALYSIS

The Octet K2 system monitors binding events in real time to calculate on rates (k_a), off rates (k_d), and dissociation constants (K_D). The system's two channels can be used to measure samples

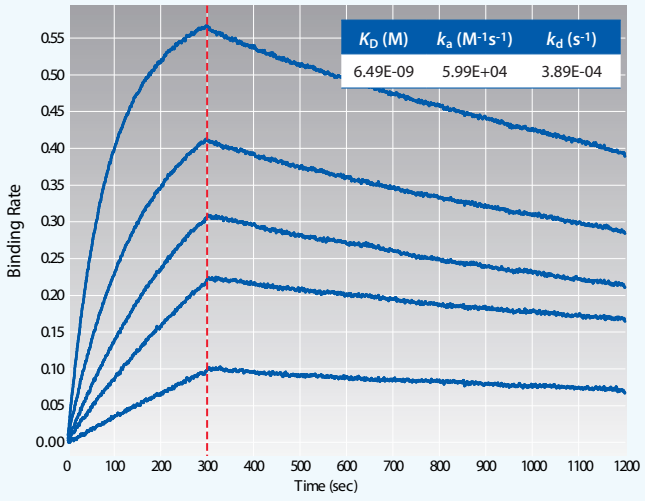

FIGURE 1: Large molecule characterization. Example data from human Prostate Specific Antigen (PSA, MW 30 kDa) binding to a biotinylated anti-human PSA mouse monoclonal antibody loaded onto Streptavidin biosensors. Binding was performed at 30°C, with a shake speed of 1000 rpm. A 200 nM PSA solution was prepared and serial diluted 1:2 to obtain the 5 concentrations run.

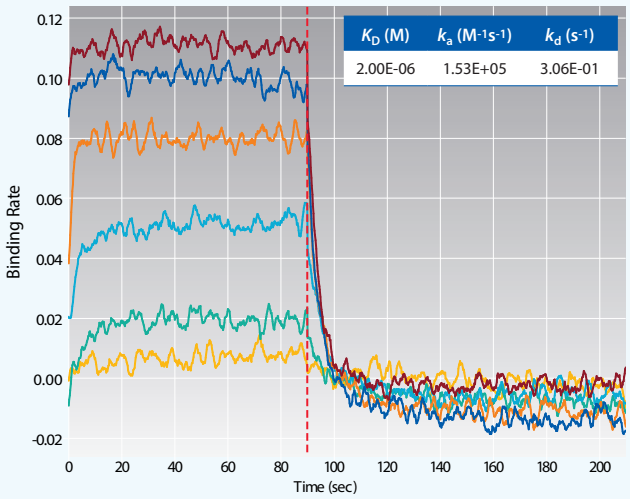

FIGURE 2: Small molecule kinetics. Example data from benzenesulfonamide (MW 157 Da) binding to biotin-carbonic anhydrase loaded on Super Stretavidin biosensors. Binding was performed at 30°C, with a shake speed of 1000 rpm. A 100 µM benzensulfonamide solution was prepared and serial diluted 1:4.

independently or in tandem, pairing the sample read with a dedicated reference. Samples are loaded in standard microplates, eliminating fluidic line maintenance and expanding the number of samples that can be run in an assay.

With pre-defined templates to follow in the Octet Data Acquisition software, the Octet K2 system streamlines setup prior to running an assay and minimizes training needs. Octet Data Analysis software then gives users a range of parameters and metrics for analyzing acquired data, in a powerful yet intuitive software interface.

QUANTITATIVE MEASUREMENTS

Utilizing Pall ForteBio's one-step Dip and Read assays, the Octet K2 system directly measures the presence of specific proteins and other molecules in solution. Accurate and reproducible concentrations can be determined in as little as 2 minutes per sample. Process economics can be further improved by regenerating the biosensors used for quantification.

Octet K2 System Specifications*

Sample and Analysis	
Detection Technology	Bio-Layer Interferometry (BLI)
Biosensor Type	Disposable, single-use fiber optic biosensors with optional reuse by regeneration and/or re-racking
Information Provided	• Kinetic and affinity analysis (k_{obs}, k_a, k_d, K_D) • Concentration monitoring (no need for background subtraction) • Automated concentration determinations
Data Presentation	• Plots displaying kinetic binding, equation fits, and residuals of fits • Tabulated kinetic data and concentration data • Concentration data analysis including generation of calibration curves and output of tabulated concentration data
Sample Types	Proteins, antibodies, peptides, small molecules, media containing serum, buffers containing DMSO, periplasmic fractions, untreated cell culture supernatants, and crude cell lysates
Sample Format	Standard, 96-well, black, flat bottom microplate
Sample Volume	180–220 µL/well Nondestructive testing
Orbital Flow Capacity	Static or 400–1500 rpm
Analysis Temperature Range	(Ambient + 4 °C) – 40 °C, 1 °C increments Optimum operating temperature: 22 °C +/- 4 °C
Typical Working Ranges	**Kinetics** • Association rate constant (k_a): 10^1 to 10^7 M^{-1} s^{-1} • Dissociation rate constant (k_d): 10^{-6} to 10^{-1} s^{-1} • Affinity range: 10^{-3} to 10^{-12} M **Quantification** • 0.05 µg/mL to 2000 µg/mL (Human IgG and Protein A Biosensor) • Protein- and assay-dependent **Molecular weight detection:** >150 Da **Baseline drift:** typically ≤ 0.1 nm/hour

Quantification and Kinetics	
Throughput	Up to 2 assays in parallel
Analysis Time per Sample	• hIgG quantification in 2 minutes for 2 samples • Real-time kinetic binding experiments from 5 minutes to 3 hours for kinetic analysis
Quantification Range for hIgG	0.05 µg/mL to 2000 µg/mL
Baseline Noise	≤ 3.5 pm (RMS)

Physical Specs	
Dimensions	18.6 in (H) x 17 in (D) x 20.8 in (W) 47 cm (H) x 43 cm (D) x 53 cm (W)
Weight	58 lb (26.3 kg)
Electrical Requirements	Mains: AC 100–240 V, 5.0–2.0 A, 50/60 Hz, single phase Power consumption: 120W (240 peak)
Safety Standards	CE, NRTL

*All specifications are subject to change without notice.

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

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