

Press Release

bScreen LB 991: Label-free High-Throughput Reader

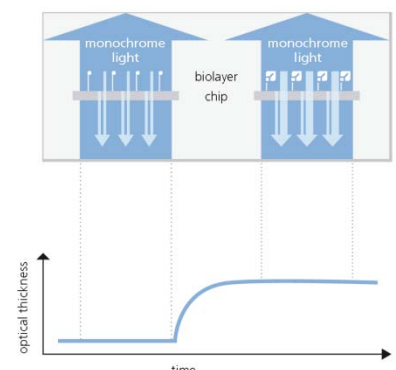
With the bScreen [Berthold Technologies](http://www.berthold.com) presents a unique instrument for **biomolecular interaction studies**. The bScreen combines the performance of μ Array formats with the information available from label-free technologies. With a footprint of only 66 x 61 cm² it substitutes a fluorescence μ Array reader and a conventional label-free system (e.g. SPR) in a single instrument.



The exclusive Biometrics **1Lambda-Reflectometric Interference Detection (1Lambda-RIDe)** facilitates the analysis of the complete binding kinetics of 1 up to 20,000 individual interactions in one single measurement for real high-throughput screening (rHTS). Thus, the bScreen combines the world of fluorescence assays with the label-free kinetic studies for all applications, when time optimization, efficiency and the complete characterization of biointeractions are required. Hence, the bScreen is best suited for the following areas of application:

- **Epitope Mapping** with high-density protein- and peptide arrays
- **Diagnostic Screening** for virus detection, in cancer diagnostics or in systems biology approaches
- **Pharmaceutical Screening** of small molecules (MW < 150 Da) with high-throughput
- **Consumer Safety** in quality control, particulate matter pollution and biohazard screening

bScreen accepts **biochips with the conventional microscopy slide format** of 75 x 25 mm² in size as array chips to guarantee full compatibility to almost all μ Array spotters. The slides will be delivered with specialized 2D- or 3D-biopolymer coatings with application-specific surface functionalizations to enable covalent binding. Interaction analysis is accomplished by interferometrically monitoring changes in the optical thickness ($n \times d$) due to specific analyte binding. All measurements are carried out in a continuous sample flow,



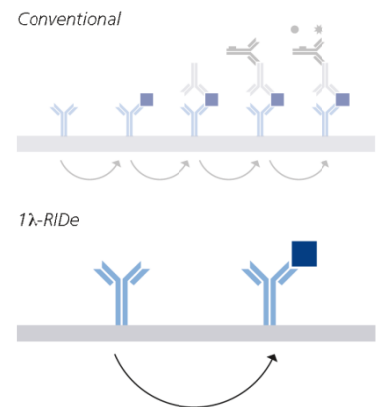
facilitating the **complete characterization of the kinetics** of the binding processes. bScreen with 1Lambda-RIDe technology allows for the determination of the parameters as listed below:

- Concentration ($< 1 \text{ pg/mm}^2$)
- Association rate constants k_a ($10^3 - 10^7 \text{ M}^{-1}\text{s}^{-1}$, higher for macromolecular analytes)
- Dissociation rate constants k_d ($10^{-6} - 0.5 \text{ s}^{-1}$)
- Affinity constant K_D
- Enthalpy (ΔH) and entropy (ΔS)

The patented 1Lambda-RIDe technology is largely **temperature-independent**, making expensive and time-consuming thermostating of the instrument or of the solutions obsolete.

As a label-free method, the 1Lambda-RIDe technology features a **direct assay-format** without the need of additional components (e.g. fluorescence-labelled antibodies). Thus material- and time intense washing steps inherent in established μ Array protocols are not required.

As a consequence, the overall quality of the analysis is increased, as the risk of dissociation of weak binders during the washing steps is prevented (false-negatives). Moreover, the 1Lambda-RIDe technology does not suffer from the detection of false-positives due to unspecific binding of the fluorescence-labels to the surface.



The bScreen comes with an **intuitive software package**, which controls the setup-up of measurement protocols, the sample handling as well as the measurement procedure. Integrated interfaces enable the import of *.gal-files containing μ Array-definitions for a rapid set-up of the sample area. The performant evaluation-kit enables comprehensive kinetic analyses of the measured data. Versatile export functions allow for the transfer of raw and measurement data to third party software for easy integration of the bScreen into LIMS-environments.

About [Berthold Technologies](#)

Berthold Technologies, a family driven company with its headquarters in Bad Wildbad, Germany, has been providing bioanalytical instruments to the life sciences market for more than 60 years. The company is offering to customers in academic and pharmaceutical research, as well as clinical diagnostics, innovative products through a worldwide network of subsidiaries and distributors.

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