

## Impressive Software versatility

### High performance software...

...enhances the modern concept of BIAffinity®. The software is modular and combines compact control software WinBIAM and the analysis module WinAnalysis. The comprehensive user administration enables assignment of user rights by simple mouse click.

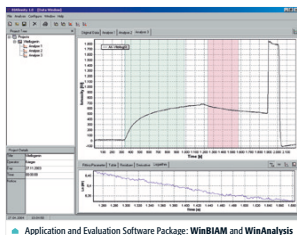
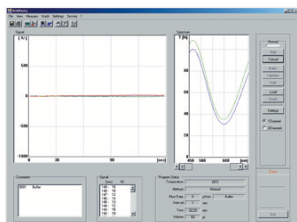
WinBIAM enables simple, concise and user friendly handling of the system. Programming and filing of proven methods, in addition to a manual sequence control, simplify working with the equipment. A simple and comprehensive programming dialog provides ease of use.

A programming language need not be learned for using the programming dialog.

- Simple definition of automated program sequences
- Clear presentation of the most important information
- Coordinated function toolbars are available for special applications

The program WinAnalysis simplifies the analysis operation. Concise menus, beneficial help functions and a high number of mathematical models simplify data analysis.

- Project oriented operations
- Diverse Fit models
- Determination of kinetic and affinity constants
- Determination of concentrations
- Export of measuring and fit data

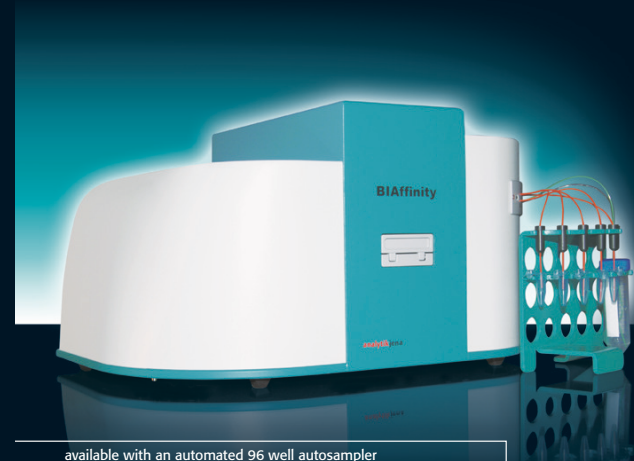


Application and Evaluation Software Package: WinBIAM and WinAnalysis

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# BIAffinity®

Label free analysis of molecular interaction



available with an automated 96 well autosampler

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Subject to changes in design and scope of delivery  
as well as further technical developments



# Biomolecular Interaction Analysis

## The BIAffinity®

Biomolecular recognition is the most important event in biochemical pathways of living systems. Whether gene expression, signal transduction by hormones or neurotransmitters, immune response through antigen-antibody interaction or enzyme reactions: All of these processes are preceded by the specific binding of a ligand to a biological receptor. Therefore the detection and characterization of such binding events are crucial for the understanding of mechanisms and functions of biochemical processes.

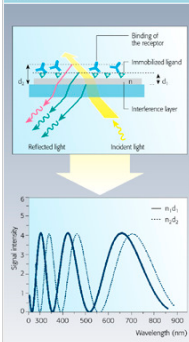
## BIAffinity® – Accurate results with a wide application spectrum

BIAffinity® offers a technique for label free detection of biomolecular interactions on solid phases, so called biochips. The system's most convincing features are its intuitive and simple handling, flexible

sample volumes, a wide choice of functional chip surfaces as well as a self-explanatory software for data collection and evaluation. It allows the direct and time-resolved detection of binding events on specific surfaces, and enables access to thermodynamic and kinetic characterizations of affinity reactions.

- Biomolecular interactions analysis
- Label free detection
- Biochip technology
- Real-time analysis
- Determination of kinetic and equilibrium constants and concentration
- Two channel flow system
- Temperature controlled operation environment
- User administration

## Measurement principle of BIAffinity®

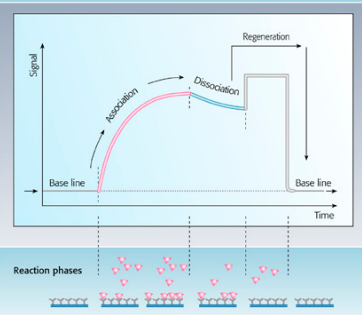


## The measuring principle...

...is based on reflectometric interference spectroscopy (RIS), which uses the multiple reflection at thin, transparent layers. Incident light will be partially reflected at each interface of the thin layers. A characteristic interference pattern is (interferogram) produced by superimposing the reflecting rays. The binding of molecules to the specific surface of a sensor chip causes a change of the optical layer thickness, which in turn causes a shift of the interferogram. Therefore RIS is a fast and elegant method for detection of binding events on surfaces.

- Reflectometric Interference Spectroscopy
- High performance two channel optics
- Referencing against non-specific interactions

## The Sensorgram: real time monitoring of binding events, provides information about sample concentration, kinetics and affinity.



## High performance fluidics...

...is an important element of BIAffinity®. The two channel Micro Fluidic Cell (MFC) supplies the sensor surface with a continuous and pulse free liquid flow. A measurement and reference channel are available for each measurement, which allows referencing against non-specific interaction on the surface. Dispersion effects are minimized by a fast exchange of buffers for assays. Highly reliable results with minimal sample usage are possible, due to its pairing with extremely low flow cell volumes.



■ Micro Fluidic Cell (MFC) in a temperature controlled environment.



■ Maintenance of a pulse free flow through the MFC.

## The heart of the system – the sensor chip

Sensor chip technology is used in BIAffinity®. The chips, based on glass, allow the design of functional surfaces. Those are bio-compatible and highly specific, the binding capacity is adjustable. Simple handling, reproducible results, minimal non-specific binding characteristics, high flexibility and regeneration stability are the hallmarks of the sensor chip.

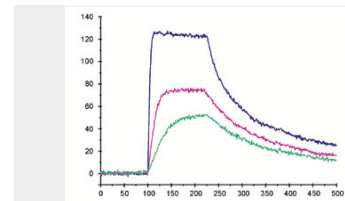
## Application:

### Research Applications:

- Proteomic and Genomic research
- Kinetic and equilibrium binding analysis
- Concentration monitoring in fermentation and chromatography
- Determination of activity
- Inhibition assays
- Characterization of antibodies
- Ligand fishing
- Cell adhesion studies

### Analysis of:

- Protein-protein interactions
- DNA-DNA interactions
- Protein-DNA interactions
- Hormone-receptor binding



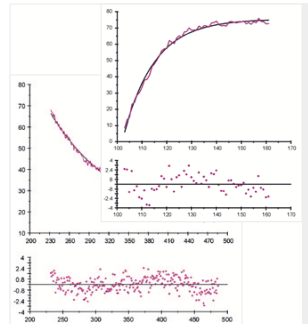
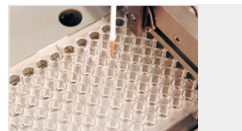
■ The sensor chip, available in a wide selection of surfaces

## Standard

- Semi-automated sample loading and injection via 5 ports

## Optional

- Autosampler for up to 96 samples
- Fully automated control of sample handling



■ Binding curve of IFN-2 wt to immobilized inar2-EC at different concentrations: blue: 90 nM, red: 30 nM, green: 9 nM. Fitting of A. Association and B. Dissociation (J. Prehler, Universität Frankfurt/Main)