Flow Induced Dispersion Analysis

FIDA Analyser is a versatile automated instrument offering rapid, precise information on binding and concentration of proteins, antibodies and other biomolecules related to the development of biopharmaceutical drugs.

The technology is linked to the well-known Taylor Dispersion Analysis theory applied to hydrodynamic flow in thin capillaries. Whether seeking accurate characterisation of DMPK properties based on standardised assays or in need of specific, valid information regarding immunogenicity, FIDA offers unmatched reliability and agility. Contrary to most other procedures, the FIDA methodology is based on binding in homogenous solution; complications related to non-specific surface adsorption and challenging assay development is therefore avoided. The unique features of FIDA Analyser enable characterisation and quantification in native (biorelevant) environments and in-built assay quality control and walk away automation as standard.

Detection in native conditions

FIDA provides a high tolerance to matrix effects. When the relevant assay has been identified, it can typically be applied across different sample matrixes for example 100% plasma or serum. FIDA is based on direct detection in solution. The technology is essentially calibration free and there is no need for fixation of ligands (such as antigens) to a solid surface. In most cases, the analysis is a one-step procedure where the relevant ligand (termed the indicator) is mixed with the sample as part of the loading of the sample on to the instrument. Within a few minutes it is detected, if the analyte of interest is present in the sample and if so in what quantities.

Built-in quality control - high level of robustness

In addition to providing affinities and concentrations of proteins the FIDA technology also gives info on the absolute amount of ligand (indicator molecule) and size of complex. These parameters are used for internal quality control as they provide information on possible immunecomplex precipitation, formation of aggregates or non-specific adsorption to the capillary wall.

Sensitivity

- Quantification of proteins/biopharmaceuticals is possible from the high pM to mM region
- Dissociation constants are quantified in the range: pM - mM
- Sizes of affinity complexes quantified from 1 - 300nm. Larger aggregates can be detected qualitatively

Fast assay development - optimal for immunogenicity testing

The simplicity of the methodology makes assays development truly easy. The main requirement is the availability of a ligand (indicator molecule), which binds to the analyte with high affinity and specificity. Such indicator molecules will often be available as antibodies (or antibody fragments). FIDA is particular well-suited for detecting immune responses as it is only probing a single binding event in solution. The development time (hours to days) of most new assays can be reduced by more than a factor of 2 compared to other platforms.

Ability to work with small sample volumes and recovery of sample

Thanks to the thin capillaries used to conduct the FIDA assay, the total sample volume consumption is a few nL to 3µL. In practice the sample is dispensed in a 96 well plate or vials, but the remaining sample can be used for other analysis.

Main Technical Specifications and Characteristics

Detection technology	Fluorescence
Data presentation	Result tables, result plots, and real-time monitoring of signal
Working principle	Novel ligand binding principle for direct detection of molecules and molecular interactions in native conditions
Applications	Tolerant to sample matrices such as plasma or serum, high and low ionic strength, presence of detergents etc. Works for a wide range of molecular weights (100 - 10^6 Da) of proteins and other biomolecules in various sample environments
Binding Kinetics	Assessment of fast and slow interacting systems
Dissociation constant (K_D):	100 µM to 1 pM
Detection limit (indicator)	Typically 0.1 nM (depending on application)
Molecular weight detection	Down to 100 Da in various sample environments
Quantification capabilities	pM - mM
Assay control	In-built (based on size estimates of complex and monitoring of complex recipitation)
Sample capacity per run	Maximum 96 samples
Baseline noise	Typically < 0.1 RU (RMS)
Baseline drift	Typically < 0.3 RU/min
Pressure range	1 - 2000 mBar
Analysis and sample temperature range	4 - 55° C
Data export	Excel® format result data export, text file raw data export
Image export	Clipboard export
Safety and EMC standards	Complies with and applies to Europe and North America (US and Can) standards

Instrument is to be used for research purpose only

Ordering Information

Part Number	Model	Description
0005.5xx	FIDA Analyer (230V)	Temperature controlled inlet autosampler 50/96* indicator and 50 analyte positions, outlet autosampler 20 positions, temperature controlled capillary compartment, pre-installed PrinCE Next Clarity software, PC and start-up kit.....
0005.5xx	FIDA Analyser (115V)	