



# EKO<sup>TM</sup>

## CD microplate reader

- Enantiomeric excess (ee) values for asymmetric synthesis and catalysis
- Biotherapeutic development
- High Order structure determination
- Formulation optimization

**High Throughput Screening**  
**Circular Dichroism**



# The first Circular Dichroism Microplate Reader

Bio-Logic and Hinds Instruments join forces to introduce the first microplate reader for circular dichroism measurements.



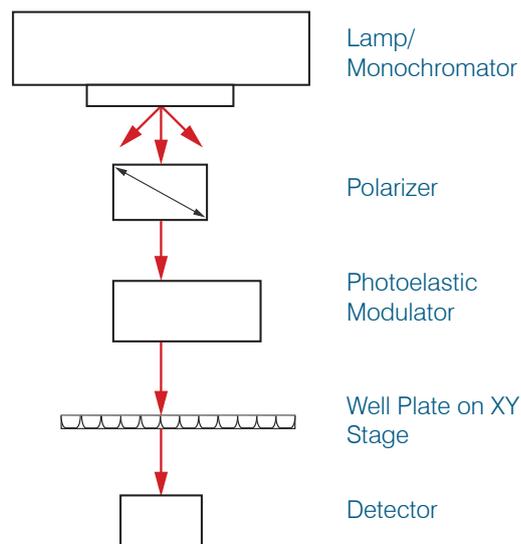
Joining forces...

Circular Dichroism (CD) is the differential absorption between left and right circularly polarized light of a chiral molecule. CD spectroscopy is sensitive to the absolute configuration and conformation of chiral molecules and is an effective technique to identify enantiomers.

EKKO™ is the result of years of experience in the design of PEM\*-based instrumentation. The EKKO™ opens a new area in High Throughput assays by introducing a new fast and economic tool to comply with today's advanced pharmacopeia requirements.

**This breakthrough in CD productivity** is accomplished by turning the CD instrument configuration on end. In a vertical configuration, it is now possible to scan and analyze sample solutions directly in a well plate with a precision XY stage positioner.

\* PEM: Photo Elastic Modulator technology



*Schematics of the microplate reader*

## CD High Throughput Screening is now a reality !

In a late stage research project or QA/QC lab the CD Microplate Reader dramatically increases sample throughput when CD analysis is required. Throughput ten to one hundred times higher is reasonable to expect from the EKKO™. Data quality is on par with typical CD systems.

By eliminating the need to transfer samples to individual cuvettes, with the cleaning steps, the amount of time spent handling samples is drastically reduced. As a result, the EKKO™ can analyze 96 samples at a single wavelength in less than 2 minutes.

### Features:

- High throughput screening for chiral and CD samples.
- 96 full spectra in less than 1 hour
- 96 single wavelength readings in 2 minutes
- Scans down to 185 nm
- ¼ of the footprint of a conventional CD spectrometer with an autosampler
- Ultra low N2 consumption ( 0.5l/min)
- Faster and less expensive than HPLC methods
- Faster and much easier than conventional CD designed for single sample analysis
- Enables reading thousands of ee values per hour

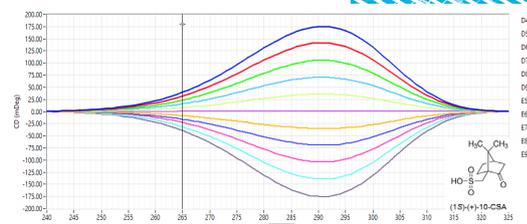


# Identify hits quickly

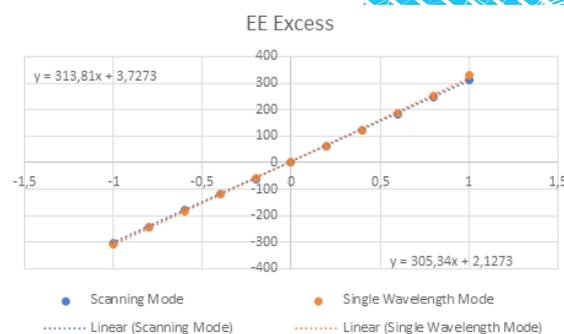
## Enantiomeric determination

Optical purity analysis is routinely done using chromatographic techniques, but conventional HPLC is slow and expensive. Conventional CD works well, but analyzes one sample at a time. Throughput can be improved with an auto sampler to transfer from a well plate to the cuvette, but this is a slow and cumbersome process. High Throughput Screening (HTS) in asymmetric synthesis calls for a fast method to measure enantiomeric excess. The EKKO™ CD Microplate reader delivers the instrument to do this.

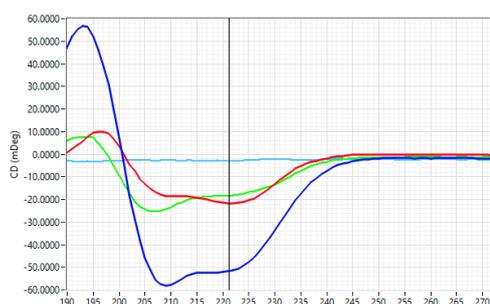
## Complete microplate read in less than 2 minutes



CD spectra of different enantiomeric mixtures of camphor sulfonic acid



Precision of measurements in both single wavelength and scanning modes



Proteins spectra in far UV region

## Structural studies and biotherapeutic development

Spectra can be recorded from 185 nm with a nitrogen flow of 0.5l/min, so high throughput screening on samples such as DNA, RNA, peptides and proteins is possible.

At a measurement rate of just 1 data point per second, it is possible to run a full spectral scan of 96 wells in about an hour. This is hours to days faster than with a conventional CD.

## At least 10 times faster compared to conventional CD with autosampler !

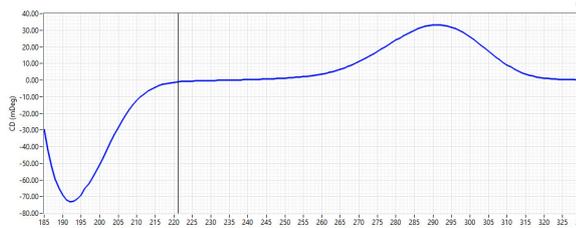
## Precise, reliable, economical

The precision of EKKO™ is based on the positioning of the XY stage. Depending on volume of solution in the wells the effective light path can be easily and precisely determined using known CD spectroscopy chemical standards.

The well to well reproducibility is within the standard precision criteria of CD spectroscopy. Absorbance can also be recorded simultaneously.

EKKO™ dramatically reduces operating costs by minimizing measurement time and operator time. It also saves lab space with a footprint one fourth the size of conventional CD with an auto-sampler.

A 9000-hour lifetime light source reduces operating costs further by limiting instrument downtime. Operating costs are further reduced through the very low N2 flow rate required. At the recommended rate a standard N2 tank will last 9 times longer than it does with a conventional CD.

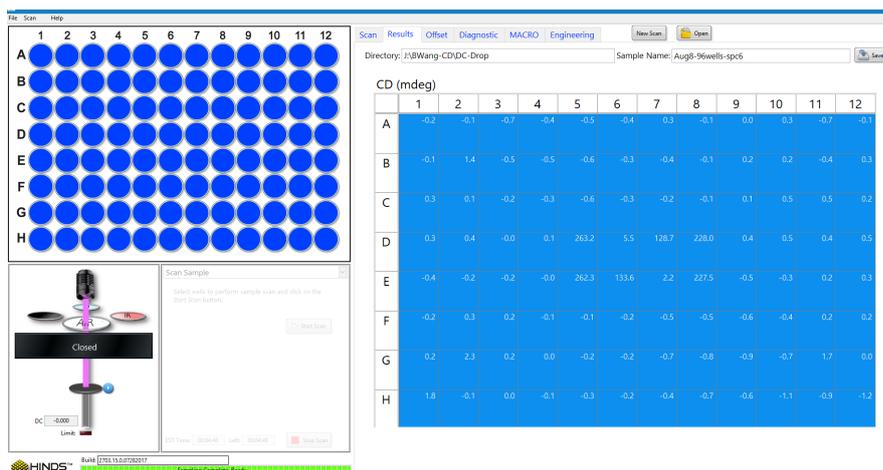
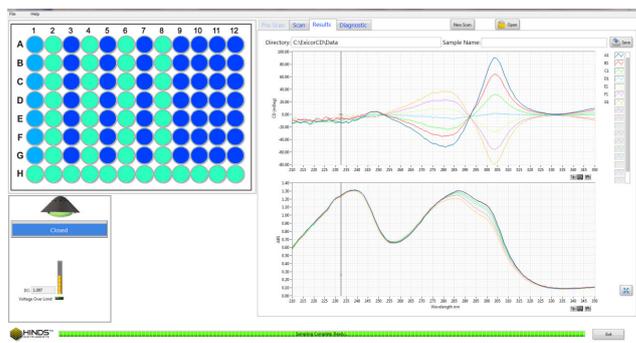


Camphor sulfonic acid full spectrum

# Software

EKKO-Lab software is included with the EKKO™ CD Microplate Reader. Intuitive menus and a user-friendly interface let you be up and running in a few minutes. Spectra can be easily selected in the well plate matrix for data visualization. A visual well plate matrix allows the selection of blanks and sample wells for easy programming of experiments.

CD values or enantiomeric excess in each well can be rapidly read and exported as a text file for external processing.



## SPECIFICATIONS

### High Throughput Screening

Detection mode	Circular Dichroism and absorbance
Measurement mode	Single wavelength Spectrum
Microplate format	96 well plates (384 optional)
Reading time	< 2 minutes (96 wells, single wavelength mode) < 1 hour (96 wells, full spectral range)
Minimum volume per well	45 µl (96 well plate format)

### General

Dimensions	70 x 50 x 60 cm (H x W x L)
Weight	94 kg
Communication <sup>(1)</sup>	USB
Software	Included
Power	200 W ; 110-220 V ; 50/60 Hz

### CD Specification

Wavelength range	185-880 nm
Monochromator	Dual gratings
Wavelength accuracy	±0.1 nm
Stray light	5 ppm (200 nm)
rms noise	±0.08 mdeg (200 nm, 8 s integration time) ±0.02 mdeg (500 nm, 8 s integration time)
CD range	± 1000 mdeg
Bandwidth	2 nm
Absorbance precision	0.01 AU
Light source lifetime	> 9000 h typical
N2 purge <sup>(2)</sup>	0.5 l/min
Temperature	Room temperature

### Notes :

- (1) A configured PC can be included
- (2) Connection to an N2 generator or cylinder is required at all times.



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