

BMG Microplate Reader - Located Room 341

Contact Dr Howard Pringle (3227) jhp@le.ac.uk

**FLUOstar
OPTIMA**



The [FLUOstar OPTIMA](#) is a fully automated microplate based multi-detection reader with a microprocessor controlled gas vent and is designed for life science laboratories in academia and industry. The FLUOstar incorporates four different measurement principles:

- Fluorescence Intensity - including FRET and multilable applications
- Time-Resolved Fluorescence - including DELFIA™
- High-Performance Luminescence (flash and glow) - dedicated luminescence circuit
- Absorbance - UV/Vis with 1 cm path length correction

Designed for the widest possible range of non-radioactive labelled applications:

- Ca²⁺ measurements (e.g. Ca²⁺ Flux with Fura-2, Indo-1, or FLUO-3/4)
- Enzyme activity
- FRET / BRET assays
- Cell toxicity, proliferation and viability
- Protein and nucleic acid quantitation (Bradford, Lowry, DNA, 260 nm / 280nm)
- ATP quantification
- Immunoassays, ELISA
- Luciferase, dual luciferase, BRET with sequential dual emission detection, DLReady certified
- ORAC and ABEL antioxidant assays

And many more assays ([see applications page](#))

By integrating a high intensity xenon flash lamp with sophisticated light guide technology the FLUOstar OPTIMA covers the full wavelength range 230 to 900 nm for both excitation and emission. The FLUOstar OPTIMA can read all plate formats from 6- up to 384-well plates in all four measurement modes, and 1536-well plate reading is possible in both fluorescence and time-resolved fluorescence mode.

The automatic optic switching (AOS) feature within the software enables controlled changing of detection mode and switching from top to bottom reading. The "QuickStart" mode allows users to read plates with just 3 mouse clicks. Impressive well-scanning software allows cell-based assays to be performed with ease.

Incubation

Stable and uniform incubation is achieved by temperature-regulated heating plates above and below the entire microplate movement area. The top incubation plate is at a slightly higher temperature than the bottom plate to eliminate or reduce condensation when lids or sealers are used. Incubation up to 60°C is available for users with elevated temperature needs and is the highest available on any microplate reader. The microprocessor controlled gas vent allows cells to be maintained in 5% CO₂ at 37°C and cultured overnight during growth, cell death and invasion assays.

On-board reagent injectors

The FLUOstar OPTIMA can be equipped with up to two fully integrated syringe injectors (no bulky add on boxes beside or on top of the microplate reader). These can be used to deliver agonists, substrates, enzymes - even cells, for advanced microplate assays. Injection speed and timing is fully adjustable within the control software. Delivery volumes between 5 - 350 µL in 0.5 µL increments are individually adjustable for each well, allowing the user to produce dilution schemes, concentration ranges, etc.

Endpoint, slow and fast kinetic measurements

Kinetic applications can be defined with interval times from 20 ms per read (50 points per second) to several hours allowing you to capture any kinetic event. You can capture a fast calcium signal that happens in a few seconds or measure bacterial growth over a period of days. In addition you can define kinetic windows that have variable data frequencies allowing you collect data at a high resolution in regions of interest, and less frequently in areas of relatively little change.

Multi-color detection

The FLUOstar OPTIMA can be used to measure up to eight fluorophores/chromophores per well allowing you to perform 260 nm / 280 nm, SNPs, and other multichromatic assays easily. And, due to the fast filter switching, (less than 0.6 s) reads of FRET or BRET assays can be performed extremely quickly.

Software

BMG OPTIMA Windows™ based software has an easy to use control package and powerful data evaluation segment.

The control software allows flexible definition of microplate layouts, filter selection, interval and injection times, as well as measurement frequency, heating, and shaking parameters. During measurement, it is possible to observe the data with the Real Time well display feature, which allows viewing of raw values, ratios, curves, or even colour coded pictorials.

The evaluation software provides all the macros needed for fast data calculation. Five pre-programmed worksheets allow averaging of replicates, blank subtraction, undilutions, signal plots, slopes, max values, quantitation, averages, %CVs, standard curves, and calculation of unknowns and much more.

Contact

For further details please contact:

Dr J Howard Pringle

Reader in Molecular Pathology

Department of Cancer Studies and Molecular Medicine

University of Leicester

Room 340

Robert Kilpatrick Clinical Sciences Building

Leicester Royal Infirmary, P O Box 65

Leicester, LE2 7LX, United Kingdom

Tel: +44 116 2523227 Fax: +44 116 2523274 Email: jhp@le.ac.uk

<http://www.le.ac.uk/cm/staff/jhp.html>