



Infinite® M1000 PRO – a future-proof multimode reader with AlphaScreen® and AlphaLISA® technology

Top class monochromator-based microplate reader offering outstanding performance for demanding applications in drug discovery and life sciences research



A modular, multimode reader for the advanced demands of the drug discovery and research communities

The new Infinite M1000 PRO is the flagship of Tecan's monochromator-based multimode reader series

Tecan understands that the drug discovery and life science research communities place high demands on multimode microplate readers, requiring instruments to perform a wide range of advanced assays. Assay reagent providers continuously introduce innovative new technologies to meet the demands of the academic, biotechnology and pharmaceutical customer segments, requiring flexible, high performance instruments that can grow to meet project objectives and adapt to the requirements of the latest assays.

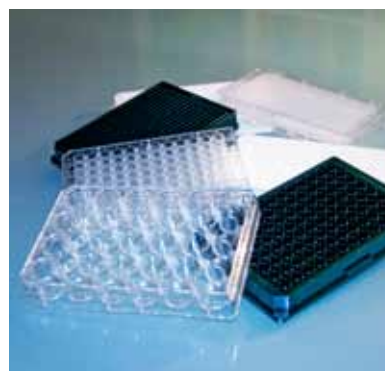
The premium Quad4 Monochromators™ technology of the Infinite M1000 PRO offers total freedom of wavelength selection without the need for absorbance or fluorescence filters. This ensures great flexibility and sensitivity for the definition, fine-tuning and validation of a wide range of assays and reagents used today, making it an instrument of choice for assay development and a variety of high performance applications. In addition, its modular architecture is ideally suited to researchers in the pharmaceutical and biotechnology industries, as well as service providers, allowing customers to configure the instrument to their budget and detection to demands.

Highest format flexibility

The Infinite M1000 PRO offers a wealth of microplate formats and measurement modes. It supports all common microplates conforming to the ANSI/SBS standards, from 6- to 1,536-well plates, as well as Tecan's unique NanoQuant Plate™ for low volume measurements in absorbance and fluorescence modes.

6- to 1,536-well plates: use any plate your experiments require

The Infinite M1000 PRO is compatible with all ANSI/SBS-standard microplates – from 6 to 1,536 wells – allowing absorbance, fluorescence intensity (FI) top and bottom, luminescence and fluorescence polarization (FP) measurements, AlphaScreen and AlphaLISA measurements and wavelength scans. Together with Magellan software, the plate definition editor allows creation of customized plate geometry files. In addition, the instrument's optional injector module can be used with 6- to 384-well plates, for addition of reagents and triggering fast kinetics. For high throughput applications, the Infinite M1000 PRO is Tecan's only monochromator-based instrument offering fast read times and excellent sensitivity in 1,536-well plates.



NanoQuant Plate: fast DNA quantification in 2 µl drops

The patented NanoQuant Plate can measure up to 16 samples simultaneously, from sample volumes as low as 2 µl. Combined with the Infinite M1000 PRO, it offers a perfect solution for DNA or RNA quantification in absorbance or fluorescence mode, quality control and measurement of labeling efficiency in absorbance mode. The innovative NanoQuant Plate is also compatible with multichannel pipettes for easy sample addition to each of the 16 separate quartz optics.



Cuvettes

A cuvette adapter in a horizontal direction allows measurements of a large number of applications for all standard cuvettes.



NEW: AlphaScreen and AlphaLISA technology

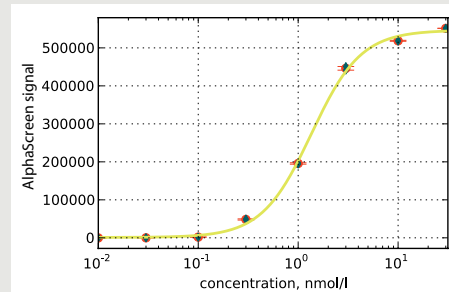
Tecan's new Infinite M1000 PRO enables high performance AlphaScreen and AlphaLISA measurements with innovative temperature correction

AlphaScreen (Amplified Luminescent Proximity Homogeneous Assay) is a homogeneous bead-based assay technology designed for the measurement of biological interactions. Molecules of interest can be attached to hydrogel-coated donor and acceptor beads, and specific binding of these molecules causes energy transfer between the beads. The signal amplification achieved with AlphaScreen allows easy assay miniaturization and sensitivity down to attomolar levels per well, allowing specific identification of binding events between molecules of interest.

AlphaScreen assays require high energy excitation of the donor beads at 680 nm, with proximity-dependent energy transfer to the acceptor beads resulting in a greatly amplified luminescent signal at 520-620 nm (AlphaScreen) or 615 nm (AlphaLISA).

The new Infinite M1000 PRO is equipped with a high power laser light source and dedicated filters for AlphaScreen and AlphaLISA assays.

In addition to the advanced optics module, the Infinite M1000 PRO offers an ingenious well-wise temperature correction function that serves to compensate for sample temperature variations across the microplate.



Measurement of AlphaScreen Assay (AlphaScreen P-Tyr-100 (Phosphotyrosine) Assay Kit, Perkin Elmer, USA) with Tecan's Infinite M1000 PRO

Advanced wavelength scanning in three detection modes

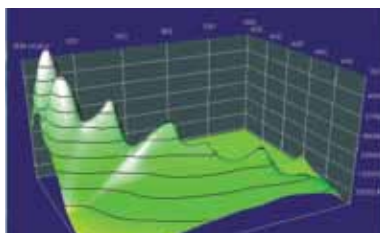
The Infinite M1000 PRO is Tecan's only multimode reader with the ability to perform absorbance, fluorescence intensity and luminescence wavelength scans

Ultra-fast scans in absorbance and FI modes to optimize your assay

The Infinite M1000 PRO's premium Quad4 Monochromators offer the flexibility to scan novel or unknown probes across a broad wavelength range. The system's 4-channel absorbance optics and fast scanning mode permit high speed scanning, typically allowing absorbance scans between 230 and 1000 nm for 384 probes at 1 nm resolution in less than 20 minutes. This wavelength flexibility also allows rapid fluorescence excitation and fluorescence emission scans in both top and bottom reading modes, and is ideally suited to the optimization of assay performance in a variety of research applications.

3D scanning: detect the unknown

In addition to basic fluorescence scanning, the Infinite M1000 PRO offers 3D scanning capabilities. This powerful tool helps researchers to identify changes in the spectral properties of fluorescent probes. This feature can also be combined with the 3D scanning plot facility of Tecan's Magellan™ data analysis software to create a rapid visual overview of changing fluorescent properties within a sample.

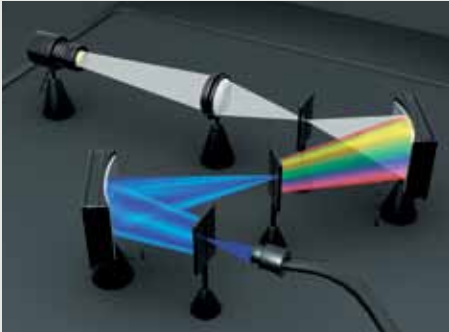


NEW Luminescence scan

Luciferase reporter mechanisms are commonplace across a broad range of disciplines, with recombinant luciferases increasingly being used due to their dynamic measurement windows. Development of genetically enhanced luciferases and novel substrates is therefore vital, and the Infinite M1000 PRO provides the functionality to easily characterize these proteins. This new luminescence scan mode can record the emission spectra of stable luminescence signals at 1 nm resolution using the instrument's emission monochromators.

No limitations: flexibility, sensitivity and speed

Complete wavelength selection with premium Quad4 Monochromators technology



Premium Quad4 Monochromators technology featuring its double monochromator system architecture.

Tecan's Quad4 Monochromators technology uses two excitation monochromators and two emission monochromators to offer outstanding flexibility, eliminating the cost and drawbacks of wavelength filters for research applications. The premium Quad4 Monochromators system of the Infinite M1000 PRO further optimizes this technology, using a flash lamp with double the power and switchable flash frequency settings for fluorescence intensity to provide even more light to both the sample and the detector, as well as offering improved spectral blocking and extended stray light reduction down to 2×10^{-7} .

Flexibility

Patented technology allows the bandwidth of both the excitation and emission monochromators to be independently set in small fine tuneable steps. Bandwidth adjustments are possible for all fluorescence-based measurements, including fluorescence scans (excitation, emission and 3D), fluorescence polarization emission, FRET, time-resolved fluorescence (TRF) and time-resolved FRET (TR-FRET).

Optimizing monochromator bandwidth results in improved instrument sensitivity, particularly for multiplexed and FRET assays.

Flash frequency mode

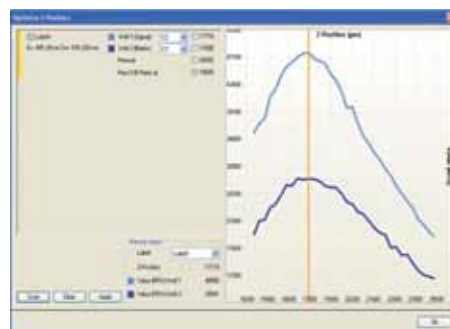
The Infinite M1000 PRO's patented variable flash frequency system ensures maximum flexibility for fluorescence-based applications. The High Speed setting is recommended for standard applications, and uses a higher flash frequency to generate more data points in a given time frame, whereas the High Sensitivity setting uses a lower flash frequency and more energy per flash for increased measurement sensitivity.

Sensitivity

Due to its premium Quad4 Monochromators technology, the Infinite M1000 PRO offers superb sensitivity (see typical performance values). For maximum signal strength, the system's autogain feature ensures that the entire dynamic range is always used, and the adjustable bandwidth selection in fluorescence intensity mode allows the users to control the amount of light falling on to the fluorophore.

z-Optimization

Automated adjustment of z-focus is available in fluorescence intensity top and fluorescence polarization modes, significantly improving the quality of measurements. This feature makes it easy to optimize the instrument set-up for varying assay parameters, such as low sample volumes or different well shapes.



Speed

The Infinite M1000 PRO incorporates a range of features allowing high speed measurements without compromising on sensitivity. It is able to perform absorbance scans using four channels in parallel. For fluorescence intensity measurements, the fast scanning mode (400 Hz) offers rapid recording of excitation and emission spectra and endpoint signals. The system also offers ultra-fast switching of polarization direction for FP measurements.

On-the-fly measurements

On-the-fly measurements are the fastest measurements possible using the Infinite M1000 PRO. These measurements are performed with one flash per well, and without stopping plate transport for each well.

Measurement type	Measurement time [sec]		
	96 wells	384 wells	1,536 wells
Absorbance	11	15	19
Fl top	17	24	35
Fl bottom	19	25	38
FP	22	42	100

Typical read times for on-the-fly measurements

Applications

The Infinite M1000 PRO supports a broad range of microplate-based detection assays, including biomolecular screening, enzymatic assays (including kinase and protease assays), G protein coupled receptor (GPCR) assays, receptor-ligand binding studies and other molecular interaction assays, cell-based assays, DNA/RNA quantification, and applications based on UV fluorometry.

Validated and compatible assay formats

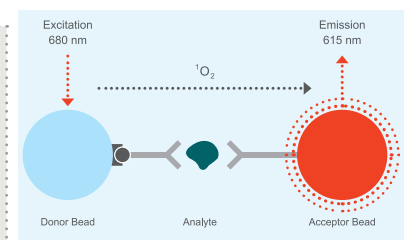
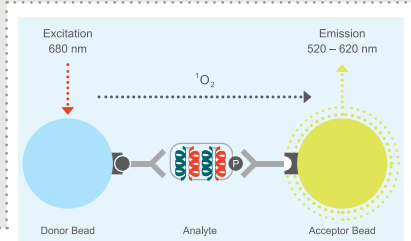
HTRF^{®*}
 LanthaScreen[®] assay
 Adapta[®] Universal Kinase assay
 Omnia[®] Kinase assay
 Z'-LYTE[®] assay
 GeneBLazer[®] assay
 PolarScreen[™] glucocorticoid receptor competitor assay, (Red/Green)
 Predictor[™] hERG fluorescence polarization assay
 DLR[®] assay (DLReady[™])
 Transcreener[®] Far Red ADP² FI assay
 Transcreener[®] Far Red ADP² FP assay

* In white plates

AlphaScreen and AlphaLISA for high sensitivity detection

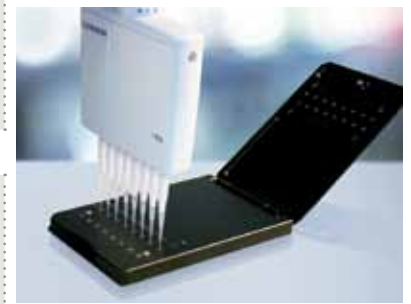
AlphaScreen is a homogeneous, bead-based assay technology used for the measurement of biological interactions. Specific binding of these molecules of interest attached to the AlphaScreen beads causes an energy transfer from the donor to the acceptor beads after excitation at 680 nm, ultimately resulting in a greatly amplified luminescent signal that can be detected in a wavelength range of 520-620 nm.

AlphaLISA is a homogeneous alternative to conventional ELISA assays that is based on PerkinElmer's bead-based AlphaScreen technology. AlphaLISA assays can be designed as sandwich or competitive immunoassays to detect analytes in biological samples. Reactive oxygen species produced in the AlphaLISA donor beads in response to illumination at 680 nm trigger a cascade of events in the acceptor beads, resulting in a luminescent signal at 615 nm.



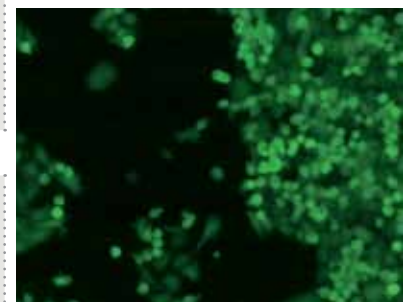
Absorbance and fluorescence-based DNA/RNA quantification in 2µl volumes

The unique NanoQuant Plate has a 16-channel quartz optic for low volume samples, and offers outstanding performance and a high rate of reproducibility. The easy-to-clean design minimizes the risk of cross contamination for a wide range of applications, including DNA/RNA quantification prior to molecular cloning and PCR-based assays and labeling efficiency measurements for FISH- and microarray-based experiments.



Optimal Read (OR) function for reliable cell-based applications

The Infinite M1000 PRO's Optimal Read function offers enhanced performance and reliability for cell-based applications in 12- to 96-well plate formats. Available in FI bottom-reading mode, this feature performs multiple measurements on spatially separated spots arrayed across each well area, achieving maximum illumination and sensitivity.



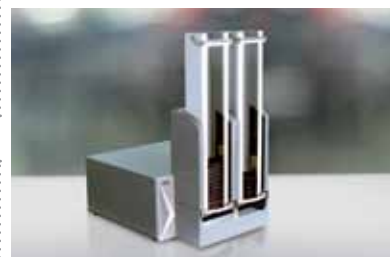
NEW Injector module: optimized to save reagents

The Infinite M1000 PRO injector module uses up to two injectors to trigger fast kinetic reactions in fluorescence, luminescence and absorbance modes with the Infinite M1000 PRO's well-wise mode. A tilting carrier and multiple syringe size options ensure low dead volumes to minimize wastage of substrates. The module offers adjustable injection volume and speed settings, and features a bulk dispense function to eliminate tedious pipetting steps for 6- to 384-well plates.



Stacker module: for batch processing

The Infinite M1000 PRO plate reader can be easily combined with an integrated stacker module, allowing batch processing of up to 50 microplates.



Freedom EVO®: powerful automation for a streamlined workflow

Alternatively, the Infinite M1000 PRO can be fully integrated with Tecan's Freedom EVO liquid handling workstations, for complete automation of assay set-up, preparation and detection.



QC tools: ensure your results

Tecan's MultiCheck™ plate, software and IQ/OQ documentation provide a complete solution for periodic performance checks. MultiCheck Infinite M1000 PRO is Tecan's all-in-one QC plate for multimode readers. The MultiCheck provides tests for all basic reading modes.

Instrument configurations may vary.



Infinite M1000 PRO features at a glance*

AlphaScreen/AlphaLISA

Instant Read™

Flexible wavelength selection

Adjustable bandwidth settings

z-Focusing for all top reading modes

Variable flash frequency mode

Fast ratiometric measurements

Double orbital shaking

Luminescence module

Luminescence scan

Injector module

NanoQuant Plate

Batch processing

Barcode scanner

Automation ready

AlphaScreen module with innovative temperature correction function

Offers quick start/stop of pre-programmed workflows from the instrument

From UV to near IR, with high accuracy

For fine adjustments to suit the fluorophore in use

To optimize the set-up for low volumes and different well shapes

Choose between high speed and high sensitivity in FI mode

Fast switching of wavelengths for FRET assays and polarization direction for FP measurements

Offers alternative shaking mode

Single and dual color, glow and flash luminescence for 96- to 1,536-well plates

Available in top and bottom reading (requires luminescence, FI top and bottom module)

With variable syringe sizes, dispense volumes and speed settings, optimized to save expensive reagents

Measurement of up to 16 samples in parallel from sample volumes as low as 2 µl

Integrated stacker for up to 50 microplates

Available for left or right side reading

Can be integrated into Freedom EVO platforms

* depending on instrument configuration

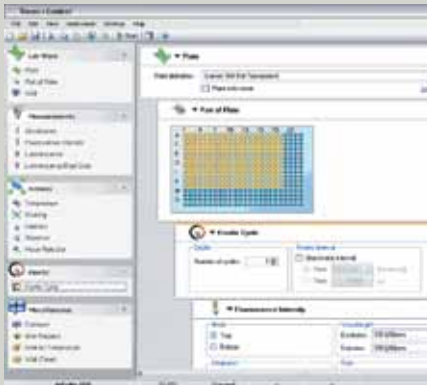
Integrated control

Flexible reader control and data analysis software to match your workflow

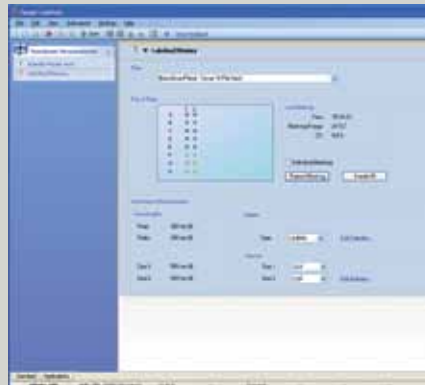
i-control™

i-control is the standard system control software for all Infinite series readers, offering a simple and flexible user interface. It allows the user to create application-oriented measurement

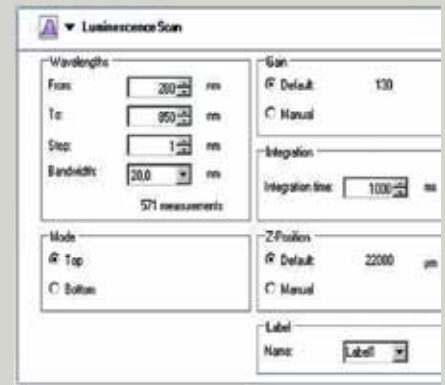
scripts with any combination of processing steps, and data is exported to Microsoft Excel®-compatible file formats.



Workflow-oriented i-control software supports complex assay protocols.



i-control application for nucleic acid quantification using the NanoQuant Plate



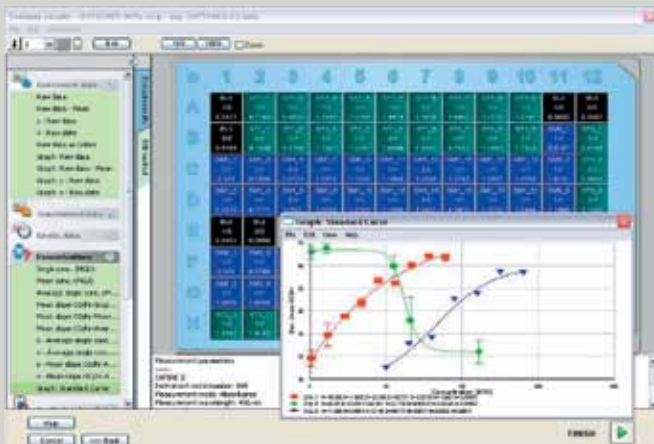
New luminescence scan offers additional flexibility for assay development

Magellan

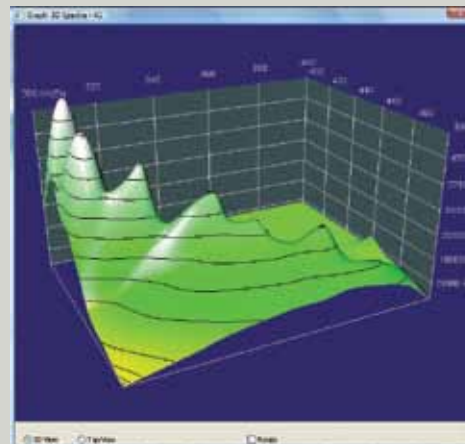
Magellan is Tecan's universal data reduction and analysis software, offering powerful analytical capabilities, excellent data presentation and outstanding graphical flexibility. Its spectra calculation package includes background correction, curve smoothing, wavelength selection, peak identification and 3D scanning tools, making it the ideal accompaniment to the

Infinite M1000 PRO. The wizard-guided user interface ensures convenient handling of dilution series, IC calculations and data import and export, simplifying data processing and analysis.

In addition, a version of Magellan that helps to fulfill the requirements of FDA regulation 21 CFR part 11 is also available.



Magellan offers easy presentation and evaluation of data from multiple experimental groups on a single microplate.



3D scanning enables rapid characterization of unknown samples.

Infinite M1000 PRO – typical performance values

Light sources	High energy xenon flash lamp, light-emitting diodes, laser-diode		
Wavelength selection	Premium Quad4 Monochromators		
	Absorbance	Fluorescence	
Bandwidth	Fixed, 5 nm	Adjustable ≤ 300 nm: 2.5 – 10 nm; > 300 nm: 5 – 20 nm	
Wavelength accuracy	± 0.3 nm	≤ 300 nm: ± 0.5 nm; > 300 nm: ± 1 nm	
Wavelength reproducibility	± 0.3 nm	≤ 300 nm: ± 0.5 nm; > 300 nm: ± 1 nm	
Wavelength range	Absorbance	Fluorescence	FP
	230 – 1,000 nm	Ex: 230 – 850 nm Em: 280 – 850 nm	Ex (LED): 470, 530, 590, 635 nm Em (Mono): 280 – 850 nm
Detectors	Absorbance	UV Silicon photodiode, 4-channel parallel reading	
	Fluorescence (incl. FP)	Extended wavelength (UV and far red) · Low dark current PMT	
	Luminescence	Photon counting low dark current PMT	
Plate formats	6 – 1,536-well plates, NanoQuant Plate		
Temperature control	Ambient +4 to 42 °C		
Shaking	Linear, orbital, double orbital with variable amplitudes		
Fluorescence sensitivity values	Fluorescence top reading	25 amol/well fluorescein (Greiner® 384-well low volume black plate; 10 μ l)	
	Fluorescence bottom reading	0.6 fmol/well fluorescein (Greiner 96-well SensoPlate™; 200 μ l)	
	TRF	1.5 amol/well europium (Greiner 384-well low volume white plate; 10 μ l)	
	FP	< 2 mP standard deviation @ 1 nM fluorescein	
Luminescence sensitivity values	Glow luminescence*	225 amol/well ATP (Greiner 384-well low volume white plate; 25 μ l)	
	Flash luminescence**	12 amol/well ATP (Greiner 384-well white plate; 55 μ l)	
Absorbance	Measurement range	0 – 4 OD	
	OD linearity	0 – 3 OD: $R^2 \geq 0.999$	
	OD accuracy	0 – 3 OD: $\leq \pm (1\% + 6 \text{ mOD})$	
	OD reproducibility	0 – 3 OD: $\leq \pm (0.5\% + 5 \text{ mOD})$	
Fastest reading times – fixed wavelength (on-the-fly)	Absorbance	1,536-well: 19 sec	384-well: 15 sec 96-well: 11 sec
	Fluorescence	1,536-well: 35 sec	384-well: 24 sec 96-well: 17 sec
	FP	1,536-well: 100 sec	384-well: 42 sec 96-well: 22 sec
Fastest reading times – scanning (450 – 550 nm, 5 nm step)	Absorbance	35 sec	
	Fluorescence	115 sec	
Injectors	Injection volume	Variable; 1 μ l increments	
	Syringe size	Selectable: 500, 1000, 2500 μ l	
	Pump speed	100 – 300 μ l/sec	
	Dead volume	100 μ l including pump back	
Accessories	Stacker	built-in with up to 50 microplates	
	Barcode scanner	left or right	
AlphaScreen	Detection limit	≤ 100 amol/well bio-LCK-P*** ≤ 2.5 ng/ml Omnibeads****	
	Uniformity	$\leq 3\%$ CV***	
	Z' value	≥ 0.9 ***	
	Fastest read time	< 2 min (384-well plate)	

* 144-041 ATP detection kit SL (Biothema), ** ENLITEN® ATP assay system (Promega),

*** (P-Tyr-100 Assay Kit, PE # 6760620); (384-well small volume plates), ****(PE # 6760626); (384-well small volume plates)



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