Accurate.
Brighter.
Better.

revvity

Luminescence Assays

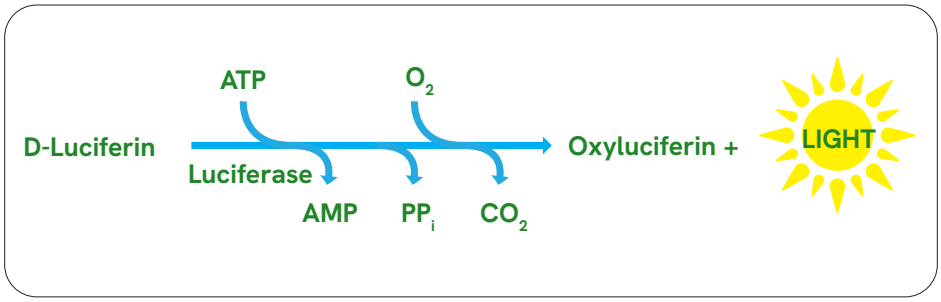
Streamlined detection. Simply brilliant.

Luminescence assays allow for the study of transcriptional gene expression, virus life cycles, and cell viability, making them significant tools for drug development in reporter gene, cytotoxicity, and cell proliferation applications. Our luminescence assays include reporter gene, ATP-monitoring.

Our luciferase luminescence assay options provide high sensitivity in a convenient microplate format.

Key benefits

- Wide dynamic range
- Greater sensitivity than fluorescence technologies
- Lower interference than other detection options
- Cost effective detection
- Simple automation for high throughput applications
- Homogeneous luciferase assay set-up eliminates wash and separation steps



Chemical reaction of luminescence assays.

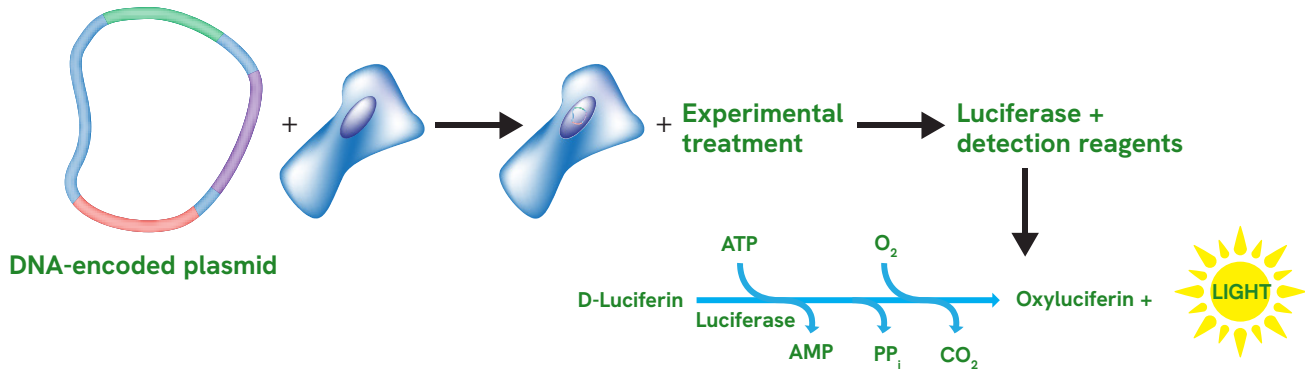
Luminescence assay systems	
Reporter gene assays	Cytotoxicity and cell proliferation assays
britelite™ plus	ATPlite™
steadylite™ plus	ATPlite™ 1step
neolite™	ATPlite™ 3D
sensilite™	ATPlite™ 1step 3D
twinlite™	
twinlite™ glow	

Intensity. Flexibility. Just right for every assay.

Reporter gene assays enable high sensitivity measurement of gene expression and cell signaling through the addition of bioluminescent genes into target cells. Use our assays to characterize the strength of promoters and enhancers, define the role of transcription factors, or assess transfection efficiency during drug development. Whether your assay requires the sensitivity provided by high signal intensity, or the flexibility of an extended signal half-life, Revvity offers a reporter gene assay to suit your needs your needs.

Key benefits

- Convenient one-step processing: No washes required – simply mix, incubate, and read
- Strong signal for remarkably accurate and thorough firefly or renilla luciferase
- Enhanced ability: reagents are stable at 2-8 °C
- No DTT: Unlike most luciferase detection reagents, our reporter gene assay options do not contain DTT, eliminating toxic hazards and the need for hood work
- Amenable to high throughput and ultra-high throughput environments, using 384- or 1536-well microplate formats
- Excellent Z′ Values: Each luciferase assay system offers robust, sensitive performance, with high signal-to-background ratios



Reporter gene assays utilizing the luciferase gene, derived from the North American firefly Photinus pyralis, have long been used as a sensitive method to monitor changes in gene expression. Firefly luciferase catalyzes the oxidation of the substrate luciferin to produce light, allowing direct measurement of luciferase activity levels via luminescent detection. Thus, expression levels of a gene of interest can be tracked through creation of a recombinant gene fusion with luciferase and subsequent quantitation of luciferase activity.

Reporter gene assay principle

The Revvity suite of luciferase detection systems brings the simplicity of reporter gene assays to a whole new level. All lites products offer superior performance, while still providing convenient one-step processing and ease of storage and handling.

britelite™ plus - *intensively Sensitive*

britelite plus possesses an extremely strong signal intensity. With a signal half-life of 30 minutes, it is ideal for assays requiring the utmost sensitivity and for any application employing continuous processing methodology.

steadylite™ plus - *long-lived Glow*

steadylite plus was developed to provide an extended signal half-life of up to five hours. This extended half-life makes steadylite plus the reagent of choice for high throughput screening where you require the same steady signal first plate into last plate out.

neolite™ - *bright and stable*

neolite offers the ultimate compromise between strong signal intensity and extended signal half-life. It provides a minimum half-life of 2.5 hours while maintaining excellent sensitivity. neolite also delivers superior reproducibility, as it has less sensitive mixing conditions than typical luminescent detection systems. It is ideal for medium to high throughput applications which employ batch processing methods but still require exceptional sensitivity.

sensilite™ - *ultra sensitive*

sensilite was designed to provide maximum signal intensity for assays requiring the utmost sensitivity. This flash luminescence assay is suitable for use in a tube or 96- and 384-well microplate format. It is ideal for low transfection efficiency, stem cell transfection where ultra-high sensitivity is required.

twinlite™ - *dual luciferase assay*

twinlite is a dual luciferase reporter gene assay system designed to detect and quantitate both Firefly and Renilla luciferase sequentially from cultured cells. This flash luminescence assay is suitable for use in a tube or 96- and 384-well microplate format. It is ideal for normalization for high quality data and to screen two events in parallel.

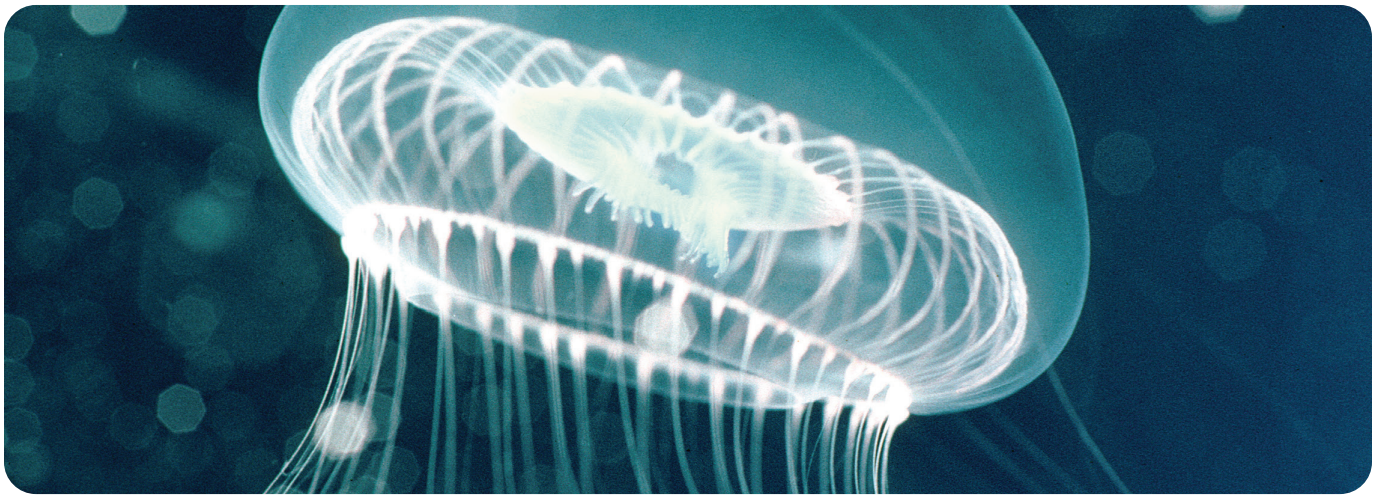
twinlite™ glow- *dual luciferase assay*

twinlite glow is a dual luminescence reporter gene assay system designed to detect and quantitate both Firefly and Renilla luciferase sequentially from cultured cell, allowing for the expression levels of two separate genes to be measured in a single assay. The assay chemistry has been designed such that the luminescent signals for both Firefly and Renilla decay slowly with a half-life of at least 2 hours each.

	britelite™ plus *intensively sensitive*	steadylite™ plus *long-lived glow*	neolite™ *bright and stable*	sensilite™ *ultra sensitive*	twinlite™ *dual luciferase assay*	twinlite™ glow *dual luciferase assay*
Application	Firefly Luciferase Reporter Gene Assays				Firefly and Renilla Luciferase Reporter Gene Assays	Firefly and Renilla Luciferase Reporter Gene Assays
Half-life	0.5 hours	4-5 hours	2.5 hours	Flash	Flash	2 hours
Relative Sensitivity	High	Moderate	Moderate	Very High	Very High	Very High
Microplate Formats	96, 384, 1536 wells	96, 384, 1536 wells	96, 384, 1536 wells	96, 384 wells	96, 384 wells	96, 384 wells
Ideal For	Low transfection efficiencies, stem cell transfection, continuous processing	High-throughput screening, extended batch processing	Low transfection efficiencies, primary cell transfection, batch processing	Low transfection efficiency, stem cell transfection	Normalization for high quality data, screen two events in parallel	Normalization for high quality data, screen two events in parallel

Part number						Volume	Data points*		
britelite™ plus	steadylite™ plus	neolite™	sensilite™	twinlite™	twinlite™ glow		96-well plates	384-well plates	1536-well plates
6066766	6066756	6016716	6066726	6066706	6016796	10 mL	100	400	3,300
6066761	6066751	6016711	6066729	6066709	6016799	100 mL	1,000	4,000	33,000
6066769	6066759	6016719	-	-	-	1000 mL	10,000	40,000	330,000

* The recommended assay volumes are 100 µL for 96-well microplates, 25 µL for 384-well microplates and 3 µL for 1536-well microplates.



Light the way with ATPlite assays.

Fast, reliable measurement of cytotoxicity and cell proliferation.

ATPlite™ 1step and ATPlite™ are patented[1] innovative technologies that measure cell proliferation and cytotoxicity in mammalian cells based on the detection of ATP using firefly luciferase. Light production caused by the reaction of ATP with added luciferase and D-luciferin is proportional to the ATP concentration. ATP is a marker for cell viability because it is present in all metabolically active cells. Because ATP concentration declines rapidly when cells undergo necrosis or apoptosis, monitoring ATP is a good indicator of cytocidal, cytostatic, and proliferation effects.

Our ATP luminescence assays provide a more sensitive alternative to colorimetric, fluorometric, and radioisotopic based assays for monitoring cell viability and proliferation. Choose our ATPlite 1step assay for a single addition assay and our ATPlite assay for extended signal stability.

3D cell cultures, microtissues, and organoids are increasingly being used to bridge the gap between 2D cell cultures and *in vivo* animal models. These cell models are more physiologically relevant than 2D cell cultures, as they more closely represent the microenvironments, cell-to-cell interactions, and biological processes that occur *in vivo*. Both ATPlite 1step and ATPlite are available in a format specific designed for studies using 3D spheroids.

Key benefits of ATPlites assays

ATPlite 1step – Highest Sensitivity

- True “mix and measure” continuous processing
- Ultra high sensitivity, three times more light output than ATPlite
- Short equilibrium time for faster processing
- Signal half-life of 30 minutes

ATPlite – Convenient, Extended Signal

- 2-step format, non-separation assay for time course studies; lysate can be stored frozen and tested later
- Quantitate from <5 cells/well
- Prolonged equilibrium time for batch processing
- Signal half-life of 5 hours

ATPlite 1step 3D - Rapid Detection from spheroids

- Designed for continuous process systems
- Rapid, Simple and Reproducible
- Homogeneous assay
- No DTT

ATPlite 3D - ATP from 3D spheroids Detection

- Long-lived luminescent signal
- Full spheroid lysis and extraction of ATP
- Wide linear dynamic range
- Excellent Z′ Values

1. U.S. Pat. 6503723; EP Pat. 117825 (CH, DK, GB, DE 69924127); NL Pat. 1010224; Canada Patent Appl. No. 2345721; Australian Patent Appl. No. 754602; other patents pending.

Part Number				Volume	Data points*		
ATPlite 1step	ATPlite	ATPlite 1step 3D	ATPlite 3D		96-well plates	384-well plates	1536-well plates
6016736	-	6066736	-	10 mL	100	400	3,300
-	6016943	-	6066943	30 mL	300	1,00	9,900
6016731	6016941	-	-	100 mL	1,000	4,000	33,000
-	6016947	-	-	500 mL	5,000	20,000	16,500
6016739	6016949	-	-	1000 mL	10,000	40,000	330,000

* The recommended assay volumes are 100 µL for 96-well microplates, 25 µL for 384-well microplates and 3 µL for 1536-well microplates.

Throughput solutions for every need.

Revvity offers a wide range of luminescence microplate readers to suit your needs.
From basic research to assay development and drug discovery, we can easily deliver the optimum solution for all your luminescence applications.

VICTOR Kira™

The VICTOR Kira™ is a multimode plate reader designed with the intent to help streamline your lab work. This multimode reader offers detection for absorbance, fluorescence, and luminescence, and our monochromator-based technology allows for flexibility across multiple wavelengths. Plus, its integrated software makes protocol setup and analysis fast and easy.

VICTOR Nivo™

VICTOR Nivo™ is the smallest plate reader in the industry and ideal for everyday biochemical and cell-based assays. With top and bottom reading, it can detect a range of luminescence assay formats, including glow and BRET, and flash or dual glow (when combined with the dispenser) – perfect for applications such as reporter gene, cytotoxicity, and proliferation assays. In addition, our Enhanced Security software option provides tools to facilitate 21 CFR Part 11 compliance for integration into regulated environments (GxP).

EnVision™ XCite

The EnVision™ XCite multimode plate reader provides exceptional sensitivity across all detection technologies, while keeping you flexible with both filter and monochromator based options plus full upgradeability. The ultrasensitive luminescence option boosts sensitivity by bringing the detector closer to the sample – giving you more information from every cell. Also, it significantly reduces the time per 384-well plate from over one hour to less than two minutes – freeing up the instrument and minimizing drift effects. With our Enhanced Security software option, it provides tools to facilitate 21 CFR Part 11 compliance for integration into regulated environments (GxP).

EnVision Nexus™ Multimode Plate Reader.

The EnVision Nexus™ is the next generation of superior detection. It operates on a brand-new platform that fast tracks your research, delivering the high speed and accuracy you need for your most demanding high throughput screening applications. The EnVision Nexus delivers ultimate flexibility with three luminescence detection modes. Standard mode is ideal for bright assays and bottom reading, and for combining different read-out technologies. Enhanced Luminescence employs an aperture to block stray light from neighboring wells and is ideal for samples with low signal. Our ultrasensitive luminescence mode boosts sensitivity even further by bringing the detector closer to the sample. This is ideal for precious or very dim samples. Paired with our new, easy to use software, Kaleido, the EnVision Nexus is the new standard for high through-put screening. In addition, our Enhanced Security software option provides tools to facilitate 21 CFR Part 11 compliance for integration into regulated environments (GxP).

MicroBeta²® Plate Counter

The MicroBeta² system provides coincidence counting, a unique patented configuration utilizing two photomultiplier tubes that detect signal simultaneously. It ensures high efficiency and extremely low background for a variety of radionuclides.

Luminescence detection is conducted using the single photon counting method to achieve the lowest possible background and good counting efficiency for greater sensitivity.

JANUS® G3 Liquid Handler

From compound management to downstream drug discovery applications the JANUS® G3 liquid handler offers flexible automated sample preparation solutions to meet your needs. It can be configured based on the size of the instrument, pipetting arm technology, labware movement options, and accessories to automate your application.

explorer® G3 Integrated Workstation

The explorer® G3 workstation enables labs to fully automate their workflows based on their throughput and space requirements allowing labs to do more with less. Custom solutions are designed to fits your application needs, maximizing efficiency and quality of results.

Luminescence applications.

Detection instruments	Flash	Glow	Dual	Dual emission	Aequorin	Kinetics
VICTOR Nivo	X	X	X	X	X	X
EnVision XCite		X	X			X
EnVision Nexus	X	X	X	X	X	X
MicroBeta²		X	X			X

Luminescence specifications.

Detection instruments	Bottom read	Detector	Dynamic range	Sensitivity	Crosstalk
VICTOR Nivo	NA	Low Noise Photo Multiplier Tube	6 Logs	ATP Typically < 10 pM in Glow Assays ATP Typically < 100 fM in Flash Assays	< 0.02% for 96-Well B and W Isoplates < 0.02% For 384-Well
EnSight	X	Low Noise Photo Multiplier Tube	6 Logs	ATP < 10 pM (Glow) Firefly Luciferase < 1 fg	<0.02% for Grey Plates
EnVision	X	Dedicated Low Noise PMT for Luminescence, 1-2 Parallel PMT's for Other Technologies	6.5 Logs	ATP (384-Well Plate, 50 µl) < 10 pM	< 0.02% (382-Well)
MicroBeta²	X	1, 2, 6 or 12 Parallel PMTs	5.5 Logs	ATP <10 pM (Glow) Firefly Luciferase <1 fg	0.002% in White 96-Well OptiPlate

Microplates for luminescence assays.

We know you are working hard to produce the next big breakthrough and the last thing you need to worry about is sub-par quality in something so commonly used yet often overlooked as a microplate. That's why our microplates are designed to give you optimal performance, whether you are working with luminescence, fluorescence, or absorbance-based assays. The general go-to microplate color for luminescence assays is white as white plates offer the maximum reflection of ling and so result in a higher signal. However, depending on your particular luminescence-based assay a black or gray plate might be better suited for your needs. Below is an overview of the white and gray microplates we offer.

OptiPlate™: White polystyrene OptiPlate microplates provide excellent light reflection and the highest efficiency with low background for luminescence.

CulturePlate™: Ideal for work with cell-based applications, providing a sterile, tissue culture treated environment.

ProxiPlate™: A shallow well design brings the reagent into closer proximity to the reader's detectors and increases signal.

AlphaPlate™: Light gray polystyrene microplates ideal for eliminating cross-talk.

TopSeal™

Revvity's TopSeal™ is a range of plate seals that are applied to the top surface of the plate and are used to prevent evaporation or radioactive contamination during assay incubation steps and/or plate reading measurements. It is available as either a press-on adhesive or heat-activated seal and can be used for a wide array of applications in place of a lid.

For a full list of Revvity Microplates please visit our website

https://www.revvity.com/category/microplates

Time-challenged? Would added expertise help you advance?

When your research demands outstrip your valuable internal resources, look to Revvity to provide customized solutions to meet your luminescence detection needs. Our services are tailored, whether you need to outsource the entire assay development process, or simply get some consultative support—we can provide the level of service you need:

- Assay development
- Custom labeling services
- Custom microplate barcoding and coating
- Custom radiosynthesis
- Application/new product development
- Automation and liquid handling solutions
- System integration
- OEM partnerships

www.revvity.com

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For research use only.
Not for use in diagnostic procedures.