

ACCURATE.  
BRIGHTER.  
BETTER.



Luminescence Assays

  
**PerkinElmer**<sup>®</sup>  
*For the Better*



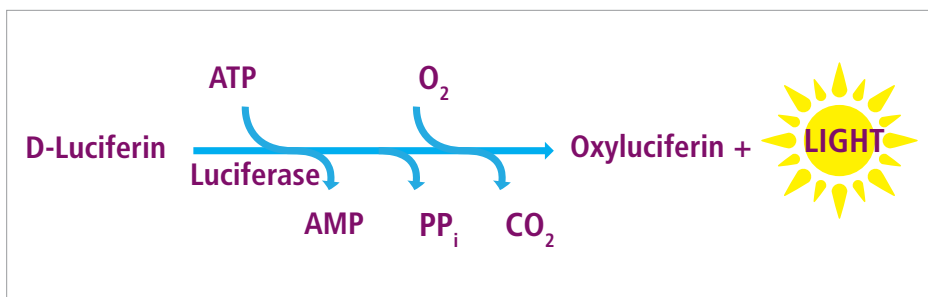
## STREAMLINED DETECTION. SIMPLY BRILLIANT.

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, as well as general kinase activity monitoring. Our luminescence assays include reporter gene, ATP-monitoring, and kinase assays.

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	Kinase Activity Assay
britelite <sup>®</sup> plus	ATPlite <sup>™</sup>	easylite-Kinase
steadylite <sup>™</sup> plus	ATPlite <sup>™</sup> 1step	
neolite <sup>™</sup>	ATPlite <sup>™</sup> 3D	
sensilite <sup>™</sup>	ATPlite <sup>™</sup> 3D 1step	
twinlite <sup>™</sup>	ATPlite <sup>™</sup> 3D	



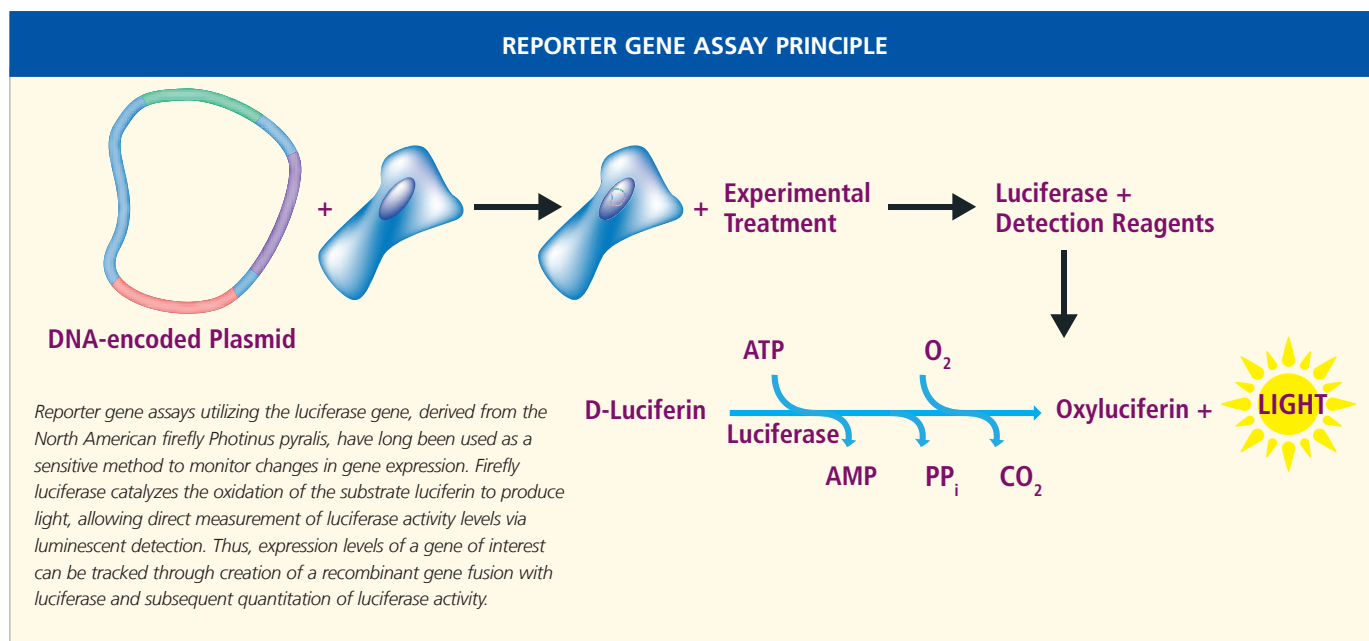


## INTENSITY. FLEXIBILITY. JUST RIGHT FOR EVERY ASSAY.

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, PerkinElmer 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





**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.

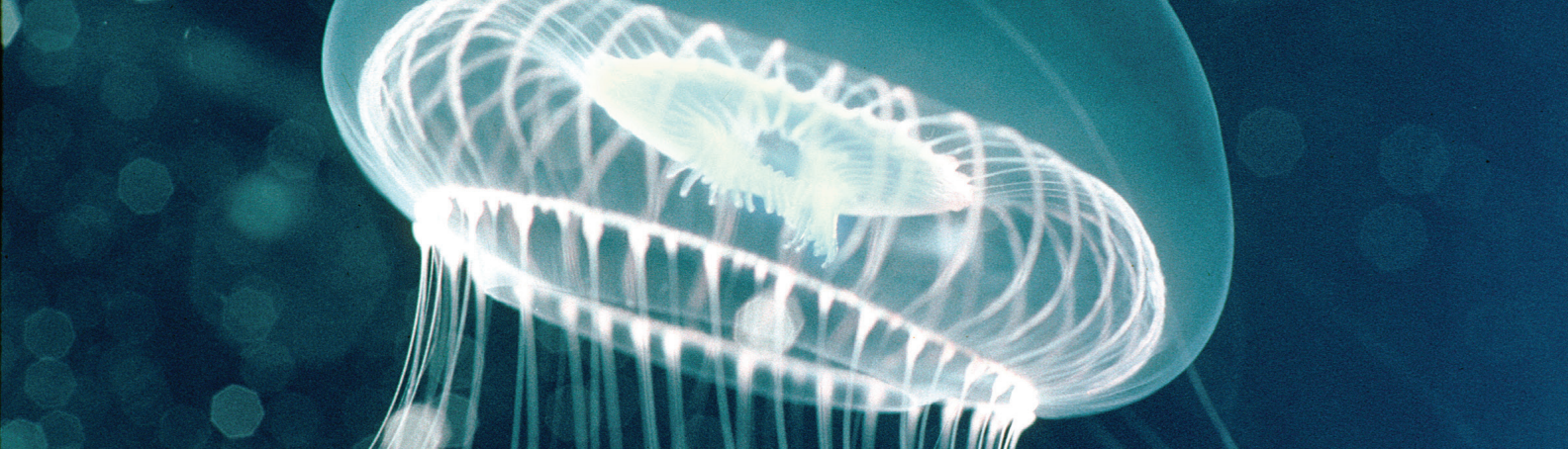
The PerkinElmer suite of luciferase detection systems brings the simplicity of reporter gene assays to a whole new level. All lites products offer superior performance, while still providing convenient one-step processing and ease of storage and handling.

	britelite™ plus <i>intensively sensitive</i>	steadylite™ plus <i>long-lived glow</i>	neolite™ <i>bright and stable</i>	sensilite™ <i>ultra sensitive</i>	twinlite™ <i>dual luciferase assay</i>
<b>Application</b>	Firefly Luciferase Reporter Gene Assays				Firefly and Renilla Luciferase Reporter Gene Assays
<b>Half-life</b>	0.5 hours	4-5 hours	2.5 hours	Flash	Flash
<b>Relative Sensitivity</b>	High	Moderate	Moderate	Very High	Very High
<b>Microplate Formats</b>	96, 384, 1536 wells	96, 384, 1536 wells	96, 384, 1536 wells	96, 384 wells	96, 384 wells
<b>Ideal For</b>	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

Part Number					Volume	Data Points*		
britelite™ plus	steadylite™ plus	neolite™	sensilite™	twinlite™		96-well plates	384-well plates	1536-well plates
6066766	6066756	6016716	6066726	6066706	10 mL	100	400	3,300
6066761	6066751	6016711	6066729	6066709	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 UP THE ATP LEVELS AT YOUR PACE.

### Fast, Reliable Measurement of Cytotoxicity and Cell Proliferation

ATPlite™ 1step and ATPlite™ are patented<sup>1</sup> 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 cytotoxic, 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

#### 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

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	1,000	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.

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.



## FAST, RELIABLE DETECTION OF ANY KINASE ACTIVITY IN A ONE-STEP, HOMOGENEOUS ASSAY FORMAT

The easylite-Kinase™ luminescence assay system monitors the amount of ATP remaining after completion of a kinase reaction. The assay is based on firefly luciferase for evaluating kinase activity. The reaction consists of adding a single reagent stopping the kinase reaction followed by measuring the luminescence signal. The brighter the signal, the more ATP remaining after the reaction. By monitoring kinase activity in this manner, a kinase inhibitor will lead to an increase, rather than a decrease, in the signal generated. Measuring the amount of ATP present results in a sensitive assay platform.

### KEY BENEFITS

- Detection of any ATP dependent kinase activity
- Homogeneous assay format
- Stable one-step reagent for fast results
- Versatile for small scale or high-throughput environments

Description	Part Number	Volume (mL)	Data Points*	
			96-well plates	384-well plates
easylite-Kinase	6066746	10 mL	200	1,000
	6066741	100 mL	2,000	10,000



## THROUGHPUT SOLUTIONS FOR EVERY NEED

PerkinElmer 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 Nivo*

### **VICTOR® Nivo™ Multimode Plate Reader**

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).



*EnSight*

### **EnSight® Multimode Plate Reader**

EnSight offers both fast well-imaging and multimode detection capabilities for target-based and phenotypic screening, all in a single benchtop instrument. With our unique ultrasensitive luminescence technology option, you can see significant increases in sensitivity and dynamic range, while reducing reagent and substrate costs. When used with our highly sensitive, homogenous lites® luminescence assays, you can generate optimal results for reporter gene, cytotoxicity, or cell-proliferation screening assays.



*EnVision*

### **EnVision® Multimode Plate Reader**

EnVision is our fastest benchtop multimode plate reader and it provides ultra-high throughput and maximum sensitivity, ideal for complex assays to drive your scientific breakthroughs. The ultrasensitive luminescence option boosts sensitivity by almost 10 times versus standard luminescence 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).



*MicroBeta² Plate Counter*

### **MicroBeta<sup>2</sup>® Plate Counter**

The MicroBeta<sup>2</sup> 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.

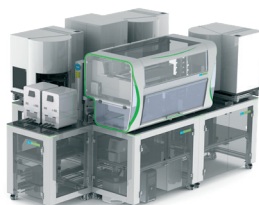




JANUS G3 Liquid Handler

### 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

### 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 fit 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
EnSight		X	X			X
EnVision	X	X	X	X	X	X
MicroBeta <sup>2</sup>		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)
MicroBeta <sup>2</sup>	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 TO SUIT YOUR NEEDS

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.

**AlphaPlate™:** Light gray polystyrene microplates ideal for eliminating cross-talk. Available in 96-well, 384 well, and 1536-well formats. Select AlphaPlates are available in 1/2 Area format.

**CulturePlate™:** Ideal for work with cell-based applications, providing a sterile, tissue culture treated environment with an opaque well bottom. Available in 96-well, 384-well and 1536-well formats.

**OptiPlate™:** White polystyrene OptiPlate microplates provide excellent light reflection and the highest efficiency with low background for luminescence. Available in 96-well, 384-well and 1536-well formats.

**ProxiPlate™:** A shallow well design brings the reagent into closer proximity to the reader's detectors and increases signal. Available in 96-well and 384-well formats.

**ViewPlate™:** Optimized for work with cell-based applications providing a sterile, tissue culture treated environment with a clear well bottom for microscopic visualization or bottom reading. Available in 96-well, 384-well and 1536-well formats.



Microplate	Color (Frame/Bottom)	Application	Format (Wells)	Case of 5	Case of 40	Case of 50	Case of 160	Case of 200
1/2AreaPlate	White/White		96	6005561	-	6005560	-	6005568
			384	-	-	-	-	
			1536	-	-	-	-	
AlphaPlate	Light Gray/ Light Gray		96	-	-	6052340*	-	-
			384	-	-	6004350	-	6004359
			1536	-	-	6004350	-	-
CulturPlate	White/White		96	-	-	6005680**	6005688**	6005689**
			384	-	-	6007680**	6005688**	6005689**
			1536	-	-	6004680**	-	-
OptiPlate	White/White		96	6005291	-	6005290	-	6005299
			384	6007291	-	6007290	-	6005299
			1536	6004291	-	6004290	-	6004299
ProxiPlate	White/White		96	6006291	-	6006290	-	6006299
			384	6008281	-	6008280	-	6008289
			1536	-	-	-	-	-
ViewPlate	White/Clear		96	-	-	6005688**	-	-
			384	-	6007480**	-	-	-
			1536	-	-	6004480**	-	-

\* Low-binding treated \*\* Tissue Culture treated

### TOPSEAL

PerkinElmer'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 more information: [www.perkinelmer.com/microplates](http://www.perkinelmer.com/microplates)



## TIME-CHALLENGED?

Would added expertise help you advance?



When your research demands outstrip your valuable internal resources, look to PerkinElmer 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

At PerkinElmer, we share our customers' commitment to finding answers to the mysteries of human health. With proven expertise in reagents, assays, cellular imaging, detection systems, automation and micoplates, we offer the right combination of technologies and service to enable scientists around the world to rapidly discover new therapies.

Contact us at 800.762.4000 or (+1) 203.925.4602 or visit [www.perkinelmer.com/contactus](http://www.perkinelmer.com/contactus).

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