

Product Information

Glo-Plate™ Blue LED Illuminator

Catalog Number: E90004

Specifications

General Dimensions (W x D x H)	9.6 x 7.1 x 1.4 inches (24.5 x 18 x 3.5 cm)
Light Dimensions (W x D)	5.7 x 5.7 inches (14.5 x 14.5 cm)
Voltage Input	100~240 V (converter included)

A universal outlet adaptor is provided for customers outside of North America. This product has a CE marking.

Product Description

The Glo-Plate™ Blue LED Illuminator is a light-weight, multi-functional LED light box. The LEDs in the Glo-Plate™ Blue were designed for optimal photolysis of PMAxx™- or PMA-treated samples in viability PCR applications.

While our PMA-Lite™ LED photolysis device was designed for use with microcentrifuge tubes, the Glo-Plate™ Blue device allows for flexible assay set-ups, including multi-well plates for high-throughput assays. The Glo-Plate™ Blue light area contains blue LED lights topped with a diffuser, allowing for even illumination across samples.

The Glo-Plate™ Blue LED Illuminator is also an excellent light source for developing the staining of gels stained with the visible blue DNA gel stain DNAzure®. DNAzure® is a novel, visible blue DNA gel stain with incredibly high sensitivity. After staining with DNAzure® the DNA bands first appear colorless, but then become dark blue after developing with light exposure. The benefit of using DNAzure® instead of fluorescent DNA dyes is that once the stain has developed, the DNA can be visualized by eye, without the need for imaging equipment. This is particularly advantageous for processes such as gel excision.

Glo-Plate™ Features:

- Provides even illumination across a wide light area.
- Four timer settings for 10, 15, 20 or 30 minutes of continuous illumination.
- Long-lasting LED lights with optimal emission for efficient activation of PMAxx™, PMA, EMA and other similar azido dyes.
- Can be used to develop visible blue DNA bands when using DNAzure® Blue Nucleic Acid Gel Stain.
- Unit has 120/240V internal converter and is provided with a universal outlet adaptor for customers outside of North America.

Compatible Dyes Include:

- PMAxx™ Viability Dye
- PMA Viability Dye
- EMA Viability Dye
- DNAzure® Blue Nucleic Acid Gel Stain

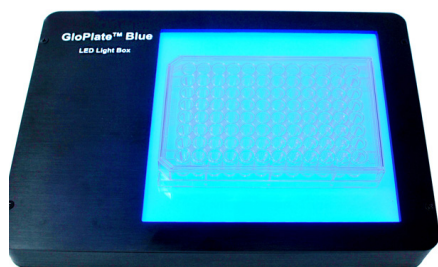


Figure 1. Glo-Plate™ Blue LED Illuminator.

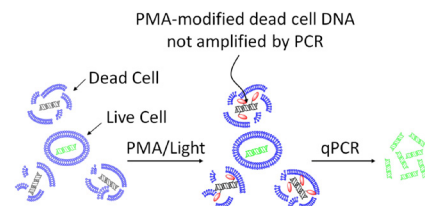


Figure 2. Principle of PMAxx™ and PMA modification for quantitation of viable bacteria by qPCR. The cell membrane-impermeant PMAxx™ and PMA dyes selectively inhibit amplification of DNA from dead bacteria, permitting selective quantitation of viable bacteria. See Figure 4 for example data.

Viability PCR Application Notes

PMA is a high affinity photoreactive DNA binding dye developed by Biotium. PMAxx™ is a new and improved viability dye developed at Biotium, for better live:dead discrimination by viability PCR. Both dyes are high-affinity DNA binding dyes. Upon photolysis using the Glo-Plate™ Blue LED Illuminator, the photoreactive azido group on the dye is converted to a highly reactive nitrene radical, which readily reacts with any hydrocarbon moiety at the binding site to form a stable covalent nitrogen-carbon bond, thus resulting in permanent DNA modification. The dyes are cell membrane-impermeant and thus can be used to selectively modify only DNA from dead cells with compromised membrane integrity, while leaving DNA from viable cells intact.

PMAxx™ and PMA inhibit PCR amplification of modified DNA templates, making the dyes useful in the selective detection of viable pathogenic cells by quantitative real-time PCR (Figure 2). Since Biotium first developed PMA dye, there have been hundreds of publications on the use of the dye in pathogenic bacterial detection related to food and water safety, medical diagnosis and biodefense.

Protocol for using Glo-Plate™ Blue in viability PCR

The following is a sample protocol for using the Glo-Plate™ Blue LED Illuminator for the light activation of cultured laboratory strains of bacteria treated with PMAxx™. For more detailed information on using PMAxx™ or PMA in viability PCR, please see the protocols on those product web pages.

Note 1: We recommend using PMAxx™ for viability PCR using the Glo-Plate™. PMA dye may be used instead of PMAxx™, but may require a longer light exposure. Light exposure time should be optimized for each sample type.

Note 2: Treatment of complex biological or environmental samples such as feces or soil may require optimization of sample dilution, dye concentration and light exposure.

1. Turn the Glo-Plate™ Blue LED Illuminator over and use the switches to set the desired length of time for photolysis (Figure 3). We recommend using 20 minutes photolysis time as a starting point and optimizing photolysis time as needed. Different sample types may require shorter or longer photolysis times. Samples treated with PMA may require a longer exposure time than samples treated with PMAxx™.
2. Place samples on the Glo-Plate™ Blue LED Illuminator. If using multi-well plates, we recommend using clear plates with flat bottoms.
3. Turn the Glo-Plate™ Blue LED Illuminator on using the power switch on the back of the unit.
4. The light will shut off after the time selected with the switches. If additional time is desired, you can either push the reset button on the back to repeat the same light exposure, or select a new time with the switches on the back. Turn the unit off using the power switch when your photolysis is complete.

DNAzure® Application Notes

DNAzure® Blue Nucleic Acid Gel Stain is an ultrasensitive reagent for visible staining of dsDNA in agarose gels or polyacrylamide gels. The sensitivity of this stain is comparable to fluorescent DNA gel stains. The limit of detection is 1 ng dsDNA or less. We do not recommend this stain for RNA or ssDNA.

Key to the technology is a DNA-binding dye that turns from colorless to deep blue upon exposure to bright light. Once developed, this blue dye remains visible, without the need for any further light exposure. The Glo-Plate™ Blue is able to quickly and efficiently develop the blue color in DNAzure®-stained gels, with dark bands typically visible after 15 minutes.

Protocol for using Glo-Plate™ Blue to develop DNAzure®-stained DNA gels

For more detailed information on using the DNAzure® agarose gel stain, please see the protocol on the DNAzure® product web page.

1. Stain your agarose gel for 20-30 minutes in 1X DNAzure® solution. Place the gel in a clear container, such as a clear plastic or glass dish, or saran wrap.
2. Turn the Glo-Plate™ Blue LED Illuminator over and use the switches to set the desired length of time of exposure (Figure 3).
2. Place the gel on the Glo-Plate™ Blue LED Illuminator.
3. Turn the Glo-Plate™ Blue LED Illuminator on using the power switch on the back of the unit.
4. The light will shut off after the time selected with the switches. If additional time is desired, you can either push the reset button on the back to repeat the same light exposure, or select a new time with the switches on the back. Turn the unit off using the power switch when your band development is complete.

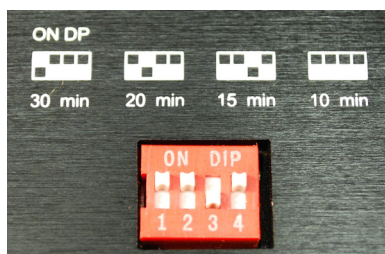


Figure 3. Switch positions for corresponding LED photolysis times. Black squares indicate the position of the switches. With the switch setting shown in this image, photolysis will occur for 15 minutes.

Sample data

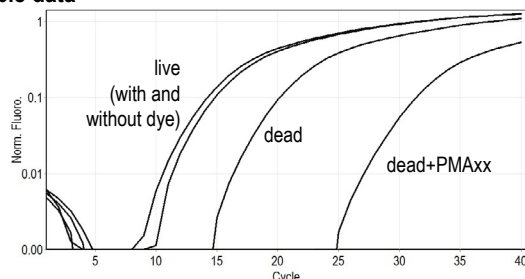


Figure 4. Viability PCR of *Listeria monocytogenes* using PMAxx and the Glo-Plate Blue Illuminator. Living and heat-killed *Listeria monocytogenes* bacteria were treated with 25 μ M PMAxx or left untreated. Photolysis was performed in a clear 96-well plate for 15 minutes on the Glo-Plate Blue. After DNA isolation, qPCR was performed using primers against the *Listeria monocytogenes* LLO gene. Amplification curves for the real-time PCR reaction show that PMAxx and Glo-Plate Blue treatment effectively decreased the Ct of the dead cells, but not the live cells.

Safety Information

The Glo-Plate™ Blue LED Illuminator is an electrical device. Plug the power cord into a properly grounded electrical outlet. Disconnect device from the electrical outlet before cleaning it. The Glo-Plate™ Blue LED Illuminator is not water-proof. Do not submerge in water. To clean the stage area, we recommend wiping down the surface with a small amount of 10% bleach or 70% ethanol, followed by a wipe with water. Do not soak. Do not look directly at the blue LEDs for a prolonged period of time. Although no clinical studies have been published, bright blue light is a possible risk factor for macular degeneration.

Glo-Plate™ Blue LED Illuminator
PSF006

Related Products

Cat. No.	Product
40069	PMAxx™, 20 mM in water
40019	PMA, 20 mM in water
40013	PMA, 1 mg
40015	EMA (ethidium monoazide), 5 mg
31038	PMA Enhancer for Gram-Negative Bacteria, 5X Solution
E90006	PMA-Lite™ 2.0 LED Photolysis Device
31033	PMA-PCR Bacterial Viability Kit, Salmonella
31034	PMA-PCR Bacterial Viability Kit, M. tuberculosis
31035	PMA-PCR Bacterial Viability Kit, Staph. aureus
31036	PMA-PCR Bacterial Viability Kit, MRSA
31037	PMA-PCR Bacterial Viability Kit, E. coli O157:H7
31050	PMA-PCR Bacterial Viability Kit, E. coli
31051	PMA-PCR Bacterial Viability Kit, Listeria
31053	PMA-PCR Bacterial Viability Kit, Legionella
41020	DNAzure® Blue Nucleic Acid Gel Stain, 100X
E90005	Gel-Bright™ Laser Diode Gel Illuminator
41005	GelGreen® Nucleic Acid Gel Stain, 10,000X in water
41003	GelRed® Nucleic Acid Gel Stain, 10,000X in water
31028	AccuClear® Ultra High Sensitivity dsDNA Quantitation Kit with 7 DNA Standards
31066-T	AccuGreen™ High Sensitivity dsDNA Quantitation Kit, trial size (for Qubit®)
31041-T	Forget-Me-Not™ qPCR Master Mix, trial size
31043-T	Forget-Me-Not™ Universal Probe Master Mix, trial size

Please visit our website at www.biotium.com for information on our life science research products, including environmentally friendly EvaGreen® qPCR master mixes, fluorescent CF® Dye antibody conjugates and reactive dyes, apoptosis reagents, fluorescent probes, and kits for cell biology research.

Warranty

Biotium warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of purchase. If a defect is present, Biotium will either, at its option, replace the product or refund the purchase price at no charge to you, provided the product is returned during the warranty period. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or from ordinary wear and tear. For your protection, items being returned must be insured against possible damage or loss. Biotium cannot be responsible for damage incurred during shipment of the instrument; it is recommended that you save the original packing material in which the instrument was shipped. This warranty shall be limited to the replacement of defective products. IT IS EXPRESSLY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY.

Obtaining Service

Contact Biotium Technical Support at 800-304-5357 or send an email to techsupport@biotium.com and describe the problem(s) you are experiencing. Carry out any suggested modifications or tests. DO NOT ship a device to us without first obtaining a Return Authorization from us. If it is determined by the Biotium Technical Support representative that the device should be replaced, a Return Authorization number will be assigned and you will receive instructions for the return. If the device is under warranty, Biotium will replace the unit, and pay for return shipment.