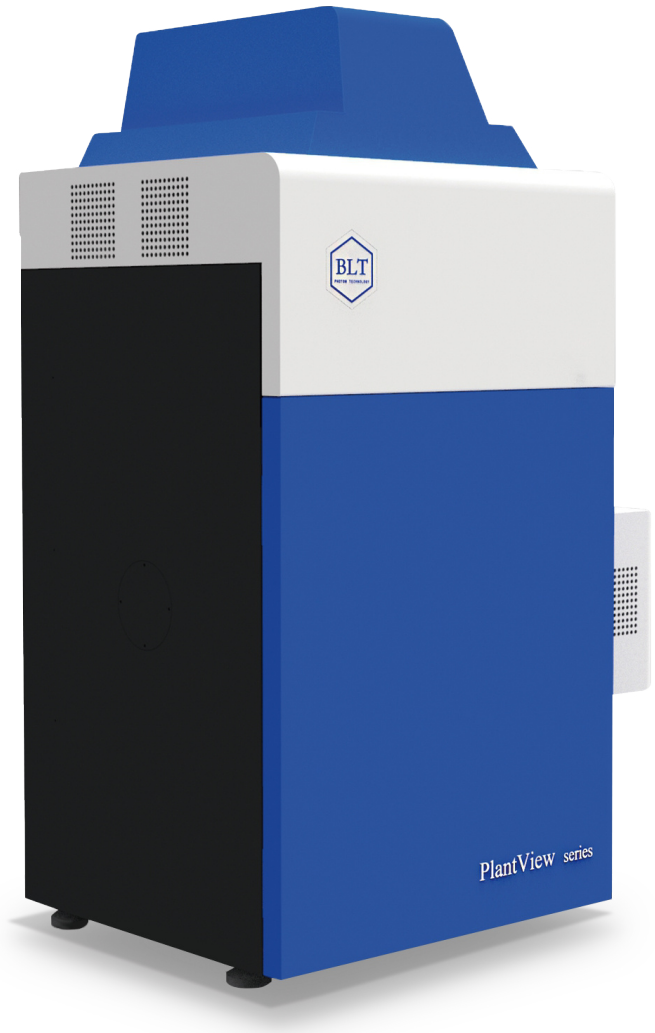
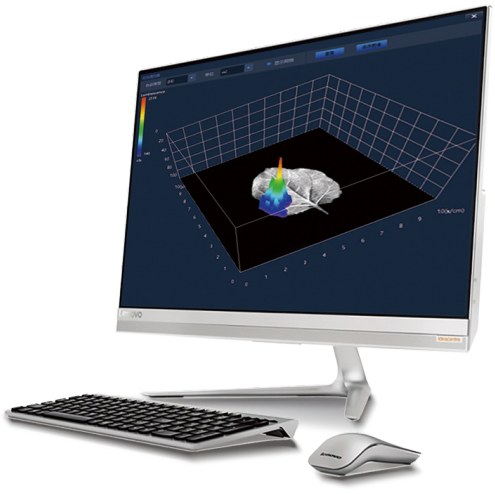
BLT
PHOTON TECHNOLOGY

PlantView100

In Vivo Plant Imaging System





Features

▶ Large field of view, dual cameras

The maximum imaging area of PlantView100 can reach 280mm × 280mm, which can not only image the entire plant, but also can realize batch imaging of seedlings, seeds, fruits, cultured plants and other samples. The unique dual-camera mode can be equipped with a side camera in addition to the top main camera, allowing long-term continuous observation of plants from seed germination to the natural vertical growth of seedlings.

▶ Super sensitive, high quality

It adopts an ultra-high quantum efficiency, deep cooling scientific research grade CCD camera with a cooling temperature as low as -100°C, and has strong capture ability for weak fluorescence or luminescence; it is equipped with a fully sealed anti-interference dark box to avoid external light sources and cosmic rays Impact on imaging; equipped with OD7 high-quality filter and background interference subtraction function, it ensures ultra-high sensitivity and imaging quality while fast imaging.

▶ Global shadowless symmetrical LED excitation mode

The fluorescent light path system all uses high-power narrow-band LEDs, which have higher intensity, smaller light attenuation, and a circular global arrangement with more uniform light output. The system can be equipped with up to 20 excitation light sources and 10 emission filters to meet more fluorescence imaging needs.

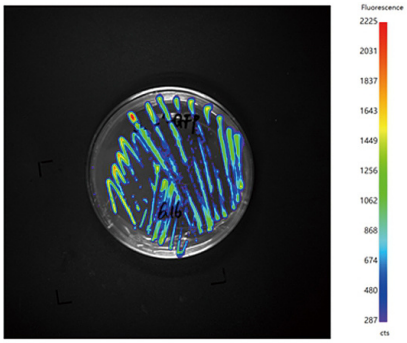
▶ Multifunction

Equipped with a plant light simulation module, which can be used for experiments on plant growth rhythm and photoperiod. It also has a universal interface to connect a variety of devices, making it easy to simulate a variety of special experimental environments. It can also be connected to X-Ray imaging modules, UV or blue light transmission stages, etc. to meet more experimental research needs.

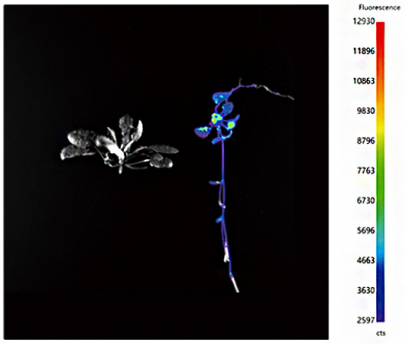
▶ Smart software, professional and reliable

The user-friendly software can automatically control the lifting and lowering of the sample stage and the intensity of various light sources, preset multiple imaging modes, one-click fast imaging, free switching of multiple pseudo-colors and quantitative units, quantitative analysis functions. It has internationally recognized standard units (p/s/cm²/sr), complies with GLP original data and operation record regulations, and can directly output experimental reports. Simplified operation, quick to get started, free software upgrades.

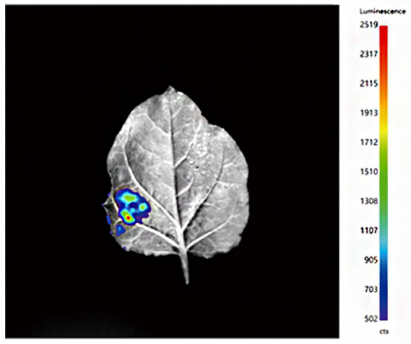
Application



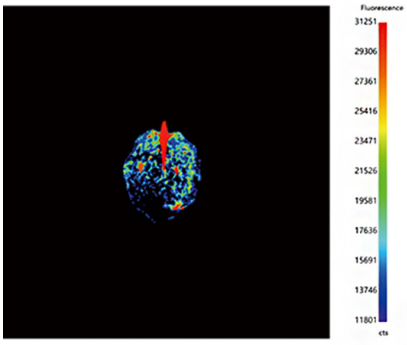
Strain screening (GFP)



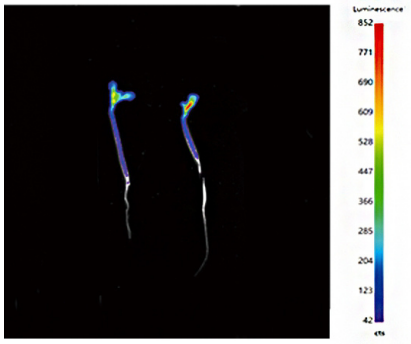
Whole plant gene expression (Luc)



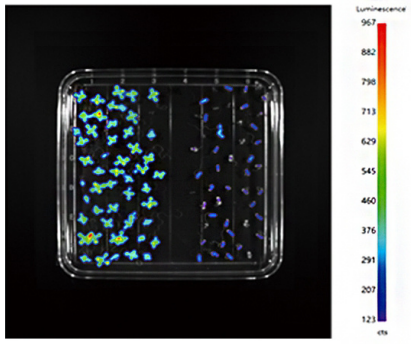
Protein interaction (Luc)



Viral infection (Luc)



Plant Defense Mechanism (Luc)

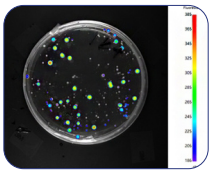


Chlorophyll fluorescence

Module

▶ Fluorescence excitation module

It can be equipped with up to 20 excitation light sources of different wavelengths and 10 emission filters for global fluorescence excitation, supplemented by high-quality narrow-band filters to minimize background fluorescence interference and sample-generated interference. Autofluorescence, better imaging effect.



Global fluorescence excitation

High quality narrowband filters

▶ Lateral imaging module

It consists of a side-positioned scientific research-grade refrigerated CCD camera, a fully automatic rotating platform and a high-throughput sample adapter for 100×100mm culture tubes, thus enabling high-throughput sample image collection and research on the turntable through the side-positioned CCD camera. Seedling and root growth conditions.

Side camera

High-throughput rotation stage

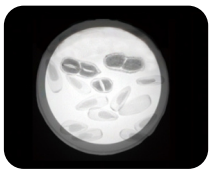
▶ Lighting simulation module

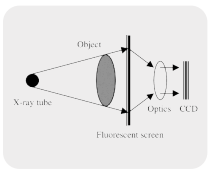
PlantView100 is equipped with 2 LED daylight simulation boards, including four light sources: blue, white, red and near-infrared. The intensity and duration of each spectrum LED light can be controlled through software editing to simulate the growth of plants under different spectrums and intensities. Equipped with a cold-water circulation module to avoid excessive temperature inside the box.

Lighting simulation module

▶ X-ray imaging module (optional)

X-Ray has strong penetrability and can position and image plant samples, thereby better distinguishing the internal structure and water content, and greatly expanding the scope of research. It can be applied to research related to breeding, diseases, ecology, etc.



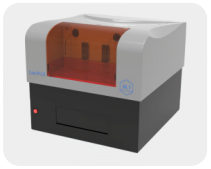


Lighting simulation module and principle

▶ Cell marker identification module (optional)

The cell marker identification module is divided into single-tube type and 96-well plate type, which can accurately quantify, output standard curves, identify and screen luminescently labeled strains, thereby making the experimental data of plant samples more accurate.

Highly sensitive tube luminescence detector



High sensitivity plate luminescence detector

Smart

- Fully automatic intelligent instrument control, easy to use, fast imaging
- A variety of experimental plans can be preset, modular design, and process-based operation
- One-click multi-batch data output, quantitative analysis function, automatic conversion to international units, output in spreadsheet format (including image files, etc.)
- The vivid color image overlay function makes the imaging effect more natural
- Contains multiple algorithm functions such as fluorescence spectrum separation technology, automatically subtracting self-luminescence or fluorescence background to improve signal-to-noise ratio
- Comes with powerful image processing functions and geometric image analysis functions
- In compliance with GLP good laboratory practices, raw data and processed data are archived separately
- Self-developed intelligent software uses the number of photons per sencond that leave the surface of a target body of one square centimetre and radiate intp a stero angle (p/s/cm²/sr), ensuring consistent results obtained under different imaging parameters.

Cooperation

Camera	
Camera	Back-thinned, back-sensing cold CCD
Cooling temperature	Low to -100°C
Resolution	1024×1024
Pixel size	13μm× 13μm
Spectral sensitivity range	300nm - 1050nm
Quantum efficiency	＞95%@520nm-630nm, ＞80%@460nm-780nm
Lens	F 0.95 or F 0.8 lens (optional), autofocus
Dark current	0.0001e^- /pixel/s(typical)
Read out noise	2.9 e^- @50KHz
Imaging field of view	280mm×280mm, more suitable for imaging plant samples
Components	
light source	Narrowband LED light source, lifespan >50,000 hours
Filter quality	Light transmittance ≥95%, interception depth: OD7
Excitation filter	Standard configuration: 5 groups: Ex465nm/GFP, Ex535nm/ds-Red/RFP, Ex605nm/Cy5, Ex675nm/Cy5.5, Ex745n/ICG (filters can be upgraded and customized, up to 20 bits)
Emissionfilter	Standard configuration: 5 groups: Em540nm/GFP, Em600nm/ds-Red/RFP, Em680nm/Cy5, Em740nm/Cy5.5, Em820nm/ICG (filters can be upgraded and customized, up to 10 bits)
Lighting simulation module	Two daylight simulation boards, including blue (470nm), white, red (660nm) and near-infrared (730nm) four-color narrow-band LED lights, and the light intensity and duration of each color are controllable; equipped with a cold-water circulation module
Stage	Z-axis automatic lifting
Size	1100 mm×520 mm×546mm (H× W×D)
weight	85kg
Upgrade module	
Lateral imaging module	High-throughput rotating stage: 100mm square culture straight adapter, software-controlled automatic rotation and positioning Lateral camera: scientific research-grade high-sensitivity refrigerated CCD, -65°C; resolution: 6 million pixels, 2688×2200; pixels Size: 4.54 μm×4.54 μm
X-ray imaging module	Safety standards comply with CE certification; anode voltage: 20-80kV; anode current: 0.2-0.7mA; focus size: 30-50μm; equipped with rare earth intensifying screen; equipped with special X-ray filter
Cell marker identification module	Detector: ultra-sensitive PMT; sensitivity: ≤10 amol ATP or ≤20 zmol luciferase; dynamic range: ≥7 orders of magnitude
High-throughput cell marker identification module	Semiconductor refrigeration PMT (20°C constant temperature); equipped with 2 in-situ automatic samplers, accuracy ≥98%, 10-100 μL, recyclable; interference between wells: ≤$1.0E^{-5}$

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