



CytoSMART Lux3 BR

Cell culture monitoring with high image quality

Live-cell imaging enables researchers to determine not only whether, but also when and how certain cellular events occur in culture. In order to achieve the high image quality standards required for data analysis and publication, live-cell imaging is currently predominantly performed using a microscope with a stage top incubation box. However, the regulation of the culture conditions in the incubation box is more sensitive to variations compared to a dedicated incubator. Using the CytoSMART Lux3 BR, it is no longer necessary to choose between optimal environmental conditions for live-cell imaging and image quality.

The CytoSMART Lux3 BR can:

Monitor your cells inside the incubator

Cells in a stage top incubation box are maintained in a sub-optimal culture environment, whereas they experience an environmental shock when taking them from the incubator for imaging at specific intervals. The CytoSMART Lux3 BR is designed to work inside the incubator, without disturbing the temperature and airflow. This prevents fluctuations in temperature or CO₂-level, while it enables you to perform your long-term imaging experiments at the optimum culture conditions for your cells. Simply place your culture vessel on the surface of the device, follow the intuitive steps of the CytoSMART Lux3 BR app, start your experiment and walk away. The images of running or finished experiments can be accessed, processed and analyzed from any desired location using the CytoSMART Cloud-based environment. Therefore, cells can be monitored without having to open the incubator, and even without being in the lab.

Accurately quantify cell culture data

The integrated CytoSMART Cloud-based image analysis facilitates output parameter quantification: confluence as well as wound closure in a scratch assay can be determined. These read-outs can be relevant for e.g., cell viability and growth, collective cell migration and wound healing, and more. The automated quantification minimizes avoidable variation in results.

Produce images suitable for publication

Clear brightfield images can be captured using the CytoSMART Lux3 BR. In both x- and y-direction, the 2072 pixels combined with the 1.45 mm field of view provide a resolution of 0.7 µm/pixel. Even at the commonly required image resolution of 300 dots per inch for printed (scientific) publications, these images can fill the entire page width if desired, without compromising the image quality (see figure 1).



<https://cytosmart.com/products/cytosmart-lux3-br>

**Research use only. Not intended for diagnostic purposes.*

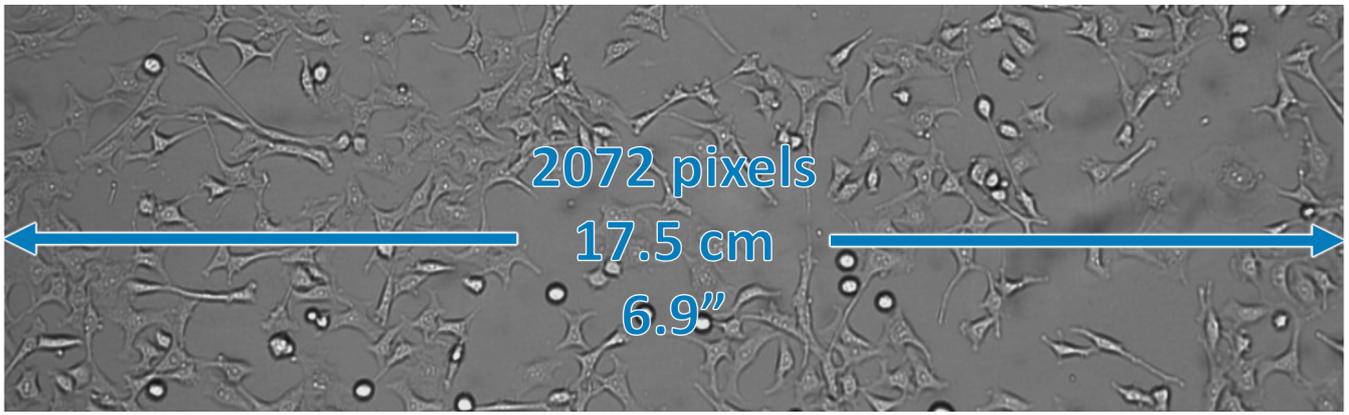


Figure 1. Even at 300 dots per inch, the images made using the CytoSMART Lux3 BR can be displayed at full page width, without compromising image resolution and quality.

Expand to a multiple-device setup

A setup with the CytoSMART Lux3 BR can easily be expanded to two or even up to four devices, which are connected to a single laptop, while individual control is still possible. Since all devices of the CytoSMART Lux3 BR Duo Kit or Multi Lux3 BR can be placed directly next to each other in the same incubator (see figure 2), the monitored cultures are maintained in an identical culture environment. This facilitates optimal simultaneous comparison of experimental groups - with minimal variation in environmental factors - but is also convenient for large research groups.



Figure 2. With the CytoSMART Lux3 BR Duo Kit or Multi Lux3 BR, two or up to four devices can be placed on one incubator shelf and connected to the same laptop, for simultaneous imaging experiments.

CytoSMART Lux3 BR / Lux3 BR Duo Kit / Multi Lux3 BR specifications

Dimensions (per device)	166 x 140 x 135 mm (L x W x H)
Weight (per device)	1.3 kg
Optics	Brightfield with digital phase contrast
Magnification	10x fixed objective; additional 2x digital zoom
Light source	LED
Camera	6.4 MP CMOS
Field of view (per device)	1.45 x 1.45 mm; 2072 x 2072 pixels
Resolution	0.7 μm /pixel
Output options	Raw images (.jpg), processed images (.jpg, .tiff), processed videos (.mp4), processed data (.xlsx)
Operating environment	5-40 °C, 20-95% humidity
Number of devices	1 (Lux3 BR) 2 (Lux3 BR Duo Kit) 4 (Multi Lux3 BR)
Well-plate types	6-384 well-plates (one fixed field of view per device)
Culture flask types	HYPERflask, T25-T225 and triple flasks (one fixed field of view per device)
Other culture vessels	Petri dish, microfluidic chip, chemotaxis slide, any other transparent vessel <55 mm high (one fixed field of view per device)



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