

Frequently Asked Questions (FAQ)

CytoSMART Omni

This Frequently Asked Questions document has been designed to help answer some of the most asked questions related to CytoSMART live-cell imaging. Here you can find detailed answers on the following subjects:

- Compatible culture vessels
- System applications
- Technical specifications
- Software and hardware requirements

Q 1. How does the OMNI work?

The CytoSMART Omni is an inverted brightfield microscope that uses digital phase contrast imaging to visualize live cells without the addition of fluorescent or colorimetric dyes. Samples are illuminated using a LED and recorded with a moving camera that is positioned below the sample stage. The camera scans the sample stage and acquires a series of sequential images. One complete scan takes approximately 6 minutes, generating around 6500 snapshots. These are stitched to form an image with a surface area of 99 mm × 131 mm. The images are then uploaded to the CytoSMART™ Cloud, where they can be analyzed using our image analysis algorithms.

Q 2. Can I specify recording interval?

You can specify the interval rate between 1 - 24 hours or choose to perform a single scan.

Q 3. What is the magnification of the OMNI?

The magnification is equivalent to a 10x objective of a standard brightfield microscope.

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Q 4. What type of image analysis algorithms are available?

Confluency, scratch analysis, and colony detection are currently a part of the image analysis software package. Additionally, users have the option to download the raw image data and perform their own analysis.

Q 5. Can the OMNI be used inside an incubator?

Yes, the CytoSMART Omni is designed to be used inside a cell culture incubator. The hardware and electronics can operate at 5 - 40 °C and between 20 - 95% humidity.

Q 6. Do I need to label my cells to perform image analysis?

No, CytoSMART's image analysis algorithms are optimized to be used in label-free assays, so you don't have to add any dyes to your culture, providing a non-invasive analysis of your cells.

Q 7. Is a computer required to operate the OMNI system?

Yes, the device can only be used with a desktop or laptop running on Windows 10 or above, with a USB 3.0 port. A WiFi or wired Ethernet connection is necessary to be able to connect to the CytoSMART™ Cloud for data storage and analysis.

Q 8. Which culture vessels are compatible with the OMNI system?

Any culture vessel that is lower than 55 mm (height of the light arc) can be scanned. Some examples include 6 - 384-well plates, petri dishes, T25 - T225, triple flasks, and HYPERFlasks. However, the size of the scan area is limited to 99 mm × 131 mm, which fits a complete T175 flask.

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Q 9. Can the OMNI be used in a clean room?

Yes, after sterilizing with ethanol (70%) or isopropyl alcohol (IPA), the device can be used in a cleanroom. Do not use acetone to clean the device, also the device cannot be autoclaved.

Omni

Real-time whole plate cell culture monitoring and analysis whenever and wherever you need

