

Live Cell Imaging Microscope Confocal Scanner Box

Cell Voyager CV1000

Along with the development of biotechnology research in basic areas such as medicine, biology, pharmacy and agriculture, and also in application areas such as drug discovery, long-term live cell imaging is becoming popular. The CV1000 is an all-in-one confocal system that enables long-term live cell imaging (creates multi-color confocal fluorescence image and transillumination image) while culturing cells. It requires no dark room facilities.



CellVoyager CV1000

FEATURES

- Integrating all functions required for live cell imaging

Components best suited for live cell imaging are integrated in a compact enclosure: a Nipkow disk confocal scanner with microlens array, excitation laser light sources, an ultra-high sensitivity EMCCD camera that can capture weak fluorescence, a high-precision electric XYZ stage, and an incubator. Integrating all the functions in this way eliminates the necessity of dark room facilities and makes it possible to observe live cells on a lab bench.
- Stable incubation environment

Controlling the temperature in the measurement unit in the enclosure suppresses thermal expansion of the optical system and precisely maintains the temperature of the attachment set in the stage incubator. The attachment with environment control function is suitable for long-term cell culturing since it can perform forced humidification with a water bath in addition to control of the temperature and CO₂ concentration.
- Cellular-protective confocal system

The confocal scanner unit suppresses phototoxicity and fluorescence photobleaching caused by laser beams to a minimum and ensures multicolor, long-term 3D observation of live cells.
- Timely observation

Equipped with various functions to reduce complicated settings for observation, the confocal scanner unit provides timely live cell imaging, never missing the moment for observation.

 - Functions

Autofocus: Laser-based and image-based
Multi-point imaging, image tiling: For multiple and wide area

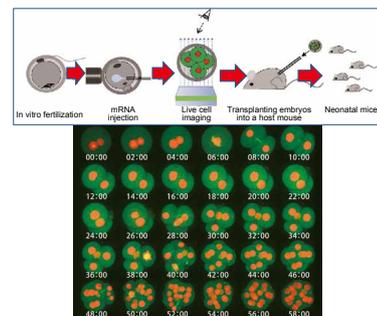
- observation
- Variable rate time lapse: Change imaging intervals during a specific period.
- Adjustment of imaging areas: Move the stage according to the behavior of the target.
- Archives viewer: View recorded images while capturing current images.

SPECIFICATIONS

- Optical system
 - Confocal system: Nipkow disk with microlens array
 - Excitation laser wavelength: 405, 488, and 561 nm
 - Transillumination for bright field: LED light source
 - Objective lens: 10× to 100× (supporting water or oil immersion and long working distance)
 - Camera: High sensitivity EMCCD camera and cooled CCD camera (selectable)
- Drive system
 - High-precision electric XY stage, electric Z-axis motor
- Environment control for stage incubator
 - Temperature range: 30 to 40°C (room temperature + 5°C or more)
 - Humidity control: Water bath humidifier (forced type)
 - CO₂ concentration: 2 to 7%
- Output Image:
 - 16-bit TIFF, JPEG, and PNG Video: AVI

APPLICATIONS

With low phototoxicity and low photobleaching, the CellVoyager CV1000 can observe specimens vulnerable to phototoxicity for a long time. Even after a 60-hour observation, early mouse embryos developed into neonatal mice without any problems.



Images of long-term observation of early mouse embryos
Each image is a projection with the maximum intensity among 51 z-sectional images.

Courtesy of: Dr. Kazuo Yamagata, researcher, the Center for Developmental Biology, RIKEN
(Currently, research associate professor of the Research Institute for Microbial Diseases, Osaka University)

Contact us:
To Yokogawa Japan:
<http://www.yokogawa.com/scanner>
E-mail: csu_livecell_imaging@cs.jp.yokogawa.co.jp
For worldwide locations, please see the back cover.

CellVoyager is a registered trademark of Yokogawa Electric Corporation.