

# BIOPHOTONICS

BRINGING LIGHT TO THE LIFE SCIENCES®



PHOTONICS  
MEDIA [photonics.com](http://photonics.com)

Monthly newsletter focusing on how light-based technologies are being used in the life sciences. Includes news, features and product developments in lasers, imaging, optics, spectroscopy, microscopy, lighting and more. Manage your Photonics Media membership at [Photonics.com/subscribe](http://Photonics.com/subscribe).



### Quantum Dots Put Focus on Neuronal Imaging

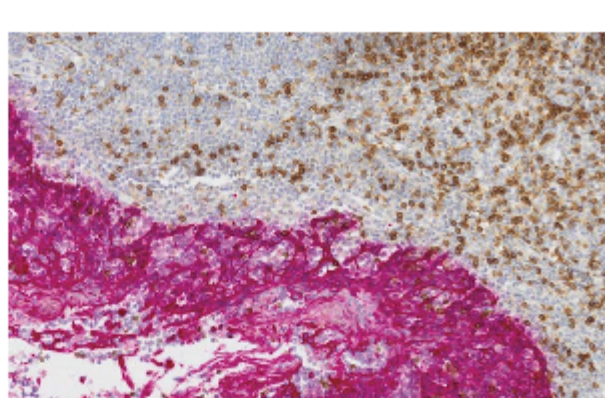
Despite increasing efforts to solve the puzzle that is the workings of the human brain, scientists' current understanding of the brain's functional interconnections remains limited. As the most complex organ in the human body, the brain is an immense network of neuronal cells capable of sending signals to receptors in the rest of the body. These signals begin as chemical changes, such as rapid variations in ion concentration through sodium and potassium (Na<sup>+</sup>/K<sup>+</sup>) ion channels in the neuronal cell membranes, which in turn result in electrical potential changes across the plasma membrane.



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### Microscopic Methods Reveal Holistic Picture of Sample

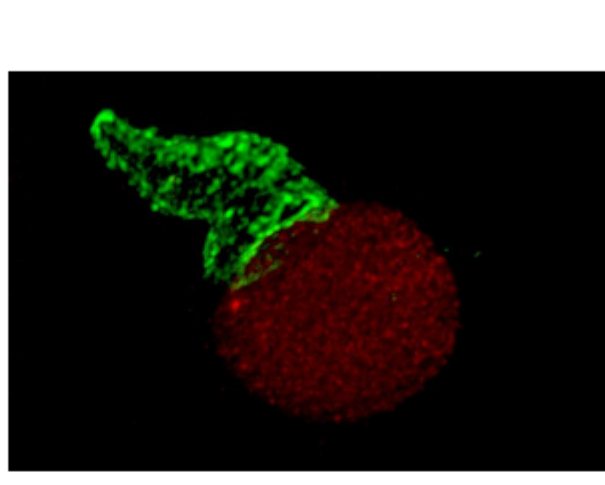
Whole slide imaging is a method principally employed when scientists need to image a large, relatively two-dimensional sample that expands beyond a single microscope field of view. Typical applications include imaging of histological tissues that have been cut into thin slices and placed on a glass slide.



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### Lattice Light-Sheet Microscopy Tool Supports 4D Data Analysis

Researchers at the University of Chicago have designed a multidimensional imaging analysis pipeline for lattice light-sheet microscopy. They set out to study T-cell function using high-dimensional microscopy, but then identified the need for an effective method of analysis.



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## ..: Featured Products

### TracePro Optics and Illumination Software

#### Lambda Research Corp.

TracePro combines a graphical user interface with solid modeling, Monte Carlo ray tracing, analysis features, CAD import/export, optimization methods, and a complete and robust macro language to solve a wide variety of problems in illumination design and optical analysis.

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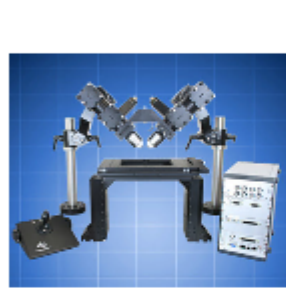
### Bring Your Product to Life

#### Optikos Corporation

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### Light Sheet for Cleared Tissue

#### Applied Scientific Instrumentation Inc.

A flexible and easy-to-use

SPIM configuration optimized to image large cleared samples. The sample is mounted horizontally on an XYZ stage. Two multi-immersion objective lenses are held in an upright "V" geometry for light sheet illumination and detection.

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### CELESTA Light Engine

#### Lumencor Inc.

Lumencor's CELESTA Light Engine delivers exceptional brightness and speed. This laser-based, solid-state illuminator is designed to support today's most demanding multidimensional fluorescence microscopy applications.

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### Dual Selective Plane Illumination Microscopy for Cleared Tissue (ct-dSPIM)

Allows for dual views of large samples such as cleared tissue (ct).



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### CELL BIO virtual 2020

An Online ASCB | EMBO Meeting

### THE ONLINE EVENT FOR CELL BIOLOGISTS AROUND THE GLOBE

Abstracts accepted for virtual presentation

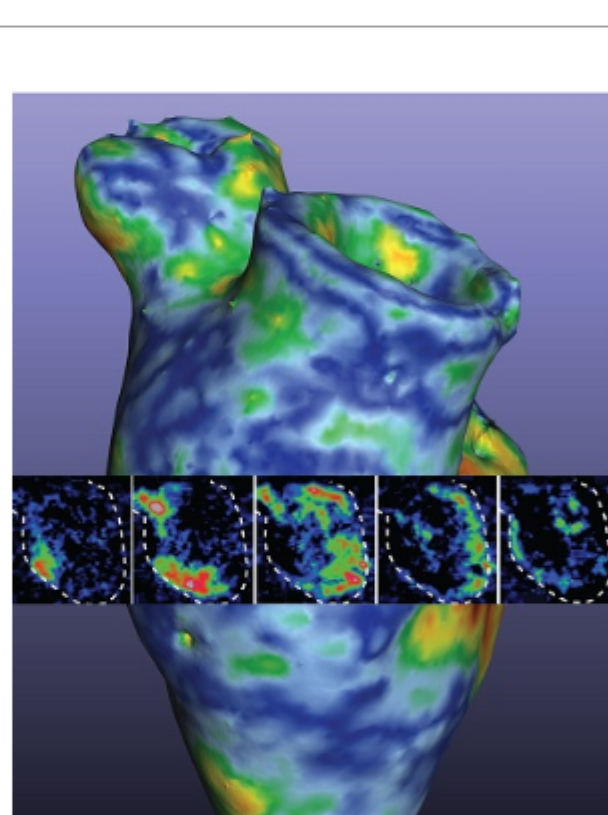
[Learn More >>](#)

## ..: In Case You Missed It

### Light Helps Pump Life into Heart Muscle

Although it can be difficult to get heart muscle cells to propagate in large numbers, a team of researchers at the University of Minnesota has found a way to use 3D printing and light-induced excitation to create a living heart pump that has broad implications in medicine.

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### Tunable Laser Determines Best UV Wavelengths for Germ Eradication

While awaiting full access to their labs due to COVID-19 restrictions, scientists at the National Institute of Standards and Technology (NIST) have taken the time to report on research conducted in 2012 on the disinfection of drinking water using ultraviolet (UV) light. The research was published online in July 2020 by the Review of Scientific Instruments.

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### Flickering Light Mobilizes Brain Chemistry That May Fight Alzheimer's

Previous experiments using flickering light to treat neurodegenerative disease have shown promise, and now, researchers at the Georgia Institute of Technology (Georgia Tech) may have discovered how the flicker works. They found that exposure to light pulsing at 40 hertz (Hz) — 40 beats per second — caused the brains of healthy mice to release a surge of signaling chemicals that could help fight Alzheimer's disease.

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## ..: Upcoming Webinars



### LED Lighting for Fluorescence Microscopy: A Sustainable Illumination Option

Tue, Sep 22, 2020 10:00 AM - 11:00 AM EDT

This webinar, presented by Excelitas Technologies, will present the recent advancements in LED technology that have created an opportunity for LEDs to replace arc lamps for a variety of fluorescence imaging applications. Presenter Kavita Aswani, Ph.D., will address the development of high-power LEDs for the green excitation range, a wavelength that has traditionally been challenging for LEDs. She will also discuss the many advantages of using LEDs for microscopy systems in life sciences, including sustainability.

[Register Now](#)

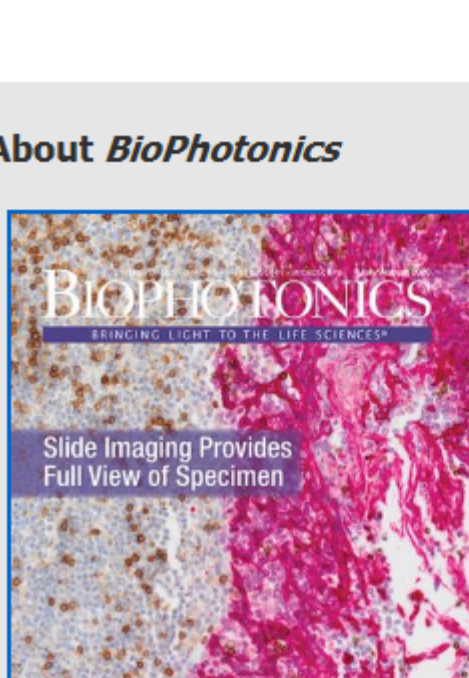
## ..:Next Issue:

### Features

Biothermophotonics, Hand-Held Microscopy, Vibrational Spectroscopy, and more.

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazine *BioPhotonics*. Please submit an informal 100-word abstract to Senior Editor Doug Farmer at [Doug.Farmer@Photonics.com](mailto:Doug.Farmer@Photonics.com), or use our online submission form [www.photonics.com/submitfeature.aspx](http://www.photonics.com/submitfeature.aspx).

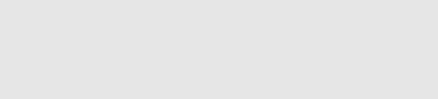
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