

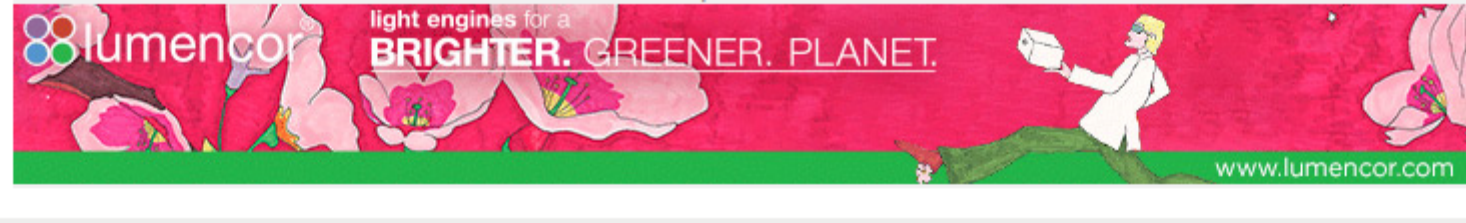
# BIOPHOTONICS

BRINGING LIGHT TO THE LIFE SCIENCES®

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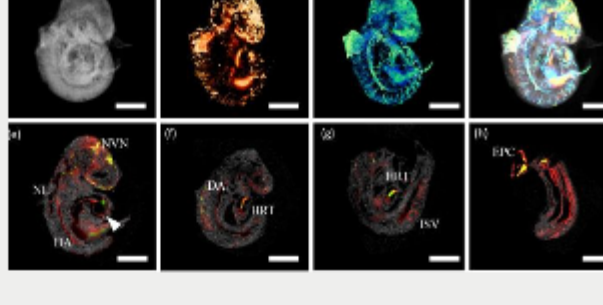


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## Researchers Combine OCT and 3D Microscopy to Image Embryos

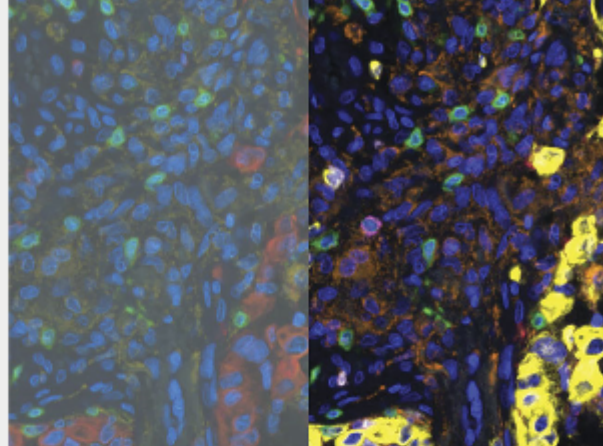
To help researchers and clinicians better understand the cellular-level events that occur during embryonic development, a team from the University of Houston and Baylor College of Medicine is developing a new technology to allow simultaneous imaging of embryonic structural development and the molecular underpinnings that occur in the developing circulatory system.



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## Multispectral Imaging Aids Wound Healing, Pathology Research

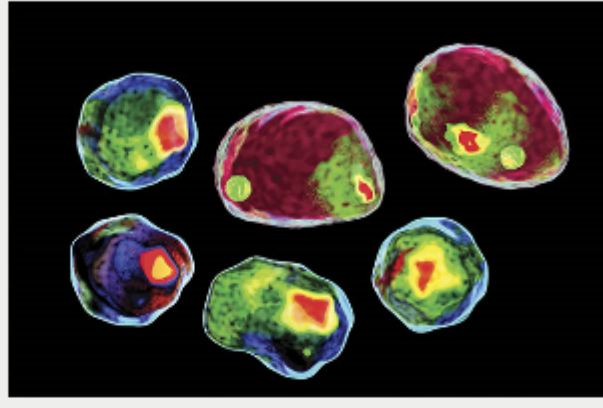
From airborne mapping to astronomical imaging to manufacturing inspection, multispectral imaging (MSI) has long been the go-to tool for extracting crucial details, often from distant views. Today, MSI is making promising inroads in biomedical applications, where its capacity for noninvasive, cost-effective imaging delivers customizable information in real time.



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## Innovations in Flow Cytometry Expand Its Use in Clinical Diagnostics

The outstanding achievements of immunologists James P. Allison and Tasuku Honjo — winners of the 2018 Nobel Prize for medicine for their discovery of cancer therapy by inhibition of negative immune regulation — are at the forefront of an active research field that will soon enable us to “educate” the immune system to fight specific cancer cells. The research could lead to a cure for many cancer forms, likely reducing the reliance on chemotherapy.



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## Featured Products



### LIAD Lock-in Amplifier Detectors

**MKS/Newport**

Ideal for calibrated power measurement of very low level light sources, LIAD detectors are used in conjunction with chopped (at 18 Hz) CW or quasi CW radiation. Wavelengths range from 0.15 to 12 μm, power measurement down to 300 fW, and capable of a pulsed source with a 200 Hz or higher frequency.

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### Nanopositioning for High Resolution Imaging

**PI (Physik Instrumente) LP, Piezo Mechanics**

Significantly higher resolved images, faster processing times, and further insight into the functionality of molecular machines within cells are demanding the nanopositioning precision provided by piezo-based stages and systems.

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### The Next Generation Comes to Light

**Lumencor Inc.**

Lumencor's new Spectra III Light Engine.

- Breadth: Eight spectrally optimized sources for DAPI, CFP, GFP, YFP, Cy3, mCherry, Cy5, Cy7 excitation
- Power: ~500mW / output, ~4W total
- Control: Exceptional power and wavelength stability
- Stability: Exceptional reproducibility
- Ideal for quantitation
- Ease of use: Small, cool, pre-aligned, Mercury-Free
- Applications: Fluorescence microscopy among others, OEM customization upon request

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### Dual Light Sheet Microscopy

**Applied Scientific Instrumentation Inc.**

ASI's Dual Selective Plane Illumination Microscopy for Cleared Tissue (ct-dSPIM)

ASI's Dual Selective Plane Illumination Microscopy for Cleared Tissue (ct-dSPIM) is one of many light sheet microscope configurations possible using our modular components. This flexible and easy-to-use Selective Plane Illumination Microscopy (SPIM) implementation allows for dual views of large samples such as cleared tissue (ct).

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## In Case You Missed It

### Olympus Invites Entries for Global Light Microscopy Image of the Year Award

Olympus has launched its first Global Image of the Year Life Science Light Microscopy Award, expanding upon the Image of the Year European Life Science Light Microscopy Award, which began in 2017. Those interested in entering the contest may do so through Jan. 31, 2020. Winners of the contest will be selected by a jury and announced in March 2020.



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### A New Tool for Live-Cell Imaging

To expand the toolbox of imaging in living cells, researchers from Colorado State University and the Tokyo Institute of Technology have developed a genetically encoded, antibody-based probe that works with specificity in vivo. The probe can light up, in multiple colors, HA-tagged nuclear, cytoplasmic, membrane, and mitochondrial proteins in diverse cell types.

[Read Article](#)

### Prellis Biologics Receives \$8.7M Investment, Reports Progress in Tissue Printing

Prellis Biologics, developer of a holographic organ printing system, has received an \$8.7 million investment led by Khosla Ventures. The investment is a Series A and comes after Prellis announced major milestones in tissue engineering. The company recently reported positive results from the first animal transplantation of its 3D tissue scaffolds — called Vascular Tissue Blanks — carried out at Stanford University.

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## Webinars

### OCT and Ophthalmology in the Age of Artificial Intelligence

Tue, Oct 8, 1:00 PM - 2:00 PM EDT

Presenter Nishant Mohan, Ph.D., will provide a hands-on demonstration of how to develop a deep-learning AI system from scratch, giving attendees critical insight into how to use this powerful tool. He will provide specific examples of the application of AI in optical coherence tomography (OCT) imaging and show how the combination of these two techniques promises to have a significant impact on our understanding and treatment of ophthalmic disorders, and how this could hold important lessons for similar applications.

[Register Now](#)



## In the next issue...

### Features

Lens-Free Microscopy, Open-Source Photon Counting, Fluorescence Microscopy, 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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