

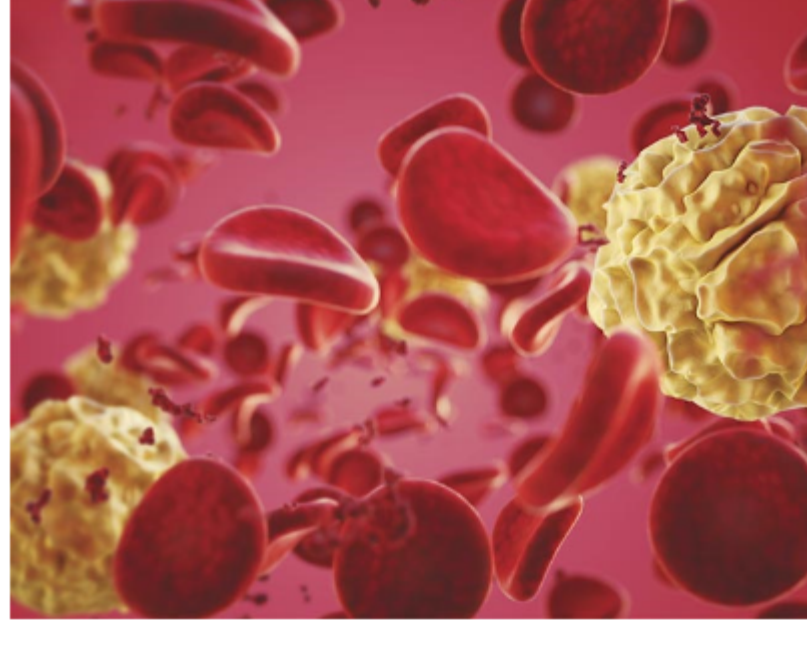
# BioPhotonics

Bringing Light to the Life Sciences

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 [BioPhotonics.com/subscribe](http://BioPhotonics.com/subscribe).

## Custom Filters without the High Costs

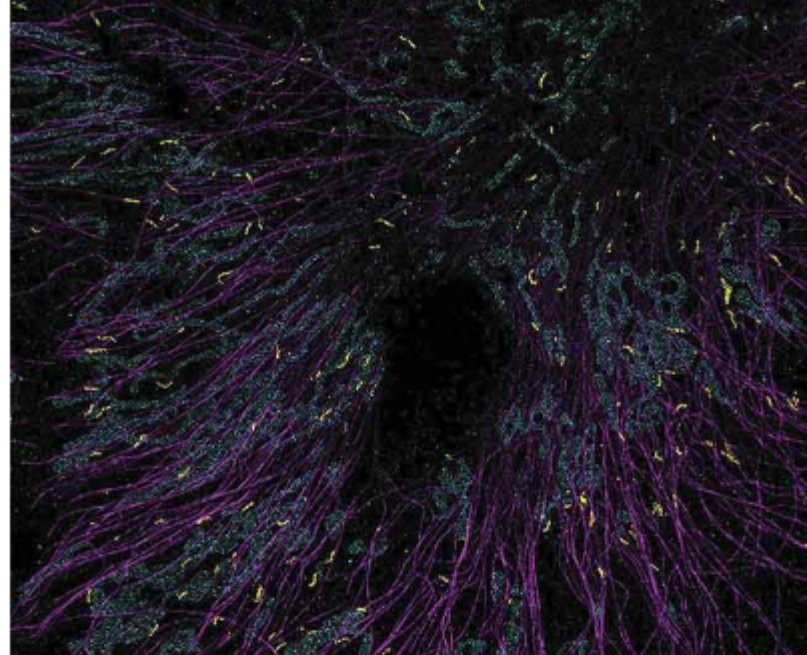
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### Silicon-Based Photonics Platform Enables On-Chip Imaging with High Throughput

Integrated photonics provides a framework for high-throughput applications, such as DNA sequencing, proteomics, and cell therapy, bringing a high level of parallelization and sensitivity to these domains. A CMOS-compatible silicon nitride photonics platform that enables two new concepts in system design has been developed for such applications: an on-chip fluorescence microscope with a large field of view and high resolution, and an on-chip flow cytometer.

[Read Article](#)



### Microscope Stages Support Mapping the Inner Structure of Biological Systems

During the last two decades, research in the field of superresolution microscopy has been focused on incorporating different techniques to increase the spatial resolution in collected images. As these techniques have matured, this focus in microscope development has shifted toward the goal of imaging a maximum number of targets within proteins and cells, without a loss in resolution, requiring optimal sample stability. To this end, the accuracy and reliability of the microscope positioning stages is a key

factor to attain this stability as well as achieve high throughput and cost efficiency. [Read Article](#)



### Phone-Based Raman Spectrometer Recognizes Materials in Minutes

Scientists, medical personnel, and others will be able to quickly identify drugs, chemicals, and biological molecules with a handheld device for Raman spectrometry invented by a team at Texas A&M University. The portable Raman spectrometer is suitable for use in remote settings where laboratory-based spectrometers are impractical due to their large size, cost, and power demands. [Read Article](#)

ct-dSPIM

DUAL SELECTIVE PLANE ILLUMINATION MICROSCOPY FOR CLEARED TISSUE

- flexible and easy-to-use light sheet configuration optimized for cleared tissue samples
- sample mounted on a motorized XYZ stage
- objective lenses in an upright V-geometry for light sheet illumination and detection

CONFERENCE

October 15-17, 2024

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## Featured Products & Services

**15X Plan Apochromat VIS+ Microscope Objective**

**Thorlabs Inc.**

The TL15X-2P Plan APO VIS+ Objective combines diffraction limited axial color performance at visible wavelengths with excellent transmission out to 1300 nm, making it ideal for multiphoton imaging applications. This 15X objective features a high 0.70 NA for collecting two-photon fluorescence signals and a working distance of 2.6 mm.

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**Custom Filters DON'T = Costly**

**IDEX Health & Science - Semrock Optical Filters**

PROBLEM: Just completed your prototype, but it's a tabletop of cluttered catalog optics with unused space between? SOLUTION: Use customized optical filters designed specifically for your instrument to reduce cost, system size, complexity, and protect your supply chain. Download our cost drivers guide.

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**2024 Photonics Buyers' Guide**

**Photonics Media**

The 2024 edition lists over 4000 companies under 1600 product categories and includes 30 articles from the Photonics Handbook. Use coupon code **SP24** for a special offer!

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**Custom Microscopes and Optical Systems**

**Prior Scientific Inc.**

Prior Scientific has developed OpenStand to offer a working platform to build OEM solutions and one-off customizations with excellent value for money and reduced development time. Whether developing new automation techniques and software or developing new imaging methods, you can quickly find that you need a microscope system tailored to your application.

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**High Performance Microscope Stage**

**PI (Physik Instrumente) LP, Motion Control, Air Bearings, Piezo Mechanics**

PI's new U-781 inverted microscope stage is designed for democratizing the advantages of ultrasonic piezo motors in fluorescence microscopy. The new stage features 10-nm linear encoders and provides 128 x 86 mm travel. Includes a high-performance motion controller, joystick, and software.

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**Single-Objective Light Sheet**

**Applied Scientific Instrumentation Inc.**

Based on the OPM and SCAPE technologies and developed in collaboration with Leica Microsystems, microscope enables fast and gentle volumetric imaging of fluorescent biological samples over many time points and multiple channels, all while using conventional sample mounting.

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## Looking for something else? Check the Photonics Marketplace.



## More News

**[Very Fast Light Source Will Capture Natural Events as They Happen](#)**  
 A team at Heriot-Watt University, led by professor Christian Brahms, is developing a light source for extremely fast laser pulses that will enable scientists to observe some of the fastest processes in the natural world as they occur. The new laser light source will capture natural processes like light absorption in photosynthesis in attoseconds. [Read Article](#)

**[Food Dye Curbs Light Scattering to Enable Optical Imaging of Living Tissue](#)**  
 The structure of biological tissues causes light to scatter, making optical imaging of the tissue difficult. Each biomaterial comprising the tissue, whether a fat, protein, or other type of biomolecule, has a different refractive index. The variety of refractive indices causes light to scatter as it passes through the tissue, making the tissue appear opaque. Also, the tissue absorbs light, which limits penetration depth. [Read Article](#)

**[High-Resolution OCT Imaging Improves Ear Disease Diagnosis](#)**  
 A portable device that integrates optical coherence tomography (OCT) with traditional otoscopy can provide clinicians in hearing clinics with images of the interior of the tympanic membrane, or eardrum, and the middle ear, in addition to standard otoscopic images of the ear. By combining otoscopic views with high-resolution imaging, the OCT otoscope can offer a more comprehensive picture of ear health and help improve diagnostic accuracy. [Read Article](#)

## Next Issue

**Features**  
 Raman Spectroscopy and Mohs Surgery for Basal Cell Carcinoma, Raman Spectroscopy and Atopic Dermatitis, Laser Damage Threshold in Dermatology, OCT for Dermatology Applications, and AI and Imaging in Dermatology

**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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