Wednesday, November 25, 2020

BIOPHOTONICS

BRINGING LIGHT TO THE LIFE SCIENCES

PHOTONICS MEDIA 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.

OCT-Based Technique Captures Details of Photoreceptor Function

Researchers from the University of California, Davis (UC Davis) have developed an instrument that has measured tiny, light-evoked deformations in individual rods and cones in a living human eye. The approach may one day improve detection of macular degeneration, a leading cause of blindness in people over 55.

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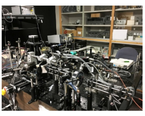

Spectroscopy Guides Precision Medicine

Raman spectroscopy captures the effect when light partially scatters inelastically as it interacts with matter. The amounts of energy transferred between photons and molecules during this process correspond to specific molecular vibrations. Therefore, Raman spectroscopy is ideally suited for characterizing and identifying the chemical composition of various samples because the spectra provide a molecular "fingerprint."

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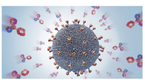

Angiographic OCT Images Forewarn of Disorders Caused by Maternal Drug Use

No amount of alcohol is considered safe during pregnancy, according to published research1. Despite this message being the subject of constant public service warnings, in a recent study, 20% to 30% of women in the U.S. reported drinking during pregnancy. Fetal alcohol spectrum disorders (FASDs) refer to the broad spectrum of behavioral and developmental deficits caused by prenatal exposure to alcohol. FASDs are common, with a global prevalence of 22.7 per 1000 births. Persons with these disorders can exhibit a range of deficits, from mild to severe. FASDs are highly underdiagnosed1, and they can be difficult for medical practitioners to differentiate from other developmental disorders.

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.: Featured Products

Lumencor Refreshes SOLA for 2021

Lumencor Inc.
SOLAs are proven white light, solid state illuminators for fluorescence microscopy and more. Exceptional brightness, stability, and 10-year lifetimes are expected. Now with linearized intensity, active stabilization, unmatched reproducibility, is this the last lamp you ever need to purchase?

Visit Website | Request Info

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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Triggering the 8-channel pE-800

CoolLED Ltd.
High-speed fluorescence microscopy is now affordable and easy to achieve when you combine the new 8-channel pE-800 LED Illumination System and pE-6501-8 USB-controlled TTL trigger box.

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Superresolution Microscopy Poster

Photonics Media
With interest in the superresolution microscopy field growing rapidly, the editors of BioPhotonics magazine — in collaboration with acknowledged experts — created a poster with readers in mind that is suitable for lab, classroom and office.

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BOB - Open-design Upright Microscope

Sutter Instrument Company
The BOB is a versatile, open-design microscope mounted on a stable optical rail. The height is easily adjustable, allowing in vivo and in vitro research in one set up. Configure the scope as you like with fluorescence epi-illumination, transmitted light, OCC or DIC condensers, stages, and much more.

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KeyLight™ OEM Light Source

Phoseon Technology Inc.
KeyLight™ illumination sources for fluorescence microscopy is the perfect solution to integrate into your equipment. Phoseon's proprietary LED KeyLight™ illumination sources deliver the highest performance imaging with easy integration for OEMs.

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.: In Case You Missed It

Improving Microscope Resolution with Plasmonic Metasurfaces

While imaging cells using real-time fluorescence microscopy methods, professor Kaoru Tamada of Kyushu University's Institute for Materials Chemistry and Engineering and her group found that they could improve resolution under a conventional widefield microscope close to the diffraction limit by simply changing the surface beneath the cells.

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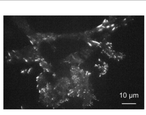

Scientists Make Vampire Bats Glow to Simulate Vaccine Spread

University of Michigan scientists and their colleagues used glowing fluorescent gel to test the potential effectiveness of vaccines to control rabies and other diseases in wild bats.

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Pseudo-Random Speckle Illumination Patterns Allow for High-Resolution Imaging

Researchers at the University of Tokyo have demonstrated the use of a multimode fiber in combination with an integrated optical phased array chip for single-pixel imaging in potential biomedical applications. The technology could allow for smaller devices with which to perform pseudo-random speckle pattern imaging applications such as ultra-thin endoscopy or in vivo neural imaging.

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.: Upcoming Webinars

What's New in Solid-state Illumination for Optical Microscopy?
Tue, Dec 1, 2020 1:00 PM - 2:00 PM EST
This webinar will provide an overview of applications for solid-state, white-light illumination, including a discussion on the newly refreshed family of SOLA light engines from Lumencor. Presented by Lumencor Inc.

Register Now

Endoscopic Optical Coherence Tomography
Wed, Dec 9, 2020 1:00 PM - 2:00 PM EST
In this webinar, Hui Wang, Ph.D., will give a technical overview about the development, application, and the future of endoscopic optical coherence tomography (OCT).

Register Now

Optical Tools for Analyzing and Repairing Complex Biological Systems
Tue, Dec 15, 2020 12:00 PM - 1:00 PM EST
Edward Boyden, Ph.D., and his research group at MIT are discovering new optical principles that enable such technologies. In this webinar, Boyden will share examples of such tools and how they are propelling neuroscience.

Register Now

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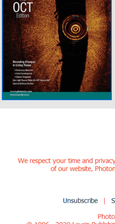
Features
Mobile Spectroscopy, Endoscopy, Photoacoustic Imaging, Microscopic Identification of Microplastics, and more.

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, or use our online submission form www.photonics.com/submitfeature.aspx.

About *BioPhotonics*



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