Wednesday, June 22, 2022

BIOPHOTONICS
BRINGING LIGHT TO THE LIFE SCIENCES®
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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.

Hyperspectral Imaging Characterizes Healthy and Diseased Tissues During Surgery

Fortunately for clinicians and their patients, a new imaging solution could potentially transform endoscopy and expand its capabilities. Hyperspectral imaging utilized in state-of-the-art endoscopic cameras holds the promise of higher productivity of detailed images, enabling the thoroughness of surgical intervention along with lower risk of damage to a patient's collateral structures.

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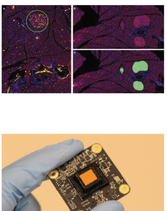

AI Bridges the Gap Between Medical Imaging and Analysis

Advancements in AI-based algorithms have provided a new and more effective method with which to analyze images. AI-based algorithms designed to analyze biological images have improved image analysis workflows by providing precise segmentation of features of interest and the ability to effectively automate image analysis.

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Lensless Camera Captures Cellular-Level Details in 3D

Rice University researchers have tested a tiny lensless microscope called Bio-FlatScope, capable of producing high levels of detail in living samples. The team imaged plants, hydra, and, to a limited extent, a human.

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.: Featured Products & Services

8-Channel Illumination Control in Software

CoolLED Ltd.

Lightning-fast fluorescence microscopy and supercharged calcium imaging with the 8-channel pE-800 Series LED Illumination Systems can now be achieved using Evident/Olympus cellSens, Nikon NIS Elements, µManager and more.

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Modular Motion Control: Microscopy

Mad City Labs Inc.

Modular Motion Control for microscopy applications. Build your own microscope instrumentation using modular MMP series micropositioners and closed loop nanopositioners. Examples include atomic force microscopes (AFM), optical microscopes, light sheet microscopes.

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Ultrafast Fiber Lasers with <50 fs

HUBNER Photonics GmbH

HÜBNER Photonics' VALO Aalto femtosecond fiber lasers have pulse durations of <50 fs and peak powers of >2 MW from compact and stable turn-key systems. The lasers have very attractive features for applications in bioimaging, spectroscopy and micro-machining.

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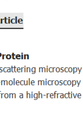

Multi-Immersion Objectives

Applied Scientific Instrumentation Inc.

ASI and Special Optics have developed two dipping objective lenses designed for light sheet microscopy of cleared tissue samples, including ASI's ct-dSPIM. These objectives work in any refractive index media without a correction collar because of a unique curved first surface.

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.: In Case You Missed It

Fluorescence Sensing Identifies Cancer Indicators in the Brain

Researchers at the University Hospital Münster and Paris-Saclay University established a method to correct for artifacts caused by changes in blood flow, and recorded cell-specific lactate levels in rat brains using fluorescence signals from fiber-based fluorescence resonance energy transfer (FRET) sensors. While FRET is known to be useful for studying neurophysiology through microscopy, its use for in vivo studies is limited by artifacts that appear in the FRET recordings.

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Internal Reflection-Based Microscopy Images Single Protein

A team from Arizona State University has introduced evanescent scattering microscopy (ESM), a label-free method for sensitive imaging of biomolecules, including proteins. The single-molecule microscopy technique is based on total internal reflection, an optical phenomenon that occurs when light passes from a high-refractive medium, like glass, into a low-refractive medium, like water.

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CEA-Leti Developing Lensless Microbial Identification Tech

CEA-Leti and CEA-Irig have developed a lensless imaging technology capable of identifying bacteria with more than 95% accuracy. The device aims to address the problem of antimicrobial resistance, which is an increasing public health problem. According to the World Health Organization, drug-resistant diseases will cause 10 million deaths annually by 2050 if a solution to the problem is not introduced.

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.: Upcoming Webinars

Wavelength Selective Optical Filters: Providing More Signal and Less Background for PCR Instruments

Thu, Jul 7, 2022 1:00 PM - 2:00 PM EDT

Engineers creating polymerase chain reaction (PCR) instrumentation face unique challenges in both qualitative detection of nucleic acid sequences, using end-point analysis and quantitative detection of nucleic acid sequences, using real-time analysis. Quantitative PCR (qPCR) instruments that operate in real time require a favorable signal-to-noise ratio, combined with the utmost sensitivity. Jason Palidwar of Iridian Spectral Technologies shares the role photonics and optical filters play in qPCR instruments along with the challenges presented by their specification, design, and manufacture.

Register Now

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Features

LED-based Photoacoustic Imaging, Spectroscopy & Disease, Wearable Optical Tech, 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.

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