Wednesday, September 23, 2020

BIOPHOTONICS
BRINGING LIGHT TO THE LIFE SCIENCES®
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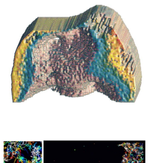
Monthly newsletter focusing on how light-based technologies are being used in the life sciences. Includes news, features and product developments in lasers, imaging, optics, spectroscopy, microscopy, lighting and more. Manage your Photonics Media membership at Photonics.com/subscribe.

Laser Direct IR Imaging Projects Microplastics Analysis
Contamination of soil, air, and drinking water by microplastics is a growing focus of attention around the world. Environmental agencies are increasing the monitoring of waterways, and governmental bodies are seeking to protect these resources. Simultaneously, research institutions are trying to determine the extent and potential toxicological impacts of microplastic contamination. Optical technologies are playing a vital role in these studies.



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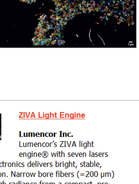
3D Thermophotonic Imaging Informs Biomedicine
Imaging plays an important role in disease prevention, diagnosis, and treatment, and new technologies are helping to overcome many limitations to resolution and depth. Early diagnosis of diseases can alter the path of treatment and its efficiency enormously. For instance, dental caries can be treated noninvasively through remineralization, if detected early, before the need to drill the tooth.



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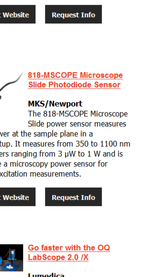
Superresolution Microscopy Images Common Alzheimer's Protein
As superresolution microscopy has advanced, so too has scientists' ability to dive deep into the neural network and the compounds that accumulate in conjunction with a variety of conditions. And a team at the VIB-KU Leuven Center for Brain & Disease Research has seized on this technology to understand a protein complex that is common in patients with Alzheimer's disease and with cancer.



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.: Featured Products

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. They are robust to immersion in harsh media including DBE and BABB.

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ZIVA Light Engine

Lumencor Inc.
Lumencor's ZIVA light engine® with seven lasers and high end electronics delivers bright, stable, robust illumination. Narrow bore fibers (~200 µm) generate ultra high radiance from a compact, pre-aligned, bench top device. Super resolution microscopy techniques are well supported. OEM customization available.

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Automation on a Budget

CooILED Ltd.
Capture dynamic events at speeds of 10 µs with the CooILED pE-300^{ultra}, where triggering illumination sequences with a single TTL-out transforms a manual microscope into an affordable and powerful automated imaging system.

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818-MSCOPE Microscope Slide Photodiode Sensor

MKS/Newport
The 818-MSCOPE Microscope Slide power sensor measures the optical power at the sample plane in a microscopy setup. It measures from 350 to 1100 nm at optical powers ranging from 3 µW to 1 W and is designed to be a microscopy power sensor for fluorescence excitation measurements.

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BOB - Open-design Upright Microscope

SUTTER INSTRUMENT
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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Go faster with the OQ LabScope 2.0 /X

Lumedica
More speed. Better Science. The Lumedica OQ LabScope 2.0 /X is our fastest OCT device yet, generating a whopping 80,000 lines per second — that's over 100 frames per second — making it ideal for capturing stable, non-invasive live sample images.

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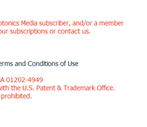
.: In Case You Missed It

Noncontact Laser Ultrasound Safely Images Human Tissue
MIT engineers have devised an alternative to conventional ultrasound imaging that doesn't require contact with the body and can be used on patients who may not tolerate a probe on their body, such as infants, burn patients, or patients with sensitive skin. In tests scanning the forearms of volunteers, the researchers were able to observe common tissue features such as muscle, fat, and bone down to about 5 cm below the skin.



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New Molecule Marker Enables 'Unprecedented' Study of Mitochondria
A team at Nagoya University's Institute of Transformative Bio-Molecules has developed a marker molecule that bypasses the problem of photobleaching in STED microscopy. It's allowing an unprecedented view of live mitochondria, which could help researchers better understand, diagnose, and potentially cure human mitochondrial disease.

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Machine Learning, OCT Combine to Detect Early-Stage Colon Cancer
Researchers at Washington University in St. Louis are developing a deep learning-based pattern recognition (PR)-OCT system that will automate image processing and provide accurate, computer-aided diagnosis of colorectal cancer potentially in real time. The technique combines OCT and deep learning to detect patterns in the images of normal and abnormal tissue samples.

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.: Upcoming Webinars

Digital Holographic Microscopy for Cytometry and Histology
Thu, Sep 24, 2020 10:00 AM - 11:00 AM EDT
In this webinar, Björn Kemper, Ph.D., senior researcher and head of the optical technologies at the Biomedical Technology Center of the Medical Faculty, University of Muenster, Germany, will introduce quantitative phase imaging (QPI) and digital holographic microscopy (DHM), providing examples and an overview of representative applications for the technology.

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Features
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