

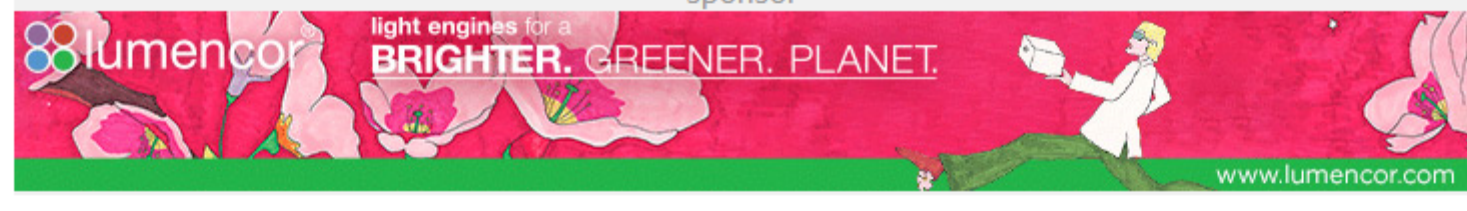
BIOPHOTONICS

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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.



Hand-Held AO Ophthalmoscopy Enables Cellular-Level Imaging

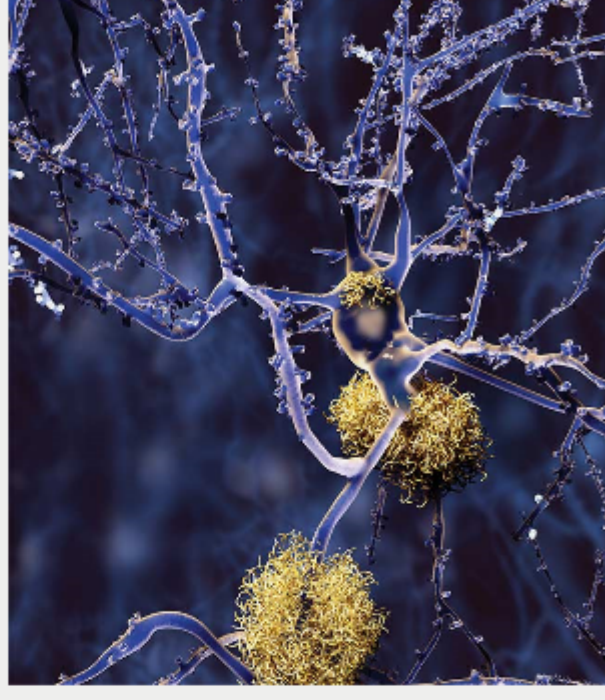
Advancements in adaptive optics (AO) are bringing researchers deeper into the human retina than ever before. Enabling the visualization of the living retina with cellular resolution, AO scanning laser ophthalmoscopy (AOSLO) has advanced the understanding of retinal structure in health and disease. Current-generation AOSLOs have a large footprint and are limited to imaging cooperative adult subjects.



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FTIR Spectroscopy: A Comprehensive Biological Investigator

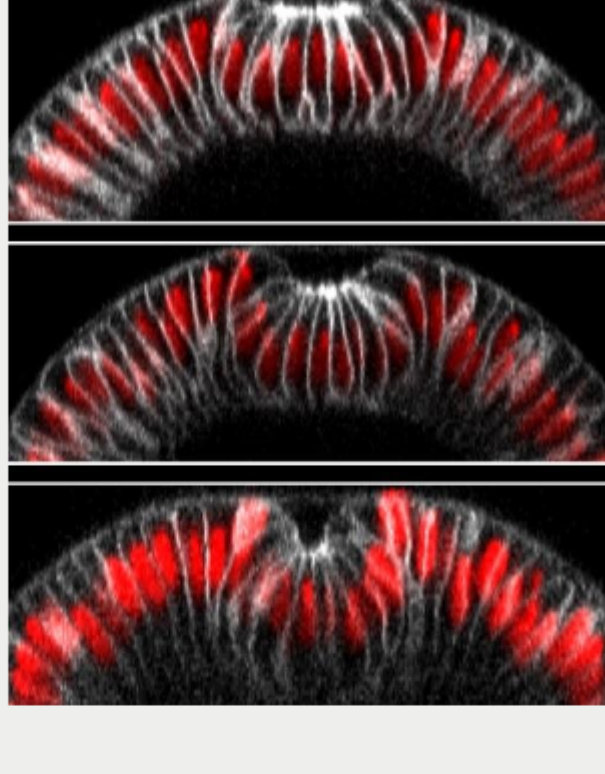
In contrast to many popular biophysical techniques — such as fluorescence spectroscopy, x-ray crystallography, or cryoelectron microscopy — samples in FTIR spectroscopy can be investigated label-free at room temperature in solution. Most structural methods yield only static snapshots of a dynamic reaction, whereas FTIR spectroscopy enables time-resolved investigation at near-native conditions, without labels that can severely interfere with the sample or the reaction.



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Optogenetics Shapes Tissue to Reconstruct Epithelial Folding

Researchers at the European Molecular Biology Laboratory (EMBL) used precise light-mediated control of protein activity in biological tissues to reconstruct epithelial folding in embryonic *Drosophila* tissues. Epithelial folding is a developmental process where cells move inward and fold into the embryo, eventually giving rise to internal tissues like muscles.



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Featured Products



pT-100 for Optimised Transmitted Light

CoolLED Ltd.

Utilising the highly successful pE-100wht technology, we have further developed our LED solutions for Transmitted Light Applications. The pT-100 launches in December 2018 and will be available in 4 variants: 1. BROAD WHITE OUTPUT - pT-100-WHT (formerly known as pE-100wht)

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Dual Light Sheet Microscopy

Applied Scientific Instrumentation Inc.

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.

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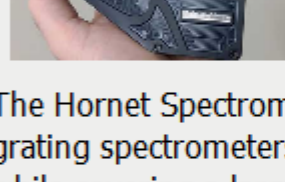
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LightMachinery Inc.

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- Immersion objective lens specially designed for light sheet microscopy of cleared tissue sample
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- Permits imaging more than 5 mm deep into flat samples, or up to 12 mm into spherical samples
- Nikon style form factor M25 threads, 40 mm OD, 61.6 mm parfocal length, available for use with other systems

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In Case You Missed It

Miniaturization, Increased Resolution Drive Microscopy's Future

Improvements in finite conjugate microscopy objective systems allow optical testing systems to decrease form factor while maintaining and often increasing performance.



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Zebra Medical Announces Algorithm Approval

Health care imaging analytics developer Zebra Medical Vision has announced CE (European Conformity) regulatory approval of its newest algorithm to be included in its deep learning imaging analytics platform.

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Swept-Source OCT Platform Targets Enhanced Ophthalmic Imaging

OCTLIGHT ApS — a spinoff company from the Technical University of Denmark — has completed the product development phase of a new swept-source technology platform that could enhance ophthalmic OCT capabilities, particularly for retinal imaging and biometry.

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Webinars

Advances in Rapid 3D Imaging of Large Tissue Samples

Thu, Jan 24, 2019 1:00 PM - 2:00 PM EST
This webinar will discuss rapid 3D, multiplexed imaging of large tissue samples, based on recent advances in light-sheet fluorescence microscopy, multiplexed molecular labeling, and optical tissue clearing. It will provide an overview of the various approaches to imaging cleared tissue and organs, along with the advantages and drawbacks of the different methodologies. It is sponsored by Applied Scientific Instrumentation Inc. (ASI), PCO TECH, Inc., and Mad City Labs, Inc.

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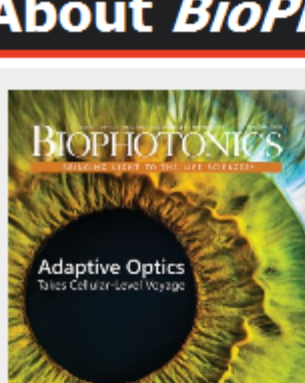
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Molecular Imaging, Wearable Sensors, Photodynamic Therapy, Surface-Enhanced Raman Spectroscopy (SERS)

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