

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.



Multi-Immersion Objectives
Specially designed for light sheet microscopy of cleared tissue samples and live cell imaging.



Photoacoustic Imaging Identifies Transplantable Kidneys

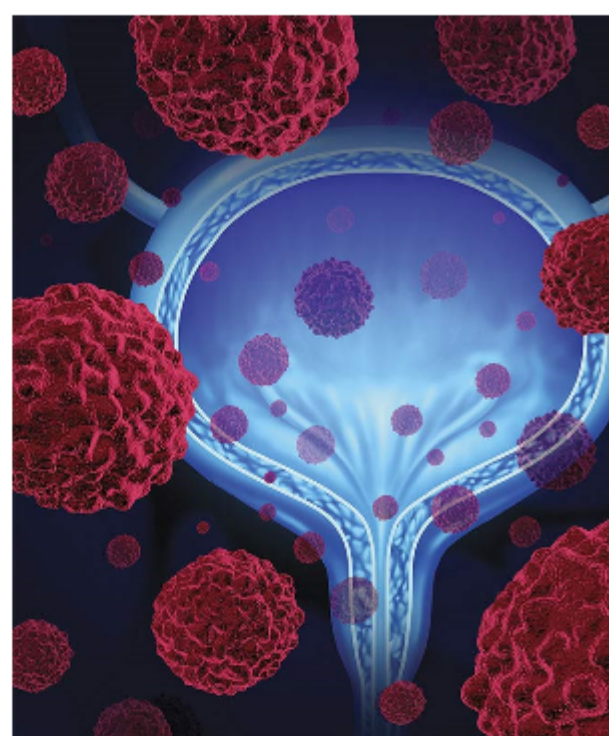
Chronic kidney disease is a condition that causes the gradual loss of kidney function over a period of months to years. The prevalence of the disease is worsened by the alarming rise of diabetes and hypertension, two of the most common causes of renal failure. The goal of most therapies is to merely slow the progression of the disease. Fortunately, a modern technology called photoacoustic imaging, involving the use of both light and sound, is helping to assess the most efficient treatment for chronic kidney disease: kidney transplantation.



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Pulsed Lasers Pierce the Diffraction Limit in Medicine

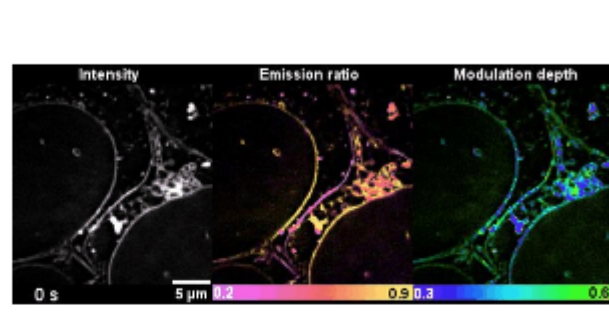
Optical imaging of tissues in diagnostics is a burgeoning field of research, and related technology has shown the ability to provide rapid, sensitive, and specific data that discriminates disease-related characteristics. However, the depth at which high-quality imaging can be performed in tissue by existing systems has historically been limited to only a few hundred microns. This hinders examination and detection of deeper disease markers or morphologies.



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Superresolution on the SPOT: Imaging Achieves Optical Sectioning

A technique called SPOT (spectrum and polarization optical tomography) is providing researchers with a "street view" of lipid membranes surrounding cell organelles, thereby allowing insight into lipid dynamics. The work is the result of a collaboration between Peking University and the University of Technology Sydney-Southern University of Science and Technology Joint Research Centre for Biomedical Materials and Devices.



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.: Featured Products



818-MSCOPE Microscope Slide Power 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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Alluxa Ultra Series Filters and Coatings

Alluxa
Alluxa Ultra Series Filters, including Narrowband, Dichroic, UV, IR, and Notch filters, provide the highest performance optical thin film solutions available today. For example, the Ultra Series Flat Top Narrowband filters offer the narrowest bandwidths and squarest filter profiles in the industry.

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X-Cite NOVEM LED Illumination System

Excelitas Technologies Corp.
More Power. More Wavelengths. More X-Cite®.
The Excelitas X-Cite NOVEM™ has it all. With high power output, a wide spectral range, and convenient design features, this 9-channel LED illuminator does everything but compromise. X-Cite NOVEM provides researchers with fluorophore imaging options never before available.

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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

Marine Luminescence Appears After Stress Test

No matter how small, organisms respond to their surrounding environment. A group of scientists at the University of Cambridge has shown that the light produced by ocean organisms is related to the stress their cells are under at the time.

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Synthetization Process Yields Green Light-Emitting Idolizines

Chemists from the Peoples' Friendship University of Russia (RUDN University) have introduced a new approach for synthesizing indolizines, a group of organic substances with biological and optical properties. The method, which uses pyridinium salts (electrically neutral molecules with both positively and negatively charged "poles") and enamines (a chemical compound), demonstrated the ability to emit green light, giving it potential applications in biomedicine.

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Researchers Use Lasers to Cheaply, Easily Fabricate Bioelectronics

Researchers from the University of Chicago have found a easy, inexpensive, and scalable method for fabricating bioelectronics components using lasers. The technology has potential for use in medical applications, such as in pacemakers.

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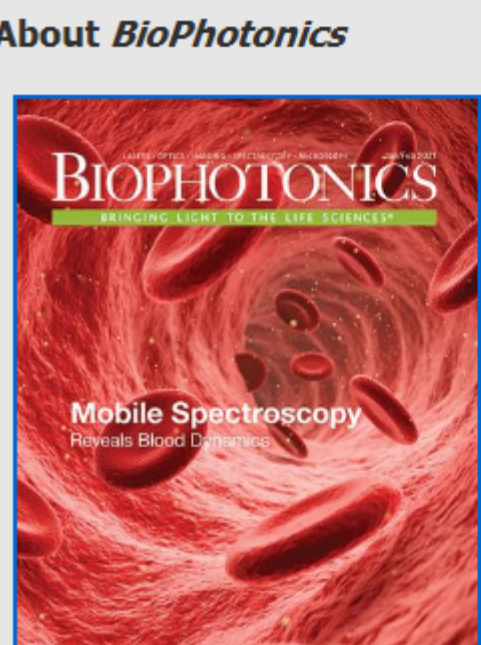
.:Next Issue:

Features

Ultrafast Lasers, Fluorescence Spectroscopy, 3D Imaging, and more.

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