

BioPhotonics

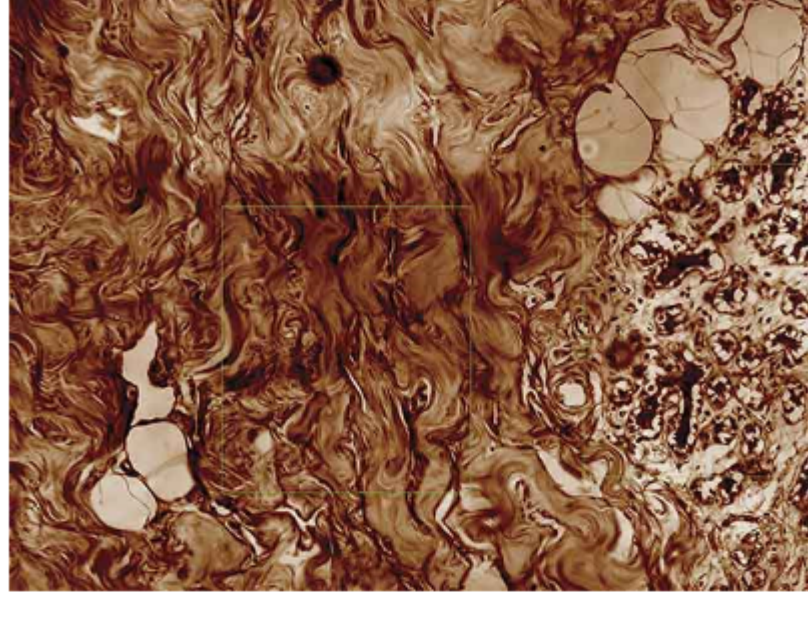
Bringing Light to the Life Sciences

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 BioPhotonics.com/subscribe.



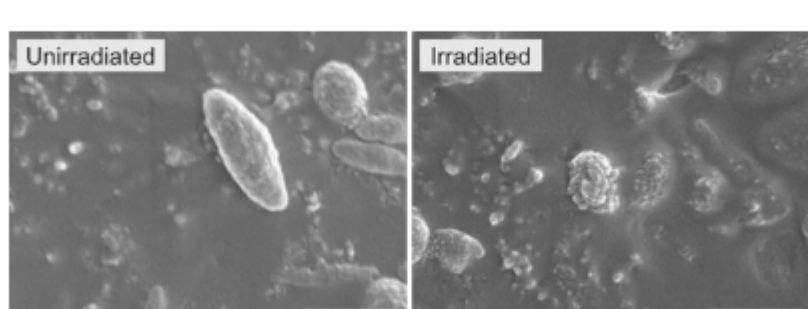
As Biosensors Shrink, Their Potential Applications Grow

Early in his career, Benjamin Miller was focused on drug discovery and strategies for studying how potential medicines bind to their target proteins. There was only one problem: “All of the technology that was available for doing that was terrible,” said Miller, a biochemist and engineer at the University of Rochester. “So, we decided to start working to fix the problem.” [Read Article](#)



Quantitative Phase Microscopy Tracks Drug Therapies

Examining the cycle of life through the lens of a microscope is a fundamental practice in biology. As researchers have delved deeper into the microscopic world, a pursuit for higher resolution has ensued, leading to discoveries about the smallest constituents within cells. It was during this quest that the significance of light’s informational content became apparent, and some of the latest innovations in quantitative phase microscopy are tapping into this in a variety of applications. [Read Article](#)



Wavelength-specific Index Guides Laser Skin Treatment

Laser treatment has gained popularity for the treatment of skin blemishes. To improve the efficacy and reduce complications from laser treatment, a research group led by Osaka Metropolitan University developed an index of the threshold energy density, or fluence, for melanosome disruption, corresponding to the dependent wavelengths of the picosecond lasers used for treatment. The wavelength-specific irradiation index will help clinicians determine the optimal endpoint for pigmented lesion treatment based on numerical indicators. [Read Article](#)

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More News

Imaging Method Lights up Brain Oxygenation

Researchers at the University of Rochester and University of Copenhagen’s Center for Translational Neuromedicine developed a bioluminescence imaging technique that tracks the movement of oxygen in mice brains to reveal the level of oxygen present in the mice’s cortical tissue under different physiological conditions. The method is expected to enable the forms of brain hypoxia, such as oxygen deprivation to the brain during a stroke or heart attack or in patients with dementia, to be more precisely studied. [Read Article](#)

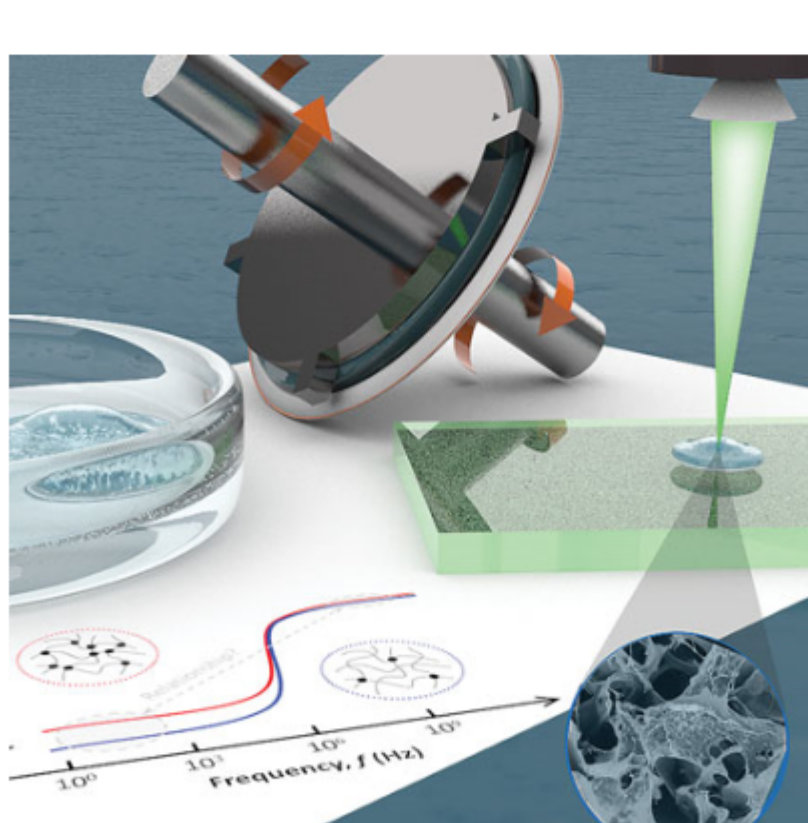
Imageomics Applies AI and Vision Advancements to Biological Questions

Researchers at Ohio State University are pioneering the field of “imageomics.” Founded on advancements in machine learning and computer vision, the researchers are using imageomics to explore fundamental questions about biological processes by combining images of living organisms with computer-enabled analysis. [Read Article](#)

Photoswitchable Biosystems Make Way for Intelligent Drug Delivery

A team from the Max Planck Institute of Colloids and Interfaces, led by researcher Rumiana Dimova, demonstrated that interactions between a synthetic cell membrane and glycinin protein condensates integrated in the cell can be manipulated with light, and that such modulation can lead to endocytosis of the condensates. [Read Article](#)

Latest Webinars



Brillouin Microscopy for Cell and Tissue Imaging

The interaction between photons and acoustic phonons within materials, first described by Leon Brillouin, has been widely investigated to characterize the mechanical and physical properties of samples. To translate this technology to biomedical applications in which mechanical properties are often critical, Giuliano Scarcelli’s lab has developed high-resolution spectrometers at high throughput and combined them with optical microscopes to yield 3D-imaging modalities that use label-free biophysical properties as contrast mechanisms for imaging. Scarcelli shares areas of application and future developments of this research. Sponsored by LightMachinery.

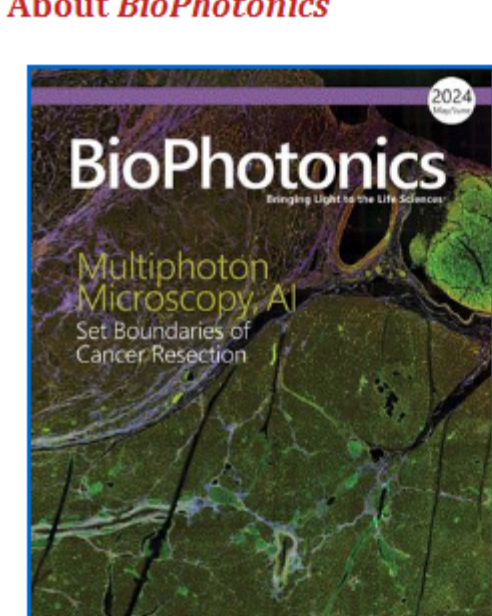
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Features
STED Microscopy, Raman Spectroscopy & Blood Analysis, Microscope Objective Design, and Fluorescence Lifetime Imaging

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