

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](https://www.biotophotonics.com/subscribe).

Nanopositioning for Microscopy



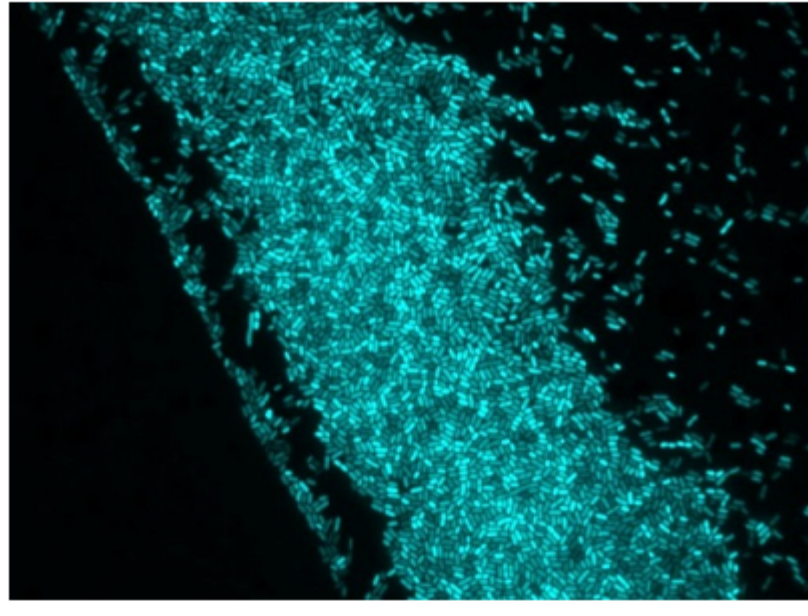
Piezo Focus



Voice Coil



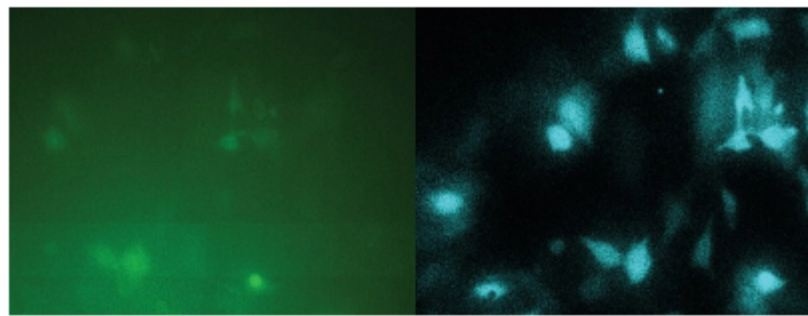
XY Scanning Stages



Light-Based Control of Bacteria Aims to Quell Antibiotic Resistance

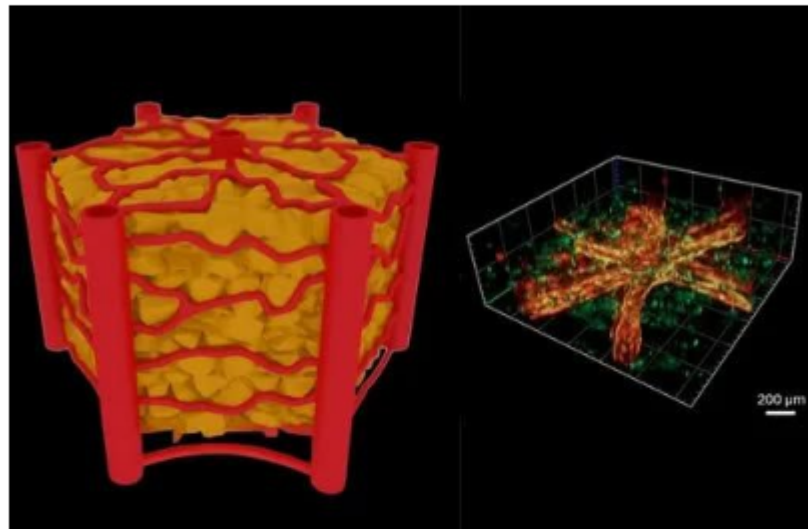
Bacterial resistance to antibiotics is a growing challenge for the healthcare and environmental sectors. Bacterial persistence is usually the first step leading to resistance, which involves a change in an organism's genome. In the future, it may be possible to address antibiotic persistence and resistance by using light to regulate bacterial response to antibiotics. A technique developed at the Polytechnic University of Milan (Politecnico di Milano), by a team participating in the Engineering of Bacteria to See Light

project, allows bacteria to sense light and convert light energy into electrical signals across the bacterial membrane, without the need for genetic modification. [Read Article](#)



Quanta Image Sensors Boost Bioluminescence Signals for Live Cell Microscopy

A microscope built with quanta image sensor technology will allow researchers to visualize bioluminescence signals in living cells in detail and over long durations. Researchers at Helmholtz Munich and the Technical University of Munich developed the QIScope instrument to overcome the constraints of bioluminescence imaging. The device uses highly sensitive camera technology that is able to detect extremely low levels of light. [Read Article](#)



Laser Method Enables Fast & Precise Blood Vessels in Hydrogel

Researchers from Vienna University of Technology (TU Wien) and Keio University have found a way to create artificial blood vessels in miniature organ models in a quick and reproducible manner. The method utilizes ultrashort laser pulses in the femtosecond range to write highly 3D structures into a hydrogel. [Read Article](#)

Featured Products & Services



BrixXHUB Ultra Laser Light Engine

Omicron-Laserage
Laserprodukte GmbH

Introducing the BrixXHUB Ultra by Omicron-Laser, a highly integrated plug & play system ideal for widefield laser illumination. With up to 6 lasers and 6 modulation inputs, it offers unparalleled flexibility.

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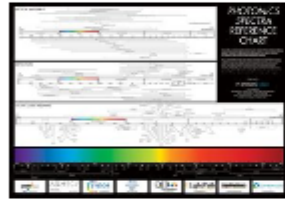
Achieve High Throughput Imaging

Zaber Technologies Inc.
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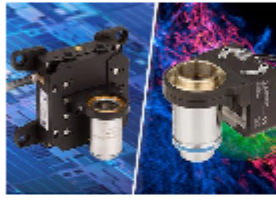
Photonics Spectra Reference Chart

Photonics Media

Updated in 2024! This full-color, 29.5 × 20.5-inch poster of the photonics spectrum displays the major commercial laser lines, detectors, and optical materials in the ultraviolet to the far-infrared and beyond. The convenient format makes it easy to quickly find the information you need.

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Fastest Nano-Focus Stages

PI (Physik Instrumente) LP,
Motion Control, Air Bearings, Piezo Mechanics
From Genome Sequencing to Super Resolution Microscopy – nanometer precise motion control is essential for success. When throughput is critical, speed is king. PI provides the fastest nano-focusing stages – both piezo- and voice-coil driven, maintenance-free, ideal for fast focusing and autofocusing tasks.

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More News

Fluorogenic Probes Track Transmission of Infectious Disease and Track Gene Expression

Biofilm disassembly and dispersal play a key role in disease spread, but studying these processes with microscopy and related imaging techniques is challenging. The fluorescent proteins traditionally used to label cells lose functionality in the oxygen-deprived biofilm environment, inhibiting close observation of the biofilm dispersal process. To resolve this issue, a team at Carnegie Mellon University labeled cells with oxygen-independent fluorogen-activating proteins and cognate far-red dyes. [Read Article](#)

Hamamatsu, Vizgen, Collaborate for Enhanced Biomarker Detection Capabilities

Hamamatsu has established a partnership with Vizgen, Inc, a life sciences company advancing spatial multi-omics. The collaboration integrates Hamamatsu's MoxiePlex multiplex immunofluorescence imaging system with Vizgen's pathology-grade reagent and assay portfolio to bring multiplexed biomarker detection into new translational and clinical research applications. According to the companies, the partnership aims to offer a joint solution to eliminate common barriers in multiplex assay development — streamlining validation, simplifying workflow integration, and enabling researchers to focus on acquiring high-fidelity biological insights. [Read Article](#)

Imaging Method Allows High-Speed 4D Videos of Moving Organisms

Biomedical researchers at Duke University have developed a computational imaging system that borrows techniques from astronomy to reconstruct 4D videos of freely moving small model organisms, like zebrafish and fruit fly larvae. By using a concave mirror and an array of sensors, researchers were able to rapidly capture the unrestrained movements of animals from dozens of synchronized viewpoints. [Read Article](#)

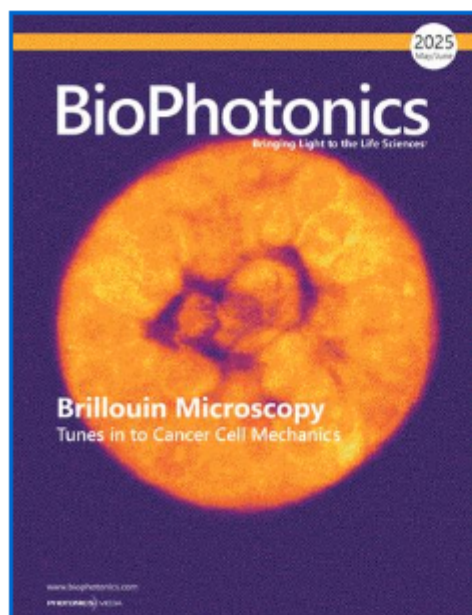
Next Issue

Features

Chip-Based Imaging, Mid-IR Spectroscopy, OCT and Diagnostics, and Liquid Lenses

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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