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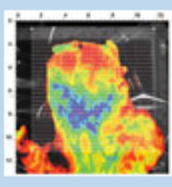
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Putting the 'Early' in 'Early Detection'
 Moleculer imaging could help to advance clinical screenings for esophageal and other cancers. Esophageal cancer is relatively rare: In 2013, only about 18,000 people in the US will be diagnosed with it, compared with the American Cancer Society's projection of 1.7 million new cases of cancer generally this year. But esophageal cancer is an especially difficult one to manage. Symptoms - including difficulty swallowing and unexplained weight loss - typically occur late in the disease. By the time they appear, the cancer is often incurable. Because of its poor prognosis, it is one of the leading causes of death from cancer in the world.

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Magnetomotive Photoacoustic Imaging Spots Circulating Tumor Cells
 Photoacoustic imaging, which uses an ultrasound transducer to detect light-induced acoustic signals, is a relatively new imaging modality that maintains the advantages of ultrasound imaging, including nonionizing operation, low cost and submilliliter spatial resolution up to several centimeters in depth. A number of investigators have shown that contrast agents with selective absorption at a specific wavelength, such as highly absorptive nanoparticles, can be effectively targeted to biological objects for photoacoustic molecular imaging with high sensitivity and specificity.

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Holography + Optogenetics = Bionic Vision? Maybe Someday
 Computer-generated holography could artificially stimulate cells in the eye and even lead to a new strategy for bionic vision restoration, say researchers at Technion-Israel Institute of Technology. Holography could be used in conjunction with optogenetics on damaged retinal nerve cells. In conditions such as retinitis pigmentosa, which affects about 1 in 4000 people in the US, these light-sensing cells degenerate, leading to blindness. The optogenetic approach photosensitizes the nerve cells so that they can be activated by intense pulses of light.

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Light Matters



In this edition of the industry's **only weekly newscast**: holograms are enabled by a \$10 optical chip, Raman spectroscopy and nanoprobe seek to detect infections early, multiview 3-D photography is simplified, and a microphone listens with light. Hosted by Photonics Media's Laura Marshall and Ashley Rice.

PHOTONICS buyers' guide

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Bladder Cancer Treatment Gets Robotic Upgrade
 Treatment of bladder cancer, the sixth most common cancer in the US, hasn't changed much in more than 70 years. It still involves crude instruments and contortion of the patient's body to reach certain target areas. Collaborative research between Vanderbilt and Columbia universities aims to dramatically update this standard of care.

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Laser-Based Breast Cancer Test Faces Human Trials
 A laser diagnostic test that could lead to an instant diagnosis of breast cancer at the time of a mammogram will for the first time be evaluated using excised human breast tissue and lymph nodes. Currently, a follow-up needle biopsy is required when a mammogram picks up abnormalities. About 70-90 percent of these tests come back negative, but not before a nervous wait for results.

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Biophotonics Products




Fiber-Coupled Tailored Bar
DILAS Diode Laser GmbH
 Dilas' fiber-coupled tailored laser bar meets the critical metric of <1 kg/kW of overall module weight to optical output power while maintaining nearly 50% efficiency.

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Flattop Microscope Stage
Prior Scientific, Inc.
 Prior Scientific Inc. has introduced the H117IX3 flattop stage for the Olympus IX3 microscope range. It is suitable for high-precision biomedical and materials science scanning applications, including prolonged live-cell studies.

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Portable Raman Spectrometer
B&W Tek, Inc.
 B&W Tek Inc. has announced the i-Raman Plus portable Raman spectrometer powered by proprietary smart spectrometer technology.

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Wavelength-Stabilized Diode Laser
TOPTICA Photonics, Inc.
 The new iBeam smart WS, a compact OEM diode laser, features reliable wavelength-stabilized laser diodes integrated into Topptica Photonics Inc.'s iBeam smart platform.

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Industry Events

Microscopy & Microanalysis 2013 - August 4 - 8, 2013 - Indianapolis, IN



The annual meeting of the Microanalysis Society in conjunction with the Microscopy Society of America features the latest advances in the biological and physical sciences, techniques and instrumentation. Educational opportunities include a variety of Sunday short courses, tutorials, evening vendor tutorials, pre-meeting workshops, and in-week intensive workshops.

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