Tuesday, May 6, 2025

BioPhotonics
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WEBINARS

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Advancing Raman Spectroscopy by Using Bioresponsive Optical Nanomaterials

Wednesday, May 7, 2025 1:00 PM - 2:00 PM EDT

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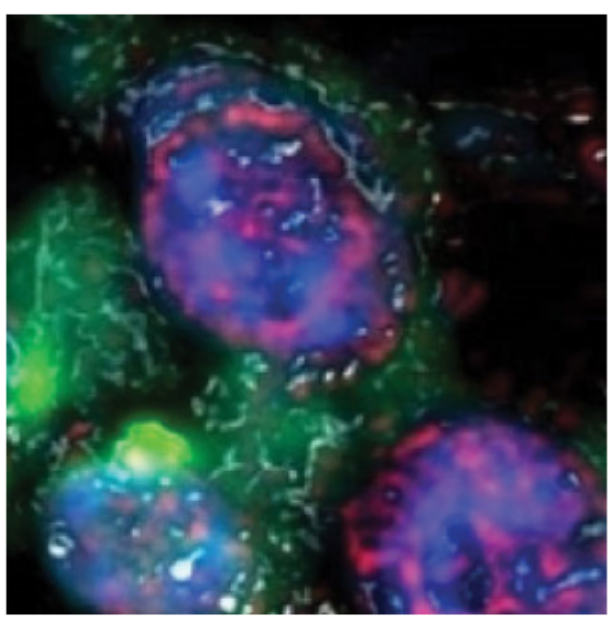
Raman spectroscopy provides label-free molecular characterization by detecting chemical bond vibrations, enabling direct visualization of molecular responses in living cells and tissues. Despite significant advancements, the clinical translation of Raman spectroscopy has been hindered by two key challenges: limited detection sensitivity and insufficient specificity. For instance, it has not found use in imaging enzyme activity, a significant aspect of biomedical research.Leveraging nature-inspired self-assembly strategies, intracellular bioorthogonal enzyme-responsive nanoprobes (nanoSABER) have been developed. Engineered from enzyme-responsive peptides, these nanoprobes assemble into supramolecular structures with distinct Raman-active vibrational signatures upon interaction with targeted enzymes. Incorporating vibrational tags such as alkyne (C=C) and nitrile (C=N) groups within the cell-silent Raman window (1800 to 2600 cm-¹), nanoSABER specifically images enzyme activity with minimal interference from endogenous cellular signals.



Upcoming Webinars

- Laser-Based Particle Analysis: Enhancing Industrial and Biomedical Measurement Systems, 4/29/2025 1:00:00 PM EDT
- How to Select a Precision Automation System for High-Volume Optical Alignment, 5/8/2025 1:00:00 PM EDT
- Terahertz TDS: The Pulse Driving Industrial Innovation, 5/28/2025 10:00:00 AM EDT

Archived Webinars

- Multifunctional Metaoptics: From Science into Your Smartphones
- FLIR MIX – A Breakthrough in Infrared and Visible Imaging
- Introduction to Imaging Radiometry and FLIR Research Studio

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