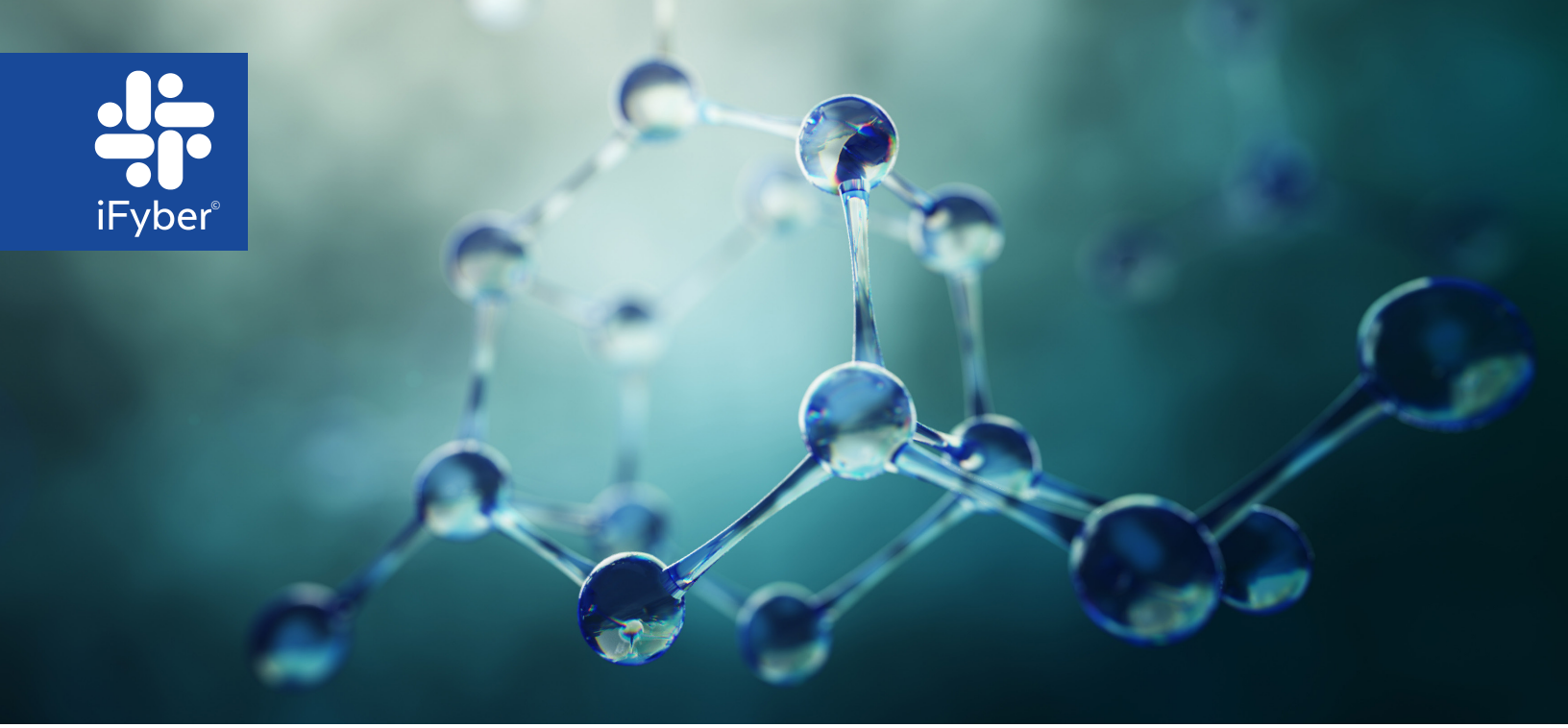
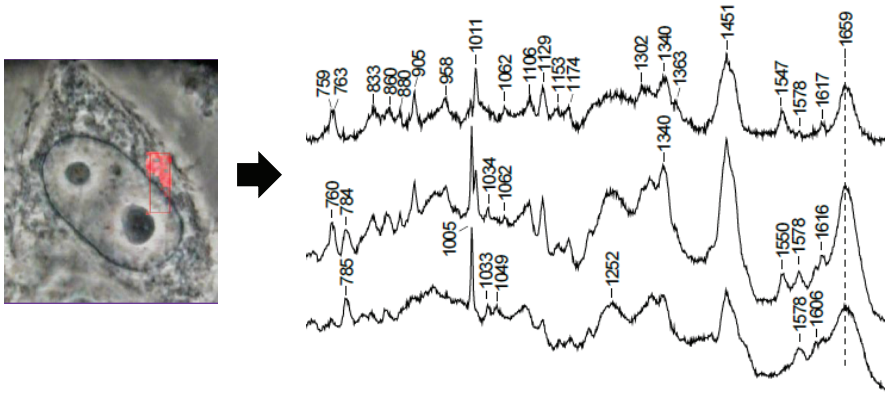


WHAT IS RAMAN SPECTROSCOPY?

Raman spectroscopy is an analytical technique based on the inelastic scattering of light. Upon analyte irradiation, light energy is converted to a unique set of molecular vibrations, producing an analyte-specific “chemical fingerprint”. In general, the resulting spectra provides similar and complimentary information to IR spectroscopy. However, the use of Raman spectroscopy is advantageous in certain experimental setups.

WHY USE RAMAN SPECTROSCOPY?

- ***Water Compatible.*** Cells, tissues, biofluids and other biological samples can be measured with no substantial interference from water.
- ***Flexible.*** Measurements are compatible with multiple laser wavelengths, small sample volumes, and can be taken through transparent packaging.
- ***Non-Destructive.*** Little to no sample preparation is required. Solids, liquids, gels, colloids, slurries, etc. are measured in their native configuration, maintaining sample integrity.



Label-free cellular uptake study of the peptide Transportin, tracked by confocal Raman Spectroscopy. ***(Left)*** A red rectangle indicates the area scanned; shaded areas contain peptide. ***(Right)*** Cellular spectra before ***(Bottom)*** and after ***(Middle)*** peptide incubation. The difference of the two spectra ***(Top)*** highlights peptide bands, including an aromatic mode at 1011 cm^{-1}.

EXAMPLE APPLICATION AREAS

MATERIAL CHARACTERIZATION

A. Coating characterization
B. Component distribution
C. Contamination and corrosion analysis
D. Pigment, paint, and ink identification

PHARMACEUTICALS

A. Distribution and semi-quantitative analysis of active compound(s)
B. Purity analysis

LIFE SCIENCES

A. Cellular uptake and intracellular distribution
B. *In vivo* analysis
C. Metabolite detection in biofluids
D. Tissue penetration and distribution

TRACE CHEMICAL DETECTION USING SURFACE-ENHANCED RAMAN SPECTROSCOPY (SERS)

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