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**Raman on the Go! BioTools Unveils Revolutionary Family of Portable Raman Microscopes**

(Jupiter, FL. March 2, 2015). BioTool's revolutionary new family of portable Raman microscopes bridges the gap between microscopy and spectroscopy, bringing microRaman out of the lab and into the world at large, opening new opportunities for doing the same analyses in different locations with the same instrumentation. They will be finding happy homes in industry and pharma, academe and forensics, art and archeology, doctor's offices and infusion clinics, and food and water safety testing.

Two portable Raman microscopes comprise the new Family: *Mobile µRaman* for particles, liquids, contaminants, and fibers, and *µ-BioRaman*, for protein analysis. Despite being smaller than a portable sewing machine (Figure 1), each combines the imaging strength of optical microscopy with the insight of Raman spectroscopy. Unlike most instruments that move to a smaller format, moving to portable mode has enabled shorter, more efficient light paths; significant drops in laser power that are gentler on the sample, and faster scanning. When coupled with SERS (surface enhanced Raman scatter) substrates or capillaries, these small powerhouses can collect a spectrum in 10 seconds, requiring only 4-8 spectra to generate a well-defined Raman signature (Figure 2).

Both systems offer multiple sample handling modalities (microscope slide, cuvette, vial or syringe), a fast scanning PZT stage for Raman mapping, and an optional battery pack for fieldwork. The flip-up hood, shown raised, retains their small footprint

For contaminants and identification, Mobile µRaman interfaces with BioRad's KnowItAll® Raman ID Expert, a database containing nearly 10,000 Raman spectra (www.knowitall.com). For proteins, BioTools offers their own, world-class library, covering protein spectra in both solution and solid form.

Both models are available in Extended Range (ER) covering 200-3200 $cm^{-1}$ with a spectral resolution of 8 $cm^{-1}$ and High Resolution (HR), covering 200-2000 $cm^{-1}$, with a spectral resolution of 4 $cm^{-1}$.

Mobile μRaman and μ-BioRaman will be live on the PITTCON floor (March 8-12, New Orleans, LA. www.pittcon.org). BioTools founders, Dr. Rina Dukor and Dr. Laurence Nafie will also be on site to answer questions.

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[Images attached]

Figure 1. The size of a portable sewing machine, BioTools' Revolutionary portable Raman microscopes combine multiple sample handling modalities (slide, cuvette, vial, syringe) with high sensitivity and fast Raman mapping. Shown here with its flip-up hood raised.

Figure 2. When combined with SERS, μ-BioRaman clearly differentiates between body fluids found at the scene of a crime, even from μL samples. (a) Spectra of diluted dried human blood, semen, vaginal fluid, saliva, and urine (~4 spectra, 10 sec each with ~1mW @ 785nm) (b) Principal Component Analysis (PCA) using "barcodes" derived from slopes within the spectra. Unpublished results.

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*About BioTools:*

BioTools is the recognized leader in advanced chiro-optical instrumentation, software, and services. We provide solutions for critical molecular structure characterization, from basic research to finished products, for biopharmaceutical and chiral drug research in both academe and pharma.

Founded in 2000, BioTools has R&D, sales, customer support, contract research lab and manufacturing facilities in Jupiter, Florida, and a division, BioTools Europe, headquartered in the United Kingdom. In 2014, BioTools established BioTools China in cooperation with DHS Instruments. Additionally, we enjoy a partnership with several Universities worldwide in operation of Centers for Chirality (EC2, EC3). BioTools co-founder, Dr. Laurence Nafie is the recipient of the prestigious Pittsburgh Spectroscopy Award.