Lyse-it™: a Single Step, Single Platform, Transformational Lysing Technology

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Published online: 9 February 2017
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It gives me great Pleasure to announce that the Institute of Fluorescence at the University of Maryland Baltimore County, USA, has recently launched Lyse-It™, a Maryland based Biotechnology company which has developed a transformative single-step technology for cellular lysing and DNA fragmentation.

There is a long-standing need for rapid and sensitive detection platforms, including point-of-care tests, for a variety of viruses and bacteria. While many technologies such as PCR and others, have the potential to provide results in under 30 min, pathogen identification on these platforms actually takes many hours to complete, mostly due to the upfront sample preparation, or specifically, sample cell lysis. Lysis, the process by which a bacteria or virus is “opened-up” to release its genetic material, is crucial for its detection / identification, and is typically undertaken by adding a chemical cocktail to the sample (lysis buffer) accompanied by heating. This process takes several hours to complete and often involves expensive lysis buffers. Even in non-diagnostic settings such as in research laboratories, lysis is still cumbersome performed by a great number of researchers using the age-old lysing buffer technology.

Lyse-It™

To address this bottleneck of speed, cost, complexity and the fact that many laboratories employ multiple kits for routine testing, Lyse-It LLC has recently launched **Lyse-it™**, a means to lyse virtually any cell, spore or virus rapidly (typically <20 s) in a single-step on a single platform, thereby enabling the genetic material (e.g. DNA) to be collected for downstream analysis on any platform.

The Lyse-It™ technology uses focused microwaves in small *disposable* sample chambers, which readily allow the user to lyse cellular samples with near-100% efficiency, within 20 s on a single platform at a cost less than other technologies available today. Importantly, this lysing approach is generic to a whole range of cells and viruses, i.e., is a single platform (one size fits all), unlike traditional lysing buffer approaches that all use multiple kits for different media. Given the widespread use of fluorescence spectroscopy today for cellular analysis, we envisage this new ground breaking approach will be of particular interest to users of Fluorescence.

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Maryland, February 4th 2017.