

TECHNOLOGY/BUSINESS OPPORTUNITY

HANDHELD PCR INSTRUMENT

Opportunity:

Lawrence Livermore National Laboratory (LLNL), operated by the Lawrence Livermore National Security (LLNS), LLC under contract no. DE-AC52-07NA27344 (Contract 44) with the U.S. Department of Energy (DOE), is offering the opportunity to secure a license to exercise patent rights for commercializing its Handheld PCR Instrument technology.

Background

Polymerase chain reaction (PCR) is a powerful laboratory research and diagnostic technique used to amplify small amount of DNA or RNA in samples by many orders of magnitude. Small quantities of DNA or RNA, such as those found in small shards of shrapnel in a battlefield wound, are often not enough to analyze for potential contagions. Amplifying these samples through PCR supplies scientists and investigators alike with sufficient quantity of genetic material to conduct their research or tests. DNA, and particularly RNA, however, are often prone to rapid degradation. Transporting samples from the battlefield to the lab while maintaining their viability is thus an onerous endeavor, which necessitates on-site, real-time PCR technology.

Description

The LLNL invention has two assay chambers wherein each chamber is comprised of another two chamber modules. This allows the device to process up to two assays per chamber module, or four total assays per biological sample. These two duplex assays are each fed by parallel interrogation ports while the device still maintains a small physical profile. Each port has its own LED for excitation, allowing the second assay to have particularly improved excitation. The excitation of both assay chambers is achieved by a much simplified and straightforward optical system, which lowers the size, complexity, and cost of the device while increasing reliability and performance.

Advantages

- Small and compact design allows for easy transport of an otherwise not easily transportable assay device
- Real-time aspect lends its usefulness in time-sensitive scenarios
- Up to four assays per single biological sample

Potential Applications

- Rapid law enforcement or battlefield detection of pathogens or other diseases
- Rapid detection of disease or possible biological causes of injury/death in clinical and non-clinical domestic settings
- Further development of availability to be a ubiquitous research and educational tool in addition to its current applications

Development status

LLNL currently holds a patent [6,699,713](#) for the invention "Polymerase chain reaction system." (LLNL internal reference # IL-10517).

Please visit the IPO website at <https://ipo.llnl.gov/resources> for more information on working with LLNL and the industrial partnering and technology transfer process.

Note: **THIS IS NOT A PROCUREMENT**. Companies interested in commercializing LLNL's Handheld PCR Instrument should provide a written statement of interest, which includes the following:

1. Company Name and address.
2. The name, address, and telephone number of a point of contact.
3. A description of corporate expertise and facilities relevant to commercializing this technology.

Written responses should be directed to:

Lawrence Livermore National Laboratory

Innovation and Partnerships Office

P.O. Box 808, L-795

Livermore, CA 94551-0808

Attention: FBO 431-19

Please provide your written statement within thirty (30) days from the date this announcement is published to ensure consideration of your interest in commercializing LLNL's Handheld PCR Instrument technology.