GnuBIO acquires exclusive world wide rights to novel microfluidics and emulsion methodologies for DNA sequencing

I-Micronews

The rights to this technology will enable production of a DNA sequencer that has the capability to sequence the human genome at 30X coverage below $100, and also has the capability to run diagnostic scale batches (tens of samples) across a small candidate gene region at 100X coverage for less than $2/sample. GnuBIO is a Harvard-based startup company formed around technology developed by David Weitz, Mallinckrodt Professor of Physics and Applied Physics in the Harvard School of Engineering and Applied Sciences (SEAS) and Department of Physics.

“We encourage and foster the formation of new entities around new technologies and innovations developed within Harvard’s research enterprise”, stated **Isaac Kholberg**, Senior Associate Provost and Chief Technology Development Officer at Harvard. *“GnuBIO has licensed a novel approach developed in the laboratory of one of the world’s leading experts in microfluidics and emulsion- based technology.”*

Unlike current and emerging technology, GnuBIO will develop and commercialize methodologies to sequence DNA that, for the first time, will allow costs to scale as a function of both sample number and genomic region analyzed. “Current methodologies utilize a 2D matrix, such as a chip or bead, and therefore large sample numbers, and broad genomic regions, must be analyzed in order to amortize the cost of the run,” stated Weitz. *“Whether a user runs 1 sample across a 1Kb region, or 1,000 samples, each, across a 1Kb region – the cost/sample will remain the same with the GnuBIO system,”* **Weitz** continued.

This will revolutionize healthcare and enable personalized medicine, as the system will enable clinicians and diagnostic labs to cost effectively analyze smaller batches of samples across a genomic region at a cost per patient that is an order of magnitude lower than with current and emerging technology. The GnuBIO system will also provide an answer within minutes as compared to a several days turn-around time, thus providing faster diagnosis and better care for the patient.

By utilizing a high throughput, emulsion-based methodology combined with GnuBIO’s proprietary picoinjector, GnuBIO utilizes a solution-based approach and has eliminated the fixed surface cost, resulting in a scalable technology immediately applicable to the unmet needs in the Applied, and diagnostic markets. “This represents a paradigm shift in genomic analysis as researchers or clinicians will only pay for the genomic regions they run – with the option, not the necessity, to run large numbers of samples”, stated John Boyce, co-founder of GnuBIO. *“GnuBIO is creating a single DNA analysis system that*

has the flexibility of meeting the needs of multiple market segments,” **Boyce** continued.

The GnuBIO system is not limited to DNA sequencing, as the combination of GnuBIO’s picoinjector with its novel microfluidic approach will allow any assay that works in a test tube, to be run within the emulsions of the GnuBIO system. The GnuBIO system carries out both the reaction and detection at a throughput orders of magnitude faster and cheaper than with current methodologies.

“We are delighted that such a promising technology invented by engineers at Harvard will be developed for commercial application,” added **Cherry A. Murray**, dean of the Harvard School of Engineering and Applied Sciences. *“Supporting innovation and building collaborative relationships with industry is an essential part of our mission.”*

Lead developer Weitz is also the Director of the Materials Research Science and Engineering Center at Harvard (supported by the National Science Foundation); the Co-Director of the Kavli Institute for Bionano Science and Technology at Harvard; and the Co-Director of the BASF Advanced Research Initiative at Harvard.

About GnuBIO
GnuBIO is a pioneer in the field of scalable DNA sequencing technology for the Diagnostic and Applied Markets. Utilizing its proprietary microfluidic and emulsion technologies, GnuBIO will work within these markets to develop nucleic acid analysis based systems that scale as function of both patient sample and genomic region. The GnuBIO system has the capability of running numbers of samples that are in line with Diagnostic and Applied market endeavors for a cost that represents orders of magnitude less than current technology.

The same system also has the headroom to compete in the high throughput market, and will achieve a comparable output, in hours, to what the leading technology takes weeks to produce.

SOURCE [1]

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[1] http://www.i-micronews.com/lectureArticle.asp?id=5347