

Fluidigm Introduces World's First Reusable Bio-Chip Architecture

Company Commits New Product Line to Support USDA Agricultural Research Service's "Penny-per-Data-Point" Program for High Sample Throughput Genotyping

SOUTH SAN FRANCISCO, Calif., June 8, 2010 – Fluidigm Corporation today announced it has developed the world's first reusable bio-chip architecture for the commercial market. These reusable integrated fluidic circuits (IFCs) will dramatically lower SNP genotyping costs and are designed to support accelerated sample throughput, while maintaining data quality of 99.75 percent or greater accuracy and 99 percent or greater call rates.

Fluidigm initially invented this architecture to support a progressive new program driven by the Agricultural Research Service (ARS), the chief scientific research agency of the United States Department of Agriculture (USDA). The program's goal is to drive high sample throughput genotyping down to a penny-per-data-point, which would enable widespread adoption of genetic analysis in vegetable and fruit seeds, livestock (cattle, pigs, sheep, poultry, etc.) and fishery management. This will significantly improve the quality and quantity of the food supply, while lowering production costs.

"We know that the wise use of genetics in agriculture can significantly improve our ability to predict an animal's or seed's capability to withstand disease, to produce high-quality product and to enhance a productive life. The ongoing challenge has been that genotyping simply costs too much to run the large number of experiments required to find the genetic markers that matter. Then, once found, the cost is still too prohibitive to implement these genetic quality controls across the millions and millions of seeds, animals and fish that make up our food production system," explained Curt Van Tassell PhD., ARS Research Geneticist.

"We determined that modest cost reductions were not sufficient to transform the traditional selection practices that would dramatically improve our food supply. We decided to set a 'moon shot' type of goal. To achieve a tipping point necessary to transform industry and scientists, we needed to decrease the cost-per-data-point down to a penny – all in (chemical reagents, consumables, etc.)," added Van Tassell. "If we could achieve that type of cost structure, it would allow us to determine parentage and traceability information for under a dollar per animal. This low price point would allow animal evaluations under conditions that were not feasible before – such as in sub-Saharan Africa. This technology could provide the information to improve animals for some of the world's poorest livestock producers. By developing and using breed or trait specific panels, we can realize substantial gains in productivity across cattle as well as other livestock and plant species."

Fluidigm's new reuse architecture represents the first step towards making this lofty goal a reality.

"We are elated that Fluidigm's reusable bio-chip can contribute to improving the food supply and bring the benefits of genetic analysis and testing to AgBio scientists and producers around the globe," said Gajus Worthington, president and chief executive officer of Fluidigm. "A year ago, when we set out to develop a reusable chip, the notion was controversial. But we thought the idea was compelling – and so did our customers. I am so pleased that our scientists and engineers weren't inhibited by traditional thinking that believed reusability in the microfluidic device was impossible. Instead of acquiescing to the norm, they overcame the dogma of the past and achieved an engineering marvel. I believe reusability will be revolutionary for our industry and the life science fields we serve. Reusability lowers costs, eliminates waste and confers flexibility. I can't think of an invention we've made at Fluidigm that has excited me more."

Worthington said that the company had also recently introduced an ultra-fast thermal cycler – the FC1™ Cycler – and is adding a new IFC controller designed to support reusable chips. Initially the reuse family of products will include chips, a new controller, the FC1 Cycler and either the EP1™ Reader or BioMark™ System. A new chip and instrument will be announced imminently to start high-sample throughput genotyping customers down the reusable path. "We expect to bring additional chip configurations, instruments and assays to the market place over this year and next that will make reusability practical for more customers, continue to lower costs per data point and set a course for genetic analysis to contribute to a better food supply for the world," said Worthington.

Application of Fluidigm's reuse technology will also contribute to the life science industry's competitiveness.

"We have recently added the Fluidigm system to the family of genomic services we offer our clients. We are seeing a great and growing need for high-quality, cost-effective genetic testing services from plant and animal researchers. We have done some work in this area, but cost has always been a barrier. Fluidigm's new reusable chips will enable our agriculture-based customers to realize the tremendous benefits of SNP genotyping at significantly reduced costs," said Steve McPhail, Expression Analysis's President and Chief Executive Officer. Expression Analysis Inc. is a leading provider of genomic services for clinical trials and research.

The ARS program, led by Dr. Van Tassell, plans to integrate reusable chips into their program to identify molecular markers to determine how to raise the predictive accuracy of evaluated traits in cattle (Van Tassell's research focus), thus increasing the rate of productivity improvement. The ARS projects have involved top researchers in government, academia and industry to find the best and most cost-effective genetic testing markers and methods to improve the quality and productivity of the nation's agricultural resources.

The Agricultural Research Service (ARS) is the [U.S. Department of Agriculture's](#) chief scientific research agency. Its job is finding solutions to agricultural problems that affect Americans every day, from field to table.

About Fluidigm

Fluidigm develops, manufactures and markets proprietary Integrated Fluidic Circuit (IFC) systems that significantly improve productivity in life science research. Fluidigm's IFCs enable the simultaneous performance of thousands of sophisticated biochemical measurements in extremely minute volumes. These "integrated circuits for biology" are made possible by miniaturizing and integrating liquid handling components on a single microfluidic device. Fluidigm's systems, consisting of instrumentation, software and single-use chips, increase throughput, decrease costs and enhance sensitivity compared to conventional laboratory systems.

For more information, please visit www.fluidigm.com

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