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Single-Cell DNA Sequencing Workflow Study Somatic Mutation

Fluidigm Launches Single-Cell DNA Sequencing Workflow to Study Somatic Mutations in Heterogenous Samples
Universal Sample Prep Workflow on C1™ Single-Cell Auto Prep System Simplifies Genome-Wide and Targeted Sequencing

SOUTH SAN FRANCISCO, Calif. – Dec. 24, 2013– Fluidigm Corporation (NASDAQ:FLDM) today announced a universal sample prep workflow for single-cell DNA sequencing that runs on its C1™ Single-Cell Auto Prep System. This workflow streamlines targeted, whole exome and whole genome sequencing in heterogeneous cell populations and enables researchers to discover and screen somatic mutations, such as SNP, small indels, and translocations.

Somatic mutations are non-inherited, random mutations that are accumulated over time and may play an important role in the origin and progression of complex diseases, such as aging, cancer, immunity, and neurodegenerative disorders.

"Somatic mutations are often masked in sequencing of bulk tissue, leaving researchers with the risk of missing important, causal variants that elucidate disease mechanisms. Understanding somatic mutations can help identify more effective therapies," said Gajus Worthington, Fluidigm president and chief executive officer. "The C1 DNA Sequencing workflow is the first to fully automate cell handling, imaging, staining, and whole genome amplification, all at a single-cell level. It enables researchers with a comprehensive suite of single-cell sequencing applications they can use to identify and screen novel DNA variants from heterogeneous samples at unprecedented resolution and speed," he added.

"Human leukemia, such as Acute Myeloid Leukemia (AML), is a genetically heterogeneous disease caused by the accumulation of somatic mutations in hematopoietic stem/progenitor cells. These mutations change the normal mechanisms of self-renewal, proliferation, and differentiation of cells in the blood and are highly variable between AML patients," said Paresh Vyas, MD/PhD and Hematologist at the MRC Molecular Hematology Unit, University of Oxford and Oxford Biomedical Research Centre. "We can use the C1 DNA Sequencing workflow to detect genetic changes that identify clonal structures to more accurately classify tumors. This will lead to better understanding of prognosis including risk of recurrence and possibly even overall survival," Vyas explained.

From discovery of disease factors to validating the most effective treatment, researchers can now use the C1 Single-Cell DNA Sequencing workflow for:

- Single-Cell Targeted Resequencing to screen for known mutations or identify signatures that may identify disease susceptibility, progress, or therapeutic efficacy. The C1 workflow is compatible with the Fluidigm Access Array™ System and D3™ Assay Design service (Fluidigm's customized primer design service for targeted resequencing, gene expression, and genotyping);
- Single-Cell Exome Sequencing to discover functionally relevant mutations in protein coding regions of the genome; and
- Single-Cell Whole Genome Sequencing for its comprehensive approach, allowing the discovery of all possible somatic mutations in both functional and regulatory regions of the genome.

The new workflow consists of the C1 Integrated Fluidic Circuits, C1 Reagent kit, and validated scripts, and also leverages the GE illustra GenomiPhi V2 DNA Amplification Kit for whole genome amplification. The C1 DNA Sequencing workflow will be further enhanced by Fluidigm's SINGuLAR™ Analysis Toolset 3.0, which will include new features to filter, visualize, and rapidly identify biologically relevant variants. The toolset can also be used to create custom variant groups to fit the specific needs of any clinical researcher.

This workflow allows researchers to:

- Isolate and prepare sequencing-ready libraries directly from individual cells;
- Achieve uniform chromosomal coverage (>94%) with low allelic bias;
- Yield enough amplicon from an individual cell for two subsequent sequencing runs and quality control;
- Process, sequence, and analyze 96 single cells in parallel in under 24 hours, with less than six hours of hands-on

time; and
- Use the new D3™ Assay Design Service to create custom panels to interrogate up to 480 genomic targets per cell.

The targeted sequencing workflow is currently available for early access customers. The whole genome and whole exome applications is expected to be released in early 2014.

USE OF FORWARD-LOOKING STATEMENTS

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements relating to Fluidigm's new products, its plans, objectives, expectations and/or strategies relating to such new products, the field of single-cell genomics research and potential developments in the emerging market. Forward-looking statements are subject to numerous risks and uncertainties that could cause actual results to differ materially from currently anticipated results, including challenges inherent in developing, manufacturing, and launching new products and risks relating to research and development activities and the growth of emerging markets. Information on these and additional risks affecting Fluidigm's business and operating results are contained in its filings with the Securities and Exchange Commission, including its most recently filed Quarterly Report on Form 10-Q for the quarter ended September 30, 2013. These forward-looking statements speak only as of the date hereof and Fluidigm disclaims any obligation to update these statements.

About Fluidigm

Fluidigm (NASDAQ:FLDM) develops, manufactures, and markets microfluidic systems to leading academic institutions, clinical laboratories, and pharmaceutical, biotechnology, and agricultural biotechnology companies in growth markets, such as single-cell genomics, applied genotyping, and sample preparation for targeted resequencing. Fluidigm's proprietary microfluidic systems consist of instruments and consumables, including 18 different commercial integrated fluidic circuits for nucleic acid analysis, and three families of assay chemistries. These systems are designed to significantly simplify experimental workflow, increase throughput, and reduce costs, while providing the excellent data quality demanded by customers. Fluidigm products are provided: "For Research Use Only. Not for use in diagnostic procedures."

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Contact
Michaeline Bunting
Senior Director, Marketing
Fluidigm Corporation
650 737 4190
michaeline.bunting@fluidigm.com