Celldom Awarded Phase II SBIR Grant to Advance Next Generation, High Throughput Single Cell Analysis Platform

System integrates phenotypic and genomic information at massive scale to define heterogeneity in cell populations, accelerate research, drug discovery and drug development

DURHAM, NC, September 12, 2018 – Celldom, Inc. today announced that it has been awarded a $1.5 million Phase II Small Business Innovation Research (SBIR) grant by the National Institutes of Health's National Institute of General Medical Sciences to advance its next generation, high throughput single cell analysis platform to define heterogeneity within cell populations. The platform, which is designed to integrate both phenotypic and genomic data at massive scale, has broad potential to accelerate basic research, drug discovery, and drug development.

"Heterogeneity within cell populations is emerging as an area of intense research interest based on advances in understanding the extraordinary diversity of phenotypic, genetic, and biochemical responses of individual cells within complex cell populations," said Zachary Forbes, PhD, Celldom's co-founder, President and CEO. "Rare cellular events are frequently key drivers of biological processes and disease, such as drug resistance. Celldom's platform is designed to solve three key needs in single cell analysis: reaching scale sufficient to identify rarely-occurring cells, automating integrated image-based phenotyping and facilitating high resolution genomic analyses. The integrated platform promises to rapidly interrogate the mechanisms of underlying differences in cell response to drugs or other stimuli. This grant will accelerate our development timeline."

Dr. Forbes noted that the company plans to initially commercialize the technology, called the TrapTx Analyzer System, as a research service in 2018 and launch its first commercial systems by late 2019 with a focus on oncology, immunology and stem cell biology applications.

The Celldom platform consists of hardware for image-based, phenotypic analysis that is adaptable to standard high-resolution microscopes; single-use, DNA-barcoded microfluidic chips containing tens to hundreds of thousands of 'apartments' for isolating and perturbing single cells; and cloud-based software analytics. The system allows the cells to be cultured for days to weeks to capture phenotypic information over time, such as cell proliferation, migration and interaction with the environment. The platform is also designed to integrate with multiple genomic datasets and,

through DNA barcoding, enable analysis of genomic mechanisms of individual cell behavior.

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The Phase II award follows a successful Phase I grant in which the company successfully demonstrated that the platform can efficiently organize tens of thousands of single cells on a standard cell culture plate sized microfluidic chip, and then track the growth rates of single cell clones over time.

This Phase II project will advance a functional platform to validate its ability to integrate the isolation, stimulation, phenotyping and genomic analysis of a single cell population in a combined workflow. The specific focus of the grant is on screening and analysis of drug resistant cancer cells.

"Cancer patients often relapse because their tumors contain drug resistant cells, which though initially present at small fractions, become enriched during treatment to yield incurable tumors. Traditional approaches to identify, isolate, and then examine drug resistant cells can require months of labor-intensive work, which is often prohibitive for the early stages of drug candidate identification," said Kris Wood, PhD, Celldom co-founder and Assistant Professor of Cancer Biology at Duke University. "Our system has great potential to rapidly test for drug resistant cells and provide insights towards developing therapeutics that target resistance mechanisms. Celldom has created an open platform for innovation across a myriad of cell types and applications where rare events in biology require investigation."

About Celldom, Inc.
Celldom is developing next generation, high throughput single cell analysis technology to advance research, drug discovery, and drug development by illuminating diversity in cell populations. The company's TrapTx Analyzer System uniquely integrates both phenotypic and genomic data at massive scale (up to 100,000s of cells per experiment) to identify and characterize rare cells that play critical roles in biological pathways and disease. Celldom is developing initial applications of the platform in the areas of oncology, immunology and stem cell biology. Learn more at www.celldom.com and follow the company's growth @celldominc on Twitter.

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