Publication in the Journal for Clinical Cancer Research Uses NanoString's GeoMx™ Digital Spatial Profiler to Discover Predictive Biomarkers for Immunotherapy

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Researchers Used GeoMx™ Digital Spatial Profiler to Identify Biomarkers Predictive for Objective Response, Progression Free Survival and Overall Survival for Melanoma Patients Receiving Immunotherapy

SEATTLE, June 18, 2019 (GLOBE NEWSWIRE) -- NanoString Technologies, Inc. (NASDAQ:NSTG), a provider of life science tools for translational research and molecular diagnostic products, today announced a publication in the journal *Clinical Cancer Research* of a collaborative research study led by investigators from the Yale School of Medicine. This paper represents the fourth peer-reviewed publication to describe GeoMx DSP. The article, entitled "High-plex predictive marker discovery for melanoma immunotherapy treated patients using Digital Spatial Profiling," used the GeoMx™ Digital Spatial Profiler (DSP) to identify biomarkers that were predictive for response to immunotherapy for the treatment of melanoma.

(http://clincancerres.aacrjournals.org/content/early/2019/06/12/1078-0432.CCR-19-0104).

The GeoMx Digital Spatial Profiler enables researchers to rapidly and quantitatively characterize tissue morphology with a high-throughput, high-plex RNA and protein profiling system that preserves clinical samples for future analyses. NanoString and its collaborators have presented GeoMx DSP data in more than 30 abstracts at major scientific meetings, demonstrating the utility of DSP technology to address a wide range of biological questions in Formalin Fixed Paraffin Embedded (FFPE) tissues.

Prediction of patient response to immunotherapy remains a challenge using conventional profiling strategies due in part to the inherent heterogeneity of the tumor microenvironment. Dr. David Rimm and colleagues addressed this problem using NanoString's GeoMx DSP to interrogate specific cell populations within the tumor from pretreatment biopsies of patients with melanoma who received checkpoint inhibitors. The GeoMx DSP enabled them to correlate clinical outcomes with the expression of 44 proteins in 3 independent spatially-resolved compartments (macrophage, leukocyte, and melanocyte). They observed that PD-L1 expression in the macrophage compartment, but not the tumor cells, was predictive for objective response, progression free survival and overall survival.

Furthermore, the researchers demonstrated that DSP data were highly concordant to automated quantitative analysis of immunofluorescence (AQUA), which provides quantitative measurement of protein abundance. This validation with an independent platform provides evidence that the GeoMx DSP data are robust and gives confidence in the biological conclusions of the research study.

"We leveraged the DSP platform in this study to explore potential biomarkers of response to immunotherapy within specific cellular compartments of the tumor microenvironment. After benchmarking the DSP system against automated quantitative immunofluorescence and seeing good concordance of results, we applied DSP to a cohort of melanoma patients receiving immunotherapy," said David Rimm, M.D., Ph.D., Professor of Pathology and Medicine, Yale University. "We identified numerous potential biomarkers that were expressed in a compartment-specific fashion and were associated with clinical response and/or survival. DSP allowed us to interrogate a large number of targets using a small amount of tissue. This and future work may accelerate the development of novel biomarkers in a field that urgently needs better mechanisms for patient selection."

"We're pleased to be working with key thought leaders in the pathology community to demonstrate the unique insights that can be gained through spatial profiling," said Brad Gray, NanoString's president and CEO. "This study demonstrates the power GeoMx DSP to identify biomarkers that are unique to a spatially-defined tissue compartment. We look forward to future studies in which GeoMx DSP may be able to provide key insights into mechanisms of disease progression and the assessment of individual response to therapy."

In October 2018, two independent studies in *Nature Medicine* used the GeoMx DSP identify biomarkers correlating with response to neoadjuvant therapy in patients with high-risk melanoma.
https://www.nature.com/articles/s41591-018-0198-0
https://www.nature.com/articles/s41591-018-0197-1

In December 2018, researchers from Genentech published a paper in the *Journal of Pathology* reviewing their experience using DSP.
https://onlinelibrary.wiley.com/doi/full/10.1002/path.5223

Interested parties can learn more about DSP by visiting https://www.nanostring.com/scientific-content/technology-overview/digital-spatial-profiling-technology.

The GeoMx Digital Spatial Profiler is for Research Use only and not for use in diagnostic procedures.

About NanoString Technologies, Inc.

NanoString Technologies is a leading provider of life science tools for translational research and molecular diagnostic products. The company's nCounter® Analysis System is used in life sciences research and has been cited in more than 2,600 peer-reviewed publications. The nCounter Analysis System offers a cost-effective way to easily profile the expression of hundreds of genes, proteins, miRNAs, or copy number variations, simultaneously with high sensitivity and precision, facilitating a wide variety of basic research and translational medicine applications, including biomarker discovery and validation. The company's GeoMx™ Digital Spatial Profiler enables highly-multiplexed spatial profiling of RNA and protein targets in a variety of sample types, including FFPE tissue sections. The company's technology is also being used in diagnostics. The Prosigna® Breast Cancer Prognostic Gene Signature Assay together with the nCounter Dx Analysis System is FDA 510(k) cleared for use as a prognostic indicator for distant recurrence of breast cancer.

For more information, please visit www.nanostring.com.

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This news release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 and the Private Securities Litigation Reform Act of 1995. These forward-looking statements include statements regarding the ability of GeoMx Digital Spatial Profiler to contribute to scientific research that would lead to the identification of biomarkers used for patient selection and assessing individual patients' response to therapy. Such statements are based on current assumptions that involve risks and uncertainties that could cause actual outcomes and results to differ materially. These risks and uncertainties, many of which are beyond our control, include market acceptance of our products; delays or denials of regulatory approvals or clearances for products or applications; delays or denials of reimbursement for diagnostic products; the impact of competition; the impact of expanded sales, marketing, product development and clinical activities on operating expenses; delays or other unforeseen problems with respect to manufacturing, product development or clinical studies; adverse conditions in the general domestic and global economic markets; as well as the other risks set forth in the company's filings with the Securities and Exchange Commission. These forward-looking statements speak only as of the date hereof. NanoString Technologies disclaims any obligation to update these forward-looking statements.

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