NanoString Showcases GeoMx and Hyb & Seq Platforms at 2019 Advances in Genome Biology and Technology (AGBT) Conference

February 27, 2019

Nine Studies of GeoMx DSP for High-Plex Spatial RNA Profiling and Three Studies of Hyb & Seq for Clinical Applications

SEATTLE, Feb. 27, 2019 (GLOBE NEWSWIRE) -- NanoString Technologies, Inc. (NASDAQ:NSTG), a provider of life science tools for translational research and molecular diagnostic products, today announced a wave of studies demonstrating the power and potential of its two major pipeline products. Both the GeoMx™ Digital Spatial Profiler (DSP) and the novel Hyb & Seq™ sequencing chemistry leverage NanoString's optical barcoding technology to address new market opportunities in biologic research and diagnostics. These technologies will be showcased in a total of twelve scientific studies (three oral presentations and nine posters), at the Advances in Genome Biology and Technology (AGBT) conference being held at the JW Marriott in Marco Island, Florida.

"We are delighted that our emerging products are garnering so much visibility at AGBT, the bellwether conference for showcasing biological research tools and emerging applications," said Brad Gray, president and CEO of NanoString. "We are particularly excited that our GeoMx DSP system will be so strongly featured. The NanoString team, our Technology Access Program participants, and our beta sites are presenting a total of nine studies highlighting spatial RNA and protein profiling of more than 250 tumor biopsy sections from seven different cancer types."

GeoMx Digital Spatial Profiling

GeoMx DSP enables high throughput multiplex spatial profiling of RNA and protein targets in a variety of sample types, including FFPE tissue sections. The full launch of the GeoMx DSP platform is scheduled to take place at the upcoming meeting of the American Association of Cancer Research (AACR) being held March 29-April 3, 2019, and over 30 systems have already been pre-ordered. At AGBT 2019, studies performed by six leading academic researchers demonstrate three major achievements for GeoMx DSP:

- *Largest multi-analyte GeoMx DSP study to date*: Researchers from Stanford University studied 150+ FFPE tissue biopsies from breast cancer patients undergoing sequential treatments of HER2 inhibitors and chemotherapy, profiling 40+ proteins and 100+ mRNAs.
- *High-Plex RNA profiling with NGS readout*: Three independent studies led by leading academic researchers demonstrate GeoMx DSP's ultra-high-plex RNA chemistry read out using next generation sequencing. Each experiment spatially profiled 1,400+ mRNAs, illustrating the platform's high precision and opportunity to map biological pathways in space.
- *First Results from Spatial Genomics Center of Excellence*: Researchers from the Broad Institute will share high-plex spatial RNA and protein analysis generated using a beta instrument run on-site covering six different tissue types.

NanoString is accepting applications to a Technology Access Program for its DSP technology at TAP@Nanostring.com. To learn more about GeoMx DSP, please visit https://www.nanostring.com/scientific-content/technology-overview/digital-spatial-profiling-technology

Hyb & Seq Technology

NanoString's proprietary Hyb & Seq chemistry is designed to enable a workflow that is simpler and faster than current sequencing methods due to the absence of library preparation, enzymes and amplification. Hyb & Seq's simple workflow, compatibility with a variety of sample types, and ability to sequence both DNA and RNA in parallel offer the potential for an ideal sample-to-answer solution for clinical sequencing. The Hyb & Seq platform is expected to be commercially launched in 2021. At AGBT 2019, studies performed in collaboration with two leading academic researchers demonstrate ongoing progress in technology development:

- *First Data from Fully-Scaled Sequencing Chemistry:* Researchers from the University of Cambridge will present the first sample-to-answer workflow using all 4,096 Hyb & Seq barcodes, sequencing the entire coding region of the TP53 gene.
- *Infectious Disease Testing Capability:* Researchers from the Broad Institute will present a technique for Hyb & Seq-enabled culture-independent pathogen identification and rapid phenotypic antibiotic susceptibility testing.
- *Updated Sequencing and Analysis Pipeline:* NanoString scientists will introduce a novel end-to-end sequencing analysis pipeline, HexSembler™, designed to assemble Hyb & Seq readout and accurately detect genomic variants.

A detailed list of presentations and posters covering the GeoMx DSP and Hyb & Seq technology is provided below. The GeoMx DSP and Hyb & Seq technology are currently for research use only and are not for use in diagnostic procedures.

Silver Sponsor Workshop

Date/Time: Thursday February 28, 4:20 – 5:20pm ET
Location: Palms Ballroom

Joseph M. Beechem, Sr. Vice President of Research & Development, NanoString Technologies, Seattle, WA, USA
"GeoMx™ Digital Spatial Profiler: Delivering on the promise of Spatial Genomics"

Peter Nelson, Member, Divisions of Human Biology and Clinical Research, Fred Hutchinson Cancer Research Center, Seattle, WA, USA
"Mapping the microenvironment composition in metastatic prostate cancer by multi-analyte profiling using the GeoMx Digital Spatial Profiler"

John McPherson, Deputy Director and Associate Director for Basic Science at UC Davis Comprehensive Cancer Center, Davis, CA, USA
"Spatially resolving RNA biomarkers using GeoMx Digital Spatial Profiler for early diagnosis and prognosis in melanoma"

GeoMx DSP Oral Presentations:

Spatial and temporal profiling of protein and RNA in the tumor-immune microenvironment during short-term targeted therapy in HER2-positive breast cancer using GeoMx™ Digital Spatial Profiler

Author: Katherine McNamara et al. Stanford University, Palo Alto, CA, USA

Date/Time: Thursday February 28, 8:50 – 9:10pm ET (Concurrent session: Cancer)

Largest multianalyte biomarker discovery study performed to-date on the GeoMx DSP platform. Profiled 40+ proteins and 100+ mRNAs across multiple regions of interest from 150+ FFPE tissue biopsies from breast cancer patients undergoing sequential treatments of HER2 inhibitors and chemotherapy.

Cell Atlases as road maps to human disease

Author: Aviv Regev, The Broad Institute, Cambridge, Massachusetts, USA

Date/Time: Thursday February 28, 9:00-9:30am ET (Plenary)

First demonstration of high-plex spatial RNA and protein analysis of 6 different tissue types using a beta instrument at Nanostring's Spatial Genomics Center of Excellence

Reconstruction of the tumor landscape
Author: Denis Schapiro, The Broad Institute, Cambridge, Massachusetts, USA

Date/Time: Thursday February 28, 11:33 – 11:36am ET (Flash talk in Calusa Ballrooms 6-12)

Poster #: 119

Study focused on evaluating precision of spatial analysis in preclinical samples as well as performing spatial pathway mapping across multiple tumor samples.

GeoMx DSP Poster:

Spatially resolving RNA biomarkers using GeoMx™ Digital Spatial Profiler for early diagnosis and prognosis of melanoma

Authors: John D. McPherson et al. University of California, Davis, CA, USA

Date/Time: Thursday February 28, 1:00 – 2:30pm ET

Poster #: 113

Demonstrates high level of technical and biological reproducibility of the high-plex RNA chemistry with next generation sequencing readout. Moreover the study focused on identifying biomarkers that predict the likelihood of progression from dysplastic nevi to advance stages of melanoma.

Mapping the microenvironment composition in metastatic prostate cancer by multi-analyte profiling using GeoMx™ Digital Spatial Profiler

Authors: Peter Nelson et al. Fred Hutchinson Cancer Research Center, Seattle, WA, USA

Date/Time: Thursday February 28, 1:00 – 2:30pm ET

Poster #: 115

This study highlights the importance of high-plex spatial profiling to subtype prostate cancers at a resolution that cannot be readily achieved using traditional IHC technology or RNAseq. Using spatial profiling of RNA and protein, unique marker populations associated with typical adenocarcinoma phenotype vs neuroendocrine phenotype can be identified.

Single-cell protein profiling of immune cells within the tumor microenvironment using NanoString GeoMx™ Digital Spatial Profiling

Authors: Youngmi Kim et al. NanoString Technologies, Seattle, WA, USA

Date/Time: Thursday February 28, 1:00 – 2:30pm ET

Poster #: 601

This study highlights the resolution of the platform to select, illuminate and spatially profile proteins at single cell scale. This proof of concept experiment demonstrates resolution capability that enables cell phenotyping applications.

In situ RNA expression profiling of 1600+ immuno-oncology targets in FFPE tissue using NanoString GeoMx ™ Digital Spatial Profiler

Authors: Margaret Hoang et al. NanoString Technologies, Seattle, WA, USA

Friday March 1, 4:40 – 6:10pm ET

Poster #: 514

This study demonstrates the performance of the high plex spatial RNA chemistry. A 1412 spatial RNA plex panel compatible with next generation sequencing readout was designed to capture tumor and immune biology. The high plex RNA probes were tested across 23 well characterized fixed cell lines as well as FFPE tissue sections to ensure specificity and precision of the assay.

Comprehensive spatial RNA profiling of tumor, microenvironment and immune response pathways with the NanoString GeoMx™ Digital Spatial Profiler

Authors: Chris Merritt et al. NanoString Technologies, Seattle, WA, USA

Friday March 1, 4:40 – 6:10pm ET

Poster #: 614

High plex spatial RNA profiling of colecteral cancer samples showed differential activation of signaling pathways was influenced by microsatellite instable (MSI) or microsatellite stable (MSS) status but also regional differences within the tissue. Moreover, this study highlights the ability of the high plex spatial RNA chesmitry to profile lowly abundant targets like chemokines.

Hyb & Seq posters:

Simultaneous DNA copy number and digital RNA expression analysis for subtyping of high-grade serous ovarian cancer FFPE samples using the Hyb & Seq™ NGS platform

Authors: Anna Piskorz et al. Cancer Research UK Cambridge Institute, University of Cambridge, Cambridge, UK

Date/Time: Friday March 1, 2019, 4:40 – 6:10pm

Poster #: 118

This study demonstrates a complete sample-to-answer Hyb & Seq NGS workflow, comprising of fully developed universal sequencing chemistry, a manufactured instrument and integrated data analysis pipeline, and its ability to sequence entire coding region of TP53 gene and measure copy number alteration and gene expression of relevant genes from clinical FFPE samples.

A Quantitative, Multiplexed RNA Detection Platform for Rapid Pathogen Identification and Phenotypic Antibiotic Susceptibility Testing (AST) using Hyb & Seq™ NGS Platform

Authors: Jonathan Livny et al. The Broad Institute, Cambridge, MA, USA

Date/Time: Friday March 1, 2019, 4:40 – 6:10pm ET

Poster #: 908

This study highlights Hyb & Seq enabled culture-independent pathogen identification and rapid phenotypic antibiotic susceptibility testing, saving ~2 days compared to standard of care.

Hyb & Seq™ NGS Platform Sequencing and Analysis Pipeline: Accurate Variant Calling of Single Molecule Targets for SNV and Indel Detection

Authors: Summer Elasady et al. NanoString Technologies, Seattle, WA, USA

Date/Time: Thursday Feb 28, 2019, 1:00 – 2:30pm ET

Poster #: 213

Introduce a novel end-to-end sequencing analysis pipeline, HexSembler, designed to assemble Hyb & Seq readout and detect genomic variants with accuracy

About NanoString Technologies, Inc.

NanoString Technologies provides life science tools for translational research and molecular diagnostic products. The company's nCounter® Analysis System has been employed in life sciences research since it was first introduced in 2008 and has been cited in more than 3,300 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 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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