Day Three of Bionano's Next-Generation Cytogenomics Symposium: Saphyr Provides Complete Structural Variation Analysis in Solid Tumors, Enables Discovery of Novel Diagnostic Markers and Drug Targets

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1. *Preliminary readout on Saphyr validation study for brain cancer presents path to solid tumor LDT*
2. *Saphyr outperforms Oncoscan array for structural variation and copy number variation detection in solid tumors*
3. *Saphyr provides comprehensive and clear picture of structural variation in solid tumors, which has not been possible to date with NGS or array*
4. *Saphyr offers large opportunity for discovery of new therapeutic targets and prognostic markers in cancer*

SAN DIEGO, Jan. 14, 2021 (GLOBE NEWSWIRE) -- Bionano Genomics, Inc. (Nasdaq: BNGO) announced that day three of its five-day Next-Generation Cytogenomics Symposium featured six Saphyr users presenting their results and experiences using the Saphyr® system for optical genome mapping (OGM) to analyze solid tumor genomes. The presentations by scientists and clinicians from leading hospitals and medical research institutions in Europe and the US discussed results on a variety of solid tumors such as cancers of the head and neck, brain, breast, liver, and the eye. All six studies showed that Saphyr enables for the first time a complete and clear picture of structural variation in the genome and provides opportunity for the discovery of novel cancer drivers, therapeutic targets, and prognostic markers, something which has not been possible to date with next-generation sequencing (NGS) and array platforms.

Dr. Jim Broach, Director of the Penn State Institute for Personalized Medicine presented on HPV-induced head and neck cancer, one of the few cancers on the rise in the US while most other cancers continue to decline. OGM allowed his team to reconstruct complicated genomic changes that next-generation sequencing hasn't been able to identify. He concluded that Saphyr is a powerful tool to identify and characterize viral integration in tumors and that it can detect the genome instability associated with HPV integration.

Dr. Adrian Lee, Director of the Institute for Precision Medicine at the University of Pittsburgh presented on his use of OGM to study invasive lobular breast cancer, the sixth most common cancer in women. Using Saphyr, he was able to reconstruct extremely complex chromosome-wide rearrangements as well as clinically important single gene deletions. He stated that cancer genomics has long focused on small point mutations simply because the structural variants (SVs) were not accessible with next-generation sequencing tools, and he believes that OGM will allow for the discovery of therapeutic targets and diagnostic markers from SV data. He concluded that large structural variants are common in breast cancer and have important clinical value, that Saphyr can detect copy number changes as well as the standard single nucleotide polymorphism (SNP) arrays and that additionally it can detect all other SV types genome-wide as well.

Dr. Justin Balko, Vanderbilt University Medical Center presented his work on inflammatory breast cancer, a form of breast cancer that has a poor prognosis and responds poorly to treatment. Using Saphyr, he was able to identify recurring structural variants in a gene that was never before associated with breast cancer and may be a critical factor that defines this aggressive disease. He concluded that in cases like inflammatory breast cancer where sequencing and other techniques have been exhausted, OGM offers a unique opportunity to find critical variants.

Dr. Eric Letouzé, Cordeliers Research Center, Paris presented on his use of OGM to determine the exact structure of complex genomic rearrangements in liver cancer, which he was unable to do with whole genome sequencing. He concluded that Saphyr revealed 50% more structural rearrangements than NGS, was able to unravel complex rearrangements and may be used to identify replication stress in clinical samples, which may determine if patients can be treated with the highly effective PARP inhibitor drugs.

David Gentien, Manager of the Genomics Platform, Curie Institute, Paris presented his study with OGM of uveal melanoma, a cancer of the eye that can be very aggressive once it metastasizes. Using Saphyr, he identified different types of structural variants that created several gene fusions believed to define this tumor type and that were missed by whole genome sequence and other molecular methods.

Dr. Ravindra Kolhe, Vice-Chairman of Pathology at the Medical College of Georgia at Augusta University described his progress in developing a laboratory developed test (LDT) for solid tumor with Saphyr. Preliminary results from his study on the first five glioblastoma samples showed 100% concordance between OGM and the current workflow for solid tumor testing in his laboratory, the Oncoscan SNP array platform combined with five locus specific tests using several different techniques. Dr. Kolhe concluded that Saphyr outperformed the Oncoscan array by detecting 100% of the variants found by the array platform and many more clinically actionable events it missed, and that Saphyr better characterized complex events. In addition to the higher performance, Saphyr has reduced hands-on time, faster turn-around time, and is cost effective compared to this current combination of methods. He believes that tests developed on Saphyr may help in making a more accurate prognosis and could measure therapy response.

The symposium continues Thursday and Friday. The full schedule of speakers and registration access is available at http://bit.ly/3pLPT28

About Bionano Genomics
Bionano is a genome analysis company providing tools and services based on its Saphyr system to scientists and clinicians conducting genetic research and patient testing and providing diagnostic testing for those with autism spectrum disorder (ASD) and other neurodevelopmental disabilities through its Lineagen business. Bionano's Saphyr system is a research use only platform for ultra-sensitive and ultra-specific structural variation detection that enables researchers and clinicians to accelerate the search for new diagnostics and therapeutic targets and to streamline the study of changes in chromosomes, which is known as cytogenetics. The Saphyr system is comprised of an instrument, chip consumables, reagents and a suite

of data analysis tools, and genome analysis services to provide access to data generated by the Saphyr system for researchers who prefer not to adopt the Saphyr system in their labs. Lineagen has been providing genetic testing services to families and their healthcare providers for over nine years and has performed over 65,000 tests for those with neurodevelopmental concerns. For more information, visit www.bionanogenomics.com or www.lineagen.com.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "may," "will," "expect," "plan," "anticipate," "estimate," "intend" and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances) convey uncertainty of future events or outcomes and are intended to identify these forward-looking statements. Forward-looking statements include statements regarding our intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things: the timing and content of the presentations identified in this press release; the effectiveness and utility of Bionano's technology in basic genetic research and clinical settings, and in the contexts and applications contemplated by the presentations identified in this press release; adoption of Saphyr as a standard platform in research and pathology settings; and the execution of Bionano's strategy. Each of these forward-looking statements involves risks and uncertainties. Actual results or developments may differ materially from those projected or implied in these forward-looking statements. Factors that may cause such a difference include the risks and uncertainties associated with: the impact of the COVID-19 pandemic on our business and the global economy; general market conditions; changes in the competitive landscape and the introduction of competitive products; changes in our strategic and commercial plans; our ability to obtain sufficient financing to fund our strategic plans and commercialization efforts; the ability of medical and research institutions to obtain funding to support adoption or continued use of our technologies; the loss of key members of management and our commercial team; and the risks and uncertainties associated with our business and financial condition in general, including the risks and uncertainties described in our filings with the Securities and Exchange Commission, including, without limitation, our Annual Report on Form 10-K for the year ended December 31, 2019 and in other filings subsequently made by us with the Securities and Exchange Commission. All forward-looking statements contained in this press release speak only as of the date on which they were made and are based on management's assumptions and estimates as of such date. We do not undertake any obligation to publicly update any forward-looking statements, whether as a result of the receipt of new information, the occurrence of future events or otherwise.

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