Bionano Genomics Publishes Study on Autism Risk Genes After Detailed Analysis of The Genome of Professor Temple Grandin, Who Has Brought Awareness to Autism Spectrum Disorder Through Her Activism

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SAN DIEGO, Jan. 04, 2021 (GLOBE NEWSWIRE) -- Bionano Genomics, Inc. (Nasdaq: BNGO), announced today the publication in the Journal of Personalized Medicine by Lineagen, its CLIA certified diagnostic services subsidiary, of an analysis of Professor Temple Grandin's genome in one of the most comprehensive evaluations of a single genome of a high functioning individual with Autism Spectrum Disorder (ASD). Through use of the Lineagen's suite of genetic tests customized for individuals with ASD and other disorders of childhood development, including FirstStep ^{Dx} PLUS chromosomal microarray, NextStep^{Dx} PLUS whole exome sequencing, and whole genome sequencing, the study identified novel variants in known ASD risk genes and other genetic variants important to her health and wellness. Despite Dr. Grandin's high level of functioning and acute awareness of how her ASD manifests, these findings have led to improved clinical management of many of her symptoms.

Dr. Grandin was diagnosed with ASD during childhood and was non-verbal until age 3. She avoided physical touch and had difficulties with social interactions as an adolescent, yet she was able to develop a career as a world-renowned PhD scientist, authored books entitled "The Autistic Brain" and "Thinking in Pictures" and was named one of the top 10 college professors by CEOWORLD Magazine. In addition to having ASD, she has experienced a lifelong history of feeling heat and pain (specifically in her feet), insomnia, anxiety and panic attacks and is missing several teeth but elected to forego dental implants.

Lineagen's genome analysis identified sequence variants in three ASD risk genes, one of which was initially discovered and validated by Lineagen, and structural variants in other neurodevelopmental genes that, while not considered diagnostic on their own, in combination could explain her ASD and related health conditions. Additionally, pathogenic variants were found in genes that explain her symptoms of pain (familial Mediterranean fever) and missing teeth (ectodermal dysplasia). Her decision to forego dental implants was, in retrospect, the right one given the bone weakness caused by ectodermal dysplasia. Analysis of pharmacogenetic genes found her to have a slow metabolism of many drugs, including Warfarin, which meant that her prescriptions and dosage had to be adjusted. Without such critical information, there could have been significant bleeding-related issues during surgery.

Dr. Grandin commented: "When I originally requested to have genetic testing, I had no idea that the test I was getting for autism information would provide me with valuable information for other health problems. It is clearly beneficial for individuals to undergo genetic testing. Those with autism, like myself, may learn important information to guide medical decisions that may possibly save their lives while also potentially finding a genetic link to autism. Testing for people with autism was not commonplace in my youth or early adulthood, which is too bad, because this practice will push the medical community's understanding of autism and health risks forward."

Erik Holmlin, PhD, CEO of Bionano Genomics commented: "This publication shows the importance of genetic testing for ASD and neurodevelopmental disorders. ASD is typically diagnosed based on a child's behavior, and only 3% of children with an ASD diagnosis get clinical genetic testing, which is recommended by a number of professional medical organizations including the American College of Medical Genetics and Genomics and the American Academy of Pediatrics. Widespread adoption of genetic testing is important to patients and families because it creates a better understanding of ASD, but more importantly, informs families and patients about immediate health risks associated with ASD that could personalize treatment options and provide potentially life-saving information.

We are grateful to Dr. Grandin for her willingness to participate in this study. Now that Lineagen has become a part of Bionano Genomics, we are expanding this study in a next phase to include a full analysis of her genome using optical genome mapping (OGM) with Saphyr. The wide spectrum of genetic variation between individuals with ASD makes it difficult for traditional tests to provide a diagnosis of the genetic condition. We expect OGM with Saphyr to reveal a more complete picture of genomic variants that provides actionable information that can potentially improve outcomes."

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 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 impact of information generated through the use of Lineagen's diagnostic tests, including the extent to which such information can guide medical decisions, personalize treatment options and possibly save lives; the overall usefulness and contribution of genetic testing to the medical community's understanding of autism and heal risks for individuals affected by autism; and the anticipated results of an analysis of Dr. Grandin's genome with Saphyr. 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 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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