Bionano's Symposium 2024 Featured Presentations from its Global User Community Highlighting OGM as a Powerful Alternative to Classical Cytogenetics and Strong Complement to NGS

January 30, 2024

- *Over 2,100 registrants with attendees from 92 countries*
- *Average daily attendance of 574*
- *32 oral presentations delivered across four consecutive days*
- *69 scientific posters featuring optical genome mapping (OGM) on view in the online exhibit hall*
- *Content covered wide a range of research applications for OGM including hematologic malignancies, cell and gene therapy, and constitutional genetic diseases*
- *On-demand presentations from Symposium available for remainder of 2024*

SAN DIEGO, Jan. 30, 2024 (GLOBE NEWSWIRE) -- Bionano Genomics, Inc. (BNGO) today announced the conclusion of Bionano's 2024 Symposium, the quintessential event for the optical genome mapping (OGM) community, which was held January 22-25, 2024, and featured a record 32 oral presentations and 69 scientific posters from genomic scientists at leading institutions, including Brigham and Women's Hospital, The University of Texas MD Anderson Cancer Center, Institute Curie, Memorial Sloan Kettering Cancer Center and Johns Hopkins University School of Medicine. Symposium had over 2,100 registrants from 92 countries and averaged 574 attendees per day. During this four-day online event, presenters reported on their use of OGM for applications in cancer, genetic disease, and cell and gene therapy.

Symposium 2024's Defining Themes

Presentations delivered by researchers from across the globe highlighted the following themes:

- **OGM has moved beyond concordance studies** as data sets expand, research reveals new, actionable biomarkers, and user groups form to drive standardization and implementation of the workflow.
- **Insights that OGM is providing in hematological malignancy research are relevant in the context of applications to potential therapeutic development** and maybe even one day patient management.
- **OGM is helping to unravel persistent, complex mysteries in genetic disease** that impact people, even in more common disorders like Down syndrome and Marfan syndrome.
- **OGM has the potential to meet the key requirements of the cell and gene therapy community.**
- **OGM can serve as an alternative to, and an important bridge between, cytogenetics and molecular pathology** by elevating something that is digital and molecular and complementing next-generation sequencing (NGS) which is an essential component of molecular pathology today.

"We were impressed by the engagement at our 2024 Symposium and are excited by the accomplishments of the global researchers who presented their OGM data during sessions and in scientific posters," commented Alka Chaubey, PhD, FACMG, chief medical officer at Bionano. "OGM's ability to identify pathogenic variants missed by many legacy techniques was highlighted in multiple presentations, including a presentation from day three, covering a research study that used OGM to successfully detect a repeat expansion missed by conventional cytogenetic methods over 15 years of analysis. Presenters also showcased OGM's expansion into new application areas, where it has potential to outperform classical techniques, complement sequencing-based methods, and broaden researchers' understanding of genomic landscapes."

Research shared over the four-day virtual event expanded on key findings in several applications of OGM:

Day 1: New Standards in Hematologic Malignancies

- **OGM can provide researchers with a simple, easy to implement workflow:** Tiffany Clouston from Saint John Regional Hospital highlighted increasing demand for cytogenetics combined with limited staffing and training resources as a driver for her lab's adoption of OGM, with sample preparation kits that are easy to use, and a sample-to-answer workflow that delivers whole genome structural variant (SV) analysis at high resolution, improving turnaround time.
- **OGM can perform comparably to classical cytogenetics and can enable detection of additional pathogenic variants:** Dr. Guilin Tang from the University of Texas MD Anderson Cancer Center described results from a study on 28 T-lymphoblastic leukemia (T-ALL) samples that showed that OGM detected SVs in 100% of samples, even those with normal karyotype, and revealed additional, clinically relevant information in 56% of samples.
- **International consortia have formed all over the world and they are establishing guidelines for standardized implementation of OGM and reporting of OGM data:** Agnes Daudignon from Lille Hospital and Dr. Adam Smith from University of Toronto described two different consortia, a French group of OGM users called FrOGG, and the International

Consortium for Hematologic Malignancies, which have formed to help members validate, implement and standardize OGM, fueling its expansion into new labs.

Day 2: New Frontiers in Oncology

- **OGM has the potential to impact therapy selection and cancer risk assessment and to expand the understanding of heme malignancy applications compared to sequencing and classical cytogenetic methods:** Dr. Isabelle Raymond-Bouchard from Maisonneuve-Rosemont Hospital presented results from a study that used OGM to analyze 50 multiple myeloma (MM) samples, showing that OGM was highly concordant with classical cytogenetic methods and identified variants that led to a 30% increase in prognostic information, which may result in improved therapy selection. Dr. Scott Ryall from Brigham and Women's Hospital also highlighted OGM's impact on MM research, with findings that showed the workflow's ability to detect clinically relevant SVs and to expand the understanding of the structural landscape of myeloma.
- **OGM can identify clinically relevant SVs missed by traditional methods:** A study presented by Dr. Miriam Bornhorst from Lurie Children's Hospital of Chicago showed that OGM was able to detect 20% more pathogenic variants in 100 pediatric brain tumor samples than classical cytogenetic methods.
- **OGM can characterize and stratify Homologous Recombination Deficiency (HRD) in breast tumor samples:** In a research study on Triple-Negative Breast Cancer (TNBC) presented by Dr. Marc-Henri Stern from Institute Curie, OGM was able to clearly differentiate between homologous recombination proficient (HRP) and deficient (HRD) breast cancer cells, which could potentially help patients get access to life saving PARP inhibitors.
- **High performance and utility make OGM a potential key assay for cancer research:** Presenters shared data that underscored OGM's high sensitivity, specificity, and fast turnaround time when compared to classical techniques including karyotyping (KT) and fluorescence *in situ* hybridization (FISH), which have been the standard for cytogenetic analysis of cancer samples for decades.

Day 3: Advances in Constitutional Applications

- **OGM detected significant SVs missed by NGS, long read sequencing (LRS) and classical cytogenetic methods:** Presentations delivered by Dr. Nikhil Sahajpal from Greenwood Genetic Center, Dr. Laila El Khattabi from AP-HP Sorbonne, and Dr. Maria Clara Bonaglia from Scientific Institute E. Medea included findings from OGM that were missed by multiple other methods and that proved important in research connected to unraveling longstanding mysteries in genetic disease.
- **OGM can be highly concordant with traditional methods and accomplish, in a single assay, what took multiple assays in 60% of samples or more:** In pre- and postnatal constitutional genetic disorder studies presented by Dr. Roger Stevenson from Greenwood Genetic Center, OGM was shown to be a complete replacement for multiple techniques used in classical cytogenetics.
- **Combination of OGM and NGS can improve upon and potentially replace traditional workflows:** Across the presentations in day 3, the combination of OGM and NGS was shown to be highly complementary and that it may enable comprehensive genomic variation analysis in constitutional genetic diseases.

Day 4: OGM in Cell and Gene Therapy

- **OGM is the only genome-wide tool used by the National Institute of Standards and Technology (NIST) genome editing consortium:** In the search for potentially deleterious effects of gene editing, OGM is the only genome-wide tool that meets the NIST genome editing consortium requirements for cost, accuracy, performance and speed. All other technologies that are part of the NIST consortium are targeted assays.
- **OGM can offer high resolution and sensitivity compared to classical cytogenetic methods:** OGM was reported to reliably detect on-target effects of CRISPR/Cas9 gene editing at variant allele frequency (VAF) as low as 1%, potentially providing an advantage over other techniques in quality control of pluripotent stem cells and evaluation of the integrity of laboratory cell lines.
- **OGM can outperform classical cytogenetic methods to screen cell lines more easily for genomic instability and off-target events:** Owen Pearce from eGenesis shared data that highlighted how OGM can offer improvements in quality control compared to methods like KT, which will be crucial to cell and gene therapy applications with increasing pressure from the FDA.

"Symposium 2024 underscored OGM's utility and demonstrated that the workflow has expanded beyond concordance studies. The event presentations provided data that showed OGM's expansion into new applications, and its ability to uncover new actionable biomarkers. We were pleased to see researchers share findings that showed that OGM has the potential to impact genome research in a meaningful way," commented Erik Holmlin, PhD, president and chief executive officer at Bionano. "I would encourage anyone who was unable to attend live to login, view these

presentations and see how bright the future of cytogenetics is with OGM."

Poster winners:

Award	Title	Author	Institution
Grand prize winner	Comprehensive Analysis of B-Cell Precursor Acute Lymphoblastic Leukemia: Insights from Optical Genome Mapping and Next-Generation Sequencing	Danielle Brandes	University Hospital Düsseldorf
Oncology	Complex Karyotypes and Novel Findings Revealed by Optical Genome Mapping in Hematologic Malignancies	Dr. Shivaprasad H. Sathyanarayana	Dartmouth Health
Constitutional Applications	Optical Genome Mapping Help in Analyzing the Products of Conception Cases in High Maternal Cell Contamination: A Preliminary Study	Kolhe Laboratory	Augusta University
Research and Discovery	A Search for Genetic Determinants in Neural Tube Defects Using Optical Genome Mapping	Dr. Nikhil Sahajpal	Greenwood Genetic Center

On-demand presentations are available here with free registration.

About Bionano

Bionano is a provider of genome analysis solutions that can enable researchers and clinicians to reveal answers to challenging questions in biology and medicine. The Company's mission is to transform the way the world sees the genome through OGM solutions, diagnostic services and software. The Company offers OGM solutions for applications across basic, translational and clinical research. Through its Lineagen, Inc. d/b/a Bionano Laboratories business, the Company also provides diagnostic testing for patients with clinical presentations consistent with autism spectrum disorder and other neurodevelopmental disabilities. The Company also offers an industry-leading, platform-agnostic software solution, which integrates next-generation sequencing and microarray data designed to provide analysis, visualization, interpretation and reporting of copy number variants, single-nucleotide variants and absence of heterozygosity across the genome in one consolidated view. The Company additionally offers nucleic acid extraction and purification solutions using proprietary isotachophoresis (ITP) technology. For more information, visit www.bionano.com, www.bionanolaboratories.com or www.purigenbio.com.

Bionano's OGM products are for research use only and not for use in diagnostic procedures.

Forward-Looking Statements of Bionano

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "can," "could," "may," "potential," "will" 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, OGM's utility for research in areas including cancer, genetic disease, and cell and gene therapy; the ability and utility of OGM to reveal new, actionable biomarkers; the ability and utility of OGM to identify SVs in hematological malignancy research that are relevant in the context of applications to potential therapeutic development and maybe even one day patient management; the ability and utility of OGM to help unravel persistent, complex mysteries in genetic disease disorders like Down syndrome and Marfan syndrome; the ability and utility of OGM to meet the key requirements of the cell and gene therapy community; the ability and utility of OGM to serve as an important bridge between cytogenetics and molecular pathology by elevating something that is digital and molecular and complementing NGS; the ability and utility of OGM to uncover new actionable biomarkers; the ability and utility of OGM to identify SVs highly concordant with classical cytogenetic methods; the ability and utility of OGM to identify SVs that were missed by classical cytogenetic methods; the ability and utility of OGM to provide results similar to results similar to the presentations given and the posters made available during our 2024 Symposium; the growth and adoption of OGM; and the ability of OGM to replace or complement traditional cytogenetic analysis tools and methods. 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 geopolitical and macroeconomic developments, such as recent and future bank failures, global pandemics, inflation, supply chain disruptions, the ongoing conflicts between Ukraine and –Russia and Israel and Hamas, on our business and the global economy; the failure of OGM to be useful for research in areas including cancer, genetic disease, and cell and gene therapy; the failure of OGM to reveal new, actionable biomarkers; the failure of OGM to identify SVs in hematological malignancy research that are relevant in the context of applications to potential therapeutic development and maybe even one day patient management; the failure of OGM to help unravel persistent, complex mysteries in genetic disease disorders like Down syndrome and Marfan syndrome; the failure of OGM to meet the key requirements of the cell and gene therapy community; the failure of OGM to serve as an important bridge between cytogenetics and molecular pathology by elevating something that is digital and molecular and complementing NGS; the failure of OGM to uncover new actionable biomarkers; the failure of OGM to identify SVs highly concordant with classical cytogenetic methods; the failure of OGM to identify SVs that were missed by classical cytogenetic methods; the failure of OGM to provide results similar to results similar to the presentations given and the posters made available during our 2024 Symposium; future study results contradicting the results reported in the presentations given and the posters made available at our 2024 Symposium; general market conditions; changes in the competitive landscape and the introduction of competitive technologies or improvements to existing technologies; changes in our strategic and commercial plans; our ability to obtain sufficient financing to fund our strategic plans and commercialization efforts and our ability to continue as a "going concern"; the ability of medical and research institutions to obtain funding to support adoption or continued use of our technologies; 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, 2022 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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