



BioNano Genomics Raises \$53 Million Series C to Advance Genomic Mapping Technology to Reach the “Inaccessible Genome”

Structural Variation Detection Is the Missing Link Between Genomics and the Clinic

SAN DIEGO, November 20, 2014 /PRNewswire/ -- BioNano Genomics, Inc., the leader in genome mapping, announced today the completion of a \$53 million Series C financing. Legend Capital and Novartis Venture Fund co-led the round and were joined by Federated Kaufmann Fund and Monashee Investment Management as new investors. Existing investors Domain Associates, Battelle Ventures and Gund Investment Corporation also participated. Darren Cai, Ph.D., Executive Director at Legend Capital, and Campbell Murray, M.D., Managing Director at Novartis Venture Fund, joined BioNano’s board of directors. The capital raised will be used to expand commercialization efforts to grow the installed base and utilization of BioNano’s Irys™ platform and to develop the next generation platforms and technology innovations.

“BioNano’s Irys System enables comprehensive detection of structural variations (SVs), which makes up a substantial portion of genome differences among individuals. The ability to robustly discover SVs is recognized as an essential tool for applications of genomic information in personalized medicine and diagnostics,” said Dr. Cai. “We see genome mapping as a large, high-growth market that complements and broadens the sequencing market.”

Implicated in a rapidly growing list of clinical indications, SVs are fundamental to understanding, diagnosing and treating many human diseases; they also play significant roles in the understanding of food crops and other areas of ag-bio. Structural variations include insertions, deletions, inversions, translocations and repeats. As a whole, they have been termed the “inaccessible genome,” because they are often missed by the existing repertoire of genomics tools.

Dr. Murray stated, “We saw that BioNano has the only commercial genome mapping system that can systematically analyze clinically important SVs, including DNA rearrangements and recombinations, and were inspired to provide capital and expertise to BioNano.”

“Understanding structural variation is essential to advancing the clinical impact and diagnostic use of genomics,” said Tracy Warren, Board Chair of BioNano Genomics. “BioNano’s Irys System offers the missing link between sequencing data and actionable clinical data.”

BioNano’s Irys System is a long-read genome mapping solution that reveals the location, order and orientation of functionally relevant components of the genome, including the size and location of long repeats and integration sites, which are often implicated in complex diseases such as cancer. Irys finds all types of structural variations in a single assay, without prior knowledge of the variants. Previously, obtaining a comprehensive view of a genome was a major hurdle because existing tools such as next generation sequencing and arrays do not provide the scalability or reliability to detect, resolve and assemble large repetitive elements and structural variations.

“Our investors have seen the research community’s response to BioNano’s Irys System as a ‘must have’ instrument to drive the next wave of discoveries in genomics. They foresee how our technology will



enable the practical use of genomic information in the clinic and in other important industrial settings," said Erik Holmlin, Ph.D., President and CEO of BioNano. "We will use this capital to accelerate global sales of Irys and to invest in next generation innovation to address the untapped, multi-billion dollar genome mapping market."

About Legend Capital

Legend Capital is an investment company focusing on innovation and growth, with its core business oriented toward growth investment at the expansion stage as well as venture investment. Legend Capital manages assets of more than \$3 billion across 9 funds and has invested in more than 200 companies. Legend has an investment team of more than 50 professionals, including 20 partners. <http://www.legendcapital.com.cn/en/>

About Novartis Venture Fund

The Novartis Venture Fund (NVF) manages over \$1 billion in committed capital and more than 45 portfolio companies. NVF invests in companies with the potential to change a core therapeutic field or explore new business areas that will be critical to patient care. Our primary interest is in the development of novel therapeutics and platforms as well as medical devices and diagnostics. NVF is an independent and financially driven corporate venture fund with offices in Basel, Switzerland and Cambridge, Massachusetts. <http://www.venturefund.novartis.com>.

About Federated Kaufmann Fund

Federated Kaufmann Fund is a publicly traded mutual fund with approximately \$5.6 billion in assets. Federated Kaufmann Fund is part of Federated Investors, Inc., a leading global investment manager with approximately \$350 billion in assets.

About Monashee Investment Management

Monashee Investment Management is an investment advisor located in Boston, Massachusetts.

About BioNano Genomics

Headquartered in San Diego, BioNano Genomics is delivering an altogether better way of gaining a fully informed understanding of genomes. BioNano is the only company that offers a systematic and commercially viable approach to detect the long-range genomic information that reveals the structure of complex genomes, such as human and cancer. Structural variations are increasingly known for being inextricably tied to human diseases and therefore are vital to their diagnosis and treatment. The Company's Irys platform provides researchers and clinicians with the most comprehensive, organized and actionable picture of a genome, including unprecedented insights into how the individual components of genomes are ordered, arranged, and interact with each other. BioNano Genomics works with institutions in life science, translational research, molecular diagnostics and personalized medicine. The Company is supported by Legend Capital, Novartis Venture Fund, Federated Kaufmann Fund, Monashee Investment Management, Domain Associates, Battelle Ventures and Gund Investment as well as grant funding from genomics programs at federal agencies, including the NIH and NIST-ATP.



<http://www.BioNanoGenomics.com>

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