



BIONANO GENOMICS ANNOUNCES THE PURCHASE OF THE IRYS SYSTEM BY BGI

SAN DIEGO and SHENZHEN, China — July 31, 2014—[BioNano Genomics](#) announced today the purchase of an [Irys™ System](#) by [BGI](#), the world's largest genomics organization. BGI selected BioNano's platform to enable comprehensive exploration of human structural variation (SV) and to provide vastly improved assemblies for various organisms of interest, including those where no reference exists. In addition, BioNano and BGI will partner together to develop new methods for multiplexing on the Irys System, enabling significantly higher sample throughput to be performed with fewer reagents, a capability that will be particularly useful for large-scale studies.

"We have been collaborating with BioNano Genomics on human samples of Asian descent and are impressed by the capabilities of the Irys technology to efficiently detect hundreds of large (>1kb) complex genomic structural variations," said Xun Xu, deputy director at BGI. "As part of our efforts to further elucidate genome biology, BGI needed a solution to investigate large structural variation that is not easily accessible through sequencing, DNA arrays or other technologies. Now it is feasible to do population-scale, comprehensive large structural variation discovery on a single technology platform using BioNano's Irys System."

The Irys System, which is based on the high-throughput chip, IrysChip™ V2, is an ideal SV discovery tool because it can detect all types of SVs in a single run, enabling rapid and accurate *de novo* genome assembly and genome completion. Genome maps built with the Irys System reveal the biologically and clinically significant order and orientation of functionally relevant components of complex genomes, including genes, promoters, regulatory elements, the length and location of long areas of repeats as well as viral integration sites across the entire genome that are often implicated in the cause of complex diseases such as cancer. Assembling such a comprehensive view of a genome has previously been a major hurdle because information about large repetitive elements and structural variations are lost with next generation sequencing (NGS) methods.

"We are very excited to add this platform to our portfolio of cutting edge technologies and service solutions as we seek to continue providing better and more comprehensive genomic services for our customers worldwide," said Yingrui Li, CEO of BGI Tech, a subsidiary of BGI that provides scientific and technological service solutions to biomedical, agricultural, and environmental customers globally.

"With the Irys System, we enable researchers to rapidly identify accurate structural information over long-range distances with virtually no alteration to the native genomic samples," said Han Cao, Ph.D., founder and chief scientific officer of BioNano Genomics. "As a versatile and sensitive single molecule imaging platform, Irys enables the *de novo* assembly of genomes containing complex, highly variable regions, as well as the accurate detection of all types of structural variation, both balanced and imbalanced, within complex heterogeneous samples."

BGI is the latest to adopt the Irys System. Others include the Garvan Institute, who are using their Irys for human and cancer genomics, UC San Francisco, for genomic investigations of a range of species from viruses to humans, and Kansas State University, for the i5k Insect and other Arthropod Genome Sequencing Initiative.



About Irys

Irys makes it possible to routinely and accurately detect genomic structural variation and to finish genome assemblies. The fully automated Irys benchtop instrument uses the IrysChip to uncoil and confine long DNA molecules in proprietary Nanochannel Arrays™ where they are uniformly linearized in a highly parallel display for high-resolution, single-molecule imaging. Irys does not employ DNA fragmentation or amplification, which are typical with next-generation sequencing. The result is sequence information over extremely long “reads” ranging from hundreds of kilobases to a megabase, where the sample’s valuable structural information is preserved. Irys makes it possible for researchers to directly observe structural variants including replications, deletions, translocations and inversions.

About BioNano Genomics

Headquartered in San Diego, BioNano Genomics is delivering an altogether better way of gaining a fully informed understanding of genomes. The Company’s platform provides researchers and clinicians the most comprehensive, organized and actionable picture of a genome with 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 private investors and grant funding from genomics programs at federal agencies, including the NIH and NIST-ATP.

www.BioNanoGenomics.com

About BGI

BGI was founded in 1999 with the mission of being a premier scientific partner to the global research community. The goal of BGI is to make leading-edge genomic science highly accessible through its investment in infrastructure that leverages the best available technology, economies of scale, and expert bioinformatics resources. BGI, which includes both private non-profit genomic research institutes and sequencing application commercial units, and its affiliates, BGI Americas, and BGI Europe, have established partnerships and collaborations with leading academic and government research institutions as well as global biotechnology and pharmaceutical companies, supporting a variety of disease, agricultural, environmental, and related applications. BGI has achieved a proven track record of excellence, delivering results with high efficiency and accuracy for innovative, high-profile research which has generated over 600 publications in top-tier scientific journals. For more information about BGI and BGI Tech, please visit www.genomics.cn and www.bgitechsolutions.com.

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