BIONANO GENOMICS ANNOUNCES THE PURCHASE OF THE IRYS SYSTEM BY THE CHINESE ACADEMY OF SCIENCES AND TEL AVIV UNIVERSITY

Epigenetics and comparative genomics will be studied with Irys to advance biomedical research

SAN DIEGO, BEIJING, and TEL AVIV, Israel — Oct. 25, 2013—BioNano Genomics announced today the purchase of two Irys™ Systems to be placed at the Chinese Academy of Sciences in Beijing and the School of Chemistry at the Tel Aviv University in Tel Aviv, Israel. These new placements are designed to run the recently released high-throughput chip, IrysChip™ V2, which supports human genome analysis.

"Our new high-throughput chip shows the Irys System can scale to large complex genomes, which is critical to its utility throughout human genomics and epigenomics," said Han Cao, Ph.D., founder and chief scientific officer of BioNano Genomics. "The Irys System is a versatile and sensitive single molecule imaging platform that allows researchers to rapidly identify structural information over long-range distances with minimal alteration of the native genomic samples. This ability enables them to assemble *de novo* genomes containing complex, highly variable regions, as well as map epigenomics patterns using various labeling schemes, which are currently in advanced development. "

This purchase marks the first academic order of the Irys System in Asia, and Bin Liu, Ph.D., will be the principal investigator leading the adoption of Irys for the Chinese Academy of Sciences. He heads the Center of Systematic Genomics at Xinjiang Institute of Ecology and Geography and Institute of Oceanology. Dr. Liu's team will use the Irys System for a wide variety of applications to study eco-systems and bioresources in marine sciences and in arid desert lands, where highly complex genomes are found.

Dr. Liu stated, "We have followed the development of the next-generation of physical mapping technologies closely. Integration of short-read, next-generation sequencing with long-range physical maps has long been the standard of genomics. Today, Irys has started the last step of genome characterization in a way that researchers and practitioners originally envisioned. Most of these are in a category of *de novo* non-model species. We will not settle for anything less than the complete picture."

At Tel Aviv University, Dr. Yuval Ebenstein leads the NanoBioPhotonics Lab and will oversee the adoption of Irys. His team is advancing technologies to directly visualize the individual epigenetic modifications in an individual genome. Epigenetics is the study of how gene expression is regulated, via proteins, methylation and other modifications, without altering the underlying DNA sequence. By creating genome maps from individual DNA molecules, up to 1 million base pairs in length, they are unlocking important genetic and epigenetic information about how genes are activated or silenced. Knowing how and why genes are turned on and off is significant to understanding many aspects underlying basic biology, including development, evolution and human disease.

"Next generation sequencing is advancing the genomic exploration in all fields of biology, but it fails to extract the full range of information associated with genetic material," said Yuval Ebenstein, Ph.D., Senior Lecturer, School of Chemistry, Tel Aviv University. "By directly visualizing DNA, we are able to get important insights into genome structural variation and epigenetic marks that are not accessible through sequencing or DNA arrays."

The Chinese Academy of Sciences and the Tel Aviv University are among the latest to adopt the Irys System. Others include the New York Genome Center, 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

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BioNano Media Contact
Jessica Yingling Ph.D.
Little Dog Communications
858.344.8091
jessica@litldog.com