BioNano Genomics Announces One Human : One Chip : One Day

SAN DIEGO—October 20, 2014—BioNano Genomics announced today achievement of a major milestone for the Irys system: the ability to collect human data at 30X depth, sufficient for a genome map, in 24 hours on a single chip. This new capability was established and demonstrated for the IrysChip™ V2, the high-throughput chip for the Irys™ System and will be rolled out to BioNano's collaborators and customers over the next two months. BioNano will be showcasing this advancement at the American Society for Human Genetics (ASHG) 2014 Meeting taking place October 18-22 in San Diego. The **one human : one chip : one day** will provide a more rapid, accurate and comprehensive way of identifying structural variation to drive genomics discoveries. BioNano also announced major software updates to IrysView™ and IrysSolve™, to improve visualization and analysis.

"We know that structural variation within and among genomes is key to understanding human diversity and disease, and the Irys System is a key step forward in providing a complete picture to uncover biologically and clinically significant human genetic variations," said Erik Holmlin, Ph.D., president and CEO of BioNano Genomics. "This advancement will dramatically increase the number of samples that can be mapped and pave the way toward true population-scale studies using the Irys system."

Structural variation can involve millions of nucleotides of heterogeneity within every genome and is implicated in a rapidly growing list of diseases and conditions. Structural variation occurs in all genomes and includes deletions, duplications, copy-number variants, insertions, inversions, translocations and repeats. BioNano's Irys System reveals the location, order and orientation of clinically relevant genome components, including the length and location of long repeats and viral integration sites, which are often implicated in complex diseases, such as cancer.

"Irys delivers the scalability and reliability to detect and assemble all structural variations to obtain a comprehensive view of a genome and significantly advance the completion of genome assemblies," added Dr. Holmlin. "We are continually innovating and evolving the Irys System so our collaborators and customers can accelerate their research and access the information contained within a complete genome for a deeper understanding of the role of genetic variation in human disease."

ASHG 2014 Workshop

BioNano will be presenting the latest Irys research at ASHG 2014 in a workshop, entitled, "Exploring the Dark Matter of the Genome: Uncovering the Full Impact of Structural Variation in Cancer and the Human Genome with Single-Molecule *De Novo* Assembly" will feature presentations by:

- **Dr. Vanessa Hayes**, University of Sydney and Garvan Institute
- **Dr. David Jaffe**, Broad Institute of MIT and Harvard
- **Veronica Searles**, University of Colorado Denver

The workshop will take place **Monday, October 20 from 12:30 pm to 2 pm in Room 28A** on the upper level of the San Diego Convention Center. Register here.

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.

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