BIONANO GENOMICS ANNOUNCES THE PURCHASE OF THE IRYS SYSTEM BY THE WELLCOME TRUST SANGER INSTITUTE

SAN DIEGO— August 12, 2014—BioNano Genomics announced today the purchase of an **Irys™ System** by the **Wellcome Trust Sanger Institute**, one of the world's leading genome centers, located near Cambridge, UK. The Sanger Institute made the largest single contribution to the gold standard sequence for the Human Genome Project and today is focused on the role of genetics in health and disease. The Sanger Institute purchased BioNano's Irys platform to detect structural variation and complete genomes for various projects including the Cancer Genomics Project, which seeks to develop new ways of detecting rearrangements in cancer samples, and the Parasite Genomics Team, which is sequencing the genomes of parasites that cause malaria and neglected tropical diseases prevalent in the developing world.

"Cancer is the most common genetic disease. One in three people in the Western world develops cancer, and one in five will die of the disease," said Peter Campbell, Ph.D., head of Cancer Genetics and Genomics and joint head of the Cancer Genome Project at the Sanger Institute. "To understand the diseases of cancer fully, we need to develop new ways of detecting rearrangements in cancer samples, so we can begin to understand how our knowledge of abnormalities in the DNA sequence can help to personalize treatment and understand risk."

Genome maps built with the Irys System not only reveal the biologically and clinically significant order and orientation of functionally relevant components of complex genomes such as genes, promoters, and regulatory elements, but also identify the length and location of long areas of repeats as well as virus components integration sites across the entire genome. Assembling such a comprehensive view of a genome has previously been a major hurdle because information about repetitive elements and structural variations are lost with next generation sequencing (NGS) methods.

"We are seeking to streamline the way in which we produce complete genome sequences for parasites," said Matt Berriman, group leader of the Parasite Genomics Team at the Sanger Institute. "The biology of parasites is often unusual and by completing these genomes, they will become much easier to mine for new insights that could eventually lead to the development of new and specific medicines to help eradicate the parasites and the diseases they cause."

While the price to generate short read sequences has decreased, one major bottleneck has been in the labor-intensive approaches to genome assembly, annotation, and structural variation analysis. BioNano's Irys System streamlines the process by providing a high-quality genome map, upon which DNA sequences can quickly and accurately be organized, and provides a single platform to perform large, comprehensive structural variation studies.

"In these projects with the Sanger Institute on parasite and cancer genomics, we hope to develop new, innovative approaches to improve genome finishing projects as well as identify novel rearrangements underlying disease mechanisms," said Fahim Amini, Ph.D. vice president, Commercial Operations EMEA. "Working closely with Sanger Institute's world leading research teams will also advance our development of future products and tools specifically for clinical applications."

About The Wellcome Trust Sanger Institute

The Wellcome Trust Sanger Institute is one of the world's leading genome centres. Through its ability to conduct research at scale, it is able to engage in bold and long-term exploratory projects that are designed to influence and empower medical science globally. Institute research findings, generated through its own research programmes and through its leading role in international consortia, are being used to develop new diagnostics and treatments for human disease. The Wellcome Trust Sanger Institute does not endorse commercial products. For more information, visit www.sanger.ac.uk/

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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