BIONANO GENOMICS ANNOUNCES THE ADOPTION OF IRYS SYSTEM BY THE GARVAN INSTITUTE OF MEDICAL RESEARCH

Garvan Institute Purchases Irys System to Advance Understanding of Prostate Cancer

SAN DIEGO AND SYDNEY—*Dec. 03, 2013*—BioNano Genomics announced today the Garvan Institute of Medical Research has elected to incorporate the Irys technology into their disease research programs, with particular emphasis on improving understanding of prostate cancer. With their purchase of an Irys System, Garvan becomes the first Early Access user of the technology in Australia.

"A complete understanding of the human genome variability and its relation to health continues to evade us," said Principal Investigator Dr. Vanessa Hayes, Petre Chair of Prostate Cancer Research at the University of Sydney and Professor of Human Comparative and Prostate Cancer Genomics at the Garvan Institute of Medical Research and The Kinghorn Cancer Centre.

Dr. Hayes continued, "Structural variation, in particular, is a critical and abundant form of novelty in genomes that unfortunately is dramatically understudied due to the lack of suitable tools available. Rather than generating the same type of data over and over, we are very keen to adopt new technologies that will allow us to better address the question: what are we missing? The Irys platform will have a major impact on our ability to characterize human genome variation, and we are thrilled to be the first group in Australia to adopt this new technology. It will also strengthen the Garvan Institute's capability for human genome analysis."

The Kinghorn Cancer Centre was established in August 2012 as a joint initiative of the Garvan Institute and St Vincents & Mater Health Sydney. The Centre's primary focus is to study the molecular biology of cancer, develop new diagnostics and therapeutics, and transition these advances into clinical practice through holistic and individualized clinical care.

"Key to our mission," said Dr. Hayes, "is developing a much deeper understanding of the origin and progression of prostate cancer. Structural variation is likely to be a big driver and the area that most needs to be studied. The Irys technology will go a long way to helping us accomplish this goal."

Dr. Hayes is well known for studying ancient populations to better understand human health from a pure genomic perspective, outside of the confounding context of modern medicine. The ability to analyze such divergent genomes *de novo* and retain natural haplotype differences using extremely long molecule detection with Irys overcomes the limitations of traditional methods of re-sequencing and exome-targeted sequencing.

This unbiased, independent *de novo* capability is essential, according to Dr. Hayes, as "the reference genome is not ideal for the populations we study."

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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