



DuPont Pioneer discussed building research-ready reference genomes with Bionano Genomics' Saphyr system at the 5th Plant Genomics & Gene Editing Congress in Philadelphia, PA

SAN DIEGO, Jan. 10, 2018 (GLOBE NEWSWIRE) -- DuPont Pioneer Research Scientist Kevin Fengler shared Pioneer's strategy for quickly building high-quality reference genomes for use in gene discovery and product development at the 2017 Plant Genomics & Gene Editing Congress in Philadelphia, PA. Fengler revealed that using a combination of genomics platforms, including Saphyr from Bionano Genomics, can yield a chromosome-scale reference genome in as little as two weeks post-data generation.

Bionano maps have been a part of DuPont Pioneer's strategy for genome assembly improvements since 2015 when they adopted Irys, Bionano's first generation system for optical genome mapping. Upon the release of Saphyr last year, Bionano's most advanced system to date, DuPont Pioneer purchased the first one sold in the United States. The new platform offered increased throughput, lower cost per genome and greater ease-of-use. Saphyr now enables DuPont Pioneer to go from sample to fully assembled *de novo* genome map in only five days, even for large genomes such as maize.

To capture better the high levels of sequence diversity in a key crop like maize, multiple diverse maize reference genomes are assembled to a comprehensive pan genome view. On the challenge of quickly building these multiple high-quality *de novo* references using the current crop of sequencing tools, Fengler says it is "possible to readily generate assemblies with a contig N50 exceeding 1Mb, but going from contigs to chromosomes can still be a challenge." DuPont Pioneer finds that improvements to Bionano's workflow (2-enzyme hybrid scaffolding) coupled with Saphyr's much higher throughput help overcome the obstacles that typically bog down the transition from contigs to chromosome. Reference genomes are part of the foundation for the advanced breeding efforts at DuPont Pioneer and Fengler said, "In addition to increasing the contiguity of an assembly to chromosome scale scaffolds, the added benefits of mis-assembly resolution and gap characterization from this workflow set the table for high throughput reference genomes."

Dr. Erik Holmlin, CEO of Bionano Genomics said, "We are very pleased to count DuPont Pioneer as part of the successful Saphyr launch and to have shipped them the first system sold in the United States. It's really thrilling to hear how quickly the system has been integrated into a workflow for rapidly creating reference genomes that are ready to be used in advanced breeding applications."

About DuPont Pioneer

DuPont Pioneer, a business unit of DowDuPont Agriculture Division, is the world's leading developer and supplier of advanced plant genetics, providing high-quality seeds to farmers in more than 90 countries. DuPont Pioneer provides agronomic support and services to help increase farmer productivity and profitability and strives to develop sustainable agricultural systems for people everywhere. Science with Service Delivering Success®.

About DowDuPont Agriculture Division

DowDuPont Agriculture, a business division of DowDuPont (NYSE:DWDP), combines the strengths of DuPont Pioneer, DuPont Crop Protection and Dow AgroSciences. Together, the Agriculture Division provides growers around the world with the most complete portfolio in the industry, developed through a robust research pipeline across germplasm, biotech traits and crop protection. DowDuPont Agriculture is committed to delivering innovation, helping growers increase productivity and ensuring food security for a growing global population. DowDuPont intends to separate the Agriculture Division into an independent, publicly traded company. More information can be found at www.dow-dupont.com

About Bionano Genomics

Bionano Genomics, Inc. offers whole genome analysis tools to better understand the genome and its structure. Its high-throughput system Saphyr builds *de novo* maps of the genome by massively parallel imaging of the longest single DNA molecules in the industry. Bionano genome mapping provides comprehensive structural variation (SV) calls, identifying all types of SVs with sensitivities that far exceed those based on next-generation sequencing. When combined with orthogonal sequencing data, Bionano maps can provide the correct structure, order, and orientation to assemble reference-quality genomes.

For more information, please visit www.BionanoGenomics.com

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