Wellcome Sanger Institute Increases Investment in PacBio Long-Read Sequencing to Support Darwin Tree of Life Research Initiative

January 8, 2021

Seven new Sequel IIe Systems will support expanded generation of high-quality genomes for improving fundamental understanding of biology and aiding biodiversity conservation

MENLO PARK, Calif ., Jan. 08, 2021 (GLOBE NEWSWIRE) -- Pacific Biosciences of California, Inc. (Nasdaq:PACB), a leading provider of high-quality, long-read sequencing platforms, today announced that the Wellcome Sanger Institute has committed to purchase seven new Sequel IIe Systems and upgrade its five existing Sequel II Systems to increase its long-read sequencing capabilities for projects including the Darwin Tree of Life (DToL; all eukaryotes in Britain and Ireland) and Aquatic Symbiosis Genomics (ASG; host-symbiont pairs) programs. Launched in October 2020, the Sequel IIe System is the company's newest instrument evolution based on its Single Molecule, Real-Time (SMRT ®) Sequencing technology.

With 12 PacBio Sequel IIe Systems soon to be in operation, the Wellcome Sanger Institute runs one of the world's largest SMRT Sequencing facilities. As part of its new investment, PacBio's novel highly accurate long reads, known as HiFi reads, will be utilized for whole genome sequencing to contribute to high-quality *de novo* assemblies of reference genomes for many species. To date, PacBio HiFi sequencing has been employed for more than 300 genomes, including species such as the 2-spot ladybird, the blue-rayed limpet, and the red deer. The DToL project plans to sequence approximately 2,000 additional genomes as part of the first, two-year phase, generating reference genomes for about one-third of the families of organisms present in Britain and Ireland. The ASG project will produce 1,000 genome pairs from holobiont species. Plans also include expanding the use of the Sequel Systems for full-length RNA sequencing to catalog transcripts and isoforms for high-quality genome annotation.

"Genomics is transforming ecology, conservation, evolutionary biology, and biotechnology," said Professor Mark Blaxter, Programme Lead for the Tree of Life programme at the Wellcome Sanger Institute. "We aim to produce genome assemblies for species across diversity of the highest per-base quality and chromosomal contiguity, assemblies that will stand as foundational references for future research and understanding. We work at scale: we do not have the luxury in this era of biodiversity loss to produce one genome at a time. The data from the fleet of Sequel IIe instruments will be critical to building our growing and open library of reference genomes."

"Our investment in the Sequel IIe represents a massive scale-up in our long-read sequencing capacity," said Cordelia Langford, the Sanger Institute's Director of Scientific Operations. "The instruments allow us to advance our operational capacities to deliver to projects across the Sanger portfolio, including human and pathogen genomics as well as, especially, Tree of Life."

"We feel very privileged to support the Darwin Tree of Life and Aquatic Symbiosis Genomics initiatives," said Jonas Korlach, PhD, Chief Scientific Officer at PacBio. "The projects' missions to generate high-quality genetic blueprints of many species should dramatically transform our understanding of biological systems, and in turn revolutionize future research approaches for biological studies, biotechnology, and biodiversity conservation. We are grateful for the opportunity to assist the researchers at the Wellcome Sanger Institute to the best of our abilities."

With increased computational capacity and on-instrument data processing, the new Sequel IIe System can directly produce HiFi reads more quickly and cost-effectively, providing scientists with a comprehensive view of genomes and transcriptomes. PacBio HiFi reads combine the accuracy of Sanger sequencing (>99.9%) with long reads (up to 25 kb). Together, the length and accuracy of HiFi reads make them ideal for *de novo* genome assembly, detection of variants from single nucleotide to large structural variants, and full-length transcripts for high-quality genome annotations.

For more information about the DToL project, please visit: https://www.darwintreeoflife.org, and for the ASG project please see https://www.sanger.ac.uk/collaboration/aquatic-symbiosis-project/.

About Pacific Biosciences
Pacific Biosciences of California, Inc. (NASDAQ:PACB), is empowering life scientists with highly accurate long-read sequencing. The company's innovative instruments are based on Single Molecule, Real-Time (SMRT®) Sequencing technology, which delivers a comprehensive view of genomes, transcriptomes, and epigenomes, enabling access to the full spectrum of genetic variation in any organism. Cited in thousands of peer-reviewed publications, PacBio® sequencing systems are in use by scientists around the world to drive discovery in human biomedical research, plant and animal sciences, and microbiology. For more information, please visit www.pacb.com and follow @PacBio.

PacBio products are provided for Research Use Only. Not for use in diagnostic procedures.

The Wellcome Sanger Institute
The Wellcome Sanger Institute is a world leading genomics research centre. We undertake large-scale research that forms the foundations of knowledge in biology and medicine. We are open and collaborative; our data, results, tools and technologies are shared across the globe to advance science. Our ambition is vast – we take on projects that are not possible anywhere else. We use the power of genome sequencing to understand and harness the information in DNA. Funded by Wellcome, we have the freedom and support to push the boundaries of genomics. Our findings are used to improve health and to understand life on Earth. Find out more at www.sanger.ac.uk or follow us on Twitter, Facebook, LinkedIn and on our Blog.

Forward-Looking Statements
All statements in this press release that are not historical are forward-looking statements, including, among other things, statements relating to market leadership, anticipated purchases of our products, uses, accuracy, quality or performance of, or benefits of using, our products or technologies, including SMRT sequencing technology, the expected benefits, suitability or utility of our methods, products or technologies for particular applications or projects, including the DToL and ASG programs, the ability of the Company to be successful in reaching its technological and commercial potential,

and other future events. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties, changes in circumstances and other factors that are, in some cases, beyond Pacific Biosciences' control and could cause actual results to differ materially from the information expressed or implied by forward-looking statements made in this press release. Factors that could materially affect actual results can be found in Pacific Biosciences' most recent filings with the Securities and Exchange Commission, including Pacific Biosciences' most recent reports on Forms 8-K, 10-K and 10-Q, and include those listed under the caption "Risk Factors." Pacific Biosciences undertakes no obligation to revise or update information in this press release to reflect events or circumstances in the future, even if new information becomes available.

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