PacBio and Children's Mercy Kansas City Expand Collaboration Taking a Multi-Omics Approach to Characterize Rare Disease

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MENLO PARK, Calif., April 21, 2022 (GLOBE NEWSWIRE) -- PacBio (NASDAQ: PACB), a leading provider of high-quality, highly accurate sequencing solutions, today announced an expanded research collaboration with Children's Mercy Kansas City, one of the nation's top pediatric medical systems, to use the multi-omics capabilities of PacBio's Sequel IIe system in the study of genetic disease. The research will apply direct methylation detection and Iso-Seq ™ full-length RNA sequencing in their study. A better understanding of the genetic underpinnings of rare disease may ultimately help drive diagnostic yield and potentially enhance care for patients. Children's Mercy is a leader in using PacBio's genomic sequencing technology, approaching 1,000 samples sequenced since 2020.

"Our continued collaboration with Children's Mercy is a great example of PacBio's technology being used at breadth, depth, and scale," said Christian Henry, President and Chief Executive Officer of PacBio. "We believe the Sequel IIe system provides the world's best genomes, and is capable of delivering the most complete methylomes and full-length RNA isoform sequencing. Layering on this rich multi-omics information could potentially yield better insights into the genetic basis of rare disease and provide answers for some families."

Children's Mercy has been using PacBio's HiFi technology for human whole-genome sequencing (WGS) since 2020. Their recent publication in *Genetics in Medicine* (Cohen 2022) describes how HiFi sequencing discovers four times more rare coding structural variants than short-read sequencing, including variants that cause disease. This new collaboration looks to build on that success by studying new methods for the potential detection of rare diseases.

PacBio recently enhanced its Sequel IIe system to detect DNA methylation in human genomes at no additional cost, time, or complexity in library preparation or analysis. Short-read sequencing requires special experiments to detect epigenetic modifications like methylation, and so methylation is often ignored. With PacBio's recent advances, epigenetics is now available in standard runs at no-cost, including for difficult regions of the genome only accessible with long reads.

"We aim to expand sequencing from its interpretation of DNA alone to an integrated test of DNA sequence and its function – in the past we used multiple platforms to achieve the necessary genome characterization," said Tomi Pastinen, MD, PhD, Director, Genomic Medicine Center, Children's Mercy Kansas City. "The systematic application of RNA testing using Iso-Seq and direct methylation detection in HiFi-GS yields information about gene regulation and epigenetic state. We are now working on integrated analyses across hundreds of our unsolved cases and we hope to identify new, previously veiled genomic variants that may be associated with rare disease."

PacBio's Iso-Seq ™ method reads full length, end-to-end RNA transcripts, unlike short-read RNA sequencing methods which measure small fragments. Full-length RNA sequencing distinguishes different versions of genes, called isoforms, to capture biology missed by other approaches. Children's Mercy will employ the Iso-Seq method to characterize isoforms that may be associated with disease.

PacBio and Children's Mercy have a long-standing relationship. Last year, Children's Mercy purchased four new Sequel IIe Systems to add to its two existing PacBio systems. These additional systems helped to significantly increase Children's Mercy's large-scale WGS capacity to explore difficult-to-resolve, and hard-to-sequence regions of the genome that are sometimes missed by conventional technologies. With this new collaboration, Children's Mercy will deploy those instruments to look further with multi-omics approaches for methylation and RNA sequencing.

About PacBio
Pacific Biosciences of California, Inc. (NASDAQ: PACB) is empowering life scientists with highly accurate sequencing platforms. 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.

About Children's Mercy Kansas City
Founded in 1897, Children's Mercy is a leading independent children's health organization dedicated to holistic care, translational research, educating caregivers and breakthrough innovation to create a world of well-being for all children. With not-for-profit hospitals in Missouri and Kansas, and numerous specialty clinics in both states, Children's Mercy provides the highest level of care for children from birth through the age of 21. U.S. News & World Report has repeatedly ranked Children's Mercy as one of "America's Best Children's Hospitals." For the fifth consecutive time in a row, Children's Mercy has achieved Magnet nursing designation, awarded to only about 8% of all hospitals nationally, for excellence in quality care. More than 850 pediatric subspecialists, researchers and faculty across more than 40 subspecialties are actively involved in clinical care, pediatric research and education of the next generation of pediatric subspecialists. Thanks to generous philanthropic and volunteer support, Children's Mercy provides hope, comfort and the prospect of brighter tomorrows to every child who passes through its doors. Visit Children's Mercy and the Children's Mercy Research Institute to learn more, and follow us on Facebook, LinkedIn, Twitter, Instagram and YouTube for the latest news and videos.

Forward-Looking Statements This press release may contain "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, and the U.S. Private Securities Litigation Reform Act of 1995, including statements relating to future availability, release dates, uses, accuracy, advantages, quality or performance of, or benefits or expected benefits of using, PacBio products or technologies, the suitability or utility of such products or technologies for particular applications or projects, including in connection with the use of isoform and DNA methylation analyses in rare disease research; the quality of genomes provided by using PacBio's products; the completeness of methylomes and full-length RNA isoform sequencing data created through the use of PacBio products; the potential for rare disease research to yield insights and provide answers for some families; 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 PacBio's 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 PacBio's most recent filings with the Securities and Exchange Commission, including its most recent reports on Forms 8-K, 10-K and 10-Q, and include those listed under the caption "Risk Factors." PacBio 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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