Seer Proteograph™ Enables Unprecedented Genetic Marker Mapping for Proteogenomics Studies to Advance Drug and Biomarker Discovery

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Study led by Weill Cornell Medicine demonstrates identification of protein altering variants for population-scale protein quantitative trait loci (pQTL) studies

Proteograph Product Suite enables scalable deep, unbiased proteomics by mass spectrometry and overcomes the limitations of affinity-based methods

REDWOOD CITY, Calif., Feb. 06, 2024 (GLOBE NEWSWIRE) -- Seer, Inc. (NASDAQ: SEER), a leading life sciences company commercializing a disruptive new platform for proteomics, today announced a publication in *Nature Communications* from a study led by Weill Cornell Medicine showing Seer's Proteograph workflow to potentially unveil novel proteogenomic insights into genetics-based drug and biomarker discovery for precision medicines. Designed to address the challenges with affinity-based proteomic approaches for protein quantitative trait loci (pQTL) studies, the scalable, high-resolution Proteograph workflow enables scientists to link genetic variation with protein abundance with peptide level resolution.

The manuscript, "Nanoparticle enrichment mass-spectrometry proteomics identifies protein-altering variants for precise pQTL mapping," was published in *Nature Communications* from the laboratory of Karsten Suhre, Ph.D., Professor of Biophysics and Physiology, Director of Bioinformatics & Virtual Metabolomics Core at Weill Cornell Medicine-Qatar and lead author of the article, along with Seer scientists.

In the paper, the researchers used Seer's first-generation Proteograph Assay workflow upstream of mass spectrometry to quantify over 18,000 peptides from approximately 3,000 proteins in more than 320 blood samples to detect and quantify blood-circulating proteins in the presence of protein-altering variants (PAVs). The study found 184 PAVs in 137 genes, confirmed by their variant peptides in mass spectrometry data, known as MS-PAV. Most MS-PAVs were aligned with known genetic markers (cis-pQTLs), validating the target specificity of the method. Some MS-PAVs overlapped with trans-pQTLs, shedding light on potential causal proteins. Lastly, the study revealed proteins overlooked by traditional methods, like the incretin pro-peptide (GIP) linked to type 2 diabetes and cardiovascular disease.

"Dr. Suhre's study demonstrates the power of Seer's approach in deconvoluting complex associations between genetic variants and proteins," said Omid Farokhzad, M.D., Chair & Chief Executive Officer of Seer. "Further collaborative efforts between proteomics and genomics researchers are important to advance the field of multi-omics and critical for unearthing new therapeutic approaches for a wide range of diseases, including cardio and metabolic disorders."

Seer's recently launched Proteograph XT Assay Kit for the Proteograph Product Suite, enables unbiased proteomics research at unprecedented speed by more than doubling throughput while maintaining high-resolution insights. Together with next generation mass spectrometers, Proteograph XT offers scientists the capability to detect over 60,000 peptides and over 8,000 proteins in a human plasma study. Further, Seer's proprietary engineered nanoparticles deliver reliable performance, providing peptide level information that is key to identifying protein variants for proteogenomic studies. Seer's approach provides customers with unparalleled insights into drug response analysis, drug discovery, patient stratifications for clinical studies, and precision medicine.

"There are inherent challenges with analyzing the proteome, particularly in plasma samples, where the high dynamic range makes it difficult to detect less abundant proteins that may be critical to disease biology. The peptide level resolution of the Proteograph platform allowed us to account for potentially confounding epitope effects, traditionally not possible with affinity-based approaches," commented Serafim Batzoglou, Ph.D., Chief Data Officer of Seer and author on the article. "At Seer, we offer researchers a new method for pQTL mapping and a deeper understanding of proteins and peptides for large-scale proteogenomic studies."

About Seer

Seer is a life sciences company developing transformative products that open a new gateway to the proteome. Seer's Proteograph Product Suite is an integrated solution that includes proprietary engineered nanoparticles, consumables, automation instrumentation and software to perform deep, unbiased proteomic analysis at scale in a matter of hours. Seer designed the Proteograph workflow to be efficient and easy to use, leveraging widely adopted laboratory instrumentation to provide a decentralized solution that can be incorporated by nearly any lab. Seer's Proteograph Product Suite is for research use only and is not intended for diagnostic procedures. For more information, please visit www.seer.bio.

Forward-Looking Statements

This press release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, as amended. Such forward-looking statements are based on Seer's beliefs and assumptions and on information currently available to it on the date of this press release. Forward-looking statements may involve known and unknown risks, uncertainties and other factors that may cause Seer's actual results, performance, or achievements to be materially different from those expressed or implied by the forward-looking statements. These statements include but are not limited to statements regarding the potential of Seer's Proteograph to unveil novel proteogenomic insights into genetics-based drug and biomarker discovery for precision medicines, the Proteograph's ability to enable unbiased proteomics research at unprecedented speed by more than doubling throughput while maintaining high-resolution insights, and the Proteograph's ability to provide customers with unparalleled insights into drug response analysis, drug discovery, patient stratifications for clinical studies, and precision medicine. These and other risks are described more fully in Seer's filings with the Securities and Exchange Commission ("SEC") and other documents that Seer subsequently files with the SEC from time to time. Except to the extent required by law, Seer undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made.

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