Personalis Publishes New Data Demonstrating Highly Sensitive Algorithm for Detecting Loss of Heterozygosity in HLA Gene

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Tool detects increasingly important biomarker for immunotherapy

MENLO PARK, Calif.--(BUSINESS WIRE)--Apr. 12, 2022--Personalis, Inc. (Nasdaq: PSNL), a leader in advanced genomics for precision oncology, today announced the publication of its study titled, "A machine learning algorithm with subclonal sensitivity reveals widespread pan-cancer human leukocyte antigen loss of heterozygosity," in Nature Communications.

Human leukocyte antigen loss of heterozygosity (HLA LOH) allows cancer cells to escape immune recognition by deleting HLA alleles, causing the suppressed presentation of tumor neoantigens. Despite its importance in immunotherapy response, few methods exist to detect HLA LOH, and their accuracy is not well understood. Further, detecting HLA LOH accurately from sequencing data is of interest given the growing ubiquity of tumor molecular profiling.

The Personalis study details the development of DASH (Deletion of Allele-Specific HLAs), a novel machine learning-based algorithm to detect HLA LOH from paired tumor-normal sequencing data. Through validation with cell line mixtures and patient-specific digital PCR, the study demonstrates increased sensitivity of HLA LOH detection by DASH compared to previously published tools and paves the way for clinical utility. Using DASH for 610 patients across 15 tumor types, the study found that a large percentage of patients are impacted by HLA LOH, including patients with non-small cell lung cancer adenocarcinoma (NSCLC-A) (24 percent), cervical cancer (38 percent), and head and neck squamous cell carcinomas (HNSCC) (40 percent). Additionally, the study showed inflated HLA LOH rates compared to genome-wide LOH, and correlations between CD274 (PD-L1) expression and microsatellite instability status, suggesting that HLA LOH is a key immune resistance strategy.

“Accurate detection of HLA LOH is critical for its use as a biomarker for cancer immunotherapy. This study demonstrates DASH’s ability to sensitively detect subclonal events in samples with low tumor purity, enabling comprehensive profiling of widespread HLA LOH across tumor types,” said Richard Chen, MD, chief medical officer and SVP of R&D for Personalis. “Integrated with Personalis’ NeXT Platform, these DASH-identified HLA LOH events are a key input to our composite, multi-omic biomarker, NEOPS™, to better predict immunotherapy response.”

About Personalis

Personalis, Inc. is a leader in advanced cancer genomics, enabling the next generation of precision cancer therapies and diagnostics. The Personalis NeXT Platform® is designed to adapt to the complex and evolving understanding of cancer, providing its biopharmaceutical customers and clinicians with information on all of the approximately 20,000 human genes, together with the immune system, from a single sample. To enable cancer sequencing, Personalis' Clinical Laboratory was built with a focus on clinical accuracy, quality, big data, scale, and efficiency. The laboratory is GxP-aligned as well as Clinical Laboratory Improvement Amendments of 1988-certified and College of American Pathologists-accredited. For more information, visit the Personalis website and follow Personalis on LinkedIn and Twitter.

Forward-Looking Statements

All statements in this press release that are not historical are “forward-looking statements” within the meaning of U.S. securities laws, including statements relating to attributes or advantages of the ImmunoID NeXT® platform, the SHERPA® algorithm or the NEOPS biomarker, Personalis’ business opportunities, leadership, plans or expectations, or other future events. Such forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from any anticipated results or expectations expressed or implied by such statements. Factors that could materially affect actual results can be found in Personalis’ filings with the U.S. Securities and Exchange Commission, including Personalis’ most recent reports on Forms 8-K, 10-K and 10-Q, the company’s registration statement on Form S-3 filed on December 30, 2020, and the company’s prospectus supplement filed on January 3, 2022, and include those listed under the caption “Risk Factors.” Personalis disclaims any obligation to update such forward-looking statements.

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