

FOR IMMEDIATE RELEASE



Caris Life Sciences Accurately Identifies 21 Cancer Types Using Artificial Intelligence Derived Molecular Signatures

New Data Published in Translational Oncology

IRVING, Texas, Jan. 19, 2021 – Caris Life Sciences®, a leading innovator in molecular science and artificial intelligence focused on fulfilling the promise of precision medicine, today announced positive results from a study using MI GPSai™ (Genomic Prevalence Score) an artificial intelligence driven product using DNA sequencing and whole transcriptome data to aid in the diagnosis of cancer.

Caris' MI GPSai algorithm trained on genomic data from over 34,000 cases and genomic and transcriptomic data from more than 23,000 cases and was validated on over 19,500 cases. MI GPSai predicted the tumor type in the labeled data set with an accuracy of over 94% on 93% of cases while deliberating amongst 21 possible categories of cancer. When also considering the second highest prediction, the accuracy increases to 97%. Additionally, MI GPSai rendered a prediction for 71.7% of Carcinoma of Unknown Primary (CUP) cases. The results were published in [*Translational Oncology*](#), a part of Elsevier's Oncology Journal Network.

"CUP remains a major clinical challenge and outcomes are poor. Molecular predictors of tumor origin can assist in addressing this problem by providing critical information in CUP cases that can inform treatment decisions and potentially improve outcomes," said Elisabeth Heath, M.D., Associate Center Director for Translational Sciences, Karmanos Cancer Institute. "MI GPSai results provide additional insight by assessing how closely tumors match the genomic and transcriptomic signatures of tissue types to help physicians make more informed treatment decisions."

"Cancer of unknown primary occurs in 3-5% of patients when standard histological diagnostic tests are unable to determine the origin of metastatic cancer," said John Marshall, M.D., Chief, Division Hematology and Oncology, Department of Medicine, Georgetown University.

"Typically, a CUP diagnosis is treated empirically and has very poor outcomes, with median overall survival less than one year. Gene expression profiling alone has been used to identify the tissue of origin but struggles with low neoplastic percentage in metastatic sites which is where identification is often most needed."

In addition to its role in understanding CUP, MI GPSai functions also as an outstanding quality

control tool when integrated into the pathology laboratory workflow. MI GPSai is run at no additional cost on all Caris cases, and Caris' team of expert pathologists will further investigate any results that present as atypical or ambiguous. Considering that the rate of inaccurate diagnosis ranges between 3% and 9%, inclusion of MI GPSai in clinical routine could improve diagnostic fidelity overall.

"MI GPSai has become an integral part of the pathological assessment we perform on every patient we profile," said [Matthew Oberley](#), M.D., Ph.D., Executive Medical Director at Caris Life Sciences. "With this comprehensive workup, we identify misdiagnosed patients on a daily basis and are able to work with the treating oncologist to ensure the patient gets the correct treatment regimen for their disease."

"MI GPSai does more than provide critical information to help diagnose CUP cases and catch misdiagnosed cases," said [David Spetzler](#), M.S., MBA, Ph.D., President and Chief Scientific Officer at Caris Life Sciences. "It has provided a molecular definition of these 21 cancer types, which is essential information to enable the early detection of cancer in the blood."

"MI GPSai was generated using an artificial intelligence platform that leverages the Caris Deliberation Analytics (DEAN) framework. DEAN uses biomarker data as feature inputs into an ensemble of over 300 well-established machine learning algorithms, said [Jim Abraham](#), Ph.D., Chief Data Officer at Caris Life Sciences. "Utilizing our large collection of molecular and pathological data allowed us to develop MI GPSai which is, to our knowledge, the first artificial intelligence-derived molecular classifier that utilizes DNA and RNA information to make tumor type predictions across a broad spectrum of diagnostic classes with high accuracy."

About Caris Life Sciences

Caris Life Sciences® is a leading innovator in molecular science and artificial intelligence focused on fulfilling the promise of precision medicine through quality and innovation. The company's suite of market-leading molecular profiling offerings assesses DNA, RNA and proteins to reveal a molecular blueprint that helps physicians and cancer patients make more precise and personalized treatment decisions. MI Exome™ whole exome sequencing with 22,000 DNA genes, and MI Transcriptome™ whole transcriptome sequencing with 22,000 RNA genes along with cancer-related pathogens, bacteria, viruses and fungi analysis run on every patient provides the most comprehensive and clinically relevant DNA and RNA profiling available on the market.

Caris is also advancing precision medicine with Caris MAI™ (Molecular Artificial Intelligence) that combines its innovative service offerings, Caris Molecular Intelligence® with its proprietary artificial intelligence analytics engine, DEAN™, to analyze the whole exome, whole transcriptome and complete cancer proteome. This information, coupled with mature clinical outcomes on thousands of patients, provides unmatched molecular solutions for patients, physicians, payers and biopharmaceutical organizations.

Caris Pharmatech is changing the paradigm and streamlines the clinical trial process by assisting biopharma companies with accessing research-ready oncology sites for clinical trials. With over 350 research sites within the Caris Pharmatech Just-In-Time (JIT) Oncology Network, biopharma companies can identify and enroll more patients, faster. Caris Pharmatech Just-In-Time Clinical Trial Solutions focus on rapid site activation and patient enrollment to streamline the drug development process. By implementing Caris' Just-In-Time Trial-Matching System, Caris will automatically match patients to clinical trials and sites can be activated and eligible to enroll patients within one week.

Headquartered in Irving, Texas, Caris Life Sciences has offices in Phoenix, Denver, New York, and Basel, Switzerland. Caris provides services throughout the U.S., Europe, Asia and other international markets. To learn more, please visit www.CarisLifeSciences.com or follow us on Twitter ([@CarisLS](https://twitter.com/CarisLS)).

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