Website address:
https://www.gesundheitsindustrie-bw.de/en/article/hummingbird-diagnostics-publishes-study-rna-biomarker-methylation-liquid-biopsies

Hummingbird Diagnostics Publishes Study on RNA Biomarker Methylation in Liquid Biopsies

Hummingbird Diagnostics GmbH, a pioneer in harnessing blood-based small RNAs for early disease detection and characterization, today announced the publication of a new study in Nature Communications Medicine introducing an Oxford Nanopore Technologies (ONT)-based method for detecting small RNA modifications in blood.

The research demonstrates that direct small RNA sequencing can identify differential RNA methylation patterns associated with lung cancer, representing a new dimension in liquid biopsy diagnostics. This pioneering work highlights the untapped potential of RNA modifications as biomarkers for cancer detection.

While DNA methylation in cfDNA has proven valuable for cancer detection, this study shows that RNA methylation provides a complementary layer of information that could further enhance diagnostic sensitivity and specificity. RNA methylation profiling could complement DNA methylation, potentially improving overall diagnostic accuracy.

“Epitranscriptomic modifications have long been recognized as crucial regulators of RNA function, yet their role in cancer biomarkers has remained underexplored,” said Dr. Rastislav Horos, Chief Technology Officer at Hummingbird Diagnostics. “Our work shows, for the first time, that direct RNA sequencing can detect small RNA methylation cancer signatures in plasma. We believe this approach will complement existing DNA methylation assays and enhance the sensitivity of liquid biopsy diagnostics.”

The study was conducted in collaboration with the University Hospital and Polyclinic F. D. Roosevelt in Banská Bystrica, Slovakia, where plasma samples from lung cancer patients and controls were collected. Findings revealed a higher proportion of methylation-modified RNA fragments in patient plasma, supporting their potential as diagnostic biomarkers.

“This research highlights the promise of RNA modifications as part of multiomic liquid biopsy approaches,” added Dr. Timothy Rajakumar, Chief Medical Advisor at Hummingbird Diagnostics. “Integrating RNA methylation profiling with other molecular layers could further improve the precision of early cancer detection.”

About Hummingbird Diagnostics GmbH

Hummingbird Diagnostics extracts deep insights into disease through the integrated analysis of tumor- and immune-derived small RNA biomarkers from whole blood.

This integrated approach underpins the AI-powered mirCator® platform, enabling Hummingbird Diagnostics to open new avenues in the diagnosis, treatment, and monitoring of diseases.

Publication
Nanopore based RNA methylation profiling of a circulating lung cancer biomarker, Marta Sanchez-Delgado et al., Nature Communications Medicine
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Press release

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Further information

- Hummingbird Diagnostics GmbH