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PExA files patent to enable RNA fragmentomics in exhaled air—unlocking molecular insights from the small airways

PExA AB, a Swedish life science company pioneering non-invasive lung research, has filed a patent application for a novel method that enables RNA fragmentomics analysis in exhaled air samples—a unique, non-invasive way to access molecular signals from the distal lung.

Developed in collaboration with Sweden-based Precision BioAnalytics using RealSeq Biosciences' proprietary RNA fragmentomics platform, the method allows for sensitive detection and characterization of RNA fragments—including but not limited to microRNA—captured in aerosol particles from the small airways via the PExA 2.1 instrument.

"This filing reflects where the 'new' PExA is headed—toward clinically actionable solutions that support early detection and molecular stratification," says **Tomas Gustafsson, CEO of PExA AB**. "It lays the groundwork for next-generation diagnostics in diseases such as COPD, lung cancer, postcovid and asthma."

The approach expands PExA's molecular capabilities by enabling RNA-based analysis directly at the site of disease origin—where many respiratory conditions silently develop before symptoms appear. The technology is designed to support academic, clinical and pharmaceutical researchers seeking novel tools for biomarker discovery, patient stratification and response monitoring.

"We show how advanced molecular methods, and innovative sampling can come together to expand what's possible in respiratory diagnostics," says **Mikael Kubista, CEO and co-founder of Precision BioAnalytics.** "We're proud to contribute our expertise in RNA analysis to help bring this method closer to clinical application."

"RNA fragmentomics holds great promise for improving early detection and understanding of complex diseases," says **Sergio Barberan-Soler, CEO and co-founder of RealSeq Biosciences**. "We're excited to see our RiboMarker® technology being applied to a novel and non-invasive sample type—exhaled air—and look forward to the research and clinical insights this will unlock."

PExA is showcasing this innovation at the ATS 2025 International Conference in San Francisco, May 16–21. Visit **Booth #256** or contact tomas.gustafsson@pexa.se to learn more about how PExA is shaping the future of non-invasive, precision lung diagnostics.

What is RNA fragmentomics — and why does it matter?
RNA is the body's messenger system — carrying genetic instructions that help cells function and respond to their environment. But in disease, inflammation, or cancer, these RNA molecules don't just change in quantity — they often break down in unique patterns.

RNA fragmentomics is a cutting-edge technique that maps the size, distribution and structure of RNA fragments in biological samples. These patterns can reveal hidden signs of disease, immune activity, and reflect the presence of mutations.

With PExA's non-invasive sampling from the deep lung, these RNA fragments can now be studied at the very site where diseases like lung cancer and COPD begin—opening new possibilities for:

- Early detection and risk assessment
- Molecular stratification of patients
- Monitoring response to therapy

In short: PExA's RNA fragmentomics approach combines advanced analytics with a new way of accessing the lungs—helping us better understand what's happening, before symptoms appear and take measures.

For more information, please contact:
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About PExA AB:
PExA AB PExA AB (556956-9246) has developed the PExA 2.1, a patented research instrument that helps researchers intelligently collect biological samples from the smallest airways through an easy exhalation maneuver. PExA's technology is used by prominent research groups in several different countries, which has resulted in more than 50 scientific publications. The company's long-term goal is to market and sell diagnostic instruments to support treatment decisions of diseases, such as lung cancer and Chronic Obstructive Pulmonary Disease (COPD), to be used globally for diagnosis or general screening at facilities where care is offered. The company intends at the time it is relevant to sell to clinics to have developed more patient-friendly, flexible and commercial products, which means PExA will be addressing a market that today includes several million patients globally. PExA's B share is listed on the Spotlight Stock Market. Learn more about PExA: https://pexa.se/en/

About Precision BioAnalytics
Precision BioAnalytics AB is Europe's leading provider of advanced molecular analysis services. Based in GoCo Health Innovation City in Mölndal—Sweden's premier innovation hub for Cell and Gene Therapies—the company plays a strategic role in the region's life sciences ecosystem. Precision BioAnalytics collaborates closely with CCRM-Nordic, a national infrastructure initiative supporting the pharmaceutical industry.
The founders of Precision BioAnalytics bring over 30 years of expertise in molecular diagnostics. They co-authored the MIQE and dMIQE guidelines, which serve as global standards for designing and reporting qPCR and dPCR studies. They were also instrumental in the SPIDIA consortium, contributing to 23 CEN technical specifications and ISO guidelines

that shape preanalytical processes in the diagnostic field. Most recently, they co-authored white papers for the American Association of Pharmaceutical Scientists (AAPS) on the application of qPCR and dPCR in cell and gene therapy development.
Prior to founding Precision BioAnalytics, the team built a world-leading molecular service company that was ultimately acquired—without compensation—by a U.S. private equity firm. Today, Precision BioAnalytics continues to push the boundaries of molecular analysis with proprietary technologies that deliver unmatched sensitivity and precision. Learn more about Precision BioAnalytics: https://precisionbioanalytics.com/

About RealSeq Biosciences:
RealSeq Biosciences is a leading innovator in RNA, RNA fragmentomics and transcriptomics research, delivering cutting-edge tools that enable researchers to push the boundaries of discovery. Our core technology, RNA-fragmentomics, allows for comprehensive analysis of all types of RNA molecules in a single workflow. We develop cutting-edge platform technologies for biomarker discovery, liquid biopsy, and single-cell analysis. RealSeq specializes in high-sensitivity diagnostics for human health, agricultural, and environmental applications. Our mission is to unlock novel insights into RNA biology, enabling breakthroughs in disease diagnostics and biological research. Learn more about RealSeq Biosciences: https://www.realseq.com/