

Press release from PExA AB
Gothenburg, January 15, 2025

New study highlights PExA's potential as a novel method for non-invasive measurement of drug levels in the lung

A new study published in the *Journal of Aerosol Medicine and Pulmonary Drug Delivery* showcases a potential breakthrough in lung pharmacokinetics (PK) research using the PExA® instrument developed by PExA AB.

The study, titled “*Assessing human lung pharmacokinetics using exhaled breath particles,*” demonstrates the feasibility of utilizing exhaled breath particles (PEX) for non-invasive measurement of drug levels in the lung's epithelial lining fluid (ELF).

Conducted by an international team of researchers from the Fraunhofer Institute for Toxicology and Experimental Medicine (ITEM) in Hannover, Germany, and AstraZeneca in Gothenburg, Sweden, the study investigates the pharmacokinetics of salbutamol—a commonly used bronchodilator—administered via oral and inhalation routes.

Utilizing the PExA instrument, the researchers collected and analyzed exhaled breath particles from healthy volunteers, enabling unprecedented insight into drug concentration dynamics within the peripheral lung.

Key findings include:

- **Non-invasive PK measurement:** The PExA instrument successfully quantified salbutamol levels in the ELF, offering a non-invasive alternative to traditional methods such as bronchoalveolar lavage.
- **Higher sensitivity for inhaled drugs:** After inhalation, salbutamol concentrations in exhaled breath particle samples were markedly higher compared to plasma or nasal lining fluid, highlighting the instrument's effectiveness in detecting lung-targeted drugs.
- **Proof of principle:** The study confirms the potential of exhaled breath particle (PEX) sampling as a transformative, non-invasive tool for early-phase drug development, demonstrating that it can effectively quantify drug levels in the lungs while reducing the need for invasive procedures.

Tomas Gustafsson, CEO at PExA AB, says:

“This study highlights the transformative potential of PExA in advancing respiratory research and drug development. By empowering pharmaceutical companies in the respiratory field to measure drugs precisely where it matters—directly in the small airways of the lungs—our non-invasive technology offers a powerful solution to streamline pharmacokinetic studies; enhancing efficiency, reducing costs, and providing more accurate data for evaluating lung-targeted therapies.”

Tomas continues: “This study’s unique findings highlight the unmatched capabilities of our technology while unlocking significant new market opportunities for PEXA, enabling us to address the growing demand for innovative solutions in respiratory healthcare and pharmaceutical development.”

Research paper citation

Holz O, Sadiq MW, Gress C, Struß N, Stomilovic S, Lundqvist A, Hohlfeld JM. Assessing Human Lung Pharmacokinetics Using Exhaled Breath Particles. J Aerosol Med Pulm Drug Deliv. 2024 Dec 5. doi: 10.1089/jamp.2024.0032. Epub ahead of print. PMID: 39636714.

<https://pubmed.ncbi.nlm.nih.gov/39636714/>

For more information about this study or about PEXA, please contact:

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About 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 a simple exhalation maneuver. PEXA’s technology is currently used by prominent research groups in several different countries and research with the instrument has resulted in approximately 50 scientific publications, which serve as reference material for PEXA’s method. The company’s long-term goal is to market and sell diagnostic instruments for popular diseases (e.g. lung cancer and 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 that PEXA addresses a significantly wider market, which today includes several million patients globally.

PEXA’s B share is listed on the Spotlight Stock Market.