B-path: Easy breath sample to quick diagnosis

B-path | Newsletter #1

http://www.b-path.org/

About the Project

B-Path is a Horizon Europe project focused on advancing a novel, non-invasive diagnostic approach for respiratory infections by detecting pathogens directly from exhaled breath aerosols (XBA). Our overarching goal is to enable rapid, scalable, and user-friendly detection of respiratory pathogens, contributing to global preparedness for current and future epidemics and pandemics.

Inside the Project

Respiratory infections represent a major global burden, requiring diagnostic strategies that are fast, accurate, and easily deployable across diverse settings. Traditional diagnostic methods often require invasive sampling and don't sample the whole respiratory tract, limiting their applicability in large-scale screening.

B-Path introduces an innovative solution that collects and analyses exhaled breath aerosols, providing a method for pathogen detection that is both non-invasive and compatible with high-throughput workflows. This approach has the potential to support population-level screening and early detection of highly transmissible pathogens.

Project Objectives

• Develop and validate a specialized facemask sampling device for respiratory pathogen capture.

• Establish standardized workflows for molecular analysis of exhaled breath aerosols, for direct pathogen detection

• Generate evidence for the feasibility, sensitivity, scalability and impact of this diagnostic strategy.

Funded by the European Union

• Support pandemic preparedness by studying rapid mass screening for emerging pathogen threats.

🫁 Why Exhaled Breath Aerosol?

Exhaled breath aerosol contains respiratory droplets originating from the respiratory tract that can carry infectious pathogens. By capturing and analysing these particles, B-Path aims to provide a minimally invasive diagnostic method with several advantages:

• Suitable for repeated testing and longitudinal monitoring.

• Reduced discomfort and enhanced acceptability for patients.

• Potential for decentralised testing in clinical and community settings.

• Scalable for mass-screening applications.

👥 B-Path Consortium – Members Overview

• University of Heidelberg (UKHD) – Coordination & Clinical Implementation:
As the Coordinator of the consortium, the Heidelberg team focuses on ethical oversight, clinical implementation, coordinating the members and all work packages of the Consortium. They support patient recruitment, protocol harmonisation, and the translation of diagnostic workflows into real clinical settings.

• Ospedale San Raffaele (OSR) – Clinical Microbiology & Molecular Diagnostics:
This group contributes core expertise in clinical microbiology, molecular testing, biosafety, and laboratory workflows. They support the development and validation of molecular detection protocols for exhaled breath aerosol samples.

• Desmond Tutu Health Foundation (DTHF) – Global Health & Field Implementation:
Based in South Africa, DTHF brings extensive experience in community-based research in low- and middle-resourced settings, and have decades of research experience in aerobiology research. Their role is central to assessing accuracy compared to the Respiratory Aerosol Sampling Chamber (RASC), as well as the real-world usability and scalability of breath-based diagnostics.

• Avelo AG – Aerosol-based Diagnostic Technology:
Avelo develops the non-invasive aerosol-collection device used in B-Path. Their aerosol-sampling technology underpins the concept at the core of B-Path. Avelo aims to support the optimisation of pathogen detection at both the clinical and community-level.

• Institutul De Pneumoftiziologie Marius Nasta (IPMN) – Precision Medicine & Nanotechnology:
The IPMN is Romania's leading national institute for pulmonology, with long-standing expertise in the diagnosis, treatment, and clinical research of respiratory infectious diseases. The Institute contributes to B-Path through its strong clinical capacity,

patient-centered research, and experience in respiratory diagnostics - supporting the evaluation of innovative breath-based approaches in real-world clinical settings.

• Vita-Salute San Raffaele University (UniSR) – Translational Medicine & Clinical Research:
UniSR brings strong expertise in biomedical research and translational medicine, supported by its close integration with the IRCCS San Raffaele Hospital. The team contributes to bridging innovative diagnostic strategies with real-world clinical research and implementation.

•Goethe University Frankfurt – Medical Virology & Pandemic Preparedness:
Goethe University Frankfurt contributes expertise in medical and molecular virology, with a focus on viral diagnostics, emerging pathogens, and outbreak preparedness. Through its close integration with the University Hospital Frankfurt, the team supports the development and validation of molecular detection approaches relevant to public health and clinical settings.

📰 News & events:

🤝 First B-Path Webinar – Recording Now Available

The first B-Path webinar, held with a live audience and contributions from consortium experts, is now available as a recorded session. The webinar introduces the project's vision, explains the scientific foundations of aerosol-based diagnostics, and provides an overview of the planned research activities.

The recording is accessible through the B-Path website (B-path webinar) and can be shared with collaborators, students, stakeholders and all others who are interested in the project's mission.

📽️ B-Path Video – Introducing the Project and using breath for diagnosis

The first official B-Path video was released online (B-Path Video). Designed for a broad audience, the video explains the concept of exhaled breath aerosols; their relevance for diagnosing respiratory infections, and the potential impact of B-Path on future pathogen detection strategies.

This video will serve as a key communication tool to support outreach, dissemination, and public engagement across Europe and beyond.

🗣️ Annual Consortium Meeting

The B-Path Consortium held its second Annual Meeting on 2 December 2025. During the meeting, partners presented progress across all work packages, aligned strategies for upcoming deliverables, and coordinated the next steps for scientific, technical, and communication activities.

This milestone marks a significant step in consolidating consortium efforts and ensuring a cohesive approach to achieving the project's objectives.

What next !?

The next B-Path Annual Meeting will take place in April 2026 in Munich, alongside the European Society of Clinical Microbiology and Infectious Diseases (ESCMID).

This meeting will provide an important opportunity for consortium partners to meet face-to-face, review scientific and technical progress, discuss preliminary results, and align strategies for the upcoming phases of the project. Holding the meeting alongside ESCMID will also foster scientific exchange with the wider clinical microbiology and infectious disease community.

!! Stay Connected

We invite you to explore the B-Path website to learn more about the project, partners, and ongoing activities: https://b-path.org/

Future issues of this newsletter will include updates on project developments, scientific results, and opportunities for engagement.

Where to find us?

Website: B-path.org

Newsletter: B-path resources

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