

Airway Disease Predicting Outcomes through Patient Specific Computational Modelling (AirPROM)

 consortiapedia.fastercures.org/consortia/airprom/

Research Areas



Tool Development



Basic Research

At a Glance

- Status: **Active Consortium**
- Year Launched: **2011**
- Initiating Organization: **European Comission Seventh Framework Programme (FP7)**
- Initiator Type: **Government**
- Location: **Europe**

Abstract

The Airway Disease Predicting Outcomes through Patient Specific Computational Modelling (AirPROM) consortium is a European Commission–funded consortium focused on developing computer and physical models of the airway system for patients with asthma and chronic obstructive pulmonary disease (COPD). By understanding how air flows through the lungs, researchers hope to better understand why the lungs become obstructed in these two targeted diseases.

Mission

AirPROM aims to create tools that predict how asthma and COPD develop, because current methods can only assess the severity of disease. AirPROM's ultimate aim is to bridge the gaps in clinical management of airway-based disease by providing reliable models that predict disease progression and the response to treatment for each person with asthma or COPD.

The project is divided into different work packages (WP) to cover the following areas:



AirPROM brings together the existing clinical consortia (EvA FP7, U-BIOPRED IMI, and BTS Severe Asthma), with additional expertise in physiology, radiology, image analysis, bioengineering, data harmonization, data security and ethics, computational modeling, and systems biology

Financing

AirPROM is funded by the European Union's Seventh Framework Programme (FP7) with €11.7 million under the Information and Communication Technologies (ICT) theme. The total cost of the consortium is €15.5 million.

Intellectual Property

As a European Commission-funded effort, AirPROM follows the guidelines and principles outlined within the Seventh Framework Programme.

Patent Engagement

Several patient foundations are involved as formal partners in the consortium.

Data Sharing

AirPROM has a comprehensive data management platform created and managed by BIOMAX Informatics AG. The BioXM system provides a secure and sustainable infrastructure that semantically integrates the clinical, physiological, genetic, and experimental data produced with existing biomedical knowledge from allied consortia and public databases. This resource will be available for analysis and modeling and will facilitate sharing, collaboration, and publication within AirPROM and with the broader community.

Impact/Accomplishment

THERMOPLASTY STUDY (BOSTON SCIENTIFIC)

The objective of this study of thermoplasty, a treatment for patients delivering heat to lung tissue to reduce the amount of smooth muscle present in the airway wall, is to understand the effects of the procedure and whether it works better for some patients than others. The past 30-40 years has seen no real improvement in the treatment of severe asthma. The bronchial thermoplasty treatment will be further examined in the study.

ANTI-EOSINOPHILS RANDOMIZED PLACEBO CONTROL STUDY

This study provided 61 randomized patients with placebos and medication. Primary outcome measures were gained through questionnaires. The study was successfully delivered because the drug in question worked for patients.

VENTILATION HETEROGENEITY

Another study on ventilation heterogeneity evaluates the various differences between patients in their physical lung defects, which hinder their breathing. Understanding the basis of the problem can potentially indicate reasons for the onset of decreasing lung function, especially in diseases where it accelerates quickly, and can be an early indicator for future airway obstruction. The study considers all asthma outcomes including exacerbations, clinical outcomes, structure and functional imaging, bronchial biopsy outcomes, and ventilation defects.

Links/Social Media Feed

Homepage

<http://www.europeanlung.org/en/projects-and-research/projects/airprom/home>

Twitter

[@AirPROM](https://twitter.com/AirPROM)

Points of Contact

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Commissariat à l'énergie atomique et aux énergies alternatives
European Commission
European Federation of Allergy and Airways Diseases Patients' Associations
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