SysMed - COPD

Title Systems Medicine-based clinical decision support for COPD patients

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Project partners

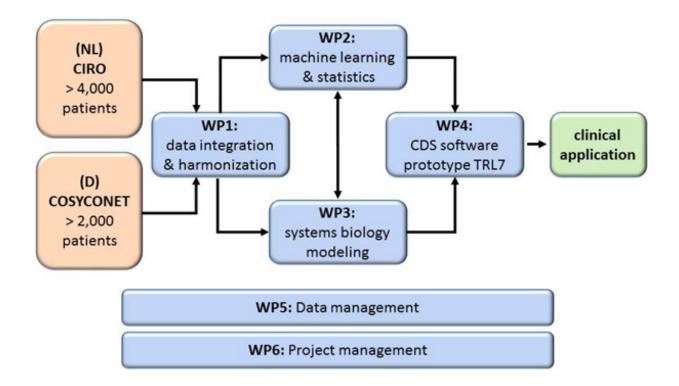|	
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Duration	3 years

Abstract

Chronic obstructive pulmonary disease (COPD) claimed 3.2 million lives in 2015, making it the third cause of death worldwide. It is predicted to increase in coming years due to aging populations and thus constitutes an enormous socio-economic burden. Therefore, improved COPD diagnosis and classification constitutes an urgent medical need for improved and personalized prevention measures and treatments strategies.

The main aim of our project is to develop a tool that will enable effective preventive measures and personalize treatment strategies for COPD by means of systems medicine. We will develop a systems medicine model of COPD constructed on (i) machine learning clustering of two comprehensive patient cohorts providing long-term clinical observations, systematic outcome evaluation, biomaterial collections, multiple laboratory measurements, and extensive imaging data of more than 6,000 patients, complemented by (ii) an iterative systems biology framework of modeling and experimental analysis. Based on this multi-scale systems medicine model, we will generate a novel Clinical Decision Support (CDS) software that we will evaluate for patient care in the existing IT infrastructure of hospitals and private practices.

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