MedicalXpress

New 'AsthmaMap' could redefine disease and personalize treatment for patients

March 11 2016

A new digital "map" detailing different mechanisms that contribute to the development of asthma could help researchers redefine the disease. The map works by dividing asthma into different subgroups in order to allow personalised treatment more targeted to the type of asthma patients live with.

Details of the AsthmaMap were presented in Estoril, Portugal today (12 March, 2016) at the European Respiratory Society's Lung Science Conference.

In other disease areas, the Parkinson's disease map and the Atlas of Cancer Signalling Network, have already begun the process of integrating knowledge about the involved mechanisms in order to understand the different subtypes of these diseases. The AsthmaMap is the first detailed representation of the different molecular processes involved in asthma.

The current "one-size-fits-all" approach to healthcare, in which there are standard treatments for single conditions, means that many patients take medication that does not improve their symptoms. An emerging field, known as "systems medicine", is harnessing the use of new technologies to gather big data sets on many patients in different disease areas, to understand how diseases affect people differently.

Systems medicine involves the analysis of data at every level (cellular, organ-level, whole organisms, environmental factors). This allows

researchers to identify all of the components that play a role in a disease, with the ultimate aim of understanding the different subtypes of different diseases and being able to better target therapies and treatments.

The AsthmaMap has used data on known disease mechanisms from other studies and projects, including the EU-funded U-BIOPRED project, with the results reviewed, edited and mapped by numerous experts. The AsthmaMap is the first integration of the known processes involved in the development of asthma based on a consensus view of asthma. Researchers working on the map have demonstrated how it can be used as a resource and teaching aid.

Dr Alexander Mazein, lead author of the study from the European Institute for Systems Biology and Medicine, commented: "In-depth understanding of asthma means redefinition of asthma subtypes based on the mechanisms that lead to the development of the disease. This translates into more accurate diagnostics, new therapy strategies and the development of patient-focused drugs that can target the different subgroups of asthma. The AsthmaMap is a key step forward in our move towards a personalised approach to healthcare in the respiratory field. While it will primarily be used for research purposes at this stage, we anticipate that once validated, the tool can be used by clinicians as they are treating patients."

More information: Poster title: The AsthmaMap: towards a community-driven reconstruction of asthma-relevant pathways and networks

Provided by European Lung Foundation