

## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: Asthma seed genes and respective sources

File Name: Supplementary Data 2

Description: COPD seed genes and respective sources

File Name: Supplementary Data 3

Description: Overlapping genes between the asthma and COPD disease modules

File Name: Supplementary Data 4

Description: Flow centrality of genes when considering the asthma module as source and the COPD module as target

File Name: Supplementary Data 5

Description: List of related disease pairs extracted from DisGeNet

File Name: Supplementary Data 6

Description: List of GEO datasets considered in the analysis and their characteristics