Develop tools that use genetic data to better classify complex human diseases

Fact Sheet

Project Information

ClassifyDiseases

Grant agreement ID: 101088901

DOI

10.3030/101088901

Funded under

European Research Council (ERC)

Total cost

€ 1,975,333.00

EU contribution

€ 1,975,333.00

Coordinated by

AARHUS UNIVERSITET

Denmark

Objective

Many common diseases are highly heterogeneous, meaning that two individuals can be diagnosed with the same disease but have very different progressions or respond very differently to the same medication. These heterogeneous diseases affect a sizeable proportion of the population. For example, approximately one in four people will develop a heterogeneous brain disorder (e.g. a neurological condition such as epilepsy or Parkinson’s Disease, or a psychiatric condition such as depression or schizophrenia).

To effectively treat a patient with a heterogeneous disease, it is necessary to quickly and accurately identify their subtype. At present, patient subtypes are decided using only clinical observations, and the process is highly suboptimal. For example, the available subtypes are often incomplete or poorly-defined, meaning that many...
patients are wrongly classified or can not be classified at all.

Previous research indicates that for many heterogeneous diseases, the classification of patients can be improved by incorporating genetic information. However, for this to become a reality, requires statistical tools that do not yet exist. My project will develop novel statistical tools for classifying heterogeneous diseases based on genetic information.

My project will prioritize classification of two heterogeneous diseases: epilepsy and schizophrenia. However, I will ensure that my new tools are general, freely available and easy-to-use, so that other groups can construct classification models for many other diseases. Overall, my project has the potential to revolutionize how patients with heterogeneous diseases are treated, and to facilitate more widespread use of precision medicine.

**Fields of science**

- medical and health sciences > basic medicine > neurology > epilepsy
- medical and health sciences > basic medicine > pharmacology and pharmacy > pharmaceutical drugs
- medical and health sciences > health sciences > personalized medicine
- medical and health sciences > basic medicine > neurology > parkinson
- medical and health sciences > clinical medicine > psychiatry > schizophrenia

**Keywords**

- Statistical genetics
- GWAS
- complex diseases
- personalized medicine

**Programme(s)**

- HORIZON.1.1 - European Research Council (ERC)

**Topic(s)**

- ERC-2022-COG - ERC CONSOLIDATOR GRANTS

**Call for proposal**
**Funding Scheme**

**HORIZON-ERC - HORIZON ERC Grants**

**Coordinator**

**AARHUS UNIVERSITET**

Net EU contribution

€ 1 975 333,00

**Address**

Nordre ringgade 1
8000 Aarhus c

**Region**

Denmark > Midtjylland > Østjylland

**Links**

Contact the organisation  
Website  
Participation in EU R&I programmes  
HORIZON collaboration network

**Other funding**

€ 0,00

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