

PredictND – From Patient Data to Clinical Diagnosis in Neurodegenerative Diseases

PredictND develops a clinical decision support tool based on the principles of data-driven evidence-based medicine for differential diagnostics of neurodegenerative diseases and a novel battery of low-cost biomarkers for enabling earlier detection of memory disorders.

Memory disorders are a growing health problem with enormous costs to society. This challenge requires innovations in two fields: efficient treatments and approaches for early diagnosis are needed. PredictND focuses on diagnostics.

OBJECTIVES

PredictND has two scientific objectives:

- to develop an **ICT-supported clinical protocol** for enabling early and **objective differential diagnostics of neuro-degenerative diseases** based on the principles of **data-driven evidence-based medicine**,
- to develop a **low-cost battery** of tests for early detection of cognitive change,

and two technical objectives are used to enable implementation of these scientific objectives:

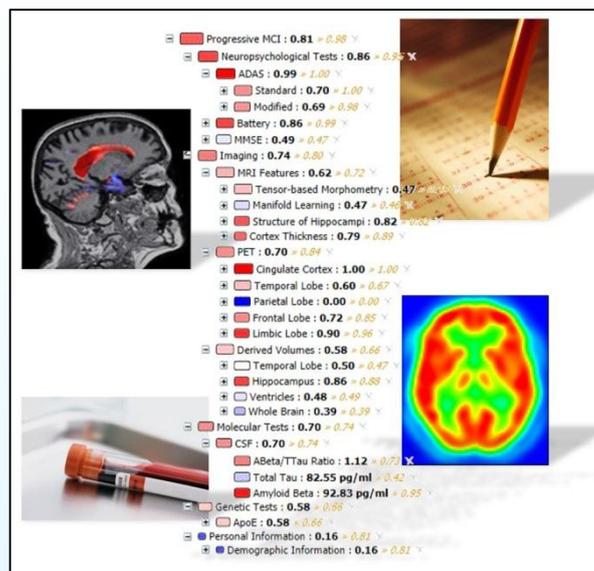
- to develop a **decision support software tool** to be used in clinical workflows for differential diagnostics of neurodegenerative diseases, and
- to develop an **ICT ecosystem** for early and objective diagnostics of neurodegenerative diseases.

PROJECT DESCRIPTION

PredictND develops a clinical decision support tool for extracting **imaging biomarkers**, **integrating heterogeneous patient data**, such as from neuropsychology, imaging and cerebrospinal fluid, comparing these to previously diagnosed cases and **providing profiles and indices** for supporting differential diagnostics of memory disorders. In addition, the project develops a battery of novel biomarkers based on **web-based tests, games, gait analysis and blood biomarkers** which could be used in the future to identify individuals earlier than currently for treatments. These technologies will be validated in a **prospective multi-centre study** using data from 800 patients.

EXPECTED RESULTS & IMPACTS

PredictND will develop a software tool which enables **improved exploitation of all data** acquired from a patient and presumably earlier diagnostics. The project



will also aim to find novel cost-efficient biomarkers for the detection of memory disorders even at the pre-symptomatic phase.

Clinicians are facing a great challenge in differential diagnostics. More efficient and objective diagnostics will enable **higher quality of care** as well as **earlier diagnosis and start of treatments**. Such improvements are vital also in the economical sense: the costs of dementias equal currently to 1 % of the gross-domestic product of the whole world.

PredictND Team

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