DEMENTIA RESEARCH

SYNAPSIS FOUNDATION SWITZERLAND

Principal Investigator Grant

Project

«Presymptomatic Detection of Amyloid Beta and Tau Proteins in blood from Alzheimer's Dementia Patients»

Granted amount	CHF 280'000
Starting date	1.5.2023
Duration	36 months

Main applicant

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Lay summary of the project

Presymptomatic diagnosis is critical for slowing Alzheimer's disease (AD). Aggregated forms of amyloid beta (Aβ) and tau proteins are well known biomarkers in AD diagnosis.

Recently, we discovered that the size, shape, morphology and prevalence of these proteins on red blood cells (RBCs) correlate with neurocognitive disorder levels in patients.

Our goal through this proposal is to validate the physical biomarker data on larger study population and chemically identify the proteins on the surface of RBCs using nanoimaging and chemical spectroscopy. The classified proteins will be correlated in a patient specific manner with clinical results to build a predictive model for identifying people at risk of developing AD and evaluating treatment efficiency.

Monitoring protein aggregation in blood will lead to a deeper understanding of the molecular pathogenesis of AD, identify therapeutic targets and deliver an approach for blood-based screening of patients at various stages of decline in memory and cognition.