

Identification of metabolites as predictive biomarkers for dementia

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Dementia, the rapid decline of cognitive ability, is the most pronounced symptom caused by neurodegenerative disorders. For slowing down the rate of disease progress and eventually treat it, the disease is need to be diagnosed in preclinical stage. For this reason, we aimed to search for a group of metabolites which can be used as reliable and accurate biomarkers for early diagnosis, classification and progression of dementia. We will take advantage of the Bioinformatics and Chemometric techniques as mass spectrometry and analyze saliva and serum samples belonging to a longitudinal study of memory at Umeå University calling for the Betula project. In this project, 4500 project participants, in 25-100 years old, have been interviewed and examined medically and psychologically on five occasions (T1, T2, T3, T4, T5). A preliminary result from mass- spectrometry followed by PLS analysis, showed a significantly different expression level of metabolites between the groups of five un-demented and five demented patients. Additional analyses of metabolites in samples from 18 demented and 72 controls showed a well group separation and selection of 180 distinct metabolites which expressed significantly different between the two groups. Furthermore, we will select samples from the participants who were not diagnosed with dementia at T4 but got the diagnosis at T5 and also controls that were not diagnosed as demented at T4 stayed still non-demented at T5. This analysis will finally reveal certain metabolites already in the preclinical phase which can be used as dementia predictors.

Biography

Malahat Mousavi together with her family immigrated to Sweden in 27 years of age with no academic study in her luggage. She started to learn Swedish and English for first time and attend college in 1990. She completed her academic studies with a doctoral thesis in 2003 at the Karolinska Institute in Stockholm. Her research was focused on nicotinic acetylcholine receptors and their role in Alzheimer Disease. During her post doc period, she worked with method development such as "Screening of endocrine disruptors by multiplex assay". Not so long ago, in 2011, she began to get acquainted with a completely new area for her, i.e. metabolomics as a group leader at Umeå University in Sweden.