



10th International Conference on Stroke and Cerebrovascular Diseases



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Bacterial DING proteins in Alzheimer's disease and Mild Cognitive Impairment and Correlation with A β -42 and COX-1/2

Alzheimer's disease (AD) and Mild Cognitive Impairment (MCI) have been linked to inflammation as their pathology is partially attributed to common bacterial infections, while the enormous economic burden of dementia imposes the discovery of new biomarkers in biological fluids other than cerebrospinal fluid (CSF). DING proteins identified mainly by their N-terminal sequences are common in *Pseudomonas*, have potential roles in phosphate acquisition and pathogenicity and they have been implicated with many human diseases. The aim of this research was to investigate the levels of the bacterial DING proteins in blood serum and their correlation with the neurodegeneration markers A β 42 and tau and the inflammation markers COX-1 and COX-2. Levels of DING were measured with indirect ELISA in blood serum of AD (N=18) and MCI patients (N=23) in comparison with cognitive healthy individuals (N=13). The biomarkers of inflammation COX-1 and COX-2, and the established in CSF AD biomarkers, A β 42 and tau, were measured as well. DING levels were found significantly increased in serum of AD patients in comparison with cognitive healthy subjects and MCI patients. Serum DING proteins positively correlate with A β 42, COX-1 and especially with COX-2 levels. Also, serum DING levels negatively correlate with the mental state of patients. Multi-linear regression analysis proves that DING levels in serum are significantly determined by the mental state of patients and COX-2 levels, as well as the age of patients. AUC analysis proves that serum DING could be used as a possible biomarker in serum to discriminate AD patients from both cognitive healthy individuals and especially MCI patients.

Biography

Andreadou Eleni obtained a PhD in Biochemistry at the Biochemistry Laboratory of Chemical Department of Aristotle University of Thessaloniki. She is quite experienced on various research topics including Alzheimer's disease. She has participated in 5 research programs and she has 11 publications in international journals and 13 participations in conferences. Nowadays she is a postdoctoral researcher in Biochemistry Lab of Chemical Department of AUTH in a research funded by the E Δ BM103 Program (MIS 5047901) co-financed by the European Union (European Social Fund – ESF) and Greek national funds through the Operational Program “Human Resources Development, Education and Lifelong Learning 2014-2020”.

Funding: This research entitled “Investigation study on the contribution of inflammatory bacterial components to Alzheimer's disease” was funded by the E Δ BM103 Program (MIS 5047901) co-financed by the European Union (European Social Fund – ESF) and Greek national funds through the Operational Program “Human Resources Development, Education and Lifelong Learning 2014-2020”.