



# Bacterial constituents as potential biomarkers for Alzheimer's disease and mild

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## Abstract

The association between bacterial infections and Alzheimer's disease (AD) has been reported many times in the last 30 years. The aim of this study was the investigation of the possible lipopolysaccharides' (LPS) involvement, bacterial constituents of the outer membrane of Gram-negative bacteria, in AD. LPS levels were determined in cerebrospinal fluid (CSF) and blood serum (BS) of AD and Mild Cognitive Impairment (MCI) patients, compared to neurologically normal individuals, using indirect ELISA. Specifically, LPS levels were measured in CSF of 54 AD and 47 MCI patients, and in BS of 18 AD and 26 MCI patients, while 23 and 13 neurologically normal individuals, respectively, were used as a control group. In the same study, the inflammatory biomarkers COX-1 and COX-2 and the established biomarkers of AD in CSF, tau and A $\beta$ -42, were also estimated, both in CSF and BS. LPS levels in CSF of AD and MCI patients were increased in comparison with healthy individuals. LPS were additionally found to be raised in BS of AD patients according to healthy donors and MCI patients. LPS were also studied with ROC curves to analyze their possible significance as a biomarker in BS and CSF. Based on this analysis LPS in BS could be proposed as a promising biomarker, able to discriminate AD patients from healthy individuals and MCI patients. Furthermore, LPS levels correlate in a positive manner with COX-1/2 levels in BS and CSF and in a negative manner with the mental state of participants, both in BS and CSF.

## 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 11 participations in conferences. Nowadays she is a postdoctoral researcher in Biochemistry Lab of Chemical Department of AUTH in a research funded by the E $\Delta$ 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”.



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