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Monitoring amyloid beta oligomers in blood for your brain health

Amyloid beta oligomers ($A\beta O$) are the major pathogenic molecules in Alzheimer's disease (AD) and dementia with Lewy body (DLB). Measuring $A\beta O$ levels in plasma was difficult due to the limit of detection and interferences. We developed an atypical ELISA system called, Multimer Detection System (MDS) for measuring $A\beta O$ levels in plasma with spiked synthetic $A\beta$ into both plasmas from AD patients and elderly normal controls. The procedure included an incubation time. For characterizing and correlating $A\beta O$ in blood, MDS measurement of $A\beta O$ was compared with Thioflavin T assay and TEM imaging at various time points. High $A\beta O$ levels were consistently measured in plasmas of AD patients in comparison with plasmas from elderly normal controls. Now, many plasma samples from clinically well-characterized cases of the AD and elderly normal controls were examined, which correlated well with imaging biomarkers of MRI hippocampal atrophy and amyloid PET. The plasma from AD patients was differentiated from that of the age-matched normal controls with high sensitivity and specificity. Therefore, measurement of amyloid beta oligomers in the blood can be performed routinely and a reliable candidate for a blood-based biomarker for diagnosis of the AD and for your brain health.

Biography

Seong Soo Alexander An has completed her Ph.D. from the University of the Carnegie Mellon in Biological Sciences: biochemistry/biophysics and has worked as Assistant, Associate, Full Professor & Dean Adjunct Professor in Gachon Gil Hospital (Gachon Medical Research Institute). His recent Research Experiences are Development of biomarkers for the early neurodegenerative diseases, Understanding the protein folding/misfolding in diseases, Development of the pathogen detections using POCT assays and devices and Development of biodegradable micro/nano scaffolds. He is also one of the active members in American Chemical Society (ACS), American Society of Hematology (ASH), International Society of Thrombosis and Haemostasis (ISTH), Korean Society of Thrombosis and Haemostasis (KSTH), International Society of Fibrinolysis and Thrombolysis (ISFT), Korean Scientists and Engineers of America (KSEA), Alzheimer's Association (AA), Seoul Dementia Forum.

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