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Korea develops new therapeutic drug for Alzheimer's disease

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It eliminates the inflammatory side effectsÃ¢â?¬â?¹ commonly associated with such drugs



Although Aduhelm, a monoclonal antibody targeting amyloid beta (A?), recently became the first US FDA approved drug for Alzheimer's disease (AD) based on its ability to decrease A? plaque burden in AD patients, its effect on cognitive improvement is still controversial.

Moreover, about 40% of the patients treated with this antibody experienced serious side effects including cerebral edemas (ARIA-E) and hemorrhages (ARIA-H) that are likely related to inflammatory responses in the brain when the A? antibody binds Fc receptors (FCR) of immune cells such as microglia and macrophages.

To overcome these problems, a team of researchers at KAIST (Korea Advanced Institute of Science and Technology) in South Korea has developed a novel fusion protein drug, ?A?-Gas6, which efficiently eliminates A? via an entirely different mechanism than A? antibody-based immunotherapy. In a mouse model of AD, ?A?-Gas6 not only removed A? with higher potency, but also circumvented the neurotoxic inflammatory side effects associated with conventional antibody treatments.

"We believe our approach can be a breakthrough in treating AD without causing inflammatory side effects and synapse loss. Our approach holds promise as a novel therapeutic platform that is applicable to more than AD. By modifying the target-specificity of the fusion protein, the Gas6-fusion protein can be applied to various neurological disorders as well as autoimmune diseases affected by toxic molecules that should be removed without causing inflammatory responses", said the researchers.