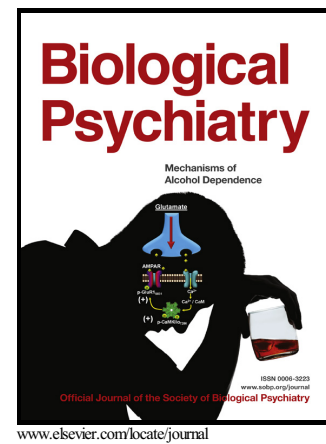


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Apolipoprotein E, Receptors and Modulation of Alzheimer's Disease

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***TITLE PAGE*****Apolipoprotein E, Receptors and Modulation of Alzheimer's Disease**Na Zhao<sup>1</sup>, Chia-Chen Liu<sup>1</sup>, Wenhui Qiao<sup>1</sup>, Guojun Bu<sup>1,2\*</sup>**(Short title: ApoE, Receptors and Modulation of AD)**<sup>1</sup>Department of Neuroscience, Mayo Clinic, Jacksonville, FL, 32224, USA<sup>2</sup>Fujian Provincial Key Laboratory of Neurodegenerative Disease and Aging Research, Institute of Neuroscience, College of Medicine, Xiamen University, Xiamen, Fujian, 361005, China

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**Keywords:** Apolipoprotein E; low-density lipoprotein receptor family; Alzheimer's disease; amyloid- $\beta$ ; tauopathy; synaptic plasticity.

***ABSTRACT:***

Apolipoprotein E (apoE) is a lipid carrier in both periphery and the central nervous system (CNS). Lipid-loaded apoE lipoprotein particles bind to several cell surface receptors to support membrane homeostasis and injury repair in the brain. Considering prevalence and relative risk magnitude, the  $\epsilon 4$  allele of the *APOE* gene is the strongest genetic risk factor for late-onset Alzheimer's disease (AD). ApoE4 contributes to AD pathogenesis by modulating multiple pathways including but not limited to the metabolism, aggregation, and toxicity of amyloid- $\beta$  (A $\beta$ ) peptide, tauopathy, synaptic plasticity, lipid transport, glucose metabolism, mitochondrial

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