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Treating Alzheimer's disease model mice with traditional chinese medicine

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Accumulating evidences indicate a reduced cerebral blood flow and enhanced neuroinflammation in Alzheimer's disease (AD). These alterations may occur at an early stage of AD and have significant impact on the pathogenesis and pathological progression of AD. Thus, reversing these changes may have therapeutic potentials. In this study, we tested traditional Chinese medicine (XST) that has been used to increase brain blood flow and altering inflammatory responses in human, by treating APP/PS1 AD model mice. After systemic injection of XST for 30 days, AD mice showed better performance on rotarod and Morris water maze, suggesting improved motor and spatial learning and memory functions. Reduced density of amyloid plaques were seen in XST-treated AD mice in fixed brain section and two-photon time lapse imaging of the same plaques over 15 days revealed reduced plaque size in XST-treated AD mouse brain. In addition, synapse density in the immediate vicinity of plaques was increased, suggesting enhanced synaptic function. Imaging of cerebral blood flow in the same micro-vessels during a 15 day period demonstrated enhanced blood flow in XST-treated AD mice. The above results suggest that targeting multiple mechanisms, such as cerebral blood flow, could be an effective strategy in treating AD.

Biography

Qiang Zhou is a Professor of Chemical Biology and Biotechnology at Peking University Shenzhen Graduate School. He was trained as an Electrophysiologist and Neuroscientist. His research has evolved from studies in ion channels and receptors, to synaptic transmission and plasticity and further to neural network and behavioral analysis. His expertise also includes fluorescence imaging techniques and molecular biology approaches and he is one of the world's leading experts in combining electrophysiological recording with real time fluorescence imaging. He has worked in both academia and pharmaceutical industry. He is presently focusing on elucidating mechanisms underlying major central nervous system diseases (Alzheimer's disease, depression and schizophrenia) for new therapeutic interventions and prevention.

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