Beta-Hydroxybutyric acid

The ketone bodies, especially the beta-Hydroxybutyric acid, had been shown to modulate the function of the central nervous system and prevent the pathological progression of Alzheimer's disease (AD). However, little is known about the role of acetoacetate in the AD brain. Thus, Wu et al. intraventricularly injected acetoacetate into familial AD mice (APPSWE) for 14 days and monitored their memory and biochemical changes. During the behavior test, acetoacetate at 100 mg/kg led to significant improvement in both Y-maze and novel object recognition tests (NORTs) (both $P < .05$), indicating ameliorating spatial and recognition memory, respectively. Biomedical tests revealed two mechanisms were involved. Firstly, acetoacetate inhibited the GPR43-pERK pathway, which led to apparent inhibition in tumor necrosis factor-α and Interleukin-6 expression in the hippocampus in a concentration-dependent manner. Secondarily, acetoacetate stimulated the expression of hippocampal brain-derived neurotrophic factor (BDNF). They concluded that acetoacetate could ameliorate AD symptoms and exhibited promising features as a therapeutic for AD [1)].

Pending classification

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