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Preclinical drugability studies of the candidate drug DL0410 for anti-Alzheimer's Disease

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Alzheimer's disease (AD) treatment is a worldwide difficult problem, since the therapeutic effect of the present anti-AD drugs are not very ideal, and the development of new drugs is still facing various dificulties. DL0410, which is a candidate drug targeting multi-target, is undergoing a systematic preclinical studies, incluing pilot-scale synthesis, crystal polymorphism and bioavailability evaluation, preparation formulation, quality control, stability studies, pharmadynamics, action mechanisms, pharmacokinetics and safety evaluation. Compared with the clinical first-line anti-AD drugs, such as Donepezil and Rivastigmine, its advantages lie in the following aspects. Firstly, DL0410 displays stronger efficacy, and possesses polypharmacology features. It can regulate not only the balance of cholinesterases, improve the function of cholinergic system, but also acetylcholine mediated ion channel receptor α7nAChR. Meanwhile, it can not only block a lot of neuropathies caused by various pathogenic factors including Aβ aggregation, oxidation stress and inflammatory factors, but also increase the long term potential to improve the ability of memory and learning. The studies to explain these bioactivities and reveal their relationship will be performed in the future. Secongdly, DL0410 is very safe. The acute toxic effect of oral administration in mice showed its LD50 as 977 mg/kg, while its optimal effective dose is around 3~10 mg/kg, so its therapy index is more than 97.7. Thirdly, DL0410 without choral atom is easily synthesized and cheap. It can be widely used in clinic after the approval for AD treatment. In conclusion, DL0410 is a promising candidate for the future AD treatment.

Biography

Ai-Lin Liu has completed her PhD in 2009 from the University of Macau. She has engaged in anti-AD drug discovery and mechanism researh, anti-influenza drug discovery and mechanism research, drug informatics and computational pharmacology for more than 10 years. She has published more than 50 papers in the international reputed journals, applied more than 10 patents and obtained 4 prizes for her outstanding scientific research.

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