

MEETING ABSTRACTS

ALKALOIDS DERIVED FROM TRADITIONAL CHINESE MEDICINE ARE INHIBITORS FOR INFLAMMATION AND ACETYLCHOLINESTERASE

Xiang P. Kong^{1,3}, **Miranda L. Xu**^{1,2}, **Etta Y. L. Liu**^{1,2}, **Qiyun Wu**^{1,2}, **Tina T. X. Dong**^{1,2},
David C. C. Wan⁴, **Karl W. K. Tsim**^{1,2}

Presenting author: Xiang P. Kong

¹ Shenzhen Key Laboratory of Edible and Medicinal Bioresources, SRI, The Hong Kong University of Science and Technology, Shenzhen, China;

² Division of Life Science, Center for Chinese Medicine, The Hong Kong University of Science and Technology, Hong Kong, China;

³ College of Chinese Medicine, Shanxi University of Traditional Chinese Medicine, Taiyuan 030024, China;

⁴ School of Biomedical Sciences, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, Hong Kong, China

The inhibitors for acetylcholinesterase (AChE), an enzyme hydrolyzing acetylcholine in cholinergic synapses, have been used for the treatment of Alzheimer's disease (AD). Alkaloids inhibiting AChE activity are commonly found in traditional Chinese medicine (TCM), e.g. galantamine from *Lycoris radiata*, berberine from *Coptis chinensis*, huperzine A from *Huperzia serrata*. Many of these alkaloids also show regulatory role on inflammation, including the suppression on neuro-inflammation. Here, we aimed to reveal the possible relationship of these alkaloids in having both anti-inflammation and anti-AChE properties, in particular the role of which in "cholinergic anti-inflammatory pathway (CAP)". A compound database containing 1,500 alkaloids from 113 kinds of TCM was developed. By molecular docking, the database was probed for AChE-inhibitory effect. Over 200 alkaloids showing AChE binding effect were further tested by its activities in inhibition of AChE, as well as in LPS-induced inflammatory responses. Thus, the current results could provide a good foundation for further research and development of TCM alkaloids on AD treatment.

Acknowledgement

This work was supported by Shenzhen Science and Technology Committee Research Grant (JCYJ20160229205726699, JCYJ20160229205812004, JCYJ20160229210027564, CKFW2016 082916015476, JCYJ20170413173747440, ZDSYS201707281432317 and 20170326). Xiang P. Kong hold a postdoctoral funding from Shenzhen municipal government ([2017]1225).