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## **Autophagy alleviates the memory impairment caused by morphine through inflammation suppression in hippocampi of C57BL/6 mice**

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Morphine abuse in treating chronic pain has become a worldwide problem. But repeated morphine exposure can cause memory impairment with its mechanisms not fully elucidated by current researches. Autophagy is an important pathway for cells to maintain survival. Here we show that repeated morphine injection in C57BL/6 mice for 7 days activates autophagic flux mainly in the hippocampi, with subsequent spatial memory impairment confirmed by Morris water maze test. Autophagy inhibition by 3-methyladenine aggravates memory impairment induced by morphine and is correlated with increased cellular apoptosis in the hippocampus. Furthermore, we show morphine suppresses the expression of TNF- $\alpha$ , IL-6 and iNOS, and inhibition of autophagy up-regulates the expression of TNF- $\alpha$ , IL-1 $\beta$ , IL-6 and iNOS, as well as NF-kappaB's activation. Taken together, our data indicates that autophagy canal leviate the memory impairment caused by morphine through inflammation suppression in hippocampi of C57BL/6 mice.

### **Biography**

Ying Peng has completed his PhD from School of Medicine, Sun Yat-Sen University, Guangzhou, China and finished his Postdoctoral training in National Cancer Institute- at Frederick, NIH, MD, USA. He is a Director and Professor of Department of Neurology, Sun Yat-Sen Memorial Hospital, SunYat-Sen University. As a clinical neurologist, he has published 88 papers in reputed journals and is serving as an Associate-Editor-in-Chief of "*Chinese Journal of Nervous and Mental Disease*". He is the Deputy-Chief of Neuropharmacological Association of Guangdong province, and Deputy-Chief of Neurological division of Doctor Association of Guangdong province, China.

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