Title: Effects of propofol on Ang II-increased NADPH oxidase activity and reactive oxygen species formation in cardiac fibroblasts

Authors: 黄家乐 **Kar-Lok Wong MD, PhD**[1,2,3] 苏翔 Edmund C So MD [4]
张家升 Chia-Sheng Chang MD [1] 吴世铨 Rick SC Wu MD [1,3]
郑志鸿 Tzu-Hurng Cheng PhD [5]

Institute: 1. Dept. of Anesthesiology, China Medical University & Hospital, Taichung, Taiwan 台湾台中中国医药大学暨附设医院麻醉部
2. Institute of Medical Sciences, China Medical University, Taichung, Taiwan 台湾台中中国医药大学医学研究所
3. Research Unit of Shock and Trauma Center, China Medical University, Taichung, Taiwan 台湾台中中国医药大学休克及急诊加护医学中心研究组
4. Department of Anesthesia, Chi-Mei Medical Center, Tainan, Taiwan 台湾台南奇美医院麻醉科暨成功大学基础医学研究所
5. Dept. of Biological Science and Technology, China Medical University, Taichung, Taiwan 台湾台中中国医药大学生物科技系

Aims: In our previous report that propofol could inhibited cardiac fibroblast proliferation. However, the intracellular mechanism of propofol still remains unclear. The aims of this study were to test the anti-oxidative influence of propofol on Ang II-increased NADPH oxidase activity and reactive oxygen species (ROS) formation in cardiac fibroblasts

Methods: Cultured cardiac fibroblasts were exposed to Ang II in the presence of propofol. The NADPH oxidase activity in human endothelial cells was measured by NADPH oxidase assay(*Am J Physiol Heart Circ Physiol* 2004;**287**:H1254). Superoxide was measured by lucigenin-amplified chemiluminescence. The level of ROS are measured using as previously.(*J Mol Cell Cardiol*33:1805-14) The DCF level in cardiac fibroblasts were also measured by Flow cytometric histogram. The p value less than 0.05 were considered significant(ANOVA).

Results: Pretreatment of cultured cardiac fibroblasts with propofol (10 μ M) significantly inhibited Ang II-induced NADPH oxidase activity, superoxide formation, and ROS formation as measured after Ang II treatment. These findings support that propofol inhibited Ang II-increased NADPH oxidase activity and intracellular ROS levels in cardiac fibroblasts

Discussion: Propofol could significantly decreased Ang II-induced intra-cellular ROS formation in Ang-II stimulated cardiac fibroblasts which possessing an anti-proliferative effect. These results indicated that beside the anti-hypertensive effect, propofol also possess an anti-proliferative activity and may have much therapeutic potential in cardio-vascular diseases.