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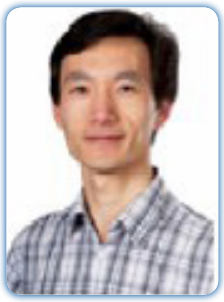

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Old drug new tricks: Berberine in myocardial infarction

Berberine, an isoquinoline alkaloid extracted from barberry, has a long history in Chinese herb medicine for its anti-inflammatory and anti-oxidant activities. However, the poor solubility and the short half-life in the circulation have impeded the clinical use of berberine. Pretreatment with long-term administration of high doses of berberine has shown beneficial effects in both experimental animal models and clinical trials in patients with congestive heart failure. Congestive heart failure is a severe heart condition with insufficient pump of blood from the heart. About half of congestive heart failure is caused by myocardial infarction. Myocardial infarction is the most common cause of death in heart failure. Despite the reduction in early mortality from myocardial infarction in the last 30 years attributed to advanced treatment including angioplasty, stenting and adjunctive drug therapy, the prognosis remains poor. Therefore, seeking new drugs as well as improvement in drug delivery for myocardial infarction is becoming critical. Given the evidenced treatment efficacy of berberine in cardiovascular disease and its limitation in clinical application due to its chemical property, we have recently developed a new formulation by encapsulation of berberine into long-circulating liposomes. Intriguingly following an intravenous injection in a myocardial infarction animal model, these nanoparticles specifically target the injured heart tissue. More importantly, this nanoformulation significantly improves the therapeutic availability and treatment efficacy of berberine. Following clinical studies are guaranteed to prove the benefit of liposomal beberine in the patients suffering myocardial infarction.

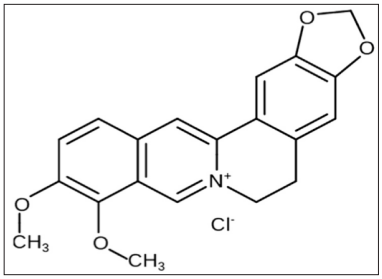

Figure-1: Molecular structure of berberine chloride.

Biography

Jiong-Wei Wang is currently a Faculty Member and Principle Investigator in the Department of Surgery at Yong Loo Lin School of Medicine and Cardiovascular Research Institute at National University Heart Centre of Singapore. He has obtained his PhD in Medicine from Leiden University Medical Centre, Netherlands. He has completed his Post-doctorate training in the Department of Cardiology, University Medical Centre Utrecht from 2012 to 2013 and in the Department of Surgery at National University of Singapore from 2013 to 2016. His research focuses on the immunology and drug delivery in cardiovascular disease.

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