

Therapeutic effect of marine natural compound WHW-1 on neuropathic pain behavior and wound healing in Streptozocin induced Diabetic Rats

Wei-Hao Wu(吴唯豪), Jyh-Horng Sheu (許志宏), Zhi-Hong Wen (溫志宏)*

Department of Marine Biotechnology and Resources, National Sun Yat-sen University

Diabetes mellitus is a group of metabolic diseases in which a person has high blood sugar. All forms of diabetes increase the risk of long-term complications, and two major complications are neuropathic pain and ulcers. From preliminary screening, we had found that WHW-1, a natural marine compound isolated from the coral, is a potential anti-inflammatory compound that significantly inhibits the expression of the pro-inflammatory proteins in LPS-stimulated RAW 264.7 macrophage cells. We use streptozotocin (STZ), a common tool to induce diabetes to study diabetes-induced complications including diabetic peripheral neuropathy (DPN) and deficient wound healing. In the present study, we observed that a single intrathecal administration of WHW-1 (10 ~20 μ g) attenuated diabetic induced pain behavior (mechanical allodynia, cold allodynia, and tail flick) 9 weeks post STZ induced. In our previous study found WHW-1 has anti-inflammatory activities *in vitro*, therefore we consider WHW-1 as a potential compound for diabetic wound. In the present study we demonstrated that WHW-1 has the ability to improve wound healing in STZ-induced diabetic rats. Our results indicate that WHW-1 is a potential anti-neuropathic pain and wound healing agent in diabetics.