The anti-nociceptive properties of marine-derived compound MWH-16 in carrageenan-induced inflammatory rat model

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Earlier in our laboratory, the marine-derived compound MWH-16 has shown *in vitro* anti-inflammatory activity by *in-vitro* screening system. The carrageenan-injected paw in rats is commonly used to produce paw edema and inflammatory pain behaviors, which could be evaluated by paw edema assay and behavioral testing. We demonstrated the analgesic and anti-inflammatory activities of intraperitoneal (i.p.) MWH-16 similar to those of diclofenac, a positive control, in carrageenan-injected rats: anti-thermal hyperalgesia, anti-mechanical allodynia, anti-cold allodynia, anti-weight-bearing deficits, and anti-edematous effects. I.p. MWH-16 also significantly inhibited carrageenan-induced spinal neuroinflammation, upregulation of astrocyte immunohistochemical activation marker (glial fibrillary acidic protein (GFAP)), phosphorylation of p38, and interleukin-1β (IL-1β). Furthermore, post-intrathecal injection of MWH-16 exerted analgesic effects, which lasted longer than diclofenac, in carrageenan-injected rats. The present study showed that MWH-16 significantly produced analgesic and anti-inflammatory effects in carrageenan-induced inflammatory rat model. The detailed spinal mechanism regarding the modulation effects of i.t. MWH-16 on carrageenan-induced inflammatory pain require further investigation.