The Marine Derived Histone Deacetylase Inhibitor (PYC001) in a Rat Model of Neuropathic Pain

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Abstract：

Neuropathic pain is usually due to nerve damage, which is characterized by hypersensitivity to painless stimulation of the pain. Neuropathic pain syndromes are usually accompanied by hyperalgesia and allodynia, but the mechanisms by which neuropathic pain pathogenesizes remain poorly understood, and clinical drugs for the treatment of neuropathic pain syndromes are usually unsatisfactory. Therefore, the mechanisms of neuropathic pain need further investigation, and a novel compound effective treatment of the diseases is urgently needed. A number of experimental studies have documented that nerve injury up-regulates the levels of histone deacetylases (HDACs), resulting in decreased histone acetylation that correlates to an induction of pain. According to the previous results of our lab, we find HDAC class I and II mRNA expressions in neuropathic pain. Therefore, we choose the broad-spectrum HDAC inhibitor, PYC001, to treat neuropathic pain. PYC001, a marine derived nature compound, significantly attenuates mechanical allodynia and thermal hyperalgesia induced by chronic constriction injury (CCI) in rats. PYC001 could have potential to develop into a new medicine to treat neuropathic pain.

Keywords：chronic constriction injury (CCI); neuropathic pain; Histone deacetylase (HDAC)