HISTONE DEACETYLASE 6 INHIBITORS AND METHOD FOR TREATING NEUROPATHIC PAIN

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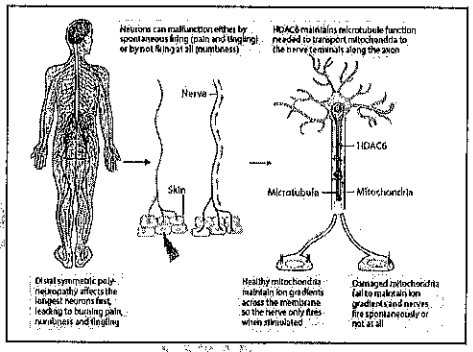

Experience:

2018/08-current, Professor, NTU

Market Needs:

The prevalence of neuropathic pain is between 6.9% and 10%. Neuropathic pain which is defined as pain caused by a lesion or disease affects the somatosensory system and is characterized by spontaneous pain, hyperalgesia and allodynia. It is usually caused by nerve damage after nerve surgery, diabetic neuropathy, post-herpetic neuralgia, cancer-induced neuropathy or chemotherapy-induced neuropathy. According to COHERENT MARKET INSIGHTS, the global neuropathic pain market is estimated to account for 9.86 billion USD by the end of 2027. Moreover, increasing geriatric population is also expected to aid in growth of the market. Since there is no single mechanism of all neuropathic pain, the efficacy of current drugs still needs to be improved.

Our Technology:

MPT0G211 is a highly selective HDAC6 inhibitor, it exhibited highly (more than thousands-fold) HDAC6 selectivity than other HDAC isoforms; it was much potent than ACY-1215 (dozens of times selectivity), the only HDAC6 inhibitor which was undergoing phase II clinical trial. In vitro results demonstrated that MPT0G211 significantly reduced inflammatory response in neuronal cells. Moreover, MPT0G211 provided great benefits to reverse chemotherapy-induced neuropathy in animal study.

Strength:

Four non-selective HDAC inhibitors are approved by US FDA; however, these drugs have been found several cardiovascular side effects. The target of HDAC6 are non-histone protein, and recent study indicates mice lacking HDAC6 survive well and develop normally. Furthermore, the safety pharmacology data showed that MPT0G211 had no significant effect on three vital system, including CNS, CVS and respiratory. There is no selective HDAC6 inhibitor in the market, compared to other potential competitors, MPT0G211 showed better efficacy and selectivity, which make it has a chance to become the first-in-class drug.

Competing Products:

ACY-1215 (develop by Celgene) is the only HDAC6 inhibitor in phase II clinical trial for multiple myeloma treatment. ACY-1215 also has another phase II clinical trial for diabetic peripheral neuropathy (develop by Regenercy Pharmaceuticals).

Intellectual Properties:

(1) Taipei Medical University filed patents in Taiwan (109124709) and PCT (PCT/CN2020/103388) in July 2020.

(2) We have not published our results under any circumstances.

(3) Our team members have filed several patents before; we have accumulated considerable experiences.

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