

***Preclinical Evaluation of Analgesia Mediated by a Novel Muscarinic M4 Positive Allosteric Modulator***

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The chronic pain and opioid epidemics have created an urgent need for effective, non-opioid analgesics. Prior animal and human research suggests that the cholinergic system (neurons activated by the neurotransmitter acetylcholine) could be a promising target for novel drugs. Specifically, drugs that act on muscarinic acetylcholine receptors (mAChRs) may relieve pain. Unfortunately, many of the drugs tested cause cardiovascular and digestive side effects. Subsequent animal studies identified a specific subtype of mAChR, M4, that was responsible for analgesia but not for adverse side effects. My study investigates the analgesic potential of a novel drug that acts specifically on M4 muscarinic acetylcholine receptors. I will test this drug's effect in mouse models of inflammatory and neuropathic pain. The long-term objective of this study is to support future development of novel analgesics acting at M4 receptors.