Joint Event

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Development of GPR183 antagonists as Non-Opioid analgesics

Abstract:

Neuropathic pain condions arising from nervous system injuries due to trauma, disease (i.e., diabetes) or neurotoxins (i.e. chemotherapy) are severe, debilitang and difficult to treat. Opioids are widely used to treat chronic pain but limited by severe side effects and strong abuse liability. With over 15-20 million people in the US suffering neuropathic pain and a profound annual economic burden for treatment, there is a high priority for developing novel non-opioid based analgesics. Using unbiased analyses of a rodent model of traumac nerve-injury induced neuropathic pain, our collaborators have found significant increases in several orphan G-protein coupled receptors (GPCRs). We have begun drug discovery efforts on one of these receptors, GPR183. Using a virtual screening approach, we have discovered several novel GPR183 antagonists which inhibit pain in vivo and have begun structureacvity-relaonship studies on them.

Biography

Since starting my own laboratory, my research focus has been on developing small molecules for several key protein targets centering on cancer and stem cell biology. I have been working independently on the G protein estrogen receptor (GPER) since graduate school and my lab is beginning to develop small molecule libraries targeting the receptor. The main focus for the project is elucidating the binding pocket, and exploiting it to develop treatments for several disease states. Specifically, we are working on cancer models and gallstone disease models to validate the utility of targeting GPER.