TECHNOLOGY

CONTACT: **ipm@innovatecalgary.com** • 403.284.6400

Novel Inhibitors of T-type Calcium Channels for the Treatment of Neuropathic and Inflammatory Pain

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Background

Researchers at University of Calgary and University of Montana have synthesized **novel compounds capable of treating neuropathic and inflammatory pain** by inhibiting Cav3.2 ion channels.

Low-voltage-activated (T-type) calcium channels, specifically Cav3.2, are key mediators in pain signaling. As such there is great interest in identifying selective inhibitors of these channels to treat pain.

The newly discovered compounds **potently inhibit Cav3.2** and mediate analgesic effects in *in vivo* mouse models of neuropathic and inflammatory pain.

In addition to their use for treating pain, the new molecules may also be used to treat other disorders that are associated with hyperactivation of Cav3.2 channels. These include epilepsy, Parkinson's disease, and cardiac hypertrophy

Areas of Application

- Treatment of neuropathic and inflammatory pain
- Treatment of other diseases associated with hyperactivation of Cav3.2 - epilepsy, Parkinson's disease, cardiac hypertrophy, tactile allodynia, diabetic neuropathy, and chemotherapeutic induced neuropathy

Competitive Advantages

- Selectively inhibits Cav3.2 receptors without affecting cannabinoid receptors
- Potent analgesic effects

Stage of Development

- Developed a series of compounds that are able to selectively inhibit Cav3.2
- Tested efficacy in mouse models of neuropathic and inflammatory pain

Intellectual Property Status

- Provisional patent on composition and use of the compounds filed October 2014

Publications

Characterization of novel cannabinoid based T-type calcium channel blockers with analgesic effects. Chris Bladen, Steven W McDaniel, Vinicius M Gadotti, Ravil R. Petrov, N. Daniel Berger, Philippe Diaz, and Gerald Zamponi. ACS Chemical Neuroscience. 2014. DOI: 10.1021/cn500206a